SP MANWEB

Reinforcement to the North Shropshire Electricity Distribution Network

Deadline 2 Submission

Application Reference: EN020021

SP Manweb's Responses to the Examining Authority's First Written Questions - Supporting Information

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Supporting Information

April 2019
PINS Reference EN020021

QA Box

Author			**SP Manweb**
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CONTENTS

ANNEX A – TRIDENT DESIGN (Q1.02)

Find the overhead line. By looking closely at this picture you will be able to pick out MANWEB's new "low profile" 132 kV overhead line mounted on the Trident II pole. When this picture was taken the line was new and the aluminium stood out in the sunlight, but when it has weathered, the line will be even more difficult to see.

"Low profile" overhead line sets new standards

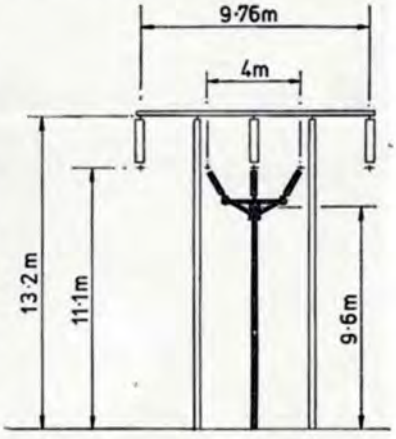
MANWEB DESIGN FIRST IN BRITAIN

A NEW "low profile" 132,000-volt overhead line designed by MANWEB is likely to set new standards for such lines, not only in our area but throughout the Country and probably much further afield. The first permanent operational line of this new design erected in Britain is an eight kilometre section to supply the Shell oil site at Rhosgoch, Anglesey.

The new design, known as "Trident II," is the work of Mr. Mike Hughes, of the Head Office Plant and Equipment Section.

It is based on a single wood pole, average height 12 metres, in place of the more expensive and complex designs previously employed. The result is an overhead line which is much less obtrusive, an especially important point in areas of natural beauty, and also a good deal more economic.

This new concept in 132-kV lines has been made possible by the recently developed TDL Polymeric line post insulators, which have a strength to weight ratio approximately three times that of traditional porcelain insulators. As a result it is no longer necessary for the conductors to be suspended, but can now be supported from below. The use of fixed post insulators reduces the conductor spacing requirements, as no allowance need be made for insulator swing. This feature in itself allows the construction to be based on single poles instead of "H" pole Portal structures with the appropriate overall reduction in support sizes.



Here we see the difference in height and width of the old "H" pole Portal structure with its suspended conductors and the new Trident single pole with its conductors supported from below.

The new idea has, however, posed problems as well as solving some and new techniques have had to be worked out by the close collaboration between the Plant & Equipment Section and the Construction Department's Special Projects team, led by Mr. Geoff Price.

The use of post insulators of a completely new design created difficulties in providing conductor running facilities and conductor clamping arrangements. Both these difficulties were resolved by the provision of equipment and materials specifically designed for the purpose. However, not least of the problems was the provision of a safe working arrangement for the linesmen at the line end of the insulators. The traditional linesman's belt was rendered ineffective by the way in which the insulators are inclined away from the cross-arm ends, making it impossible for him to be supported by his safety belt when working.

The solution was to provide a rope enclosure across the insulator ends. The materials used for this purpose came from equipment developed by the rock climbing fraternity, who are specialists in making themselves safe in near impossible situations.

MANWEB site engineer, Ken Jones, paid a visit to Joe Brown's Climbing Shop in Llanberis, and came away with an assortment of nylon rope and "karabiners" — metal spring clips — etc., which were soon improvised into an effective safety harness enabling linesmen to work effectively, with proper protection when leaning out in space at the ends of the crossarms.

An improved method of "conductor sagging" was also developed with a new procedure for landing the conductor and insulators which was able to take advantage of the new type insulator's light weight. Ken is now of the opinion that the new design can be erected as easily as can the 33,000-volt overhead lines.

