

1. INTRODUCTION

This document provides an overview of the Postcode Unit Polygons Geoplan have built on behalf of Ordnance Survey Northern Ireland. Geoplan are providing this document alongside the release of the Northern Ireland Postcode Unit Polygons for context around the data, as well as to identify points for potential feedback from OSNI.

2. DELIVERABLES

The deliverable includes:

- Postcode Unit Polygons including vertical street lookup and discards

2.1 FILE SUMMARY

Filename Example	Description	Data Format	Total Records
GBR_BT_POSTCODE_UNIT_POLY_GEO_2020-08_1_1_0	Unit Polygons	shapefile	48,248
discards	Discard Lookup	.csv	10
vstreets_lookup (unique vstreets)	Vertical Street Lookup	.csv	2,097 (1,012)

2.2 FILE DETAILS

File Name - GBR_BT_POSTCODE_UNIT_POLY_GEO_2020-08_1_1_0

Header Record	Description	Data Type	Example
COM_UNIT	Postcode Unit	Char(8)	BT1 2AB
POSTAREA	Postcode Area	Char(2)	BT
GEO_ID	Unique polygon identifier, starting at 1 and increasing incrementally. At updates, the next incremental number will be assigned to any new polygons introduced. If a polygon is removed then its GEO_ID will not be reused.	Char(6)	1

Discards

Header Record	Description	Data Type	Example
com_unit	Postcode Unit	Char(8)	BT23 6PZ
postarea	Postcode Area	Char(2)	BT

Vstreets_lookup

Header Record	Description	Data Type	Example
vstreet	Vertical Street ID	Char(20)	VBT00001
com_unit	Postcode Unit	Char(8)	BT12 6HS
x_coord	X Coordinate (Irish National Grid)	Numeric	331680
y_coord	Y Coordinate (Irish National Grid)	Numeric	373025

Recency – July 2020

Geographical Coverage and Accuracy – Northern Ireland

Projection – EPSG 29903 (Irish National Grid)

Available Formats – Shapefile

3. SOURCE DATA

Geoplan used the following datasets to create the output. All datasets used were audited before the processing stage to produce the output

Name	Description	Reason for Use	Source	Recency
Pointer	Address point information for Northern Ireland	Premium source of address information for Northern Ireland.	OSNI	Initial build: 24/07/2020
OSNI_Open_Data_Largescale_Boundaries_-_Townlands	Townland Boundaries for Northern Ireland	Open source. Includes detailed coastline/waterbodies and gives an indication of rivers.	OSNI	2020
OSNI_Open_Data_Largescale_Boundaries_County_Boundaries	County boundaries for Northern Ireland	Open source. Used in the batching of tessellation processing.	OSNI	2020
OSNI Open data - Transport (railways only)	Transport line data	Open source. OSNI's railways are more suitable than the OSM equivalent as they are represented by a single line (not a line for each track (in each direction), which would create unrealistic polygons between them)	OSNI	2020
Open Street Map (OSM) Roads	Road information	Open source. Filtered to standard Geoplan road categories and exclude service roads.	OSM	2020

4. PROCESSING RULES

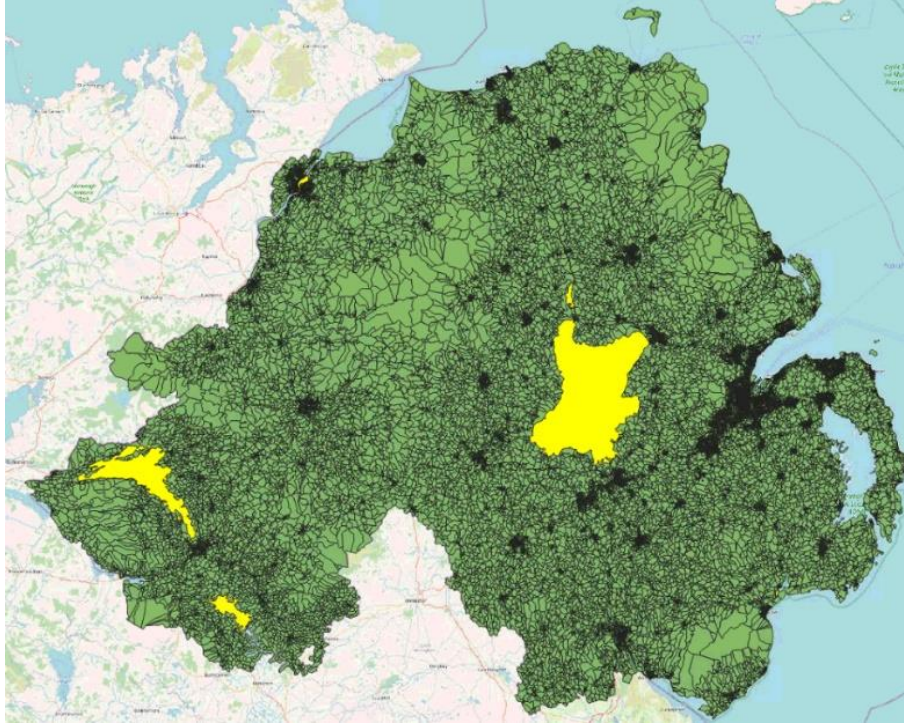
The following rules were used to process the data.

