ORDNANCE SURVEY GB

OS Open USRN – Technical Specification

OFFICIAL
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Ordnance Survey

Version History

Version	Date	Description
1.0	01/07/2020	Initial release
1.1	29/09/2020	Updated release
1.2	01/03/2021	Inclusion of Scottish Street Gazetteer

Purpose of this Document

This is the Technical Specification (from now on referred to as the 'Specification') for the OS Open USRN product. This Technical Specification provides information on the contents and structure of this product. For greater insight into the product and its potential applications, please refer to the Product Overview. For more information about current data quality issues and improvement plans, please refer to the release notes.

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1. Introduction

1.1 Overview

OS Open USRN is an open dataset of all Unique Street Reference Numbers (USRNs) within OS MasterMap Highways Network, with an associated simplified line geometry representing the geographic extent of each USRN.

This product enables users to easily share information held against a USRN with a location and to link together information associated with USRNs, enabling location-specific visualisation and analysis.

This product has not been designed to be used for the street or road works statutory processes where the necessary additional detail for coordination is found in the National Street Gazetteer (NSG) for England and Wales or the Street Gazetteer for Scotland. Nor does the product provide a topologically structured network suitable for road routing, where the additional detail and complexity provided in the OS MasterMap Highways Network is required.

1.2 USRNs

A USRN is a unique and persistent identifier for a street contained in either the National or Scottish Street Gazetteer. Every street, road, track, path, cycle track or way is assigned a USRN by a Roads Authority, Local Highway Authority or Highways England.

OS Open USRN will include all live USRNs published within the OS MasterMap Highways Network, including Type 1, 2, 3 and 4 streets (see Table 1).

Local authorities have a statutory responsibility that means they are the source of information for both street naming and managing the highways/roads network. Each authority is provided a USRN range, that is centrally allocated and managed by GeoPlace in England and Wales, and Improvement Service in Scotland.

A USRN is assigned to the complete street feature and is made up of junction-to-junction segments. It is mandatory for all USRNs to be assigned a Street Type. All streets must have a Type 1 or a Type 2 USRN assigned, but a Type 3 or Type 4 USRN can also represent the same sections of carriageway as the Type 1 or 2 are assigned. Table 1 provides the definitions for different street types.

Table 1: Street type definitions.