Without doubt the new design is another notable MANWEB "first," helping to preserve the beauty of the countryside, and at the same time saving money. Great interest has been shown by other Area Boards which have sent representatives to see the new project for themselves.

Inside a safety rope enclosure, the linesman demonstrates the ease of working on the line end of one of the outside insulators. Below, *without crash helmets as this was a posed-for picture*, **are Messrs. Mike Hughes, Arthur Perry** (*Asst. Chief Engineer, Construction*), **Des Wallin** (*Murphy's*), **Ken Jones and Geoff Price.**

VISITORS TO RHOSGOCH

Many engineers from other Boards have already visited the site of the new overhead line at Rhosgoch and *below* **we see specialists with some of our own staff including Messrs. M. A. Garrett** (*Asst. Chief Engineer, Plant and Equipment*), *fifth from right*, **and T. H. Garmory** (*Principal Engineer*), *extreme right*. **Our visitors were very impressed with the engineering of this line both in design and construction.**

ANNEX B – (Q6.01)

Schedule showing which of the 43 access points and 7 temporary laydown areas identified in the Transport and Highways Technical Note [APP-032] have been agreed with the land owners.

Schedule - Construction Access/Temporary Laydown Area Consent Update (April 2019)							
Construction Access Number	Road Access	Access Description	Landowner	Tenant	Verbal Approval	Heads of Terms signed	Option Agreement Completed
AC1	B4580	Private access into Oswestry Grid Sub-Station via public highway, then running along a clearing through trees with UG cable route to HDD location	SP Manweb	None	Yes	N/A	N/A
			Shropshire CC	None	Yes	No	No
AC2	A5	Shared private access gate off the public highway (A5), which will require the gate widening/impoved. The access will run through a temporary lay down area and around the perimeter of a pasture field.	Brian Radford	None	Yes	Yes	No
LD1	A5	East of the A5(T) near Long Wood at Middleton Laydown area to be used for storage of equipment for both the underground cable section, overhead line and access to horizontal directional drill area.	Brian Radford	None	Yes	Yes	No
AC3	Middleton Road	Private access gate off public highway, then via private farm access tracks and along the perimeter of arable fields	Robert Parker	None	Yes	No	No
LD2	Middleton Road	Between Cabin House and Top House Farm (Middleton) Laydown area for general storage of overhead line apparatus	Robert Parker	None	Yes	No	No
AC4	Middleton Road	Private farm access gate off public highway into pasture field, then via a new routes across 2 pasture fields & along the perimeter of 2 arable fields.	Roger Tomley	None	Yes	No	No
AC5	Access off unnamed road	Private farm access track direct off public highway, running along exist access tracks through farm buildings and then along the perimeter of arable fields.	Alex Woollam	None	Yes	No	No
AC6	B5009	Private concrete access track direct off public highway to farm yard, then via existing farm tracks and along the perimeter of arable fields.	Philip Jones	None	Yes	No	No

Schedule - Construction Access/Temporary Laydown Area Consent Update (April 2019)							
Construction Access Number	Road Access	Access Description	Landowner	Tenant	Verbal Approval	Heads of Terms signed	Option Agreement Completed
LD3	B5009	Brookfield Farm, at the southern end of Coalpit Lane Laydown area for general storage of overhead line apparatus	Philip Jones	None	Yes	No	No
AC7	B5009	Private concrete access track off public highway into Oil depot, then through a an existing security fence and across a pasture field. NB. Existing fence to be removed and replaced and made secure at night.	Tudor Griffiths	O.T.I.S	Yes	Yes	No
AC8	Berghill Lane	Private access gate off the public highway, then via existing private farm tracks and along the perimeter of pasture fields	Barbara Jones	None	Yes	No	No
AC9	Berghill Lane	Private access gate of the public highway, then along shared farm access tracks and along the perimeter of pasture and arable fields.	Mary Whitticase & Ann Clay	None	Yes	No	No
AC10	Nr Woodhouse Drive	Private farm access track off the public highway, through the farm yard and along existing farm tracks , then along the perimeter of pasture field	Owen Mostyn-Owen	Clifford Royle	Yes	No	No
AC11	Woodhouse Drive	Private farm access track off the public highway, then along the perimeter of pasture and arable fields to the OHL route and across numerous fields.	Owen Mostyn-Owen	None	Yes	No	No
AC12	Woodhouse Drive	Private farm access track off the public highway, then along the perimeter of pasture and arable fields.	Owen Mostyn-Owen	None	Yes	No	No
AC13	Unnamed Road	Private farm access gate direct off public highway, then through a pasture field within the red line boundary/route to the West, adjacent to Misty Meadows.	Owen Mostyn-Owen	None	Yes	No	No

