SRWR Guidance Note

Guidelines on using GIS for Plotting Works

Introduction

GIS can be a very valuable aid in monitoring and coordination of road works and associated disruptive activities on the road network. It enables automated conflict checking to be undertaken within the SRWR, to highlight potential coordination issues, and also enables users to view a spatial representation of the works/activities, to gain an appreciation of their location and extent.

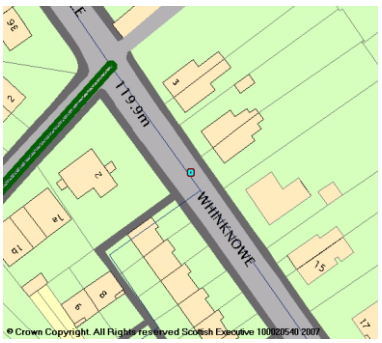
However, as with all other system issues, the information provided is only as good as the data that has been entered. It is crucially important that the plotted information provides a visual image which is representative of the impact of the type of works or activities that are being carried out. With this objective in mind, the greater the degree of standardisation and conformity that is adopted in entering the plots, the greater the chance that the graphical image will be interpreted appropriately.

The SRWR is increasingly becoming the central repository for data relating to all activities that can have a disruptive effect on the road network. This now includes items that vary in extent from minor repairs to major asset reconstructions, from events that may take an hour to those that may have an impact for years, and from licences for relatively unobtrusive skips to complete road closures and diversion routes.

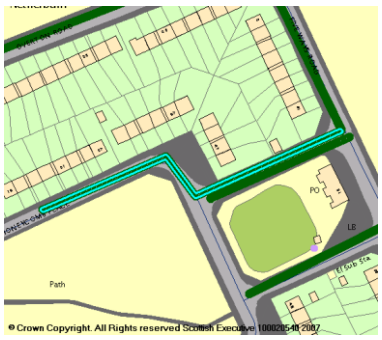
This document attempts to establish guidelines for how each type of works and activity should be represented by plotting in the GIS, in order that the subsequent consumer of the information will gain the best possible interpretation of the impact of the activities.

Options for Plotting Works and Activities

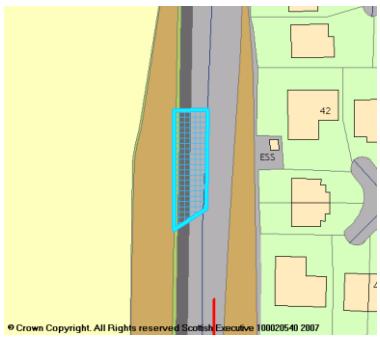
The following examples show the three basic options for plotting works:



a point representing the approximate location of the works



a polyline showing the extent of the expected works or trench



a polygon giving indication of the extent of expected occupation of the road

Each of these three options may be appropriate in particular situations, depending on the type of works that is to be carried out and its location. The location of the works should be considered, particularly with respect to the likely disruption impact, e.g. its significance as a traffic route.

