APPENDIX 8.5
ADDITIONAL PHOTOGRAPHY FOR VIEWS 1 TO 5 ILLUSTRATING THE CENTRAL HORIZON LINE

APPENDIX 8.5:

Verified View Methodology

Project: Syon Hill Gardens
Date: July 2020

AVR London was commissioned by the client to produce a number of verified views of the proposals for Syonhill Gardens. The AVR positions were identified by Arc Landscape Design and Planning Ltd.

2D plans, Ordnance Survey Mapping, local survey data, and the 3D model for the proposed development were provided by Patel Taylor.

1. Photography

Equipment
Canon 5DMKII / 5DS / 5DSR
Canon TS-E 24mm f/3.5L II
Canon 50mm f/1.4L

1.1 All photography is undertaken by AVR London's in-house professional photographers.

1.2 In professional architectural photography, having the camera level with the horizon is desirable in order to prevent three point perspective being introduced to the image and to ensure the verticals within the photographed scene remain parallel. This is standard practice and more realistically reflects the viewing experience.

1.3 The lens used by the photographer has the ability, where necessary, to shift up or down while remaining parallel to the sensor, allowing for the horizon in the image to be above, below or central within the image whilst maintaining two point perspective. This allows the photographer to capture the top of a taller proposed development which would usually be cropped, without introducing three point perspective.

When the shift capability of the lens is not used the image FOV and dimensions are the same as a prime lens of equal focal length.

1.4 Once the view positions are confirmed by the townscape consultant, AVR London takes professional photography from each location. At each location the camera is set up over a defined ground point using a plumb line to ensure the position can be identified later.

1.5 The centre of the camera lens is positioned at a height of 1.60 metres above the ground to simulate average viewing height. For standard verified photography, each view is taken with a lens that gives a 68 degree field of view, approximately, a standard which has emerged for verified architectural photography. The nature of digital photography means that a record of the time and date of each photograph is embedded within the photo file; this metadata allows accurate lighting timings to be recreated within the computer model.

1.6 Once the image is taken, the photographer records the tripod location by photographing it in position to ensure the position can be accurately located for surveying (figure 1).

1.7 Each image is processed by the photographer to ensure it visually matches the conditions on site when the photograph is taken.

1.8 For 360 degree photography a panoramic head is used to ensure the lens is orientated around the nodal point preventing parallax distortion and an overlap of 33 - 50% is maintained between images to provide adequate control points for stitching. The camera/lens is set up in portrait orientation to provide greater vertical context.

1.9 Night time photography is taken after 'astronomical twilight', officially night, once the sun is 18 degrees below the horizon, to ensure all the images are at the same level of darkness. View positions are visited in daylight before the night photos are taken so the photographer is familiar with the locations and environment. Head torches are often used to ensure safe working. Ground positions are clearly marked by the surveyor (using pins, stakes and UV paint) in daylight before night photography commences. This ensures positions can be identified consistently in the dark by the photographers. GPS is also used if necessary. The photographs are exposed to accurately represent the lighting conditions experienced by the photographer onsite. Stitching of night time 360 degree photography is completed using proprietary stitching software which brightens each image to ensure accuracy of control points before returning it to the original exposure.

Regarding 24mm focal length in an urban environment

1.10 When we observe a scene, we can focus on 6-10degrees, however, without moving our head, the scene beyond is observed using our peripheral vision. Once we move out eyes we can observe almost 180degrees without moving our head. In reality we do not view the world through one fixed position, we move our eyes around a scene and observe, height, width and depth.

This is acknowledged by the Landscape Institute's Technical Guidence Note, Visual Representation of Development Proposals. The appreciation of the wider context seen through peripheral vision or by moving our eyes (changing the focal point) is key to our experience of a scene.

While photography cannot replicate the human experience entirely, it is widely acknowledged that the use of a 24mm lens in an urban environment allows the viewer a more realistic experience than a 50mm lens. For this reason the 24mm lens is used as standard in the creation of urban photo montage as outlined by the London View Management Framework (2012).

