

7.0 Image Production & Editing

7.1 Raw File Conversion

Canon cameras produce a raw file which is an un-manipulated download direct from the sensor. The raw file has not been modified, colour balanced, sharpened or tweaked in any way. To make the data usable it needs to be converted into another file format. The file conversion is completed by using DXO PhotoLab 7 which converts the image into a 16-bit TIFF file. This file format supports the highest detail, dynamic range and colour depth and should be considered the master file from which all other images are produced.

7.2 Digital Image Correction

A number of technical corrections are required to produce the final image. Some of these are optional and depend on the environment the image was created in.

- If the image was not taken under natural light then colour balancing will be needed to produce an accurate colour rendition. This correction happens during the file conversion from raw to TIFF.
- Check the image maintains its highlights and that the shadow detail is correctly displayed.
- Check that the image appears level and rotate to vertical if necessary.
- Sharpen the image to suit its display media. Digitally produced images appear softer than those produced via a chemical process. This is caused by an infrared filter fitted to the camera sensor. The final image will need to be sharpened differently if it is to be printed or viewed on screen.

7.3 File Naming Convention

Files are supplied with the following naming convention:

Project Name - View Name (g) - 8 or 16-bit - Time - Date - Aperture - Focal Length - Dimensions - Lens Rise - Raw File Number . Jpg or Tiff

E.g. OFR - VP01 - 8bit - 1107 - 130326 - f8 - 24mm - 8688x5792 +0mm _H240340.TIF

Project Name

The project name is OFR (Oldfield Road, Hampton).

View Name

The view name is from the shot locations specified by the client e.g. VP03 (Section 4.0). If the view name is followed by the letter “g” then graticules showing the field of view have been added to the image.

8 or 16-bit

The bit depth is the amount of data that is stored in each pixel that makes up the image. 16-bit images contain more data and can be manipulated to make better use of their dynamic range. 8-bit images are usually “finished” images that have been manipulated and are ready for use. Higher bit depths create larger file sizes.

Time/Date

The time that the image is created is automatically saved to the file at the time the image is created. The time is stored as 'hhmi ddmmyy' hh=hour mi=minute dd=day mm=month yy=year, with the hours recorded in 24 hour clock format.

Aperture

The Aperture setting on a lens controls how much of the photograph is in focus by controlling the depth of field used. Apertures are usually in the range f1.0 to f32. Small numbers (f1.0 - f4.0) produce only a shallow depth of field, useful for highlighting a specific part of the image. Mid-range numbers (f5.6-f11) give larger depths of field allowing more of the image to appear sharply defined. With very large numbers (f11+) the image will start to become less sharp throughout its range as diffraction affects the contrast of the image. Most images are shot around f8 as this produces good depth of field and no loss of contrast due to diffraction.

Focal Length

The Focal Length of a lens is the distance in front of the sensor that the lens focusses the view to a point. The closer this point is to the sensor the wider the field of view of the image. Images captured with different focal lengths will have different fields of view. Lenses with focal lengths equal to or shorter than 35mm are considered wide-angle lenses and those with focal lengths equal to or longer than 70mm are telephoto lenses (Section 5.3). When taking into consideration the view required and the limitations of geography, a variety of lenses must be used to produce the images required for verified views.

Dimensions

Dimensions record the horizontal and vertical size of the image in pixels. A full size image will be 8688x5792. Smaller images are used on the website to minimise download times, these images will be scaled not cropped to achieve these dimensions. These include but are not limited to 300x200 for thumbnails and 3000x2000 for proofs, for example.

Lens Rise

When using tilt-shift lenses the front elements of the lens can be moved relative to the sensor in the camera. If the sensor is kept vertical, then vertical lines within the view will not appear to converge. Shifting the lens allows the front elements to rise or fall relative to the camera sensor. This causes the image to move whilst keeping vertical lines parallel. Shifting the lens up shows more of the top of the image whilst reducing the amount shown at the bottom. This shows the top of tall buildings without tilting the camera. (Section 9.0)

Raw File Number

The original file number created in-camera. For panoramas, this will be a range of numbers.

Jpg / Tiff

Jpg files are (relatively) small files which have had their data compressed using various methods, so as to create a small file size. The JPEG file format is called a “lossy” file format, as it loses data from the original image which cannot be recovered. They are also less able to be manipulated at a later date, due to the restricted amount of data available. It is an excellent format for email and proofs, but not for ongoing work.

Tiff files are a “lossless” file format where saving the image does not downgrade or lose information. However, tiffs are considerably larger than jpg files and therefore not as suitable for email. Tiff is the file format that should be used for ongoing work that requires manipulation.



