

# OS MASTERMAP WATER NETWORK

Product Guide

# OS MasterMap® Water Network

## Product guide

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## Preface

This product guide (hereafter referred to as the guide) is designed to provide an overview of OS MasterMap Water Network (hereafter referred to as the product) and it gives guidelines and advice on how a customer might derive the maximum benefit from the product. It assumes a general knowledge of geographic information. If you find an error or omission in this guide, or otherwise wish to make a comment or suggestion as to how we can improve the guide, please contact us at the address shown below under contact details or complete the product and service performance report form at [annexe A](#) and return it to us.

## Contact details

Our Customer Service Centre will be pleased to deal with your enquiries:

Customer Service Centre

Ordnance Survey

Adanac Drive

SOUTHAMPTON

SO16 0AS

General enquiries: +44 (0)3456 050505

Welsh helpline: 03456 050504

Textphone: +44 (0)2380 056146

[customerservices@os.uk](mailto:customerservices@os.uk)

[www.os.uk](http://www.os.uk)

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## **Trademarks**

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## **Back-up provision of the product**

You are advised to copy the supplied data to a backup medium.

## **Using this guide**

The documentation is supplied in portable document format (PDF) only. Free Adobe® Reader® software, which displays the specification, incorporates search and zoom facilities and allows you to navigate within. Hyperlinks are used to navigate between associated parts of the specification and to relevant internet resources by clicking on the blue hyperlinks and the table of contents.

# Chapter 1 Introduction

## Overview

OS MasterMap Water Network is a three-dimensional digital representation of the watercourses in Great Britain. It includes rivers, streams, lakes, lochs and canals as a series of watercourse network lines. The network lines (links) are attributed to provide a range of information about the section of watercourse they depict. The OS MasterMap Water Network will significantly enhance systems used to manage waterways, river and the flood risk they pose.



Watercourses that are underground or below structures are included where Ordnance Survey capture processes or accepted sources can infer the connection.

Polygons and lines representing the water area and its banks are not supplied in this product, but will continue to be maintained and supplied as part of the OS MasterMap Topography Layer product.

The OS MasterMap Water Network is provided with three-dimensional coordinates.

## Key Features

OS MasterMap Water Network product includes:

- Flow and connectivity.
- Three dimensional geometry.
- Catchment information including name.
- Names of watercourses including language alternatives.
- Vertical relationships where water courses pass over or under one other.
- Average widths.
- Additional information provided by national authorities.

## **Standards**

OS MasterMap Water Network is based on the [INSPIRE Hydrography Data Specification](#), which itself is based on the ISO TC211 family of open standards.

## **Coordinate Reference System**

OS MasterMap Water Network uses the British National Grid (BNG) spatial 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. This water network product, unlike other OS MasterMap Layers, contains height values for the geometry vertices. Several orthometric height datums are used in OS MasterMap data to define vertical spatial reference systems. The most common of these is Ordnance Datum Newlyn (ODN), which is used throughout mainland Britain. Height values on the features do not specify which vertical reference system is used, although information on the extents of additional datums can be provided.

OS MasterMap Water Network is projected in the EPSG 7405 OSGB36/British National Grid + ODN. This projection is used as it specifies the Z value as Ordnance Datum Newlyn.

In the GML data, this is represented by reference to its entry in the EPSG registry, as

<http://www.opengis.net/def/crs/EPSC/0/7405>

A guide to coordinate systems in Great Britain is available at:

<http://www.os.uk/docs/support/guide-coordinate-systems-great-britain.pdf>

## **Applications**

OS MasterMap Water Network supports a wide range of customer applications that use geographic information. The product can be used alone or combined with other Ordnance Survey products such as OS MasterMap Topography Layer, OS MasterMap Imagery Layer and OS Terrain® 5.

The OS MasterMap Water Network product could be used for applications such as:

- Tracking water flows and contamination.
- Flood prediction, protection and response measures.
- Use with other OS products for better understanding, analytics and visual interpretation, for example OS Terrain 5.
- The management of statutory directives relating to watercourses.
- Ecology studies, for example species migration.

## Chapter 2 OS MasterMap Water Network

### Feature Types

OS MasterMap Water Network features are classified into feature types. Each feature type has associated attribution and further detail can be found in the [Technical Specification](#).

The OS MasterMap Water Network as currently published will consist of the following core features:

- WatercourseLink
- HydroNode

### WatercourseLink

A WatercourseLink feature (figure 2) represents the alignment of a watercourse; the majority have been derived from Ordnance Survey detailed topographic data, made available to customers as the OS MasterMap Topography Layer.

WatercourseLink features are split in the following circumstances:

- Where two or more watercourses meet.
- Where the real world based attribution of a watercourse changes.
- Where the name of a watercourse changes or ceases to apply.