Schedule - Construction Access/Temporary Laydown Area Consent Update (April 2019)							
Construction Access Number	Road Access	Access Description	Landowner	Tenant	Verbal Approval	Heads of Terms signed	Option Agreement Completed
AC14	Unnamed Road	Private farm access track direct off the public highway, then along the perimeter of arable fields.	Owen Mostyn-Owen	Robert Faulkner	Yes	No	No
AC15	Sycamore View	Field access direct off public highway, then along the perimeter of two arable fields.	Edward Jones	None	Yes	No	No
			Edward Wigley	None	Yes	No	No
AC16	Sycamore View	Access direct off public highway, into private driveway, then splitting off through gate into pasture field and through the main farm using mainly existing tracks and along field boundaries.	Edward Wigley	None	Yes	No	No
LD4	Sycamore View	Dandyford Farm near Lower Hordley Laydown area for general storage of overhead line apparatus	Edward Wigley	None	Yes	No	No
AC17	Unnamed Road	Private field access gate direct off public highway, then along the perimeter of an arable field to the OHL route.	Edward Jones	None	Yes	No	No
AC18	Unnamed Road	Private field access gate direct off public highway, then along the perimeter of an arable field	John James	None	Yes	Yes	No
AC19	Unnamed Road	Private field access gate direct off public highway, run across the pasture field, through another existing access gate and around the perimeter of a 2nd pasture field to the OHL route.	Barbara Manford	None	Yes	Yes	No
AC20	Opposite Reynolds Cottage	Private field access gate direct off public highway, then along the perimeter of an arable field to the OHL route.	John James	None	Yes	Yes	No

Schedule - Construction Access/Temporary Laydown Area Consent Update (April 2019)							
Construction Access Number	Road Access	Access Description	Landowner	Tenant	Verbal Approval	Heads of Terms signed	Option Agreement Completed
AC21	Unnamed Road	Private access direct off public highway into a concrete driveway and existing farm private access tracks. The access then splits off to run along the perimeter of fields to the OHL route.	Julian & Robert Bowers	None	Yes	Yes	No
LD5	Unnamed Road	Top House Farm Laydown area for genereal storage of overhead line apparatus	Julian & Robert Bowers	None	Yes	Yes	No
AC22	Unnamed Road	Private access gate direct off public highway, onto an existing private farm access track. The access then splits and runs along the perimeter of several arable fields to the OHL route.	Ellesmere Properties	Simon Hudson	Yes	No	No
AC23	Unnamed Road	Private access direct off public highway, onto an existing private farm access track around the farm & residential builings. The access then splits and runs along the perimeter of several arable fields to the OHL route.	Andrew Wrench	None	Yes	Yes	No
AC24	Unnamed Road	Private access direct off public highway, through the farm yard and then along the perimeter of pasture fields to the OHL route.	Peter Bridge	None	Yes	No	No
			John & Karin Heighway	None	TBC	No	No
AC25	Unnamed Road, Leading to A528	Private access direct off public highway, through the farm yard and then along the perimeter of pasture and arable fields to the OHL route. Access will also run through existing field gates onto the neigbours land and back onto the original landowner.	John Dickin	None	Yes	No	No
			Peter Bridge	None	Yes	No	No
AC26	Unnamed Road, Leading to A528	Private access gate into field direct off public highway, then running along the perimeter of an arable field.	David Carr	None	Yes	Yes	No
AC27	A528	Private access track direct off the public highway, then running along the perimeter of an arable field.	David Carr	None	Yes	Yes	No