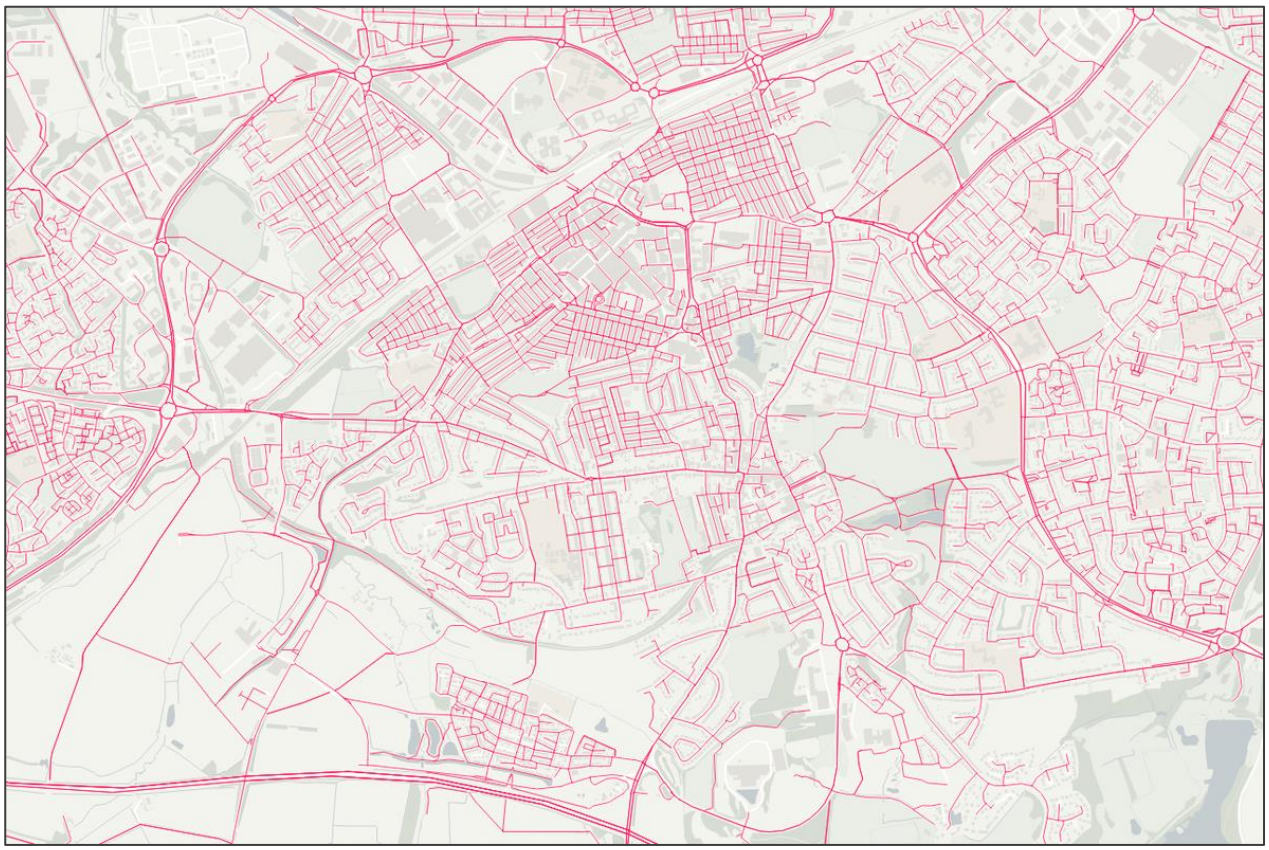
Value	Definition	Type	Example
Designated Street Name	Official Street Name approved by the relevant authority.	Type 1	High Street, Main Street
Officially Described Street	Description of a street where an official street name has not been provided.	Type 2	Road from the Littleton to Fred Farm
Numbered Street	A route or road number allocated by a highway or roads authority.	Type 3	A11
Unofficial Street Name	Street Name that references a Street or part of a Street that is an unofficial local name not designated by the authority.	Type 4	Lovers Lane

1.3 Target Audience

This document is intended for users with technical knowledge in GIS.

2. Product Structure

OS Open USRN is a vector dataset with a single line feature for each USRN. Each of these features will have accompanying attribution and a simplified line geometry. The following section will detail the attribution held against the features in this dataset and provide further information about the source and simplification of the geometry.



2.1 Attributes

Table 2: Table of attributes

id		
Definition: A non-persistent integer which is autogenerated and is required within the OGC GeoPackage format.		
Type: Integer		**Multiplicity:** [1]
usrn		
Definition: Unique Street Reference Number (USRN), a unique and persistent identifier assigned by the Roads or Highway Authority.		
Type: Integer	**Size:** 8	**Multiplicity:** [1]
street_type		
Definition: The type of Street assigned by the Roads or Highway Authority. See Table 3 for allowable values.		
Type: Text	**Size:** 35	**Multiplicity:** [1]
geometry		
Definition: The aggregated geometry of either matched OS Road Links or the Elementary Street Units. For more information see section 2.2.		
Type: Geometry (MultiLineString)		**Multiplicity:** [1]

Table 3: Street type values

Value	Definition
Designated Street Name	Officially named street.
Officially Described Street	Officially described street.
Numbered Street	Officially numbered street.
Unofficial Street Name	Unofficial local name for a street.
Street for addressing purposes only	A street which has been created for addressing purposes of the Local Land and Property Gazetteer (LLPG) in English or Welsh Street Naming Authorities.

2.2 Geometry

The line geometry provided for each USRN is an aggregation of multiple links to ensure that there is a 1:1 relationship between USRN and feature (see Figure 1). Each USRN will be represented by a single line feature and each line feature will have a single USRN ID.