WatercourseLink features are not split where they pass under or over one another at different levels. They may be split where they pass into a culvert or tunnel or onto an aqueduct.

Height has been added to each vertex coordinate using the raw data used to create the OS Terrain height products.

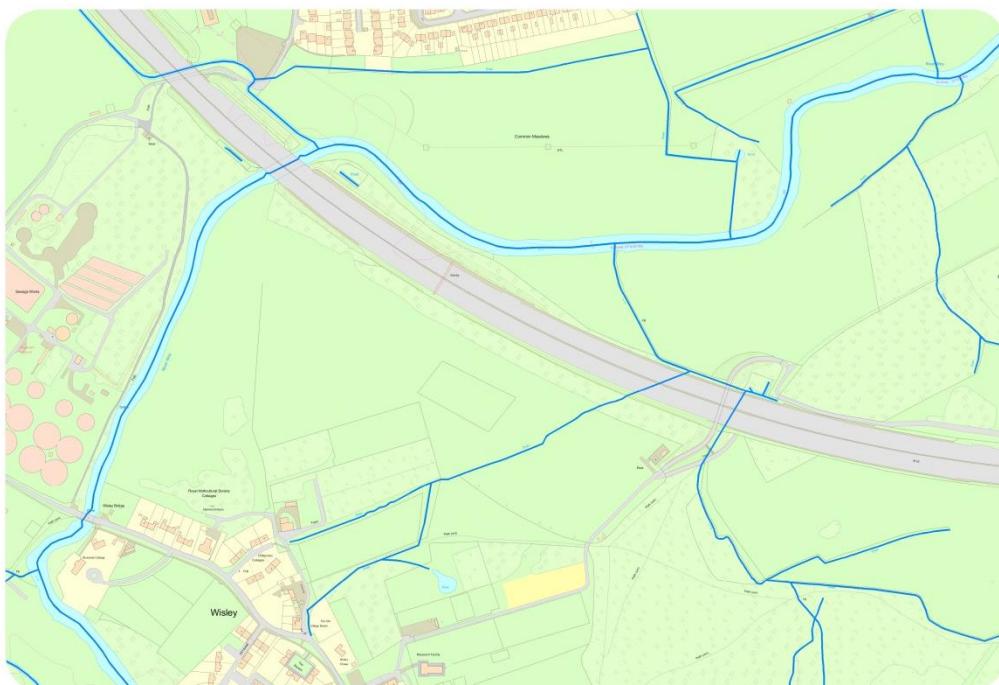


Figure 2: WatercourseLink feature representing the alignment of watercourses

## HydroNode

A HydroNode feature (figure 3) explicitly represents the source, sink, or junction of a watercourse. In addition they record the location where any real world related attribution changes.

A HydroNode feature may only exist at the end point of a WatercourseLink feature. Height has been added to the coordinate for the HydroNode using the raw data used to create the Terrain height products.