POINT ID	EASTING	NORTHING	HEIGHT	VIEW NO.
9	514535.71	178016.25	28.85	VIEW 9
905	514738.62	178133.60	22.27	VIEW 9
906	514686.80	178058.39	23.87	VIEW 9
907	514564.47	178022.55	26.88	VIEW 9
908	514549.35	178016.75	26.21	VIEW 9
909	514567.90	178017.64	26.89	VIEW 9
910	514546.66	178015.01	28.96	VIEW 9
911	514567.96	178009.04	28.99	VIEW 9
912	514544.11	178012.94	27.52	VIEW 9
913	514581.81	177989.47	27.00	VIEW 9

Table 1: Surveying data

Figure 1: Tripod location as documented by photographer

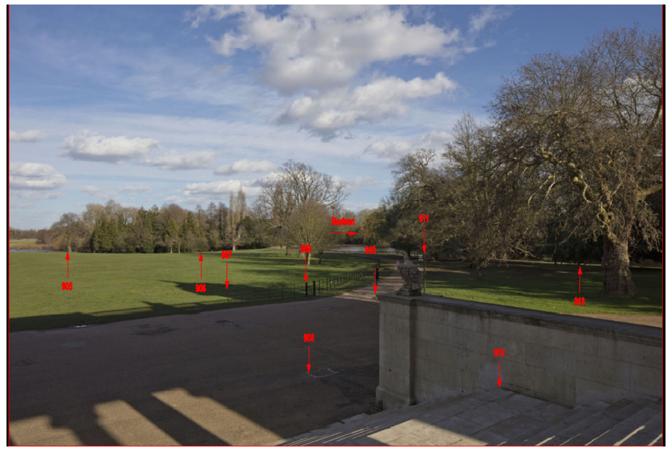

Figure 2: Survey points as highlighted by surveyor

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2. Survey

Equipment

Leica Total Station Electronic Theodolite which has 1" angle measuring accuracy and 2mm + 2ppm distance accuracy.
Leica Smart Rover RTK Global Positioning System.
Wild/Leica NAK2 automatic level which a standard deviation of +/- 0.7mm/km

2.1 The photographer briefs the surveyor, sending across the prepared photographs, ground positions and appropriate data.

2.2 The surveyor establishes a line of sight, two station baseline, coordinated and levelled by real time kinetic GPS observations, usually with one of the stations being the camera location. The eastings and northings are aligned to the Ordnance Survey National Grid (OSGB36) and elevation to Ordnance Survey Datum (OSD) using the OSTN15 GPS transformation program.

2.3 Once the baseline is established, a bearing is determined and a series of clearly identifiable static points across the photograph are observed using the total station. These observations are taken throughout the depth of field of the photograph and at differing heights within the image.

2.4 The survey control stations are resected from the OS base mapping and wherever possible, linked together to form a survey network. This means that survey information is accurate to tolerances quoted by GPS survey methods in plan and commensurate with this in level.

2.5 Horizontal and vertical angle observations from the control stations allow the previously identified points within the view to be surveyed using line of sight surveying and the accurate coordination of these points determined using an intersection program. These points are then related back to the Ordnance Survey grid and provided in a spreadsheet format showing point number, easting, northing and level of each point surveyed, together with a reference file showing each marked up image (Figure 2 and Table 1).

2.6 The required horizon line within the image is established using the horizontal collimation of the theodolite (set to approximately above the ground) to identify 3 or 4 features that fall along the horizon line.

2.7 Using the surveyed horizon points as a guide, each photograph is checked and rotated, if necessary, in proprietary digital image manipulation software to ensure that the horizon line on the photograph is level and coincident with the information received from the surveyor.

Figure 3: Example AVR London graticule

3. Accurate Visual Representation Production

Process

3.1 The 3D computer model is precisely aligned to a site plan on the OS coordinate grid system.

3.2 Within the 3D software a virtual camera is set up using the coordinates provided by the surveyor along with the previously identified points within the scene. The virtual camera is verified by matching the contextual surveyed points with matching points within the overlaid photograph. As the surveyed data points, virtual camera and 3D model all relate to the same 3-dimensional coordinate system, there is only one position, viewing direction and field of view where all these points coincide with the actual photograph from site. The virtual camera is now verified against the site photograph.

3.3 For fully-rendered views a lighting simulation (using accurate latitude, longitude and time) is established within the proprietary 3D modelling software matching that of the actual site photograph. Along with the virtual sunlight, virtual materials are applied to the 3D model to match those advised by the architects. The proprietary 3D modelling software then uses the verified virtual camera, 3D digital model, lighting and material setup to produce a computer generated render of the proposed building.

3.4 The proposal is masked where it is obscured behind built form or street furniture.

3.5 Using the surveyed information and verification process described above, the scale and position of a proposal with a scene can be objectively calculated. However, using the proprietary software currently available the exact response of proposed materials to their environment is subjective so the exact portrayal of a proposal is a collaboration between illustrator and architect. The final computer generated image of the proposed building is achieved by combining the computer-generated render and the site photography within proprietary digital compositing software.

4. Presentation

Graticule

4.1 Each Accurate Visual Representation is framed by a graticule which provides further information including time and date of photography, horizon markers and field of view of the lens (Figure 3).

4.2 The Field of View is represented along the top of the image in the form of markers with degrees written at the correct intervals.