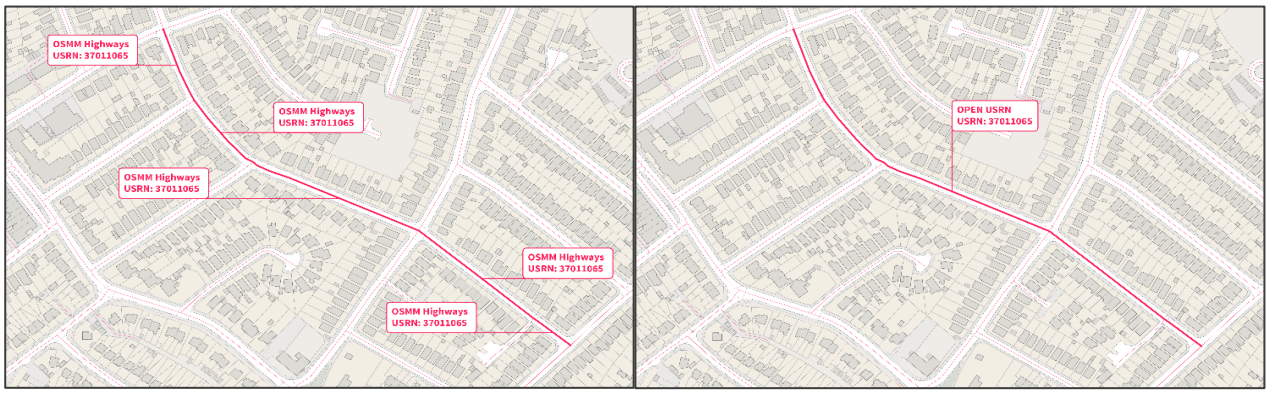


Figure 1: USRN representation in OSMM Highways Network and OS Open USRN, showing 1:1 relationship between USRN and feature in OS Open USRN.

OS Open USRN will include geometry sourced from both Ordnance Survey and Roads or Highways Authorities. Where possible, the geometry of streets captured by a Roads or Highway Authority is spatially matched to the geometry of OS RoadLinks and PathLinks. Where this match is successful, OS geometry is used as the source geometry to represent the extent of the Street. Where spatial matching cannot match the geometry captured by the Roads or Highway Authority to OS geometry, the Roads or Highway authority geometry is used as the source geometry to represent the extent of the Street. Using a combination of geometry sourced from OS and from the Roads or Highway authorities results in all USRNs being spatially represented in OS Open USRN.

2.2.1 Geometry Simplification

Geometry simplification is the process of reducing the scale and complexity of the data whilst maintaining the important elements and characteristics of the features. The line geometry provided for each Street has been simplified to ensure that it provides the most suitable geometry for the purposes of openly sharing and linking information against the USRN, whilst ensuring the integrity of the USRN representation.

This simplification means that:

- The number of vertices representing the curvature of streets has been reduced
- Short cul-de-sacs and slip roads are not supplied
- Complex configurations of the road network are represented by a simplified depiction such as large roundabouts, complex junctions and traffic islands.

This simplification process will never result in the loss of complete USRNs, all features with a unique USRN will not be removed.

Due to the generalisation of the geometry, we recommend a viewing scale range of 1:15,000 to 1:30,000.

2.2.2 Overlapping Geometry

It is to be expected that there will be multiple representations of a piece of road or path. Where Type 3 and Type 4 USRN geometry exists, they will overlap Type 1 or Type 2 geometry. For example, Alan Drayton Way is represented by a Type 1 (Alan Drayton Way) and a Type 3 (B3037) (see Figure 2).

