Creating Interactive Footpath Accessibility Maps with Google *MyMaps*

Compiled by Christy Bridgeman, PKCT Engagement and Communications Intern

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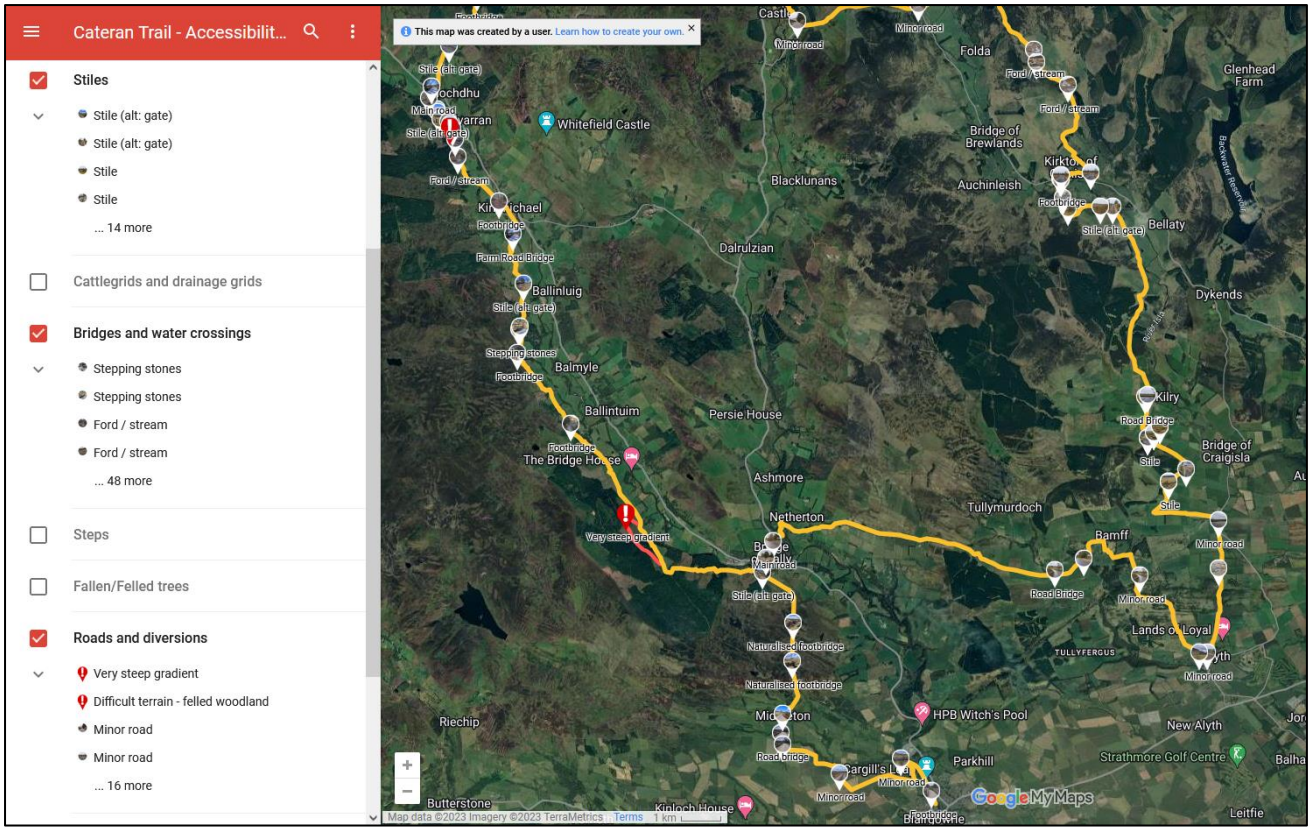
Contents

What you will create

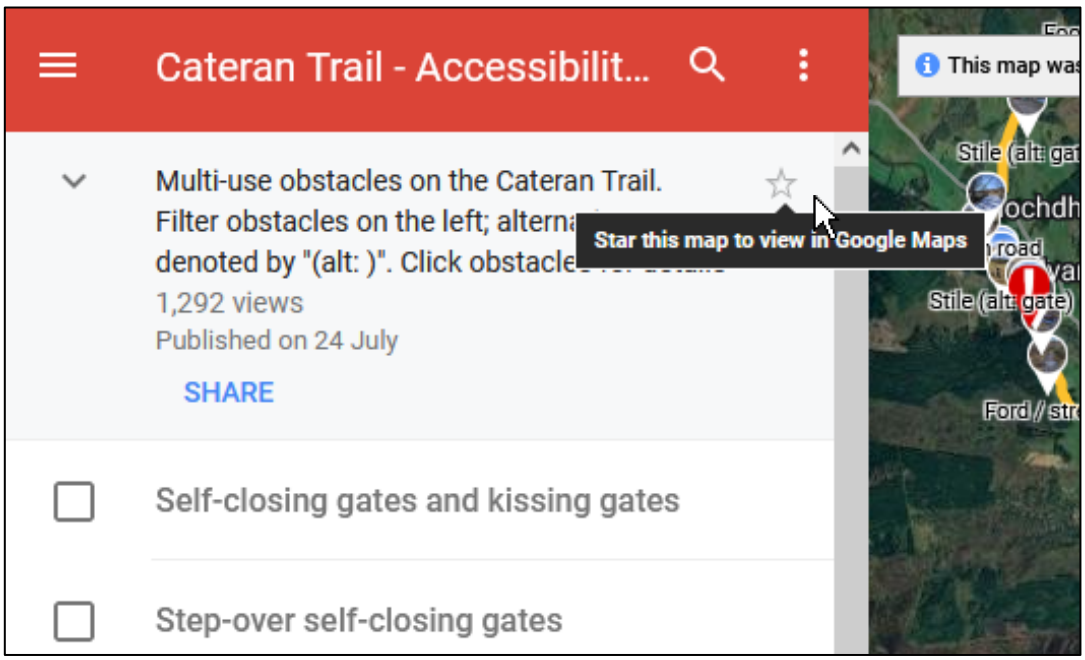
With Google *MyMaps*, it is simple to create interactive footpath maps for walks across Scotland. They can feature footpath routes, locations and descriptions of obstacles (such as gates, stiles, or cattlegrids) and filters users can use to make the map tailored to them. View PKCT's Cateran Trail Interactive Map here.

Maps on Google *MyMaps* are very simple and can be viewed on desktops, laptops and smartphones. For an alternative that uses OpenStreetMaps, see uMap.

Important note: Google *MyMaps* is a different product to Google *Maps*.

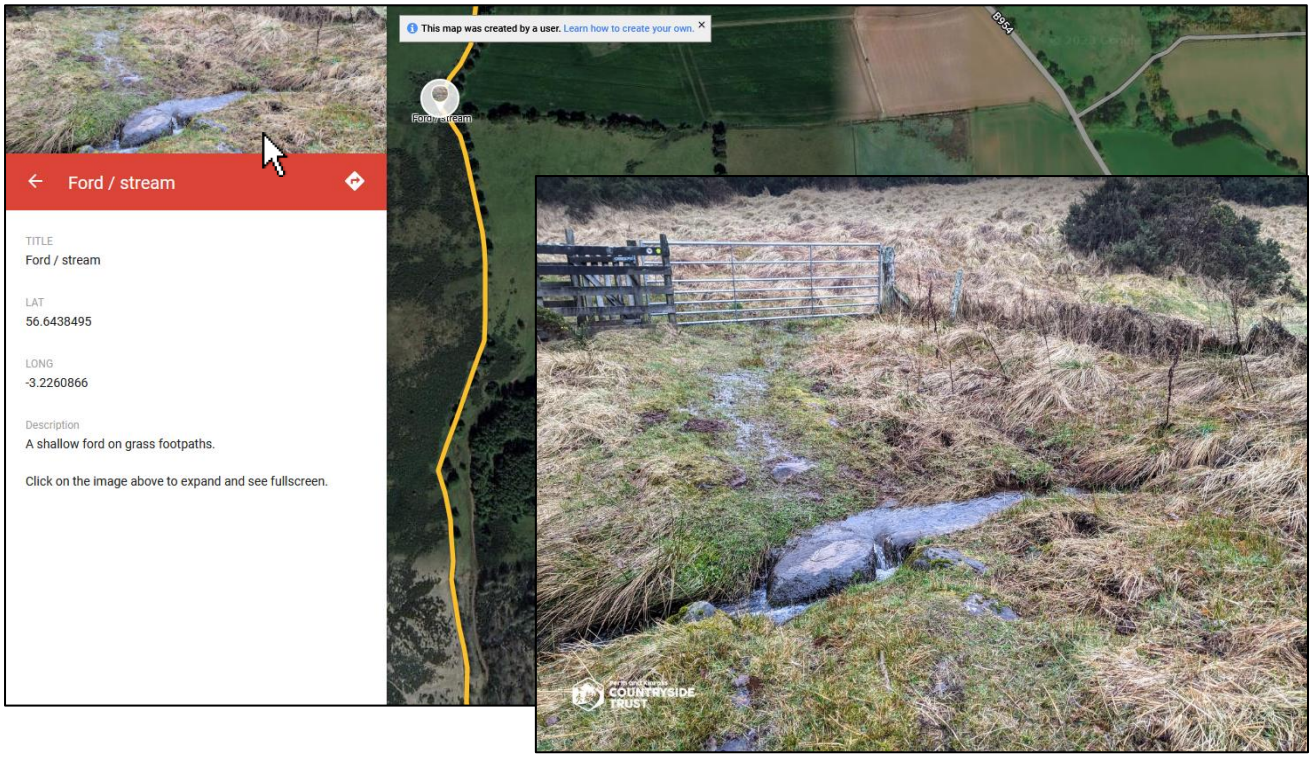


These maps can be displayed on your website and made public in Google search results (and other search engines). Users can ‘star’ maps to save your map to their own Google account and load them onto their smartphones.



These *MyMaps* maps will be hosted by Google for free and do not require the purchasing of a product license. Equally, these maps can be updated easily and will update for users automatically.

The map is not only a canvas of points, but it can include high-quality imagery to assist users.



Where an obstacle may impede a user, alternatives can also be listed and updated as needed.

Pros and cons of Google *MyMaps*

Some pros:

- Easy to create and update
- Free to build and host
- Easily accessible for users
- Interactive across multiple devices
- Supports importing databases of points and paths

Some cons:

- Maps can only have 10 layers
- Map can only have 10,000 lines, shapes or places
- Images may be a little slow to load
- Offers little information to users about *how to* use map

Other things to consider when building a map

Outside of the technical limitations of Google *MyMaps*, there may be some issues you want to consider when creating an online footpath map.

Consider…

- If you are creating a map of gates, stiles, cattlegrids, etc., will you favour i) providing extensive information for users, or ii) highlighting **only** the most impeding obstacles?

  Whereas the former may result in **a lot** of points on your map with obstacles that few people consider 'impeding', the latter may run the risk of neglecting some users.

PKCT's *Interactive Cateran Trail Accessibility* Map follows the practice of favouring extensive information over a highly curated list of only the most impeding obstacles.

Obstacles were considered to be things that would 'realistically have a potential to stop or slow down any appropriate user*'. This applied to almost all man-made permanent or semi-permanent obstacles, but also included natural features like fords, rivers, stepping stones and fallen trees. Features that were 'naturalised', such as man-made bridges since covered in moss or grass, were also included.

PKCT recorded open gates, dismantled gates and alternatives adjacent to these gates (such as a self-closing gate, stile, etc.), too. If the ability of an obstacle to stop or slow down a user was tentative, it was still recorded and included; gates may be closed on some days and open on others, and dismantled gates may soon be reconstructed.

*'Appropriate user' includes those for which the path is intended for, such as walkers, horse riders, cyclists, wheelchair users, and not motorbikes, quadbikes, etc.