Roads Authority and Utility Works

Works represented by a single point

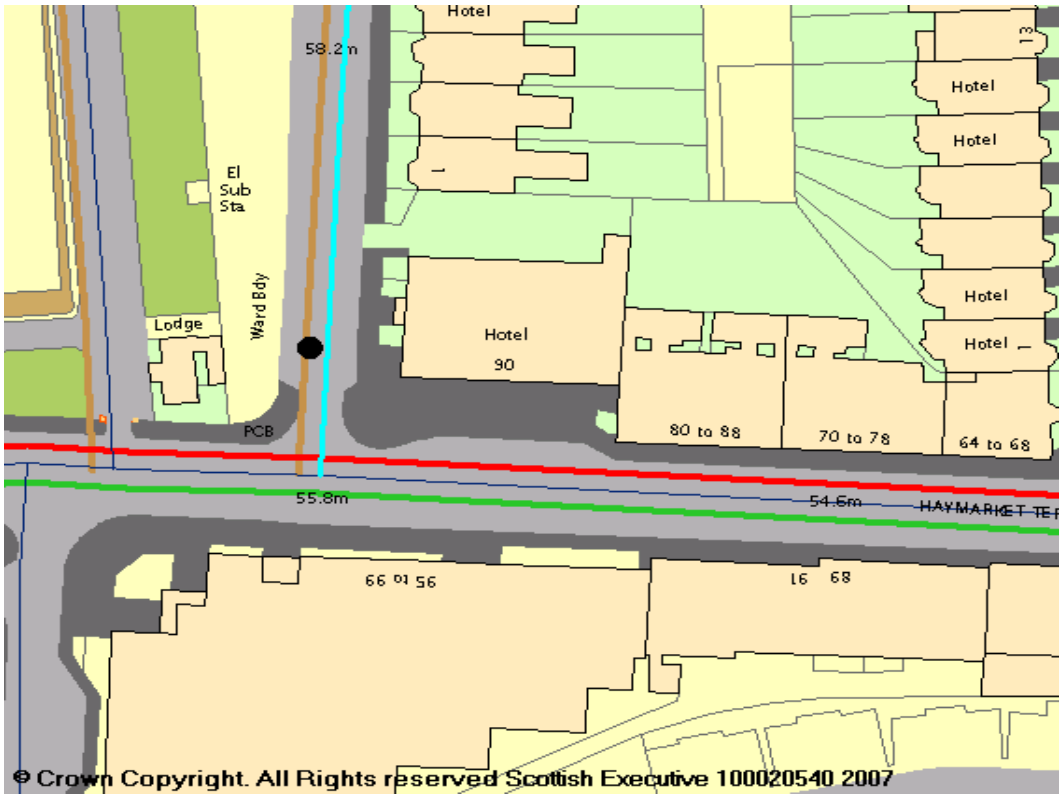
This is the simplest and easiest way to represent a works location, and is appropriate for works that are relatively small in nature, and likely to have a correspondingly small disruptive impact. It would be expected that the works would be both:

1. Minor utility repair works without excavation or requiring a single hole/short trench, or Roads Authority works such as patching or street lighting of similarly small extent.

2. Carried out on a road with low traffic density (e.g. Category 3 or 4, non Traffic Sensitive) and without a complete road closure, or in a part of the road that will have minimal traffic impact.

It is important that the point selected for plotting provides a realistic reflection of the likely impact of the works. Accuracy longitudinally along the road is not normally crucial, as long as the plot is within 5/10 metres of where the works is carried out, but every effort should be made to achieve an accurate reflection of the lateral position (there is clearly a major difference in the significance of works on a grass verge, compared with works located in the centre of the carriageway).

A point representation should not be used if the works (including the occupation of the road for associated purposes such as vehicles, storage of materials, etc) is likely to extend over a distance of more than 10 metres. Care should also be taken, even on a minor road, if the position of the works could potentially cause a significant traffic build-up (e.g. it is on a minor road, but adjacent to a major traffic route). The following display shows this latter case – the plot on the minor road is clearly in close proximity to a major route (the green line indicates a major route with Road Category 1 and the red line indicates traffic sensitivity designation), and the works may lead to a traffic build-up on the main route. In these cases, it may be necessary to provide a more accurate representation of the intended extent of occupation.



Works plot on a minor road, adjacent to a major route

It is accepted that emergency works may often be plotted as a point, because it is not known where the works will need to be carried out pending on-site investigation. It is also understood that the point plotted may be of dubious accuracy, either because the initial report of the problem location is inaccurate, or because the root cause is found to be some distance away from the detected symptoms. However, if the emergency leads to works of significant timescale and extent, the representation on the map should be edited to a more accurate representation at the earliest opportunity, once the exact location and extent of the works is known.

Works Represented by a polyline

A polyline is appropriate for works of greater extent, particularly to represent the path of an expected continuous (or near continuous) trench of significant length. Clearly, in some cases the whole length of the trench may not be excavated at the same time; the works may be carried out progressively along the length of the trench. However, the plot should represent the full length of the expected trench.