Schedule - Construction Access/Temporary Laydown Area Consent Update (April 2019)							
Construction Access Number	Road Access	Access Description	Landowner	Tenant	Verbal Approval	Heads of Terms signed	Option Agreement Completed
AC28	A528	Private access gate into field direct off public highway, then splitting off and running around the perimeter of an arable field to OHL route and adjacent field using existing access points into a 2nd arable field and to the OHL route and 11kV diversion.	Andrew Wrench	None	Yes	Yes	No
AC29	Unnamed Road	Private access gate into field direct off the public highway, then run along the perimeter of the arable field to the OHL route.	Andrew Crowther	None	Yes	No	No
AC30	Unnamed Road	Private field access off the public highway, then running along the perimeter of an arable field and around a pond to the OHL route.	David Grocott	None	Yes	No	No
AC31	Unnamed Road	Private field access off the public highway, then running along the perimeter of an arable field to the OHL route.	Andrew Crowther	None	Yes	No	No
AC32	Unnamed Road, Nr Malt Kiln Farm	Private access gate into field direct off the public highway, then run along the perimeter of the pasture field to a split point. One access route runs across the field using previously marked routes to the OHL route.	David Grocott	None	Yes	No	No
AC33	Junction with B4397	Private access gate into field direct off the public highway, then run through the middle of the pasture field, over a drain/bridge to the OHL route.	Alan Peters & Sally Sherburn	None	Yes	Yes	No
AC34	B4397	Private field access gate off the public highway, then running along the perimeter of an arable field and around a pond to the OHL route.	Andrew Crownther	None	Yes	No	No
AC35	B4397	Private access off public highway, through farm yard and then along an existing concrete track and lay down area. Access will run across several pasture fields to the OHL route,11kV diversion and UG cable route. This route will also run to the adjoining landowners field.	Andrew Crowther	None	Yes	No	No
			Robert Kennerley	None	Yes	No	No

Schedule - Construction Access/Temporary Laydown Area Consent Update (April 2019)							
Construction Access Number	Road Access	Access Description	Landowner	Tenant	Verbal Approval	Heads of Terms signed	Option Agreement Completed
LD6	B4397	Coppice Farm, southwest of Loppington Laydown area for general storage of overhead line apparatus	Andrew Crowther	None	Yes	No	No
AC36	B4397	Private residential access drive direct of the public highway, into the garden area. Access through the garden is required to connect a new 11kV UG cable to the existing pole & Tx.	Dorothy Astley	None	Yes	N/A	N/A
AC37	Unnamed Road	Access off public highway into a private road, with shared rights of access, then over a private farm track. Access will then split off, run through 2 access gates and across 2 arable fields and 2 pasture fields.	Richard Williams	None	Yes	No	No
			Neil Brown	None	Yes	Yes	No
			Rachael Shufflebotham	None	Yes	No	No
			Michael Salt	None	TBC	No	No
AC38	Unnamed Road	Private field access gate off the public highway, then running along an established farm track through an arable field to the OHL route. Access will then follow the OHL route until it follows further establish tracks to gain access between fields.	Oakland Farm Eggs Ltd	None	Yes	Yes	No
AC39	Unnamed Road, Opposite Grafton Farm	Access off public highway into a private farm track, then run along the perimeter of a pasture field to the OHL route.	Oakland Farm Eggs Ltd	None	Yes	Yes	No
			Stephen Geary	None	TBC	No	No
AC40	Unnamed Road	Private field access off the public highway, then running through two pasture fields to the OHL route. Access will then be created through a gap in the hedge row between Mr Wellings and The Stokes and run along the OHL route.	David Wellings	None	No	No	No
AC41	Unnamed Road	This access runs along the perimeter of fields and uses existing gateways to access several pasture fields.	Robert Stokes	Roger Ainsworth	No	No	No