- Are you creating a map for the public? For public authorities or non-governmental organisations for the reasons of future resource allocation? Or both?

This may determine the level of detail in your map and for obstacle descriptions within your map, as well as the scope of your recording.

- Will you consider users with limited mobility?

If so, it may be best to opt for *more* information instead of *less* as map authors cannot determine what is and is not an 'obstacle' for **all** others.

- Does your route lend itself to advanced planning of users?

Short routes may not require research done by users and instead be walked spontaneously, whereas long-distance walkers often appreciate extra information for planning lengthy treks.

- Is your map to include promotional information about partnered hotels, restaurants or shops along your long-distance walking route?

This may be a violation of the Google *MyMaps* content policy.

How to create your map: Recording points

Now that you have determined what you will record on your interactive map, it's time to gather the data. This requires:

- A **smartphone** with a working **GPS** (these can sometimes even work without 4G or 5G or phone service, but will be more accurate when connected), **built-in camera** and enough internal **storage**. External storage such as cloud storage cannot be used when not connected to the internet, such as when walking in the countryside
- A **computer** or **laptop** to manage photos and create the map
- Appropriate **outdoor wear** and **fitness**
- A **map** and route to follow
- A colleague or friend to collect you at the end of the walk (if walk is done in stages with trips home or to the office in between)

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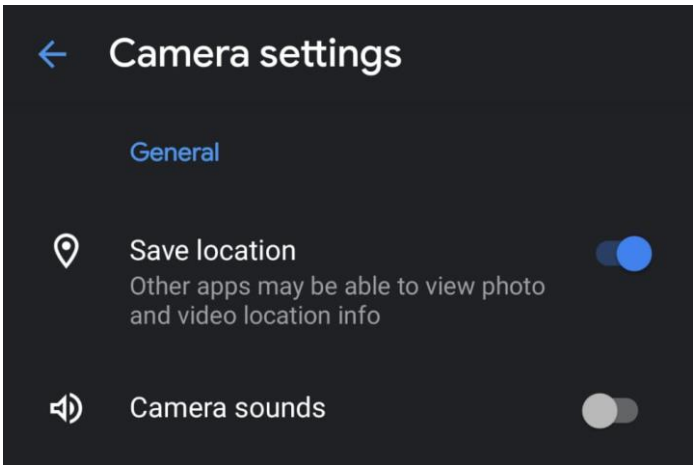
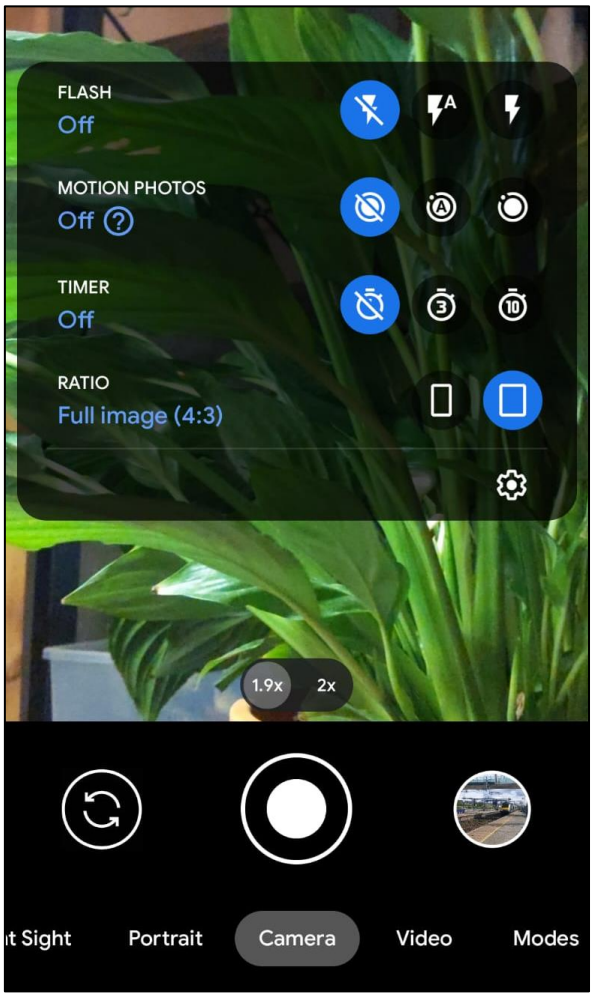
Step 1

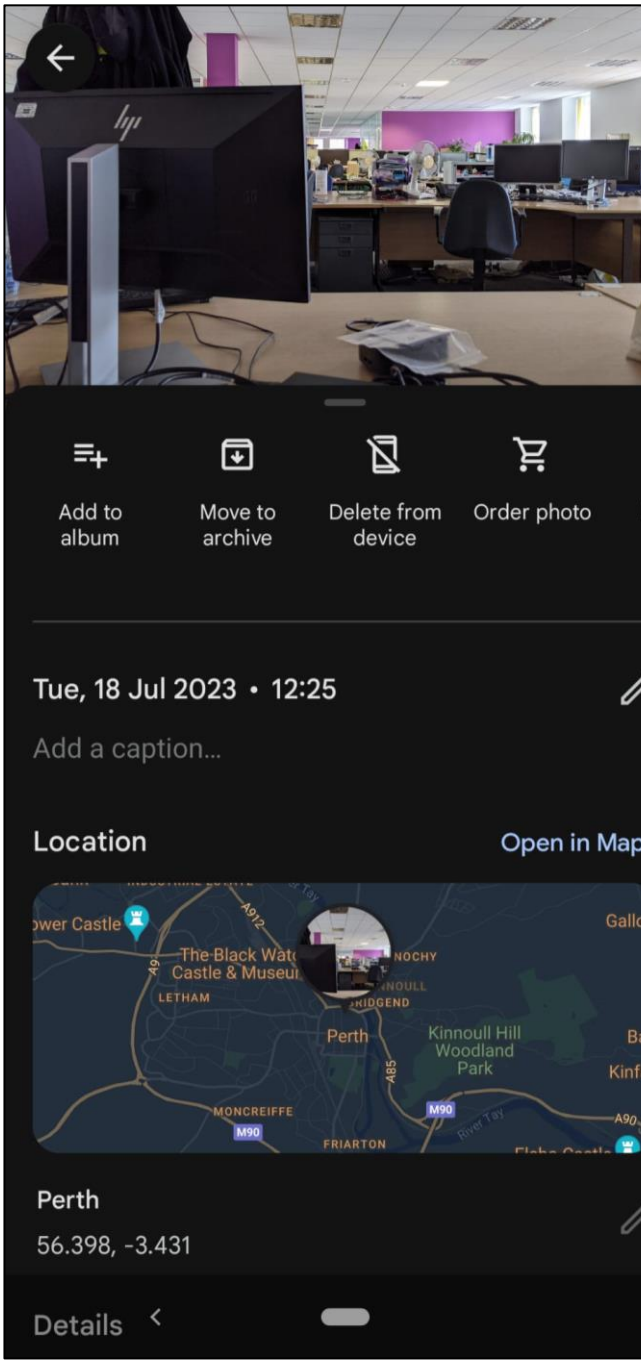
To record an obstacle on the footpath, take a picture of it with your smartphone. Ensure that the ‘save location’ setting is **on.**



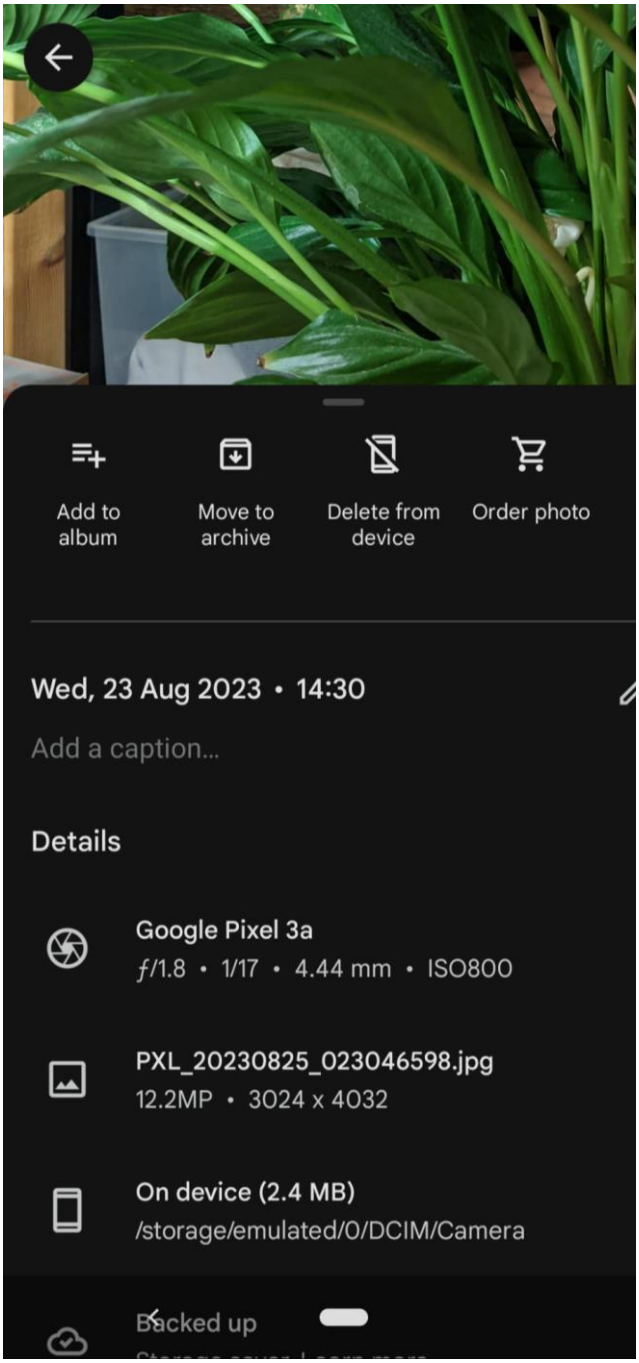
If your smartphone has a ‘live (or motion) photos’ feature, disable this too.