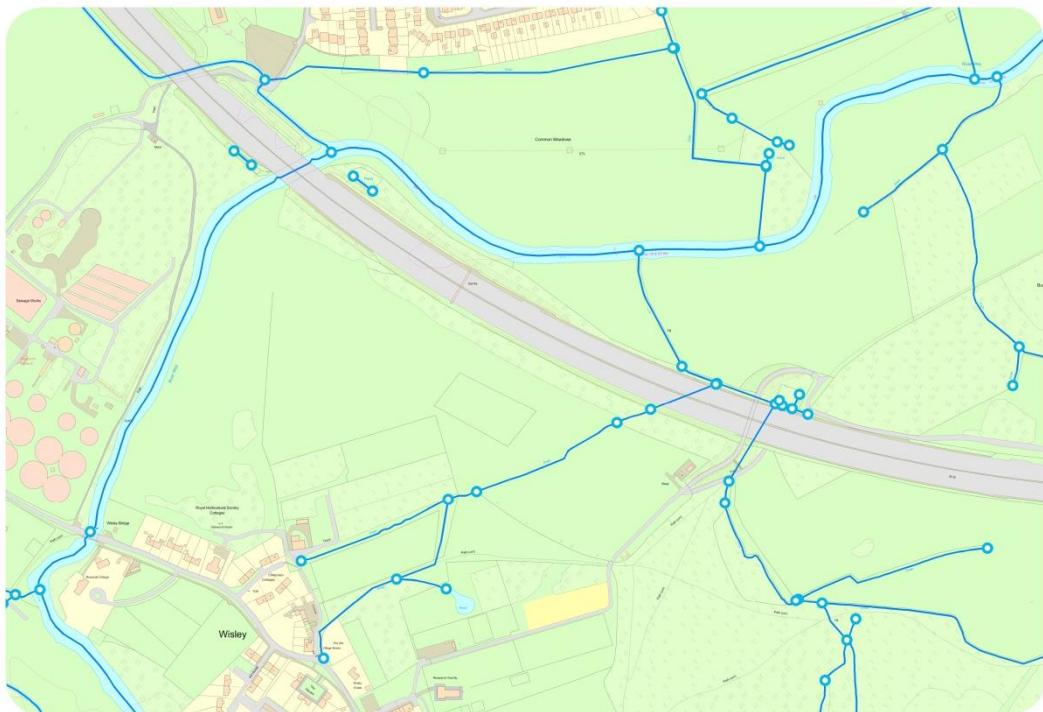


Figure 3: HydroNode feature explicitly represents a watercourses source, sink, and where junctions of watercourses exist.

# **Chapter 3      Product Supply**

## **Supply Format**

GML 3.2.1 zipped using gzip.

## **Supply Media**

OS MasterMap Water Network incorporates a web-based ordering system that allows the customer to order initial data supply and update, obtain price estimates and view details of their holdings on demand.  
<http://www.os.uk/business-and-government/help-and-support/products/how-to-buy.html>.

Full National set available on DVD.

## **Coverage and File Size**

OS MasterMap Water Network is a national dataset and is maintained and supplied as 5 km by 5 km tiles of data.

File size estimates can vary from about 1 Kb compressed to about 780 Kb (compressed). A full national supply will be approximately 1.25 Gb compressed. Compression rates vary, dependant on the size and content of a tile.

## **Geographic chunking**

To make the management of large areas easier, data is split into chunks, each of which covers a nominal square area or part of such a square or a nominated size. Chunk boundaries are imposed purely for the purpose of dividing large supply areas into pieces of a manageable size in a geographically meaningful way. Both full supply and updates are chunked.

This section describes how data is chunked into geographic areas.

1. The customer submits an area of interest.
2. The online system creates a grid covering the entire area based on specified size; any 5 km by 5 km chunk that intersects the area of interest will be included in the order (figure 4).
3. Each square grid forms a chunk file.
4. Each feature that intersects that square goes into the chunk file.
5. OS MasterMap Water Network is supplied in 5km by 5km chunks.

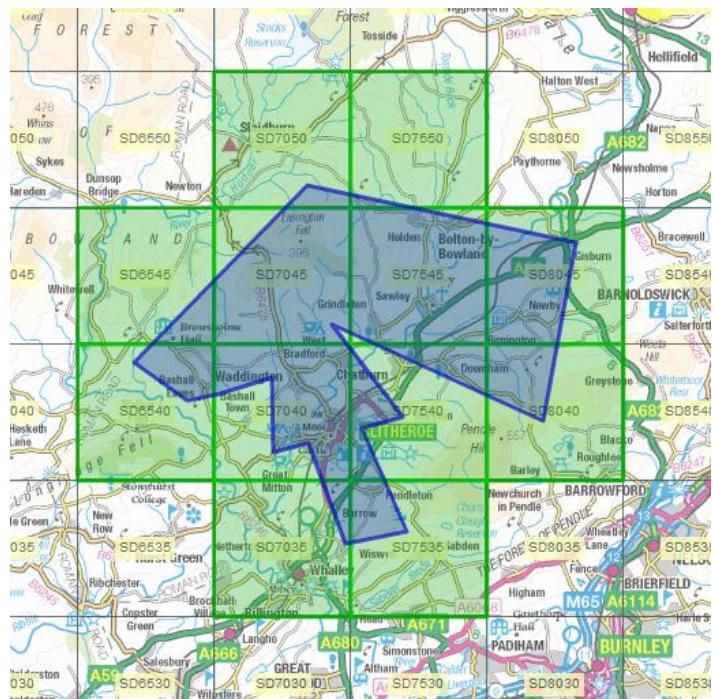


Figure 4 12 chunks are created, one for every tile that is intersected by the area of interest.

Where WatercourseLink features go over tile edges they are supplied in every chunk they intersect. Therefore, these features will be duplicated. Systems reading OS MasterMap data must identify and provide the option to remove these duplicate features.

Empty chunks are not supplied; that is, if a chunk contains no information relating to a customer's selected themes then it would be an empty file and not supplied.

## Change Only Update

OS MasterMap Water Network change is supplied on a chunk basis. When a feature is changed all chunks that contain that feature are flagged as containing update.

Within an updated chunk all features are supplied whether changed or not. Inspection of the individual metadata attributes can highlight when any individual feature has been updated.