Schedule - Construction Access/Temporary Laydown Area Consent Update (April 2019)							
Construction Access Number	Road Access	Access Description	Landowner	Tenant	Verbal Approval	Heads of Terms signed	Option Agreement Completed
AC42	B5063	Access off pubic highway into existing private farm track, then run along the edge of arable fields. The route splits to run into 2 different fields either side of a drainage ditch to the OHL route.	Anthony Rutter	None	Yes	No	No
			Steven Mosley	None	Yes	Yes	No
			Anthony Lay	Rory & John Lay	Yes	Yes	No
			Charles Hawkins	None	TBC	No	No
			Namulas Pension Trustees Ltd	None	TBC	No	No
			Roland Tavernor	None	Yes	Yes	No
AC43	B5063	Access off public highway into existing private access track which runs through the farm to mostly established farm access routes across pasture fields to the OHL route.	Rachael Shufflebotham	Ian Ainsworth	Yes	No	No
LD7	B5063	On the western edge of Wem, in the field south of Wem Substation This Laydown area is the main area which will include welfare facilities and used for genereal storage of overhead line apparatus and all substation works.	Robert Dickens	None	Yes	Yes	No
AC44	B5063	Private access gate direct off the public highway, then follow the fence line across the pasture field and along the perimeter of the field. Run through another gate into the next pasture field, then access will run along the perimeter of this field and use an existing, but overgrown access through a hedgerow to the OHL route.	Robert Dickens	None	Yes	Yes	No

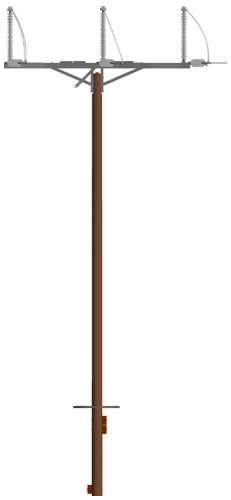
ANNEX C REVISED ILLUSTRATION OF POLE TYPES (Q7.04)

Diagram 3.2 (v2)

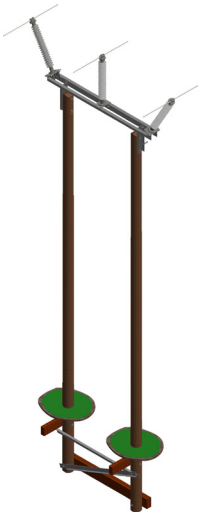
Illustration of different Trident pole types