Before you leave, **confirm** that the setting is working by taking a test picture. For Android devices using Google Photos, you can view the location by swiping up on an image. See below:

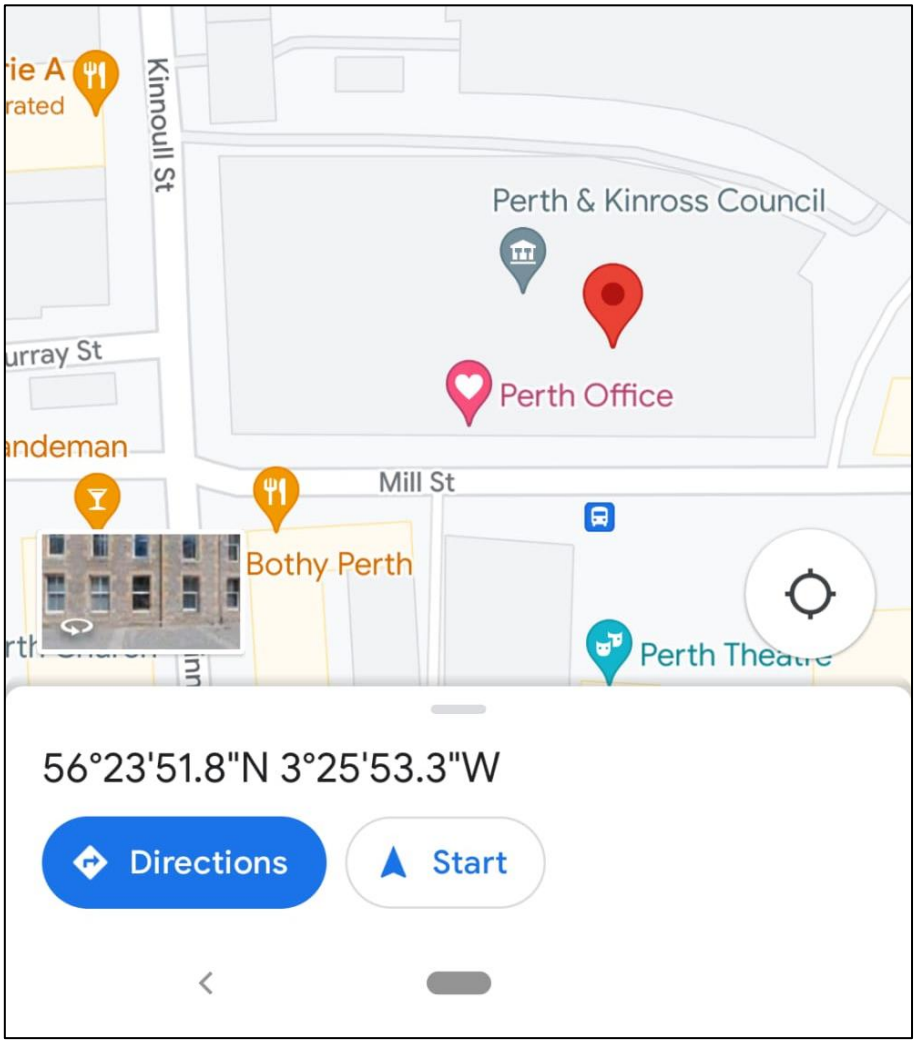


CORRECT – Shows location



INCORRECT – No location

Tap on ‘Open in Maps’ to view the location in full screen. If it is working correctly, it should show the location of your image with a 📍 icon. Below is a working example:



It is important that you keep a note of your location as the coordinates given by the image’s location can be up to 500m off. Note memorable features nearby or distances from notable checkpoints. When later building the map, we will cross reference with OS maps and satellite data to assist in locating obstacles. It is best to treat your image’s location coordinates as a **general location tool** to be used alongside other methods.

Step 2

Following your own criteria of the type of data you will gather, begin taking photos of obstacles on your footpath. Double check the photo captured correctly and the location was recorded.

Step 3

Repeat for all obstacles or places/things that need to be recorded.

Step 4

If you took multiple images of the same obstacle, then delete the duplicates, unless you intend to upload multiple images for one point/obstacle on the map.

As stated previously, the GPS coordinates your phone records can be up to 500m off, and this includes multiple images taken centimetres apart of the same obstacle.

When later adding these to your map, because of the drastically different location data, they may look like different obstacles entirely. To avoid these, either i) **delete duplicates**, or ii) give the images **meaningful file names** so you remember they are of the same obstacle.

Step 5

Upload the images to your desktop or laptop with either i) cloud sync, or ii) a USB cable. For the former, you can access the images from Google Photos or iCloud, and for the latter use your computer's file explorer.

How to create your map: Organising photos

Step 6

Navigate to Google Photos or iCloud, or plug your smartphone into your computer.

IMPORTANT NOTE: If you are emailing or messaging image files to other colleagues or yourself, please ensure that your email provider DOES NOT remove the location meta data. Email providers will do this for privacy reasons to protect senders' personal information, such as accidentally sharing the location of an individual in a photograph. You typically do not have control over this and may be required to use another platform or method to transfer images and image locations.

IMPORTANT NOTE: Editing images on your smartphone, desktop or laptop may remove location meta data.

Step 7

Find your photos. It is probably easiest to sort by date, you can do this by searching '10 March 2023' in Google Photos, for example.

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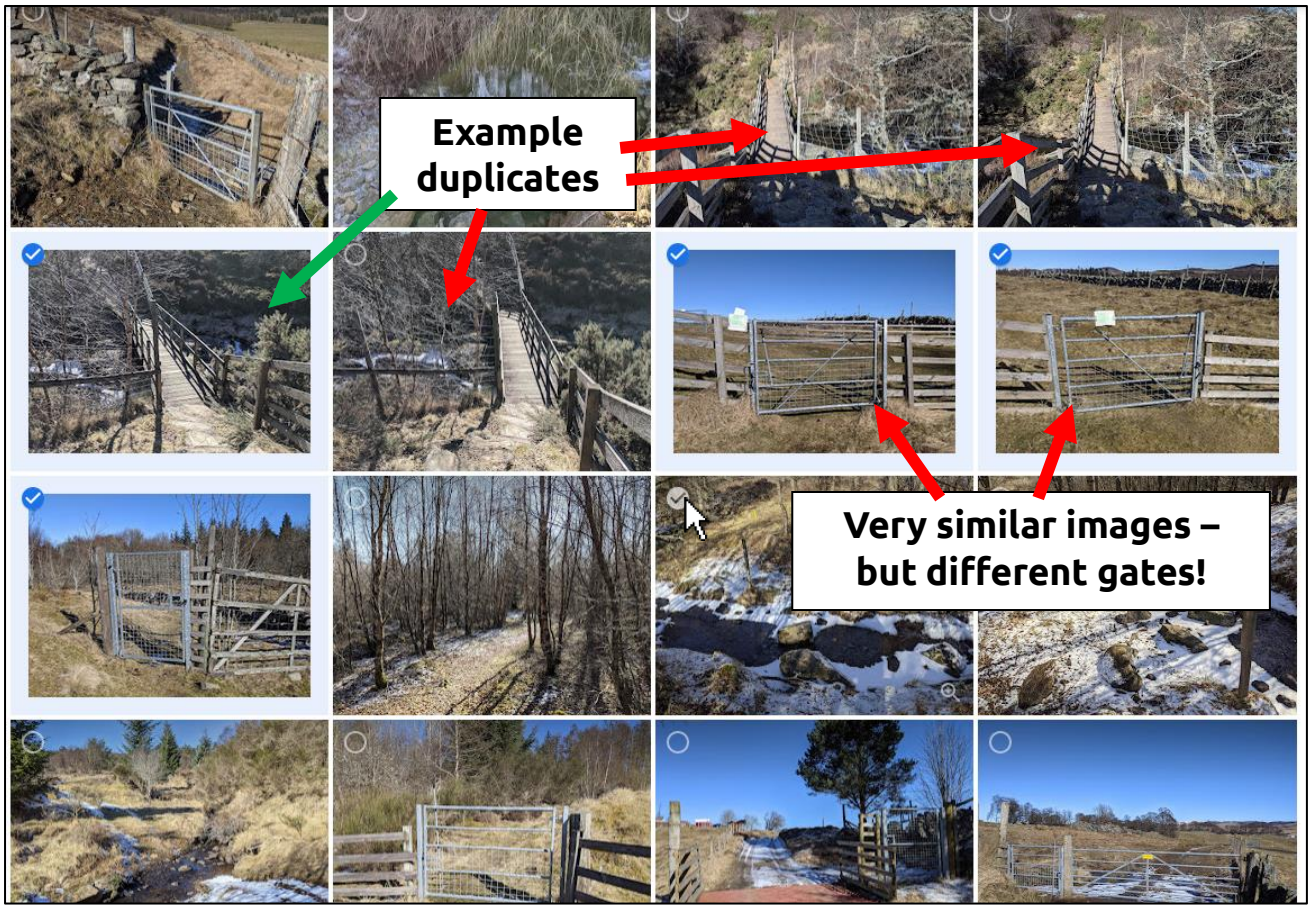
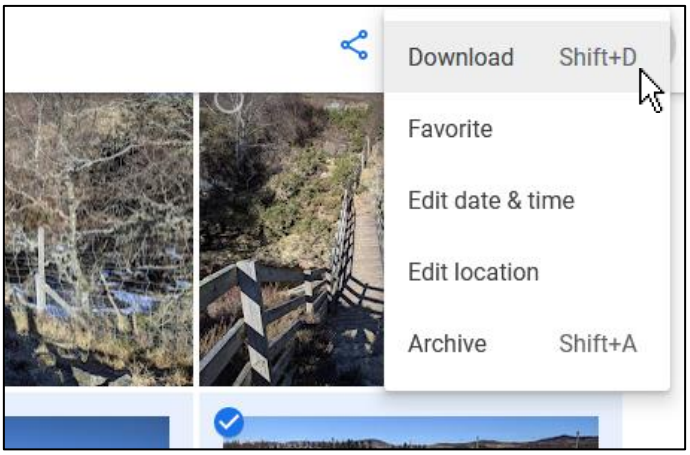
Step 8

Select all the photos you need to download. Remember, it is best to ignore duplicates. Equally, double check photos that look very similar but that are of different obstacles.



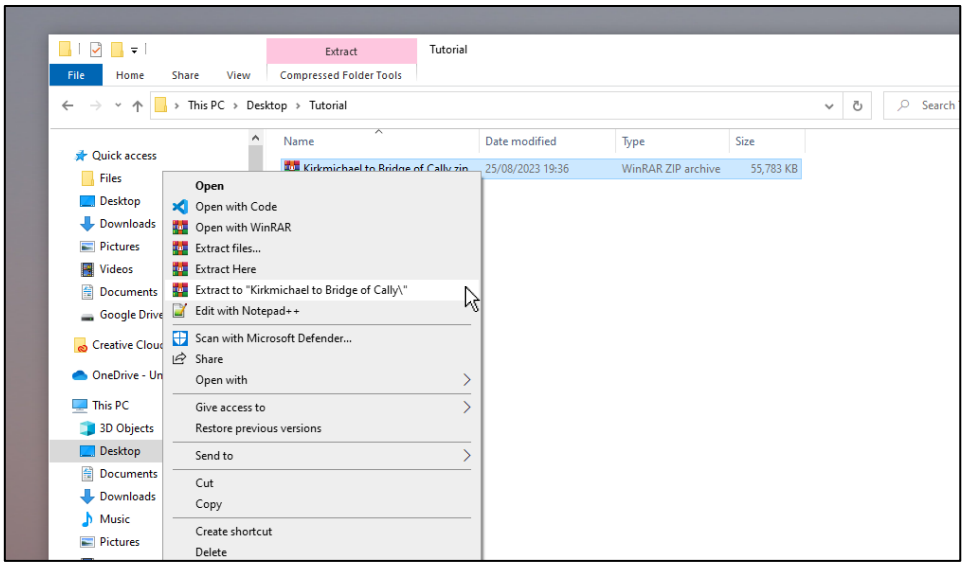
Step 9

Click the three dots in the top right ⋮, then click 'Download'. Save to a suitable location with a meaningful file name.



Step 10

Extract (unzip) the compressed .zip file by right clicking the file and extracting to a new file. Save to a suitable location with a meaningful file name. Navigate to the new folder you just created.