8.0 Verified View Supporting Photographic Evidence

The following pages contain the selected images and the supporting photographic evidence for the proposed project. Each viewpoint contains the following

Image Information:

- **View Name:** As supplied from the client or their agent. If graticules have been added to the image to show the field of view then the view name will be suffixed by the letter “g”.
- **View Description:** A general description of the map location and direction of view.
- **Survey Location:** The location of the survey point in Eastings and Northings.
- **Lens Height:** The measured height of the lens axis above the survey point.
- **View Direction:** The approximate direction that the centre of the view was aligned to.
- **Distance to Site Boundary:** The approximate distance to the nearest 5m to the closest site boundary.
- **Image File Name:** The file name following the naming convention detailed in Section 7.3.
- **Date/Time:** The date and time that the image was taken.
- **Camera & Lens:** The camera model and lens manufacturer, size in mm and type.
- **Shift Amount:** The amount of rise or fall applied to the lens to produce the view shown.
- **HFOV / VFOV:** The Horizontal Field of View and Vertical Field of View of the image measured in degrees and visually displayed by the graticule markings around the image.
- **Selected Image:** The image that was selected by the client.

Documentation Images & Location:

- Images of the tripod in-situ with the ground mark location visible and surrounding background details. The images are made up from three photographs taken from different locations around the tripod and one of the plumb line and survey point.
- An image of the sky above the tripod as a record of the weather conditions at the time of capturing the image. Used to assist in the prevailing weather conditions description.
- The weather report for the day are the measurements from the local weather station which is located at London Heathrow Airport, 10 km from the site.

The cloud condition on the day will be quantified using the following criteria, cloud cover will be estimated in 1/8ths of the sky covered by cloud as follows

- **Clear Sky** - 0/8th of the sky covered in cloud
- **Few** - 1-2/8th of the sky covered
- **Scattered** - 3-4/8th of the sky covered
- **Broken** - 5-7/8th of the sky covered
- **Overcast** - 8/8th of the sky covered

The level of cover and type of cloud will also affect the quality of direct lighting and therefore the contrast between light and shadow detail. As the cloud cover increases so does the diffuseness of the lighting causing the penumbra to widen and the contrast between lit and shadow areas to decrease.

- Location of the survey point supplied as Easting and Northing, Latitude and Longitude (decimal degrees), Latitude and Longitude (degrees, minutes and seconds), Grid Reference (10 digit) and What3Words. This should enable location of the survey point using different methods and mapping options. Each method has accuracy limitations and these are included for reference.
- A local map of the area with the viewpoint location marked.

8.01 Viewpoint 01

Viewpoint 01 Image Information

View Description: Looking east from the junction of Oldfield Road and Hammond Court.
Survey Location: 513076.532 E, 169718.393 N
Lens Height: 1.6m +/-3mm above survey point
View Direction: Approximately 070° from north
Distance to Site Boundary: Approximately 35m
Image File Name: OFR - VP01 - 8bit - 1107 - 130326 - f8 - 24mm - 8688x5792 +0mm _H240340
Date/Time: 13-03-24 at 11:07
Camera & Lens: Canon 5DSr & Canon TS-E 24mm f3.5L MK2
Shift Amount: +0mm
HFOV / VFOV: 73.7° / 53.1°

Viewpoint 01 Image



Viewpoint 01 Optical Axis & Field of View

The following image has its optical axis and field of view displayed using the following configuration:

- The red arrows show the horizon line and vertical centre of the original levelled image.
- The thicker black lines are at ten degree increments from the centre of the levelled image.
- The medium black lines are at five degree increments from the thicker black lines.
- The short black lines are at one degree increments.

This allows you to compare images produced with different lenses and fields of view.

Viewpoint 01 Documentation Images & Location



The first three documentation images above show the tripod location and camera orientation from the junction of Hammond Court and Oldfield Road. The fourth image is of the survey marker and plumb line under the point of no parallax. The fifth image is of the sky above the camera location at the time of photography. The prevailing weather conditions were dry and overcast. The temperature was 13°C, the wind was blowing from the south west at 13 mph. Humidity was 77% and the pressure was 1012 hPa. This viewpoint is to the west of the Oldfield Road, Hampton.

Viewpoint 01 Survey Point Information

Coordinate System	Value	Accuracy
X (Easting) , Y (Northing)	513076.532 E, 169718.393 N	+/- 1mm
Latitude / Longitude (Decimal)	51.415213 , -0.37535142	+/- 10cm
Latitude / Longitude (DMS)	51°24'55"N , 000°22'31"W	+/- 10cm
Grid Reference	TQ 13077 69718	+/- 10cm
What3Words	fully.awake.store	+/- 3m

Note: The What3Words location was calculated from the Easting and Northing and specifies a 3m x 3m square. When using a mobile phone to find the location in the real world, please be aware that the GPS accuracy of the phone varies and is around +/-10m depending on location and signal.



Map © OpenStreetMap contributors, provided by openstreetmap.org

8.02 Viewpoint 02

Viewpoint 02 Image Information

View Description: Looking north west from the junction of Oldfield Road and Percy Road
Survey Location: 513207.085 E, 169723.111 N
Lens Height: 1.6m +/-3mm above survey point
View Direction: Approximately 300° from north
Distance to Site Boundary: Approximately 40m
Image File Name: OFR - VP02 - 8bit - 1054 - 130326 - f8 - 24mm - 8688x5792 +0mm _H240329
Date/Time: 13-03-24 at 10:54
Camera & Lens: Canon 5DSr & Canon TS-E 24mm f3.5L MK2
Shift Amount: +0mm
HFOV / VFOV: 73.7° / 53.1°

Viewpoint 02 Image



Viewpoint 02 Optical Axis & Field of View

The following image has its optical axis and field of view displayed using the following configuration:

- The red arrows show the horizon line and vertical centre of the original levelled image.
- The thicker black lines are at ten degree increments from the centre of the levelled image.
- The medium black lines are at five degree increments from the thicker black lines.
- The short black lines are at one degree increments.