Intermediate 2.5 arm

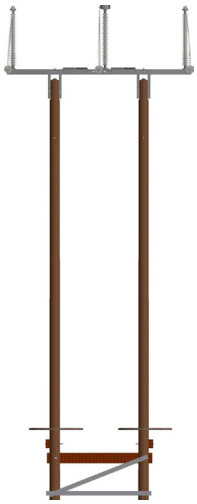
Section Single Pole



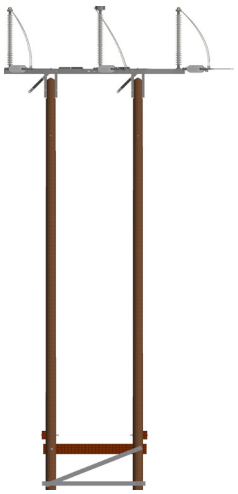
Angle Single Pole



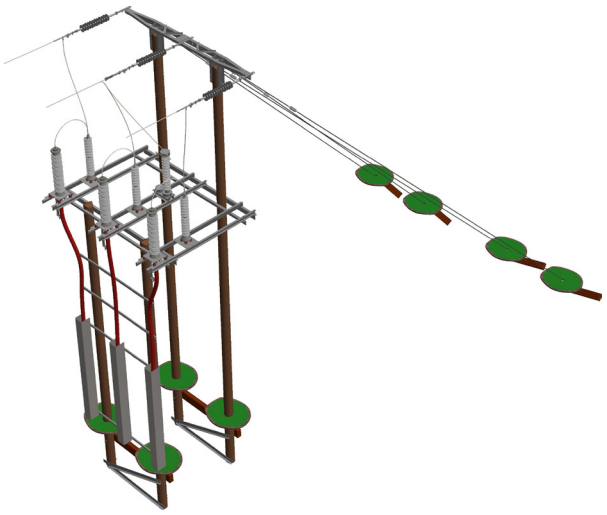
Intermediate H-pole



Section H-pole



Angle H-pole



Terminal H-pole

ANNEX D WIREFRAME ILLUSTRATING POLE 36 AS A TERMINAL H POLE (Q9.02)

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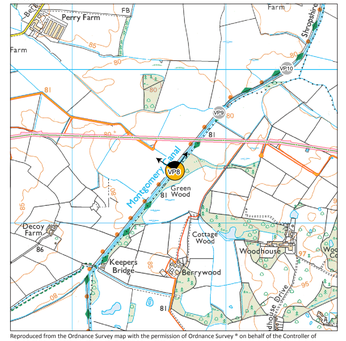
Location Plan



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Horizontal Field of View:	90°
Recommended viewing distance when page printed at 297 x 810mm:	400mm
Camera & Lens:	Canon SLR & 50mm lens

GILLESPIES

Project Title:
Reinforcement to the North Shropshire Electricity Distribution Network

Drawing Title:
Viewpoint 8: View from the Montgomery Canal / The Shropshire Way Trail

Page Size:	Date:	Revision:
841mm x 297mm	23-04-19	002

Created:	Checked:	Approved:
RH	KL	JC

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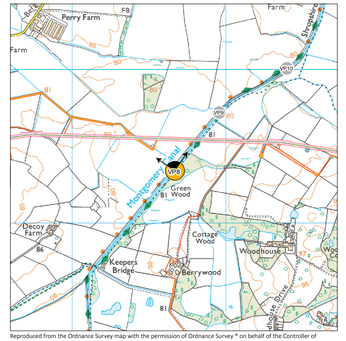
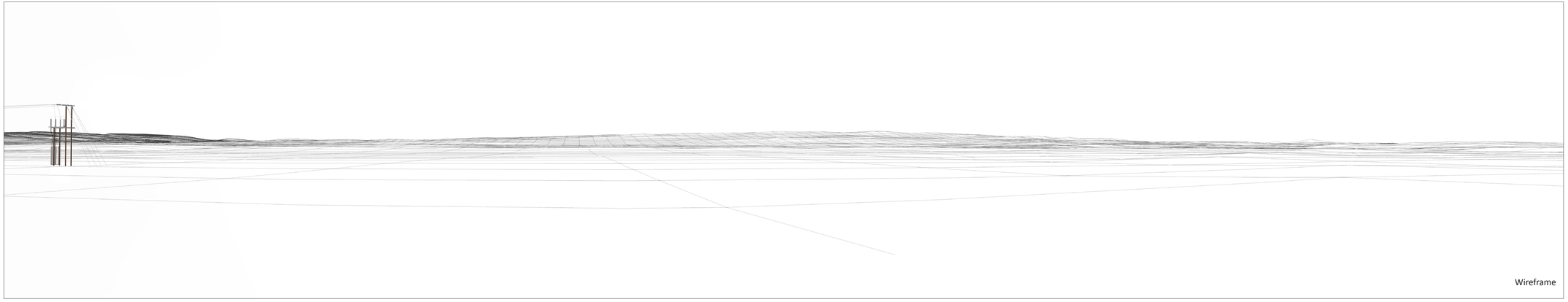
Location Plan





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RH	KL	JC

ANNEX E SCHEDULE OF VIEWPOINTS AND POLE TYPES (Q9.02)

Schedule showing for the Viewpoints illustrated in the Photomontages and Wireframes (DCO Document 6.6.6 (APP-047)) the Pole Types that are visible in the individual wireframes and photomontages.