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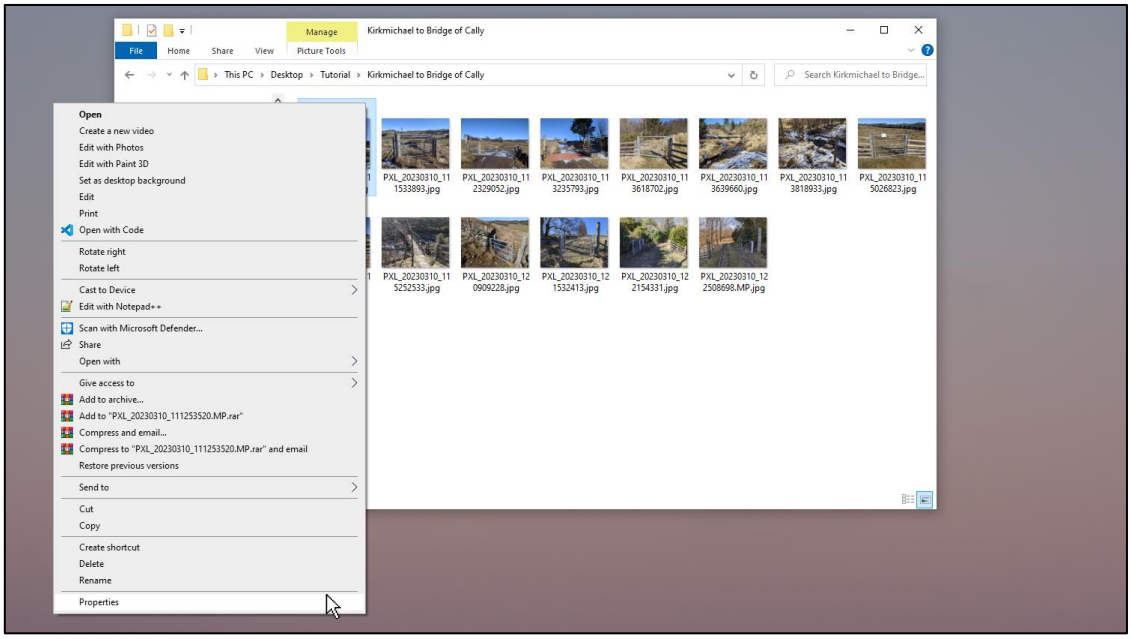
How to create your map: Pulling image locations

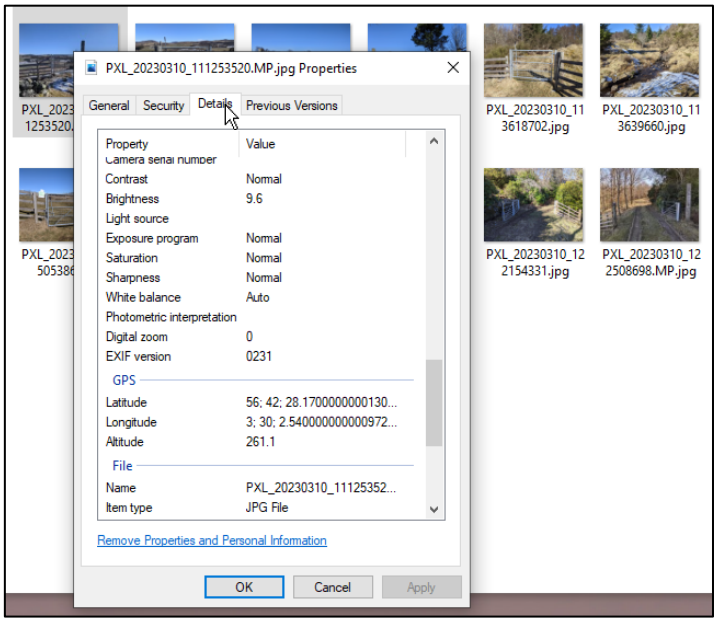
Use **either** *Step 11a* **or** *Step 11b (recommended)*.

Step 11a – Pulling image locations from desktop image file

i) Right click an image file and select ‘properties’.



ii) Click the ‘details’ tab and scroll down to the GPS data.



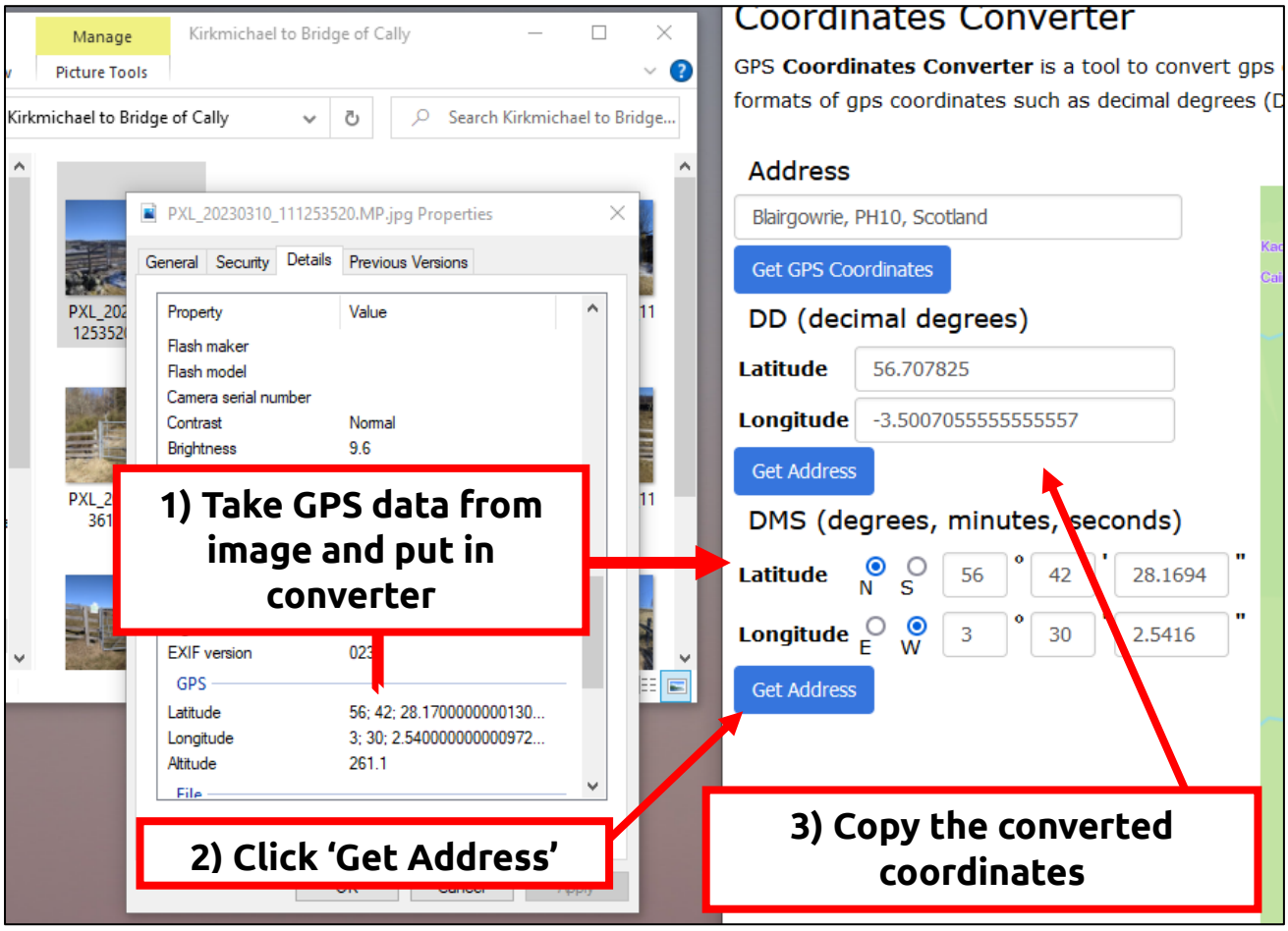
The above coordinates are in DMS format (degrees, minutes, seconds (*example: 41°24'12.2"N 2°10'26.5"E*)).

While it is possible to pin locations from these coordinates in Google *MyMaps*, it is easier to convert this information to DD (decimal degrees (*example: 41.40338, 2.17403*)) coordinates instead and use this.

- This is because most keyboards to not have a degrees symbol (meaning you would need to memorise and use lengthy Unicode alt-codes) and because the DMS search terms in Google *MyMaps* is reversed to what is shown in the image data.

You can ignore altitude data – Google *MyMaps* will automatically add this later when you place your obstacle's location.

iii) Use a service such as [GPS Coordinates Converter] to get DD (decimal degrees) coordinates.



iv) Copy coordinates to text or excel file. Be sure to associate coordinates with their respective obstacles by noting image file names or with meaningful descriptions.

v) Repeat for all images and locations.

Step 11b – Pulling image locations from Google Photos **(recommended)**

i) To go Google Photos on desktop or laptop and find the images you downloaded earlier. Click on an image to open it in full screen. Show the details by clicking on the information icon ⓘ.

ii) Scroll down on the right-hand side details panel and click on the map preview square.

iii) Google *Maps* should open in a new tab. Copy the coordinates shown in the left-hand side panel.

It is recommended to copy the DD (decimal degrees (*example: 41.40338, 2.17403*)) coordinates instead of the DMS format (degrees, minutes, seconds (*example: 41°24'12.2"N 2°10'26.5"E*)) ones.

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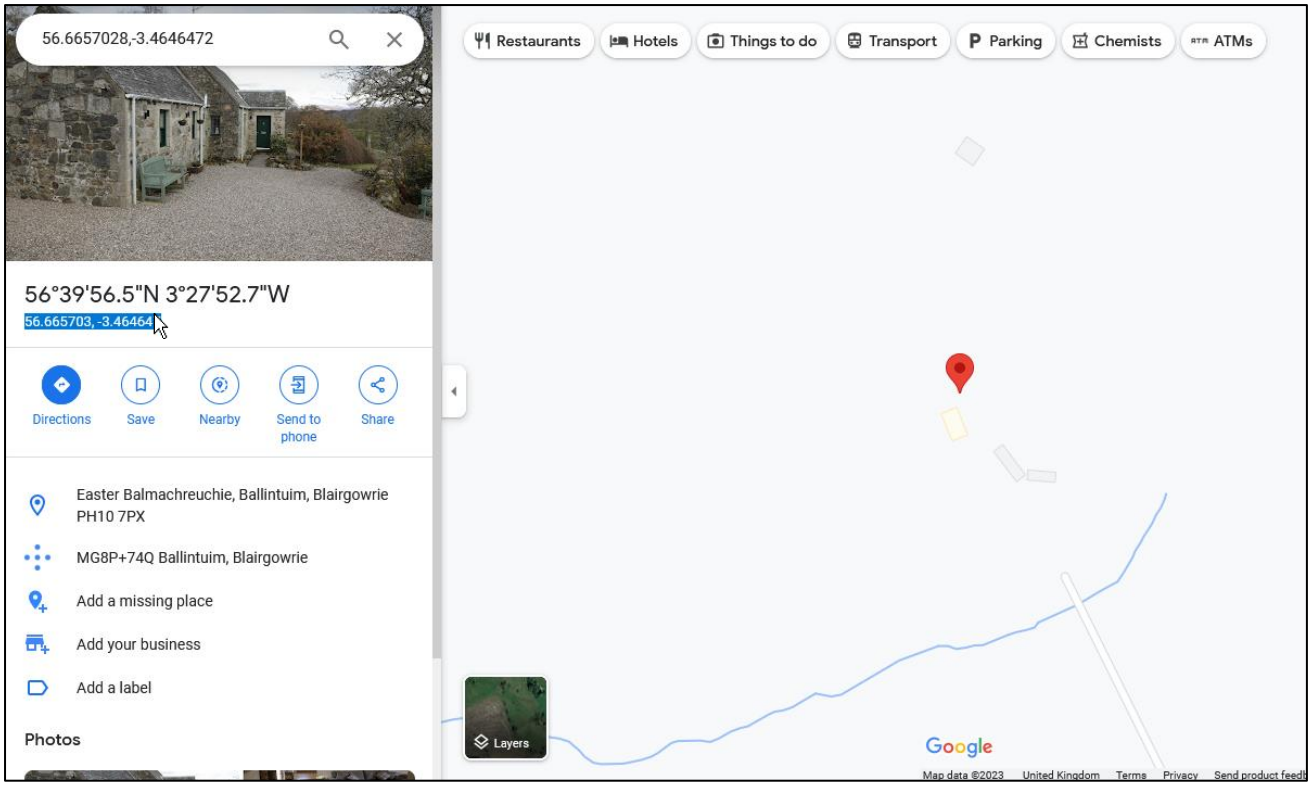