4.3 The horizon markers indicate where the horizontal plane of view from the camera lies, this is defined as described above, by the surveyor.

4.4 The date and time stamp documents the time the photograph was taken and this information is taken directly from the EXIF data of the camera.

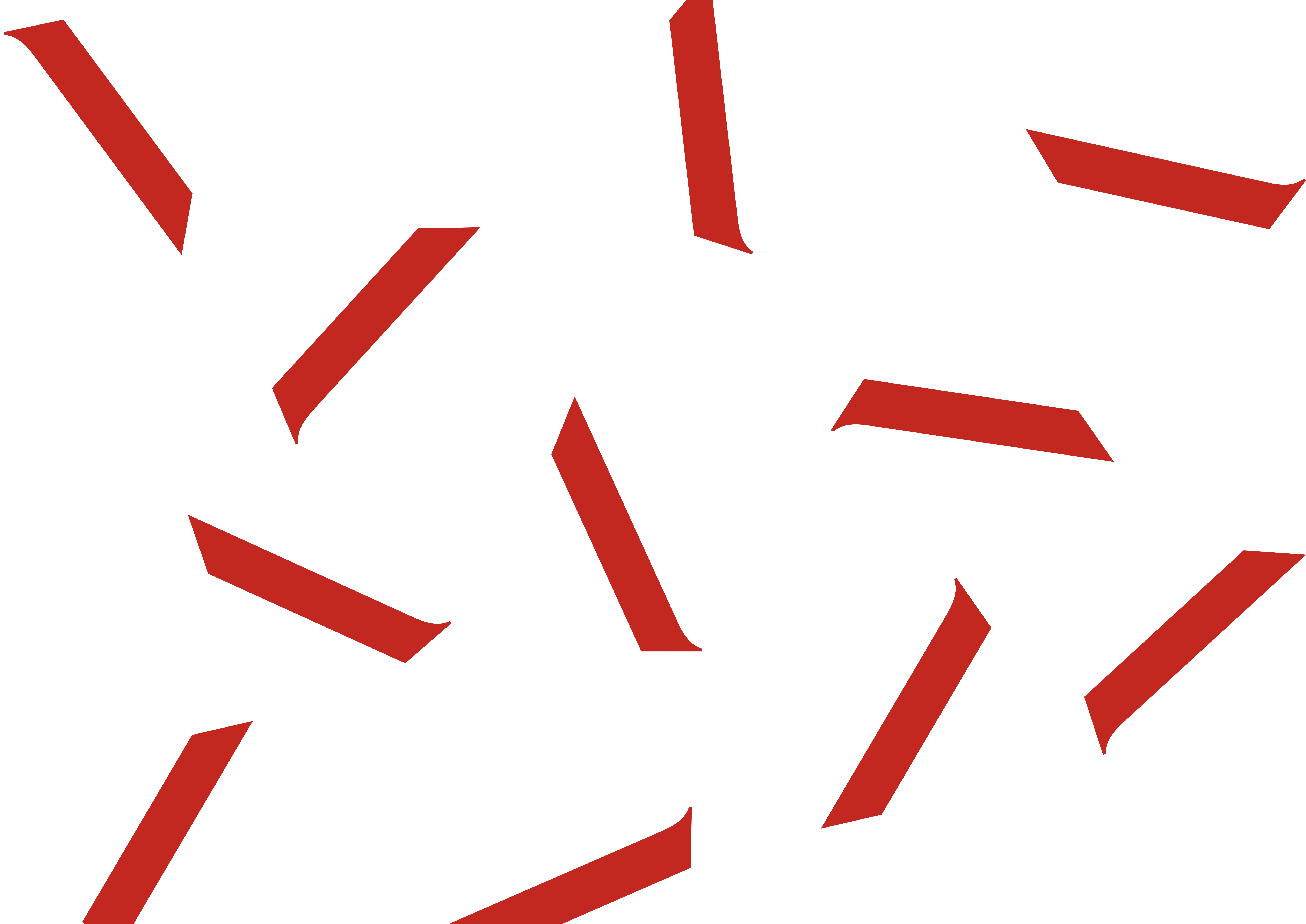
5. References

5.1 GLA - London View Management Framework: Supplementary Planning Guidance (2012)

5.2 Landscape Institute - Visual Representation of Development Proposals - Technical Guidance Note (September 2019)

5.3 Landscape Institute - Guidelines for Landscape and Visual Impact Assessment: 3rd edition (April 2013)

View	Location	Render/ Wireline	Single/ Multiple	Panels	Camera Height	Date	Time	Lens (mm)	Horizontal FOV	Easting	Northing	Elevation	Compass Direction	Distance to site (approx)
1	Syon Lane Station	Wireline	Single	1	1.6m	11 March 2019	13:50	24mm	73 degrees	516432.673	177219.628	17.376	NW	112m
2	Northumberland Avenue	Render	Single	1	1.6m	10 April 2019	11:06	24mm	73 degrees	516144.808	177192.214	18.420	NE	198m
3	Grant Way roundabout	Wireline	Single	1	1.6m	11 March 2019	14:13	24mm	73 degrees	516059.333	177451.914	23.942	ESE	247m
4	Great West Road (Firestone entrance)	Render	Single	1	1.6m	13 March 2020	08:37	24mm	73 degrees	516557.917	177523.330	14.663	WSW	294m
5	Great West Road (outside no.772)	Wireline	Single	1	1.6m	05 April 2019	14:13	24mm	73 degrees	515662.064	177299.445	24.608	E	787m
6	Great West Road (central reservation)	Wireline	Single	1	1.6m	05 April 2019	14:37	24mm	73 degrees	515237.655	177240.734	25.946	E	1194m
7	Osterley Park (entrance)	Wireline	Single	1	1.6m	05 April 2019	15:26	50mm	39 degrees	514800.61	177639.27	26.79	E	1650m
8	Osterley Park (centre)	Wireline	Single	1	1.6m	05 April 2019	15:47	50mm	39 degrees	514830.491	178135.712	24.077	ESE	1782m
9	Osterley Park (Osterley Park House)	Wireline	Single	1	1.6m	11 March 2019	15:03	24mm	73 degrees	514534.287	178016.746	29.131	ESE	1996m
10	Osterley Park (Bridleway)	Wireline	Single	1	1.6m	05 April 2019	16:13	50mm	39 degrees	515143.780	178365.046	23.652	SE	1638m