Whenever possible, the polyline should be plotted carefully to give an accurate reflection of the likely impact. For example, a trench following the line of a grass verge and having little or no impact on footway and carriageway should be plotted along the line of the verge. However, if the works is likely to close off the footway or part of the carriageway, it should be plotted in such a position as to indicate that, irrespective as to the exact line of the trench itself.

Please note that a polyline should not be used to represent a set of separate works at distinct locations along a road, e.g. a number of separate connections to different properties along the road, unless these are relatively close together. It is possible to set up additional Sites on the works at the PROPOSED WORKS stage, and plot each of those sites individually from within the Sites screen, but these additional plots will not show on the co-ordination screens. The alternative is to generate completely separate works for each connection. This will provide an accurate depiction, showing a number of small works in different locations along the road, whereas a single polyline could give a false impression.

Works represented by a polygon

A polygon should be used to represent a works wherever it is important to provide an accurate representation of the full extent of the likely occupation of the road. This is particularly the case, even for minor works, where they are being carried out on a major traffic route (e.g. a Category 1 or 2 road, or in a road designated as Traffic Sensitive, even if the works is expected to be done outside the TS times), and where the provision of a single point or a polyline will not provide an accurate reflection of the likely traffic impact. Note that the polygon should depict the maximum extent of the works occupation area, including any areas used for materials and plant storage, parked vehicles, etc.

It is recognised that this may, in some cases, provide an exaggerated picture of the impact, but the associated works details should include traffic management and textual descriptions to explain how the disruptive impact will be minimised. For example, for a trench which crosses the entire carriageway, the Description may explain that no more than one lane will be occupied at any point in time, and the Traffic Management details would define the appropriate traffic control mechanisms.

On a major traffic route, even a modest size works could prevent continuous two-way traffic flow and have a major disruptive impact. It is essential to consider the full extent of the road occupation in order to determine what traffic management may be required, and the plot on the map should accurately represent this extent.

Works which cover a full lane, half-carriageway or full carriageway should be plotted accurately to depict this. A special case is resurfacing or reconstruction, where it may be crucial to depict the extent accurately in order to show the area over which a subsequent Section 117 restriction applies.

Activities and Impacts other than Works

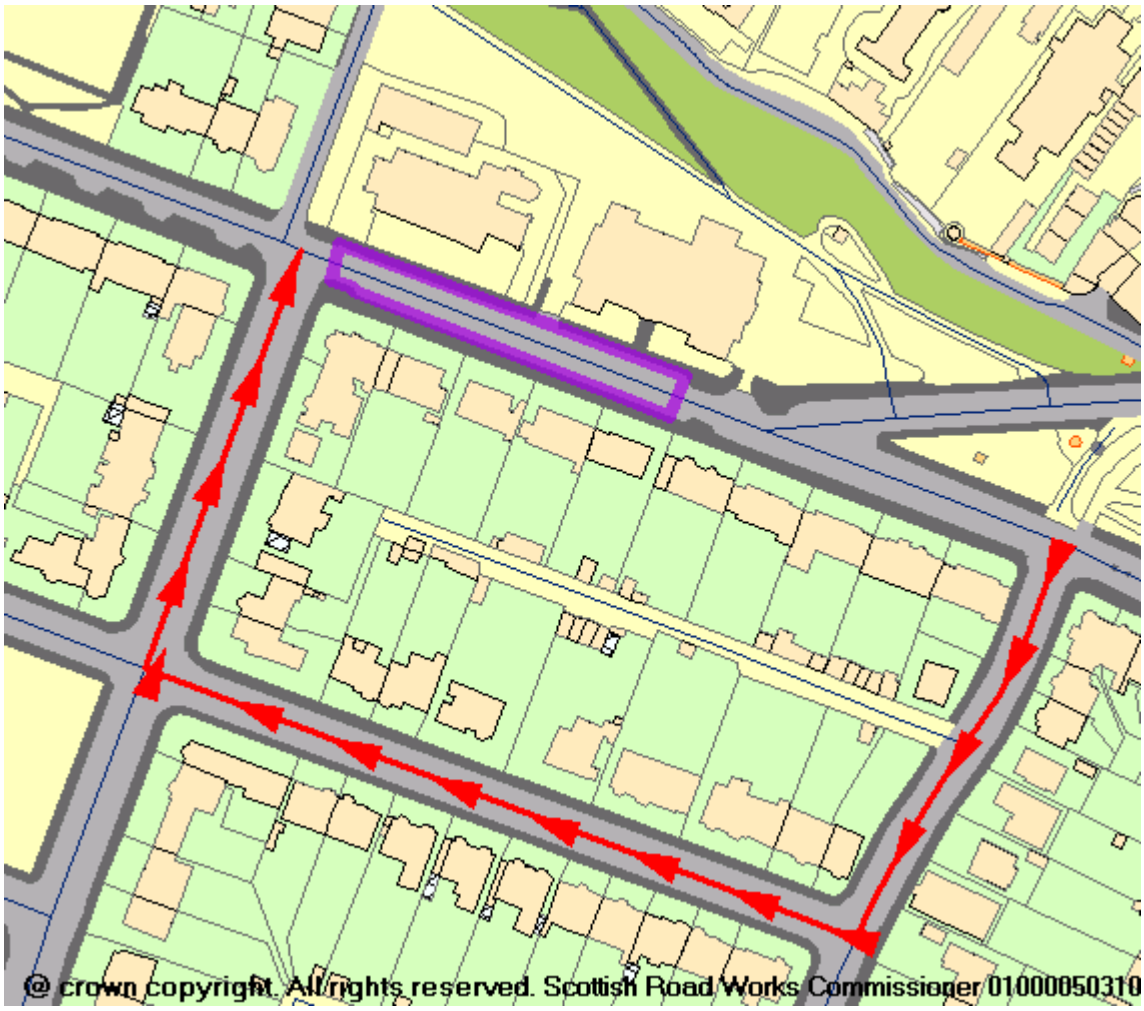
Permits for Skips, Scaffolding, Materials, etc