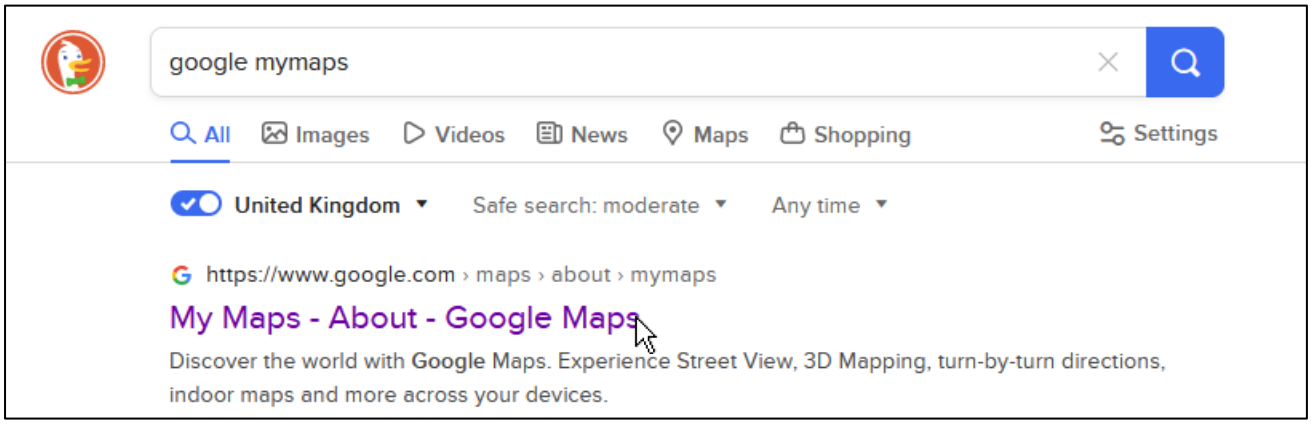
iv) Copy coordinates to text or excel file. Be sure to associate coordinates with their respective obstacles by noting image file names or with meaningful descriptions.

v) Repeat for all images and locations.

How to create your map: Creating a Google *MyMaps* map

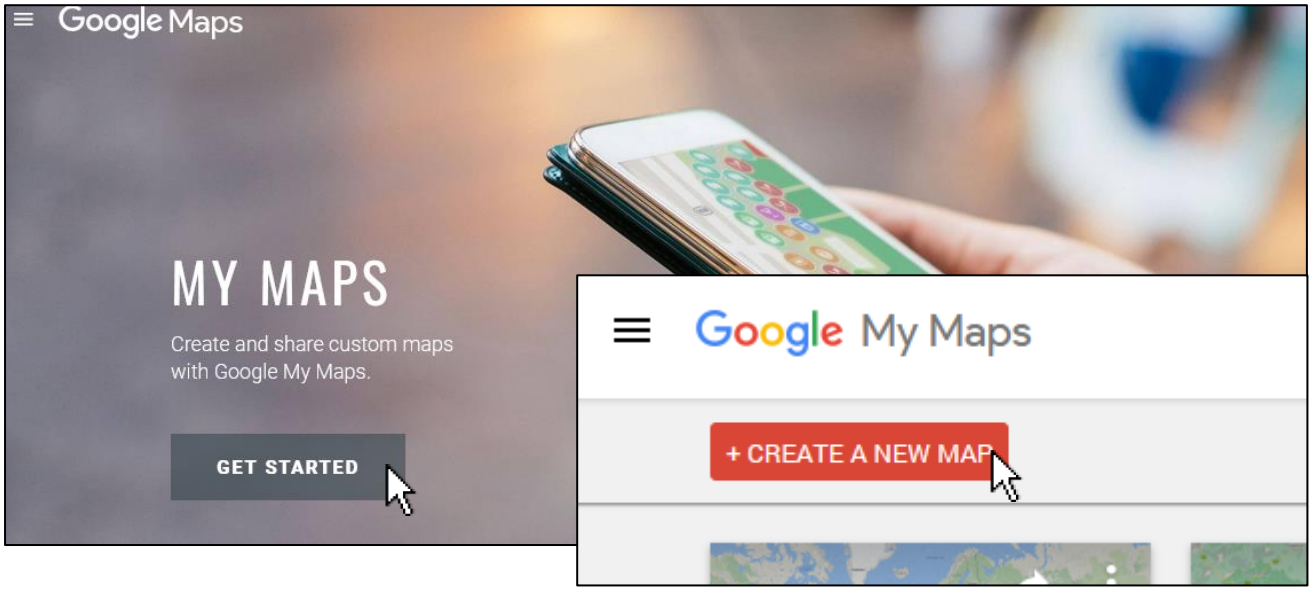
Step 12

In your browser, search ‘Google MyMaps’. Click on the result as shown below. Or click this link.



Step 13

Click ‘Get Started’ and log into your or your organisation’s Google account. In the top left, click the red ‘Create a New Map’ button.

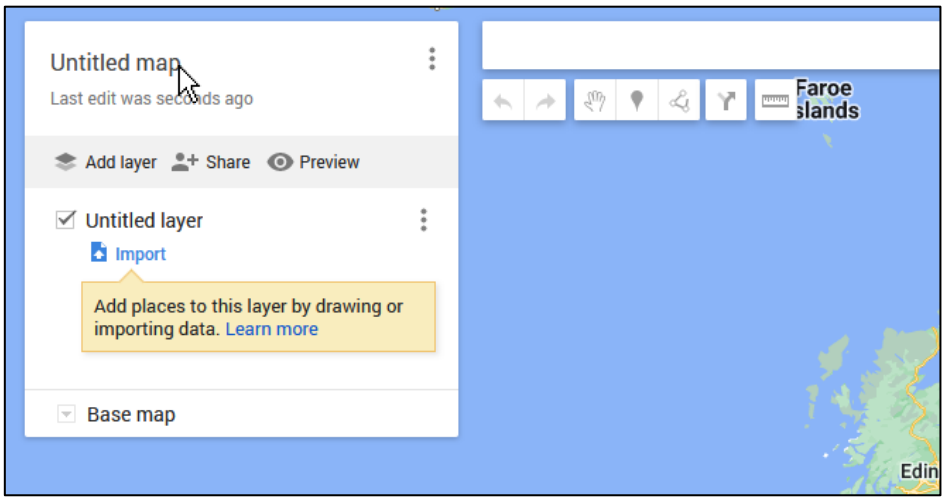


A new map will be created with one layer added automatically.

As the map is edited, it will save automatically if you are connected to the internet.

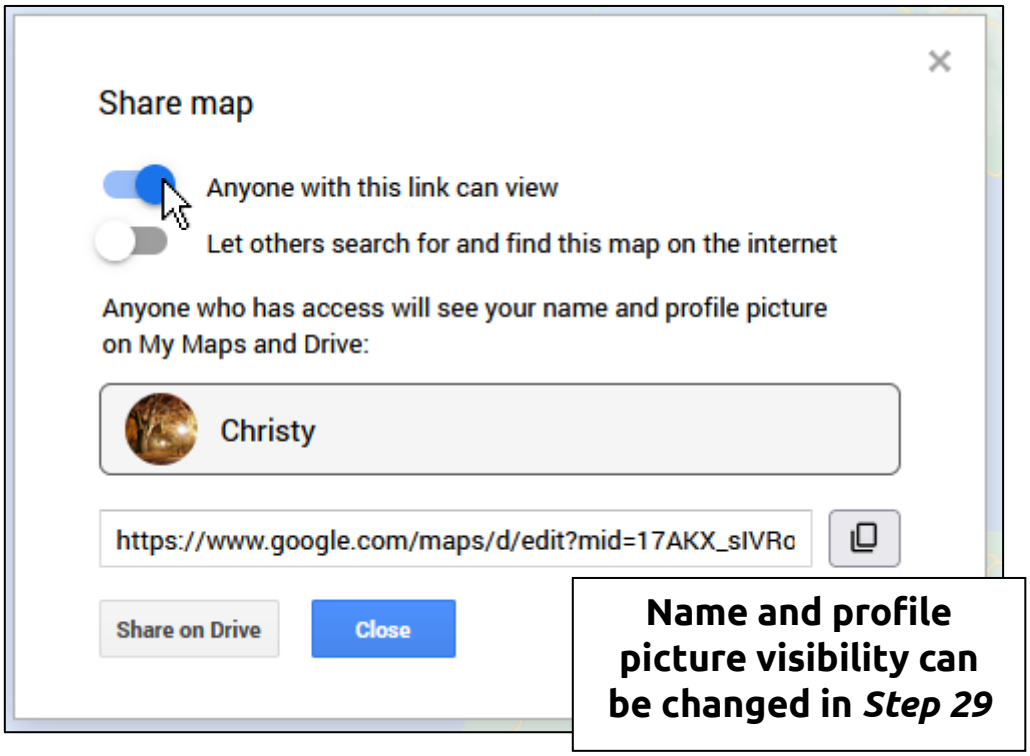
Step 14

Before adding footpath routes and obstacle points, add a title and description by clicking 'Untitled map'. Then save.



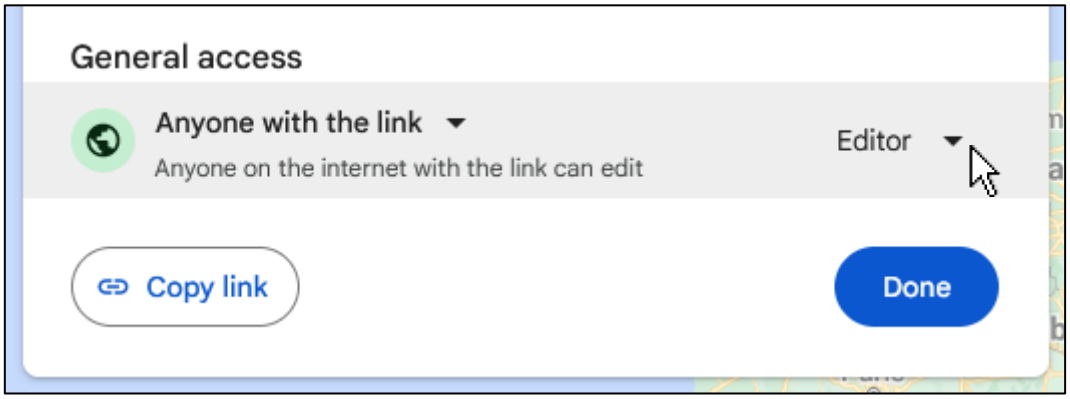
Step 15

IMPORTANT: Click the share icon Share and **toggle the first setting to ON.** The second toggle setting is optional. It will save automatically after a few seconds. **If you do not do this, your map will not be visible even after it is published.**



Name and profile picture visibility can be changed in *Step 29*

If you want to add contributors, click ‘Share on drive’ and select ‘Editor’ from the drop-down menu under the ‘General access’ section. Then copy the link and give it to your other editors with Google accounts.

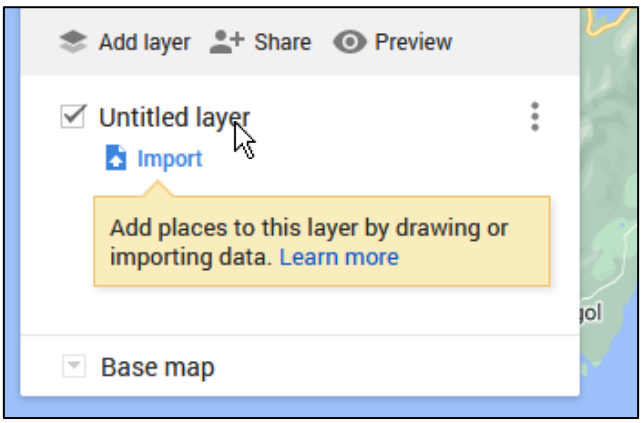


DO NOT make this link public or **anyone** will be able to edit and destroy your map. It is **VITALLY IMPORTANT** that you reverse this setting back to ‘Viewer’ when the map is ready to be published - as the copied link to *edit* and to *view* your map is **the same**. This option merely changes the *permissions of people with the link*, and **NOT** the link that is being shared.