This allows you to compare images produced with different lenses and fields of view.

Viewpoint 02 Documentation Images & Location



The first three documentation images above show the tripod location and camera orientation from the junction of Hammond Court and Oldfield Road. The fourth image is of the survey marker and plumb line under the point of no parallax. The fifth image is of the sky above the camera location at the time of photography. The prevailing weather conditions were dry and overcast. The temperature was 13°C, the wind was blowing from the south west at 13 mph. Humidity was 77% and the pressure was 1012 hPa. This viewpoint is to the south east of the Oldfield Road, Hampton.

Viewpoint 02 Survey Point Information

Coordinate System	Value	Accuracy
X (Easting) , Y (Northing)	513207.085 E, 169723.111 N	+/- 1mm
Latitude / Longitude (Decimal)	51.415233 , -0.37347999	+/- 10cm
Latitude / Longitude (DMS)	51°24'55"N , 000°22'25"W	+/- 10cm
Grid Reference	TQ 13207 69723	+/- 10cm
What3Words	nodded.part.area	+/- 3m

Note: The What3Words location was calculated from the Easting and Northing and specifies a 3m x 3m square. When using a mobile phone to find the location in the real world, please be aware that the GPS accuracy of the phone varies and is around +/-10m depending on location and signal.



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8.03 Viewpoint 03

Viewpoint 03 Image Information

View Description: Looking south west from the junction of Ashley Road and Percy Road
Survey Location: 513217.679 E, 169804.750 N
Lens Height: 1.6m +/-3mm above survey point
View Direction: Approximately 250° from north
Distance to Site Boundary: Approximately 60m
Image File Name: OFR - VP03 - 8bit - 1026 - 130326 - f8 - 24mm - 8688x5792 +0mm _H240285
Date/Time: 13-03-24 at 10:26
Camera & Lens: Canon 5DSr & Canon TS-E 24mm f3.5L MK2
Shift Amount: +0mm
HFOV / VFOV: 73.7° / 53.1°

Viewpoint 03 Image



Viewpoint 03 Optical Axis & Field of View

The following image has its optical axis and field of view displayed using the following configuration:

- The red arrows show the horizon line and vertical centre of the original levelled image.
- The thicker black lines are at ten degree increments from the centre of the levelled image.
- The medium black lines are at five degree increments from the thicker black lines.
- The short black lines are at one degree increments.

This allows you to compare images produced with different lenses and fields of view.

Viewpoint 03 Documentation Images & Location



The first three documentation images above show the tripod location and camera orientation from the junction of Hammond Court and Oldfield Road. The fourth image is of the survey marker and plumb line under the point of no parallax. The fifth image is of the sky above the camera location at the time of photography. The prevailing weather conditions were dry and overcast. The temperature was 12°C, the wind was blowing from the south west at 13 mph. Humidity was 82% and the pressure was 1012 hPa. This viewpoint is to the north east of the Oldfield Road, Hampton.

Viewpoint 03 Survey Point Information

Coordinate System	Value	Accuracy
X (Easting) , Y (Northing)	513217.679 E, 169804.750 N	+/- 1mm
Latitude / Longitude (Decimal)	51.415965 , -0.37330167	+/- 10cm
Latitude / Longitude (DMS)	51°24'57"N , 000°22'24"W	+/- 10cm
Grid Reference	TQ 13218 69805	+/- 10cm
What3Words	decide.picked.exams	+/- 3m

Note: The What3Words location was calculated from the Easting and Northing and specifies a 3m x 3m square. When using a mobile phone to find the location in the real world, please be aware that the GPS accuracy of the phone varies and is around +/-10m depending on location and signal.



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8.04 Viewpoint 04

Viewpoint 04 Image Information

View Description: Looking east from the pavement outside no. 123 Oldfield Road
Survey Location: 513009.004 E, 169716.432 N
Lens Height: 1.6m +/-3mm above survey point
View Direction: Approximately 075° from north
Distance to Site Boundary: Approximately 100m
Image File Name: OFR - VP04 - 8bit - 1122 - 130326 - f8 - 24mm - 8688x5792 +0mm _H240373
Date/Time: 13-03-24 at 11:22
Camera & Lens: Canon 5DSr & Canon TS-E 24mm f3.5L MK2
Shift Amount: +0mm
HFOV / VFOV: 73.7° / 53.1°

Viewpoint 04 Image



Viewpoint 04 Optical Axis & Field of View

The following image has its optical axis and field of view displayed using the following configuration:

- The red arrows show the horizon line and vertical centre of the original levelled image.
- The thicker black lines are at ten degree increments from the centre of the levelled image.
- The medium black lines are at five degree increments from the thicker black lines.
- The short black lines are at one degree increments.

This allows you to compare images produced with different lenses and fields of view.