Plotting for these should follow the same basic principles as for works. For small impacts, such as skips and small volumes of materials on the road, in areas of low traffic density, plotting a single point is adequate. Scaffolding which overhangs the pavement is likely to be best shown by a simple polyline around the relevant structure, depicting the extent of the intrusion.

On a major traffic route, where there could be a significant impact on the vehicle or pedestrian traffic flow, a polygon identifying the full extent of the occupation is recommended.

Marches, Sporting Events, other Road Closures, and Diversion Routes

Where activities have a major impact on a road, such as closure for marches or sporting events, or the use of the road as a diversion route, it is crucial that no other works or activities are planned to occur on the roads at the same time. The display below shows where a major works such as resurfacing is being done with a road closure, and the diversion route has been plotted on a series of associated roads, which will all be included within the coordination checking functions.



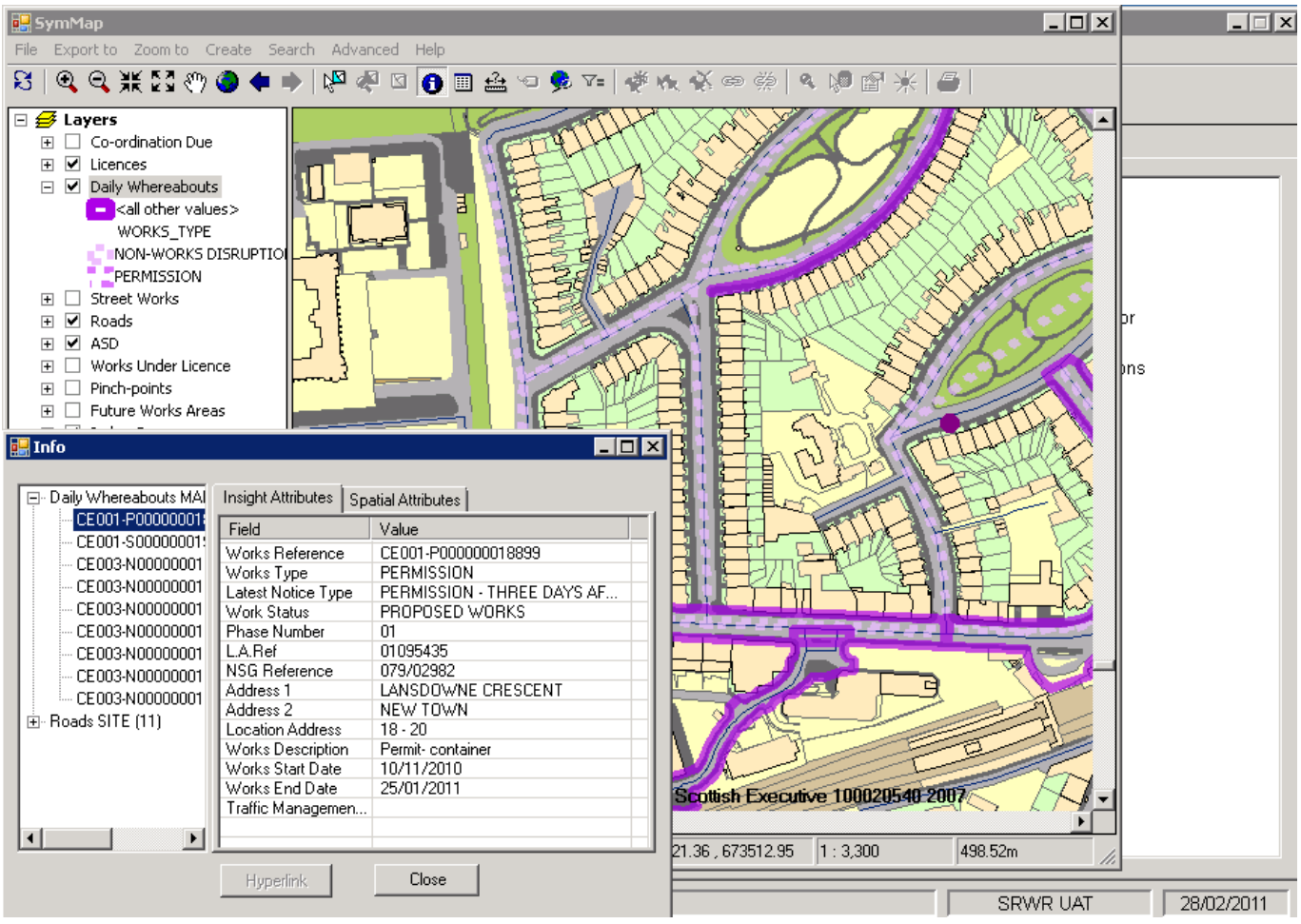
Map display showing the resurfacing works (plotted in purple) and the diversion route shown in red

The Daily Whereabouts Layer

The Daily Whereabouts Layer on the map contains only those works and activities that are Prospective, Proposed and In Progress, i.e. they remain on the Daily Whereabouts layer from the time when they are initially recorded until they are completed, at which point they are removed from the layer (but remain on the overall Street Works layer).

The Daily Whereabouts layer is used for the SRWR coordination and conflict checking, for the very reason that it contains only those works and activities that may have an impact. However, for this reason, it is crucial that all works and activities are "Closed" once they are completed, or cancelled if not proceeding. This is as important for non-works activities as for works.

If non-works activities are recorded directly into the SRWR, they MUST be closed manually once they are completed. Otherwise, they remain on the Daily Whereabouts layer and will be raised as conflicts continuously. If users wish to avoid the administrative overhead of closing them manually, they should make use of the Licences module. Within this module non-works activities of particular types (i.e. particular Licence Types) can be configured in such a way that the system automatically closes them and removes them from the Daily Whereabouts layer when they reach the End date.



Screenshot showing the effect on the Daily Whereabouts layer in an area with a large number of non-works disruption activities, as well as numerous major works areas

Colour-coding has been introduced into the Daily Whereabouts layer in order to distinguish visually between actual works and other non-works activities, the latter being displayed with hatched lines. This does not in any way reduce the need for records to be closed when they are completed as defined above. However, it helps clarify the display to distinguish the non-works disruptions.