To avoid potentially losing your map by making editing permissions public, it is best practice to create a **single shared** Google account (such as an organisation’s official account which can be accessed by multiple members of staff).

Step 16

Click on ‘Untitled layer’ to name the layer. Click the ‘Add layer’ button Add layer to add more layers. Click, hold and drag on layers’ names to change their order. You can check the box to hide them, too.



How to create your map: Adding points to your map

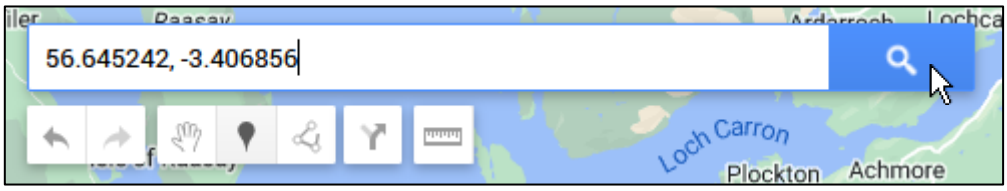
Step 17

To add your first point to the map, copy its coordinates from the list made earlier. Below is an example obstacle:

56.645242, -3.406856

Step 18

Inside of Google *MyMaps*, enter the coordinates in the search bar and search.



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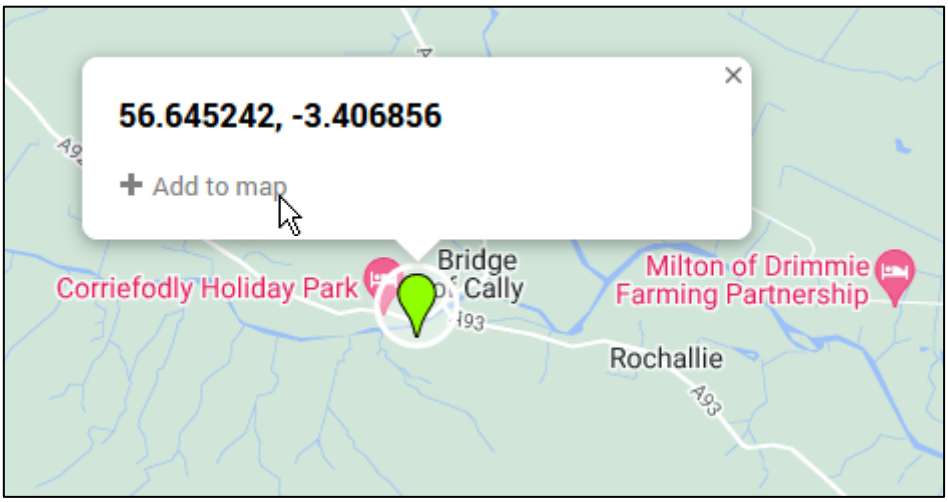
Step 19

Google *MyMaps* will place a green pin on the coordinate's location. Click on the green pin and then click 'Add to map'.



Step 20

The pin will change to blue and add itself to your first layer. Click the pin and edit its title and description by clicking the pencil icon. To do a line break and start typing on a new line in the description, instead of pressing *enter*, press *shift + enter*.

Step 21

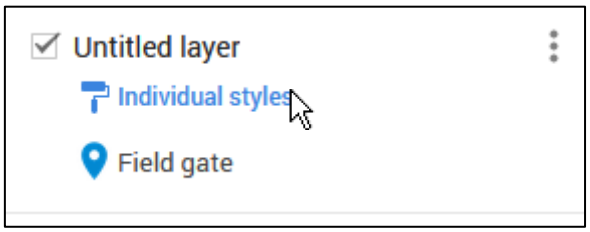
To add an image, click the camera icon. Then select the image you earlier downloaded from your computer associated with the pin's location. You can add multiple images to one pin. **Note:** You cannot delete images from a pin, so if you make a mistake you will need to delete and remake the pin.

Step 22

To change the pin icon and its colour, click the paint bucket icon, then click 'More icons' for more icons. Here you can upload custom icons by clicking the 'Custom icon' button. Note, you cannot change the colour of custom icons.

Step 23

Click on the paint roller icon in the layers panel to change the universal styles of pins in a layer.



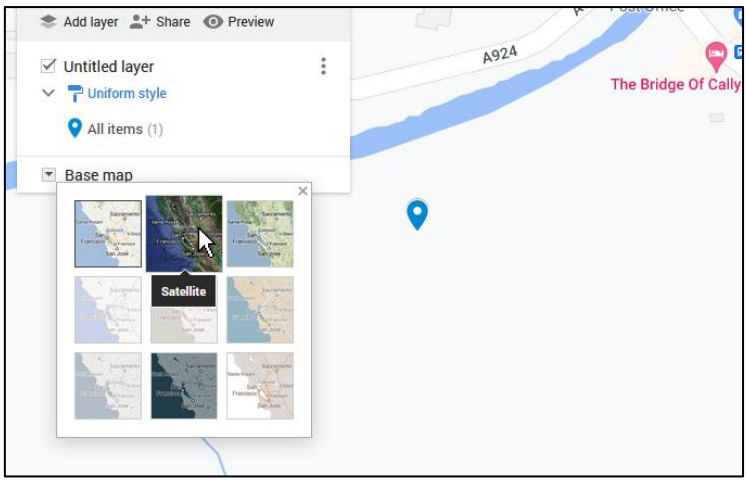
'Uniform style' will apply the same icon style for every obstacle in a layer. 'Sequence of numbers' will number the obstacles from 1 upwards. 'Individual styles' allows for each pin to be customised without affecting other pins.

In the same menu, click the drop down under 'Set labels', and click 'name'.

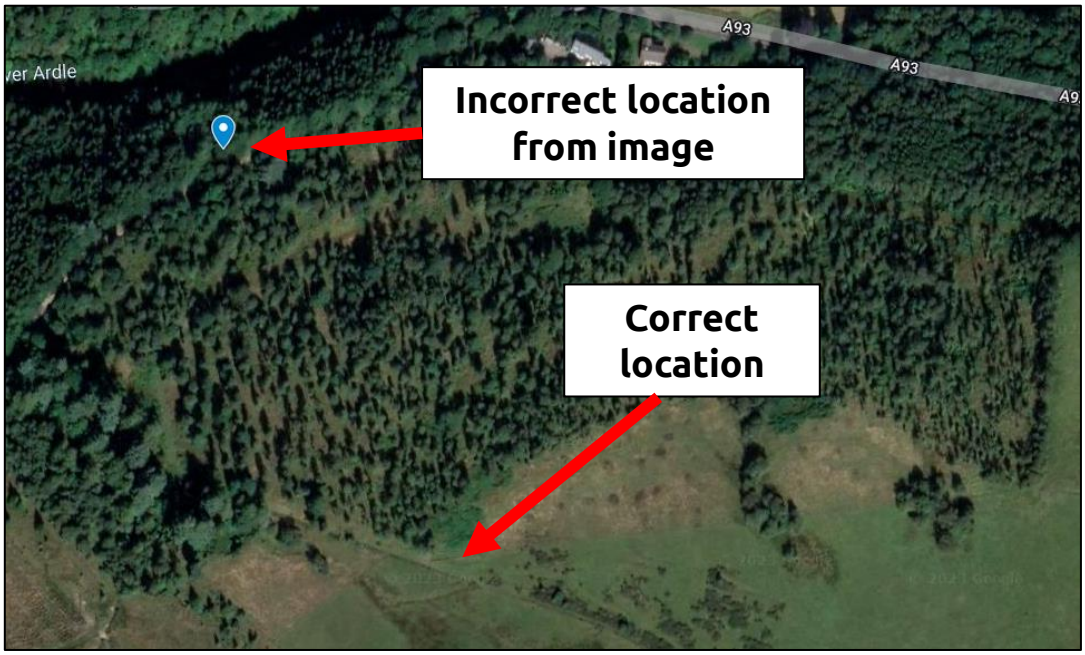
Step 24

To move the pin's location, click, hold and drag it on the map. This can be used to find its precise location.

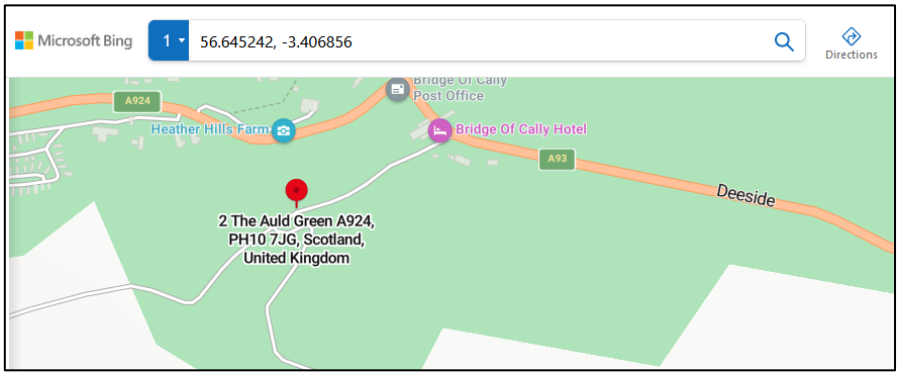
On the panel on the left, click the 'Base map' dropdown menu and select 'Satellite'. You can change it back later, or to another base map, but the satellite view will help for locating the obstacle you wish to map.

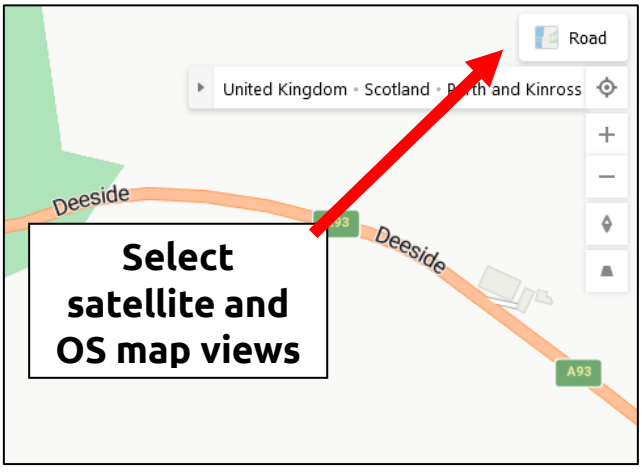


In this example, the image's GPS coordinates were 200m off.

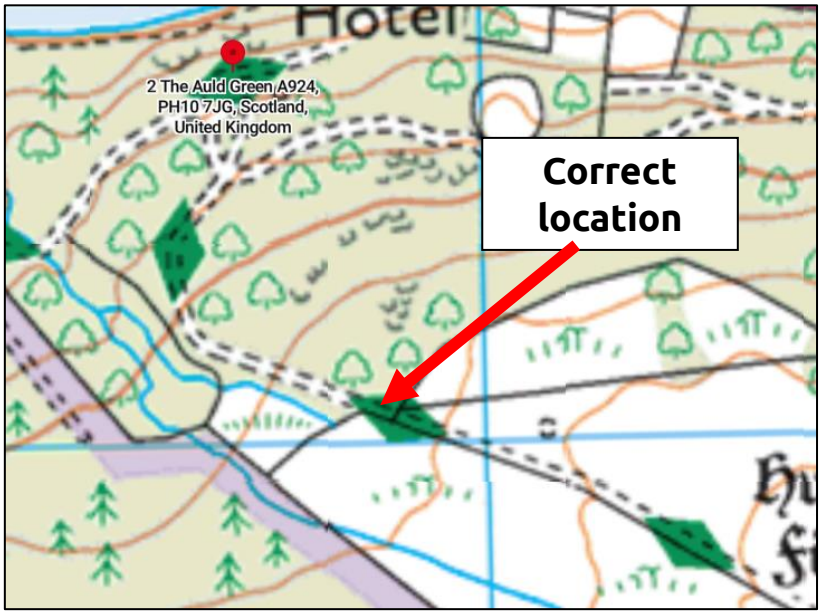


Bing Maps also uses satellite imagery and it is typically of a higher quality than Google's. It also has an OS map layer to help find your obstacles true location. You can search the same coordinates used earlier in Bing Maps to find your location again.