Viewpoint No.	Poles visible in wireframe	Pole type	Visible in Photomontage	Hidden in Photomontage
Viewpoint 6	17	ANGLE H-POLE		X
	18	INTER 2.5m ARM		X
	19	INTER 2.5m ARM	X	
	20	INTER 2.5m ARM	X	
	21	ANGLE SINGLE	X	
	22	ANGLE H-POLE	X	
	23	INTER 2.5m ARM		X
	24	INTER 2.5m ARM		X
	25	INTER 2.5m ARM		X
Viewpoint 8	36	INTER H-POLE	X	
	37	SECTION SINGLE		X
	38	INTER 2.5m ARM		X
Viewpoint 70 (south-west)	BEFORE THIS POINT THE POLES ARE SO DISTANT THEY ARE INDISCERNIBLE			
	47	INTER 2.5m ARM		X
	48	INTER 2.5m ARM		X
	49	ANGLE H-POLE		X
	50	INTER 2.5m ARM		X
	51	ANGLE H-POLE		X
	52	INTER 2.5m ARM		X
	53	ANGLE H-POLE		X
	54	ANGLE H-POLE		X
	55	INTER 2.5m ARM		X
	56	INTER 2.5m ARM		X
	57	INTER 2.5m ARM		X
	58	SECTION SINGLE		X
	59	INTER 2.5m ARM		X
	60	INTER 2.5m ARM		X
	61	INTER 2.5m ARM		X
	62	INTER 2.5m ARM	X	
	63	INTER 2.5m ARM	X	
	64	ANGLE H-POLE	X	

Viewpoint No.	Poles visible in wireframe	Pole type	Visible in Photomontage	Hidden in Photomontage
	65	INTER 2.5m ARM	X	
	66	INTER 2.5m ARM	X	
	67	INTER 2.5m ARM	X	
	68	SECTION SINGLE	X	
	69	INTER 2.5m ARM	X	
Viewpoint 70 (south-east)	70	INTER 2.5m ARM		X
	71	INTER 2.5m ARM	X	
	72	INTER 2.5m ARM	X	
	73	ANGLE H-POLE		X
	74	INTER 2.5m ARM		X
	75	INTER 2.5m ARM		X
	76	ANGLE H-POLE	X	
	77	INTER H-POLE		X
	78	INTER H-POLE		X
	79	INTER 2.5m ARM		X
	80	INTER 2.5m ARM		X
	81	ANGLE H-POLE		X
	82	INTER H-POLE		X
	83	INTER H-POLE		X
	84	ANGLE H-POLE		X
	85	INTER 2.5m ARM		X
	86	INTER 2.5m ARM		X
	87	INTER 2.5m ARM		X
	88	INTER 2.5m ARM		X
	89	INTER 2.5m ARM		X
	90	INTER 2.5m ARM		X
	91	INTER 2.5m ARM		X
	BEYOND THIS POINT THE POLES ARE SO DISTANT THEY ARE INDISCERNIBLE			
Viewpoint 14 (south-west)	92	ANGLE SINGLE	X	
	93	INTER 2.5m ARM	X	
Viewpoint 14 (south-east)	94	INTER 2.5m ARM	X	
	95	INTER 2.5m ARM	X	
	96	INTER 2.5m ARM	X	
	97	ANGLE H-POLE		X
	98	INTER 2.5m ARM		X
	99	INTER 2.5m ARM		X
	100	ANGLE H-POLE		X
	101	INTER 2.5m ARM		X
	102	INTER H-POLE		X
	103	INTER H-POLE		X