## **Chapter 4      Further Information**

Further Information about OS MasterMap Water Network can be found on the Ordnance Survey Website:

<http://www.os.uk/business-and-government/products/os-mastermap-water-network.html>

**Technical Specification:**

<http://www.os.uk/docs/technical-specifications/os-mastermap-water-network-technical-specification.pdf>

**Getting Started Guide:**

<http://www.os.uk/docs/user-guides/os-mastermap-water-network-getting-started-guide.pdf>

**Ordnance Survey**

<http://os.uk>

## **Annexe A      Product and service performance report form**

Ordnance Survey welcomes feedback from its customers about OS MasterMap Water Network.

If you would like to share your thoughts with us, please print a copy of this form and when completed post or fax it to the address below.

Your name: .....

Organisation: .....

Address: .....

.....  
.....

Postcode: .....

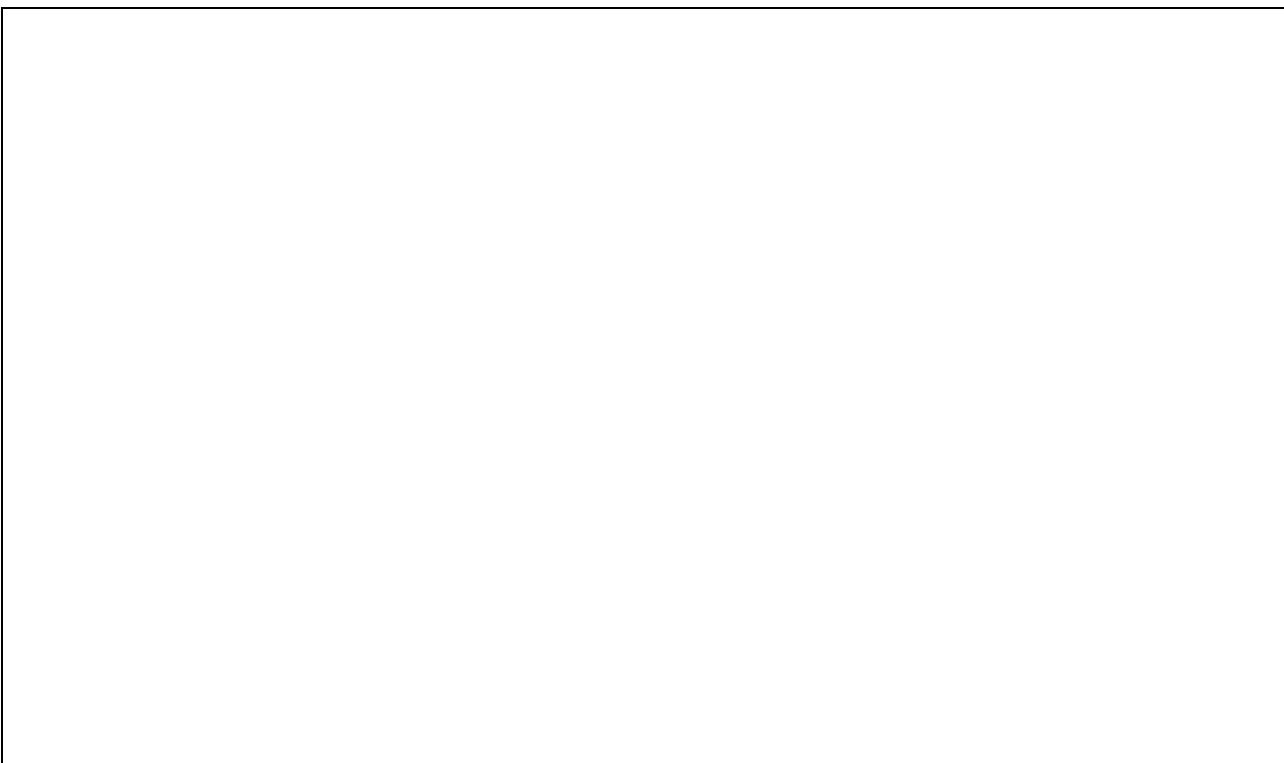
Phone: .....

Fax: .....

Email: .....

Quotation or order reference: .....

Please record your comments or feedback in the space below. We will acknowledge receipt of your form within three (3) working days and provide you with a full reply or a status report within 21 working days.



If you are posting this form, please send it to:

OS MasterMap Water Network Product Manager, Ordnance Survey, Adanac Drive,  
SOUTHAMPTON, SO16 0AS.

If you wish to return it by fax, please dial 02380 056159.

Any personal information that you supply with this report form will be used by Ordnance Survey only in the improvement of its products and services. It will not be made available to third parties.

**Customer Service Centre, Ordnance Survey,  
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+44 (0)3456 050505 (General enquiries)  
+44 (0)3456 050504 (Welsh helpline)  
+44 (0)2380 056146 (Textphone)

**customerservices@os.uk**  
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