For this example, the OS map layer shows the footpath. It also shows the edge of the forest, which we may have earlier noted when recording the obstacles.

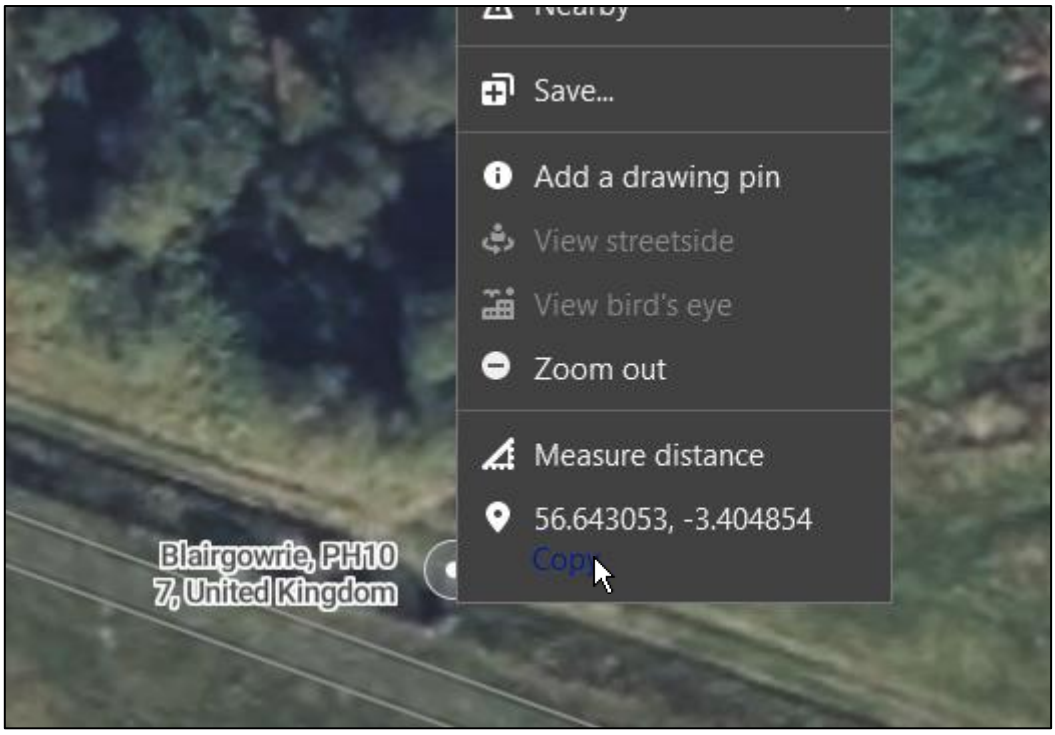


Bing Map's satellite (hybrid) imagery is of a high enough quality to be able to spot the obstacle we wish to pin.

	
Bing Maps	Google Maps

(Continued on next page…)

Inside of Bing Maps, right click on top of the field gate and copy its exact coordinates.



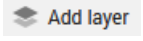
Now either move your existing pin on your Google *MyMaps* map using the instructions from *Step 24* or create it anew with the instructions from *Step 18*.

This example was for illustrative purposes, so it is best to determine the pins exact location with the above methods before adding to your Google *MyMaps* map to avoid having to redo steps in the future.

Step 25

Repeat for all obstacles/points on your map.

Step 26

To move pins to another layer, firstly create another layer with the 'Add layer' 

button. Click on its title to rename it. Then click, drag and hold on your pin and drag it to the new layer.

How to create your map: Adding shapes and lines to your map

Step 27

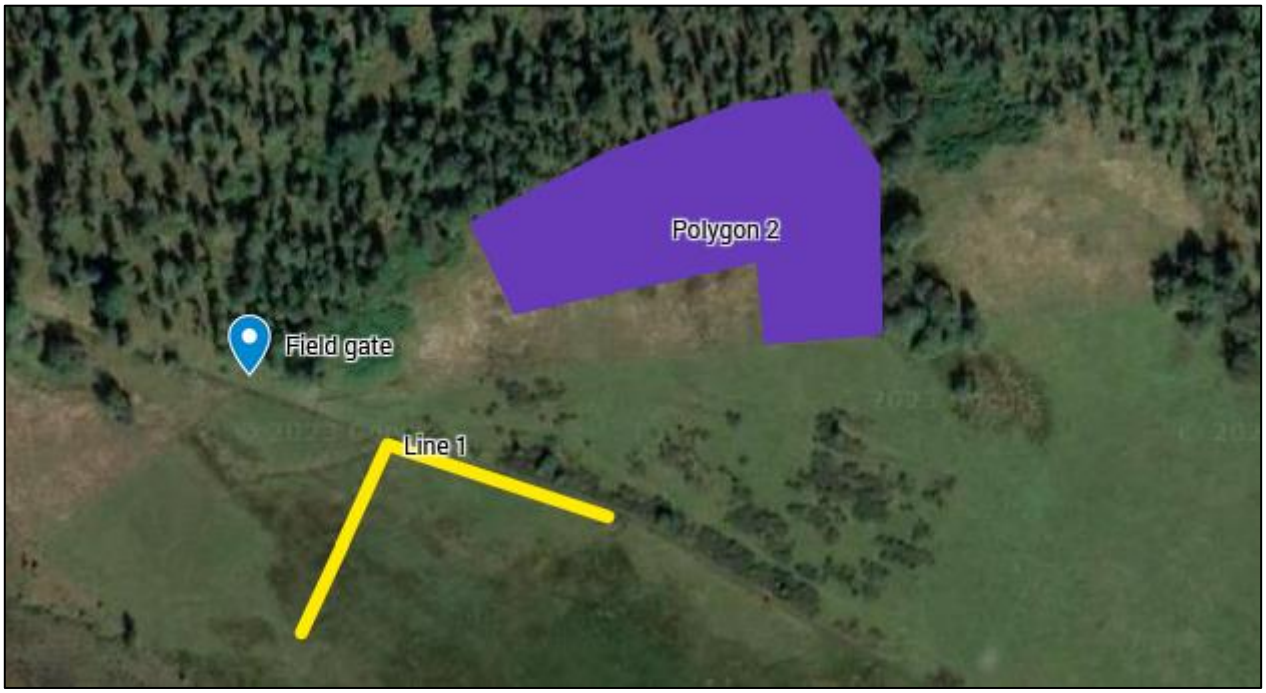
IMPORTANT NOTE: Do not create your long-distance walking route path line with the Google *MyMaps* line tool. See *Step 28a* or *Step 28b*.

To create a simple line or polygon in Google *MyMaps*, click the lines icon under the search bar. Click the tick Add line or shape icon to add a line or polygon. **Do not** select the driving, biking or walking route: this will lock your line to an existing Google Maps line. Many walking routes in Scotland are not included on Google Maps.

Press *enter* to complete your line. Select it by choosing it from the panel on the left, and edit its colours with the paint bucket icon, and its title and description with the pencil icon.

With polygons, you can also change its transparency with the paint bucket icon.

If the line or polygon has a label, you can remove it by clicking the paint roller icon and setting its label to 'No label'.



How to create your map: Adding walking route line

Use **either** *Step 28a* **or** *Step 28b*

Step 28a

Route lines do not have to be in their own layer, but it is best practice to do so. Create a new layer with the 'Add layer' Add layer button.

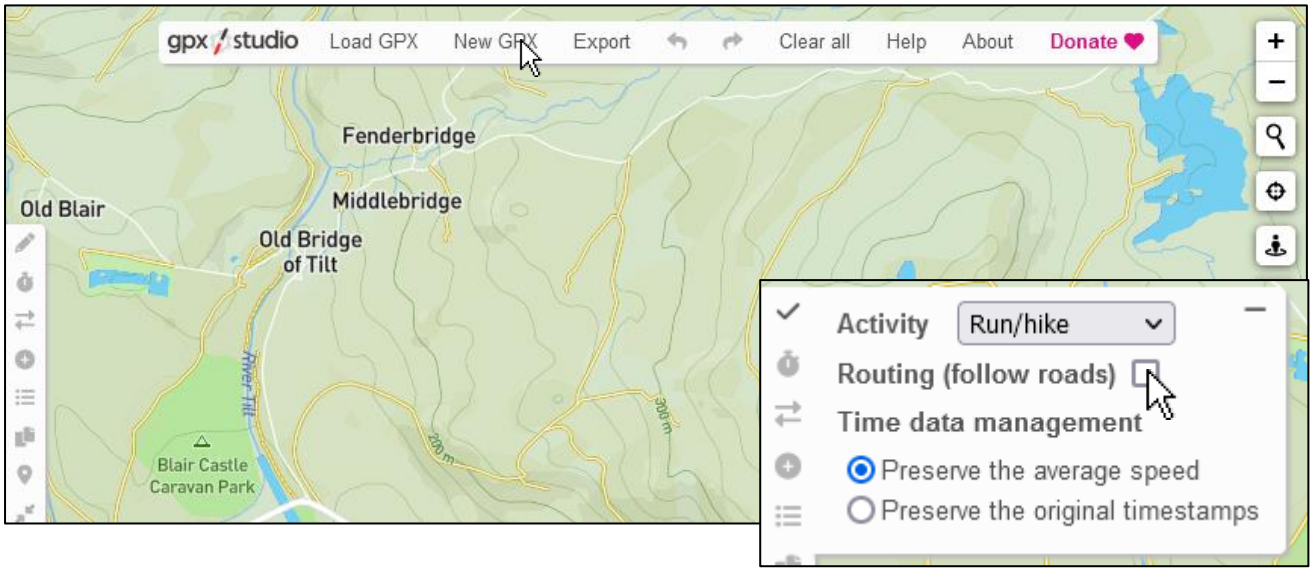
From here, you can import an existing .gpx, .kml, .kmz, or .cvs file that supports route waypoints. You can then edit it with the paint bucket icon and pencil icon by first selecting the new line.