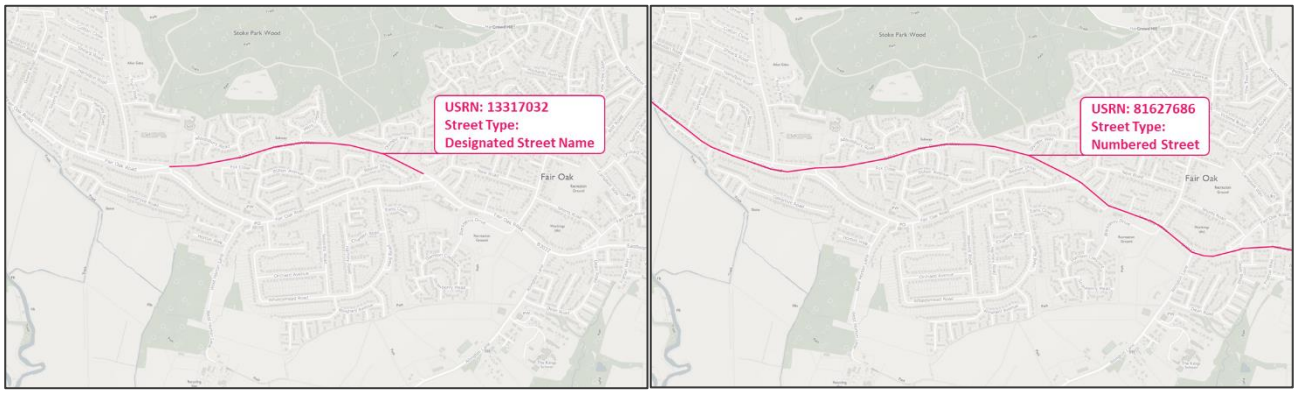


Figure 2: USRN representation of Alan Drayton Way, showing overlapping geometries.

In England, overlapping USRN geometries may also occur where Highways England have an additional USRN allocated for the same street. This is due to Highways England being the responsible authority for trunk roads in England and will therefore assign USRNs accordingly, whilst Local Highway Authorities will capture all the streets within their authority area, even if they are not responsible.

Additionally, multiple USRN geometries may exist for the same street where the Local Highway Authority boundaries are defined by the centreline of the street, where the geometry will be represented as overlapping.

Please note, the responsible authority information for USRNs is not provided in this product but is available in the OS MasterMap Highways Network.

2.3 Metadata

A JSON file (JavaScript Object Notation file) containing version information will be supplied with the product, including the information in Table 4 below.

Table 4: Information held within the JSON file supplied with OS Open USRN

Attribute Name	Source	Data Type	Additional Information
filename	osopenusrn_YYYYMM	Text	Filename with publication date of OS Open USRN
productPublicationDate	date of OpenUSRNs product publication	Date	Format YYYY-MM
sourceProduct1.productName	"OS MasterMap Highways Network"	Text	Constant
sourceProduct1.productPublicationDate	publication date of Highways release	Date	Format YYYY-MM

3. Supply Overview

3.1 Supply Format

This product is available in a GeoPackage format only.

GeoPackage (gpkg) is an open, standards-based data format as defined by the Open Geospatial Consortium (OGC). It is designed to be a lightweight format that can contain large amounts of varied and complex data in a single, easy to distribute and ready-to-use file.

- GeoPackage offer users the following benefits:

  - The single file is easy to transfer and offers the end-user a rich experience.
  - Attribute names are not limited in length making it user-friendly.
  - No file size limit, so lots of data can be easily accommodated.
  - Supports raster, vector and database formats making it a highly versatile solution.
  - It is an OGC Standard.
  - In most cases, it is a plug-in-and-play format.

3.2 Coverage

This product covers Great Britain and includes all USRNs which are present in OS MasterMap Highways Network.

This product will be supplied as a full dataset only. Areas of interest orders and change only updates are not available.

3.3 Currency

OS Open USRN is available monthly and will be available in alignment to the OS MasterMap Highways Network product release on the first working day of each month.

3.4 Coordinate Reference System

The OS Open USRN product uses the British National Grid (BNG) Coordinate Reference System.

BNG uses the OSGB36 geodetic datum and a single Transverse Mercator projection for the whole of Great Britain. Positions on this projection are described using Easting and Northing coordinates in units of metres. The BNG is a horizontal spatial reference system only; it does not specify a vertical (height) reference system.

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