Viewpoint No.	Poles visible in wireframe	Pole type	Visible in Photomontage	Hidden in Photomontage
	104	INTER 2.5m ARM		X
	105	ANGLE H-POLE		X
	106	INTER 2.5m ARM		X
	107	INTER 2.5m ARM		X
	BEYOND THIS POINT THE POLES ARE SO DISTANT THEY ARE INDISCERNIBLE			
Viewpoint 23 (north-west)	121	INTER 2.5m ARM	X	
	122	INTER 2.5m ARM		X
	123	INTER 2.5m ARM	X	
	124	INTER 2.5m ARM	X	
Viewpoint 23 (north-east)	125	SECTION H-POLE	X	
	126	SECTION H-POLE	X	
	127	ANGLE H-POLE	X	
	128	ANGLE H-POLE		X
	129	INTER 2.5m ARM		X
	130	INTER 2.5m ARM		X
	131	INTER 2.5m ARM		X
	132	ANGLE H-POLE		X
	133	INTER 2.5m ARM		X
	134	INTER 2.5m ARM		X
	135	INTER 2.5m ARM		X
	136	INTER 2.5m ARM		X
	137	INTER 2.5m ARM		X
	138	ANGLE H-POLE		X
	139	INTER 2.5m ARM		X
	140	ANGLE H-POLE		X
	BEYOND THIS POINT THE POLES ARE SO DISTANT THEY ARE INDISCERNIBLE			
Viewpoint 72 (south-west)	BEFORE THIS POINT THE POLES ARE SO DISTANT THEY ARE INDISCERNIBLE			
	125	SECTION H-POLE		X
	126	SECTION H-POLE		X
	127	ANGLE H-POLE		X
	128	ANGLE H-POLE		X
	129	INTER 2.5m ARM		X
	130	INTER 2.5m ARM		X
	131	INTER 2.5m ARM		X
	132	ANGLE H-POLE		X
	133	INTER 2.5m ARM		X
	134	INTER 2.5m ARM		X
	135	INTER 2.5m ARM		X
	136	INTER 2.5m ARM		X
	137	INTER 2.5m ARM		X

Viewpoint No.	Poles visible in wireframe	Pole type	Visible in Photomontage	Hidden in Photomontage
	138	ANGLE H-POLE		X
	139	INTER 2.5m ARM		X
	140	ANGLE H-POLE		X
	141	INTER 2.5m ARM		X
	142	INTER 2.5m ARM		X
	143	ANGLE H-POLE		X
	144	INTER 2.5m ARM	X	
	145	INTER 2.5m ARM		X
	146	ANGLE H-POLE		X
	147	INTER 2.5m ARM	X	
	148	INTER 2.5m ARM	X	
	149	INTER 2.5m ARM	X	
	150	ANGLE H-POLE	X	
Viewpoint 72 (south-east)	151	INTER 2.5m ARM	X	
	152	INTER 2.5m ARM	X	
	153	INTER 2.5m ARM		X
	154	INTER 2.5m ARM		X
	155	SECTION SINGLE		X
	156	INTER 2.5m ARM		X
	157	INTER 2.5m ARM		X
	158	INTER 2.5m ARM		X
	159	INTER 2.5m ARM		X
	160	INTER 2.5m ARM		X
	161	INTER 2.5m ARM		X
	162	ANGLE H-POLE		X
	BEYOND THIS POINT THE POLES ARE SO DISTANT THEY ARE INDISCERNIBLE			
Viewpoint 34	BEYOND THIS POINT THE POLES ARE SO DISTANT THEY ARE INDISCERNIBLE			
	151	INTER 2.5m ARM	X	
	152	INTER 2.5m ARM	X	
	153	INTER 2.5m ARM		X
	154	INTER 2.5m ARM		X
	155	SECTION SINGLE	X	
	156	INTER 2.5m ARM	X	
	157	INTER 2.5m ARM		X
	158	INTER 2.5m ARM		X
	159	INTER 2.5m ARM		X
	160	INTER 2.5m ARM		X
	161	INTER 2.5m ARM		X
	162	ANGLE H-POLE	X	
	163	INTER H-POLE	X	
	164	ANGLE H-POLE	X	

Viewpoint No.	Poles visible in wireframe	Pole type	Visible in Photomontage	Hidden in Photomontage
	165	INTER 2.5m ARM	X	
	166	ANGLE SINGLE	X	