Step 28b

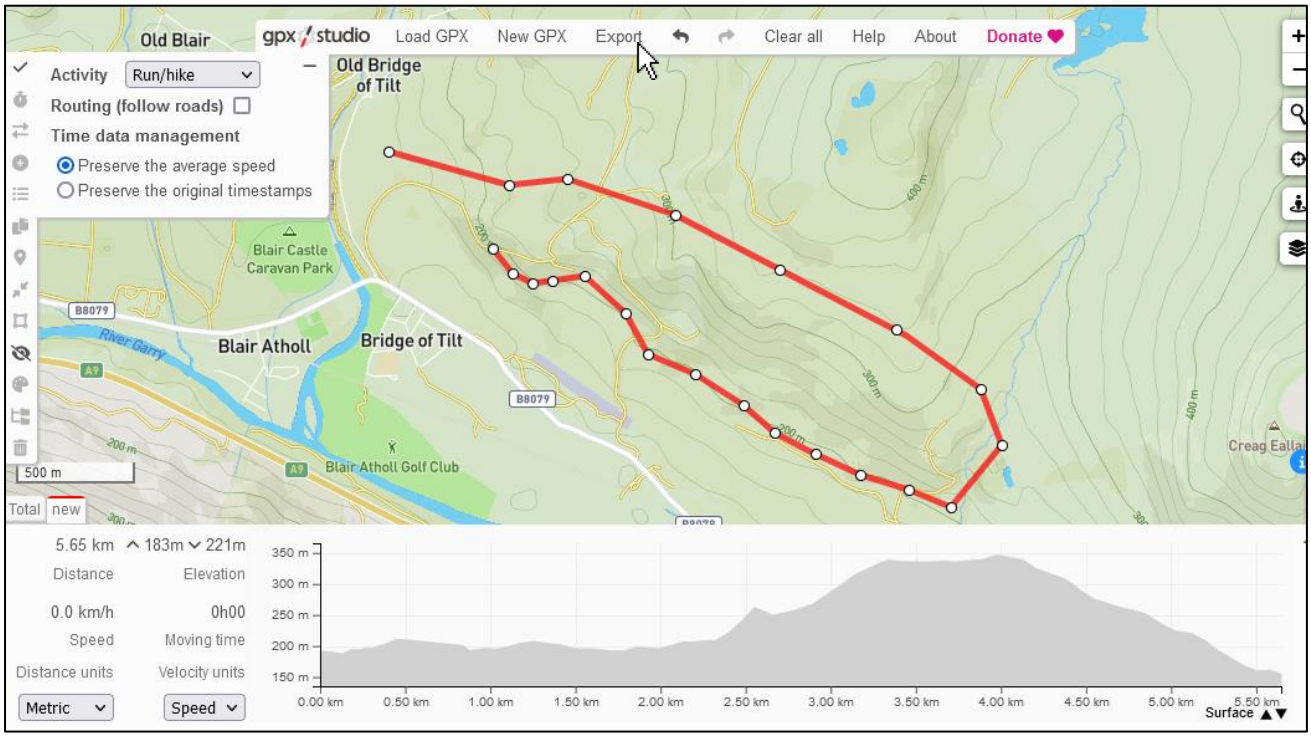
To create a new walking route line from scratch, it is not recommended to use the Google *MyMaps* line tool. It cannot be edited and the viewport cannot be easily changed when creating a path (meaning you cannot zoom in, zoom out or pan easily).

Instead, it is recommended to use a tool such as GPX Studio to create the route line.

i) Click 'New GPX' on the top bar of the website. In the new pop-up menu on the left, select 'Run/hike' from the 'Activity' dropdown, and **uncheck** the follow roads option. You can ignore the time data management options.



ii) Draw the route on the map. You can change waypoints by clicking on them, and edit the line shape by clicking and dragging on straight sections.



iii) When complete, click ‘Export’ on the top bar and then click the ‘Download’  button. Save the .gpx.

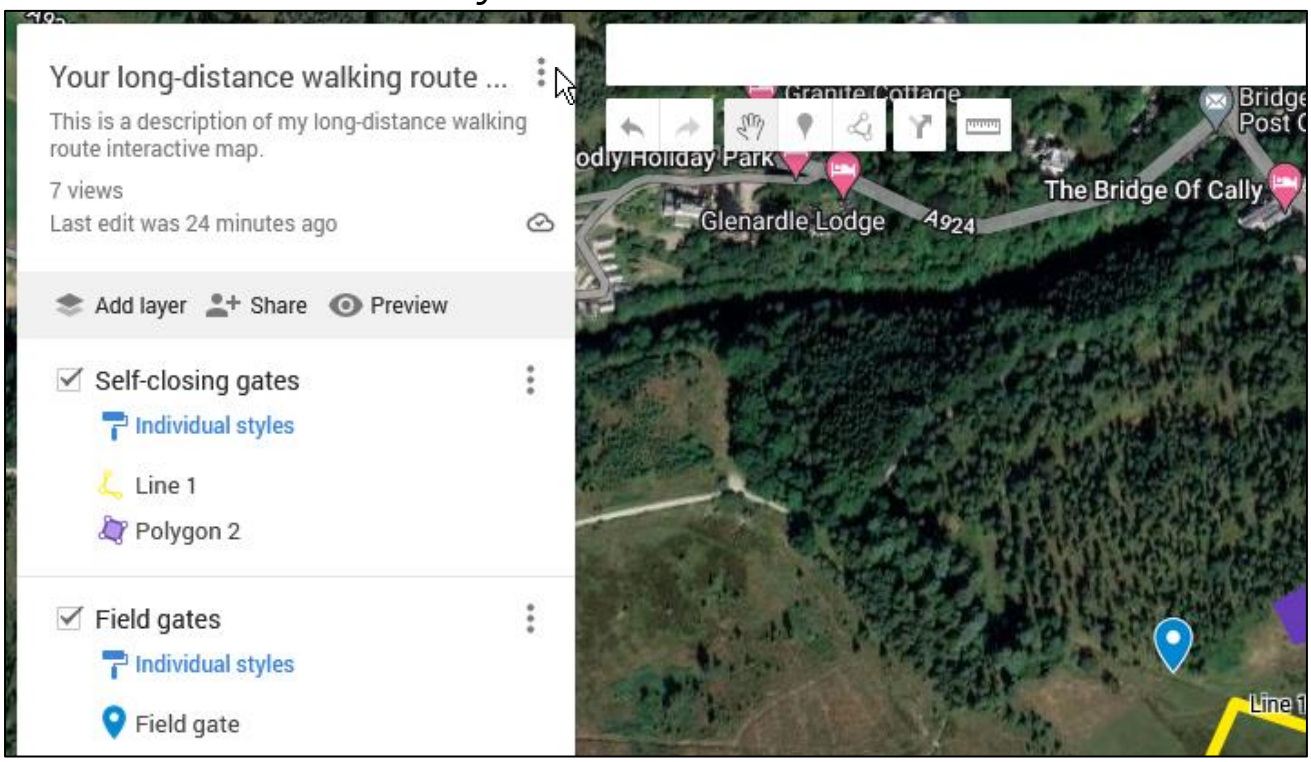
iv) Go to *Step 28a*.

How to create your map: Publishing your map

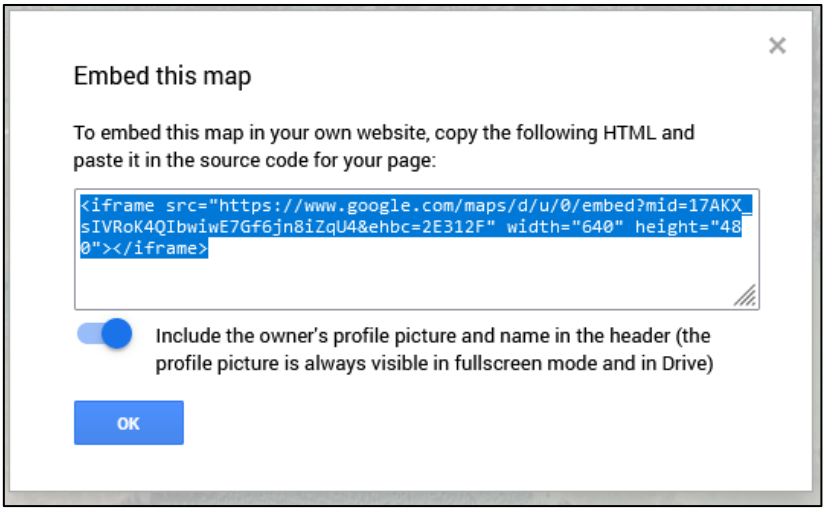
Step 29

Before continuing, ensure the correct settings have been configured as in *Step 15*.

In Google *MyMaps*, click the three dots on the top right of the panel on the left. Then click 'Embed on my site'.

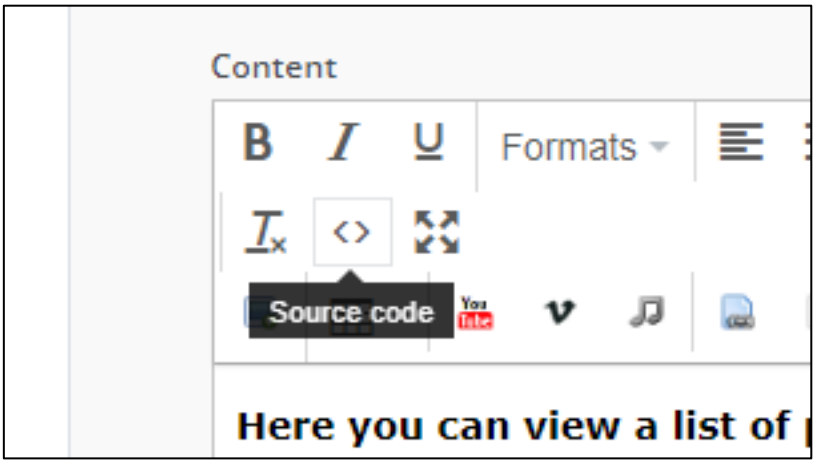


In the next menu, you can hide the owners name and profile picture. Copy the code in the box. Regardless, your email address will not be visible.

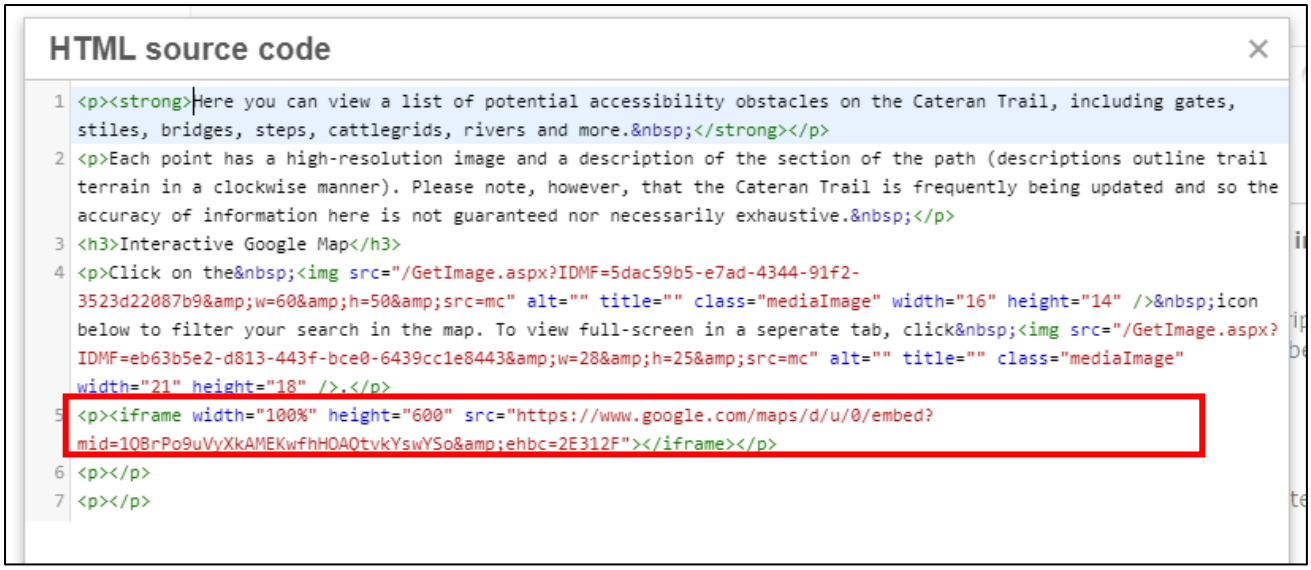


Step 30

If your website supports it, on any given page access the source code. Otherwise, contact your website provider to have this map implemented.



Next, paste the copied code into a suitable place inside of the source code. Below is an example:



In this example, we changed the width from 640 pixels to 100% so it takes up the entire width of the body of the website. The height was also increased. Experiment with what works for your website.