11	Boston Manor	Wireline	Single	1	1.6m	11 March 2019	10:27	24mm	73 degrees	516832.004	178316.770	16.938	SSW	1115m
12	St Paul's Recreation Ground	Wireline	Single	1	1.6m	10 April 2019	11:40	24mm	73 degrees	517905.526	177670.846	6.952	WSW	1526m
13	Syon Park (Gate Lodge)	Wireline	Multiple	3	1.6m	11 March 2019	12:44	24mm	73 degrees	517138.834	176670.205	5.803	NW	975m
14	Syon Park southern entrance footpath (north)	Wireline	Multiple	3	1.6m	11 March 2019	12:29	24mm	73 degrees	517007.608	176364.107	6.355	NW	1127m
15	Syon Park southern entrance footpath (south)	Wireline	Multiple	3	1.6m	11 March 2019	12:17	24mm	73 degrees	516899.695	176228.475	6.988	NNW	1200m
16	Riverside Walk Isleworth	Wireline	Single	1	1.6m	10 April 2019	12:16	24mm	73 degrees	516653.824	175670.559	5.100	N	1582m
17	Riverside Walk Kew	Wireline	Single	1	1.6m	10 April 2019	12:53	24mm	73 degrees	516918.339	175979.220	4.826	NNW	1410m
18	Northern footpath along A316	Wireline	Single	1	1.6m	05 April 2019	09:29	24mm	73 degrees	517583.250	175220.263	8.185	NNW	2439m
19	Kew Gardens, Cedar Vista east	Wireline	Single	1	1.6m	11 March 2019	09:30	24mm	73 degrees	518275.796	176276.189	8.70	NW	2131m
20	Kew Gardens, Syon Vista/Cedar Vista west	Wireline	Single	1	1.6m	11 March 2019	07:42	24mm	73 degrees	517829.19	176641.33	5.98	WNW	1564m
21	Kew Gardens (west of the Palm House)	Wireline	Single	1	1.6m	11 March 2019	08:23	24mm	73 degrees	518636.656	176941.926	6.487	W	2246m
22	Kew Gardens ('The Botanical' building)	Wireline	Single	1	1.6m	11 March 2019	08:39	24mm	73 degrees	518830.416	177014.062	5.978	W	2428m
23	Kew Gardens (west of Elizabeth Gates)	Wireline	Single	1	1.6m	05 April 2019	08:46	24mm	73 degrees	518717.481	177529.237	5.737	W	2298m
24	Junction of GWR and Jersey Road	Wireline	Single	1	1.6m	17 July 2019	13:08	24mm	73 degrees	513816.027	176858.385	28.085	ENE	2647m
25	Syon House (east entrance)	Wireline	Single	1	1.6m	13 March 2020	11:56	24mm	73 degrees	517258.39	176665.42	7.46	NW	1069m
26	Under footbridge GWR		Single	1	1.6m	20 July 2020		24mm	73 degrees	516745.00	177608.0	11.823	SW	427m



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