Test area	Rule Description
Coordinate system	Projection for build is EPSG 29903 (Irish National Grid)
Geoplan Standard Topological checks:	Standard Topological checks: 1. Validator - "Self-Intersection" errors are valid but any other errors should be fixed. 2. Self Intersection Output - no errors allowed 3. Geometry Check Output - no errors allowed 4. Spikes - Spikes allowed 5. Gaps – Only valid gaps exist that are waterbodies identified 6. Overlaps - none allowed
Duplicates	No duplicate postcodes
Postcode Validation	All postcodes, belonging to valid addresses should be represented across the postcode unit polygons, vstreet lookup or discards. Where a postcode is not present in either the postcode unit polygons or the vstreet lookup, then it should be present in the discards file.
Addresses In Correct Polygon	All valid address should fall within the corresponding postcode polygon Exceptions - any address that falls outside the Townlands boundaries i.e. within waterbodies or in the sea.
Blank Polygons Check / Multipart Polygons	Individual or at least one part of multipart polygon should contain a valid address <ul style="list-style-type: none"> Multipart polygons will exist where address coordinates have forced this within the tessellation process Multipart polygons can have a blank polygon associated where there are no address points to have been tessellated and the blank part is connected (share at least one node) to the part containing the valid address points.
Vstreet Squares Check	Each Vstreet square is present in the postcode polygon file and included in the Vstreet lookup.

5. FURTHER INFORMATION

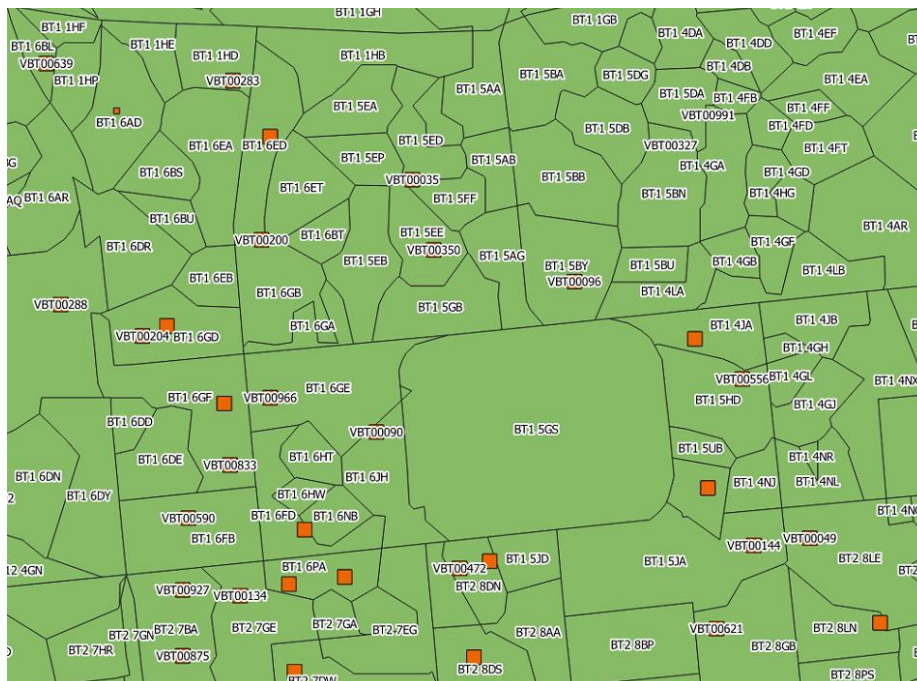
5.1 WATERBODIES

27 waterbodies have been removed from the data. These are highlighted in yellow below.



5.2 VERTICAL STREETS

Pointer addresses that exist at a location, shared by other addresses with differing postcodes are termed Vertical Streets (Vstreets) and are represented by a square in the postcode units, with an identifier of "VBT nnnnn". A Vstreet lookup is provided to cross-reference these with the postcodes that are in these locations.



5.3 BOUNDING GEOGRAPHY

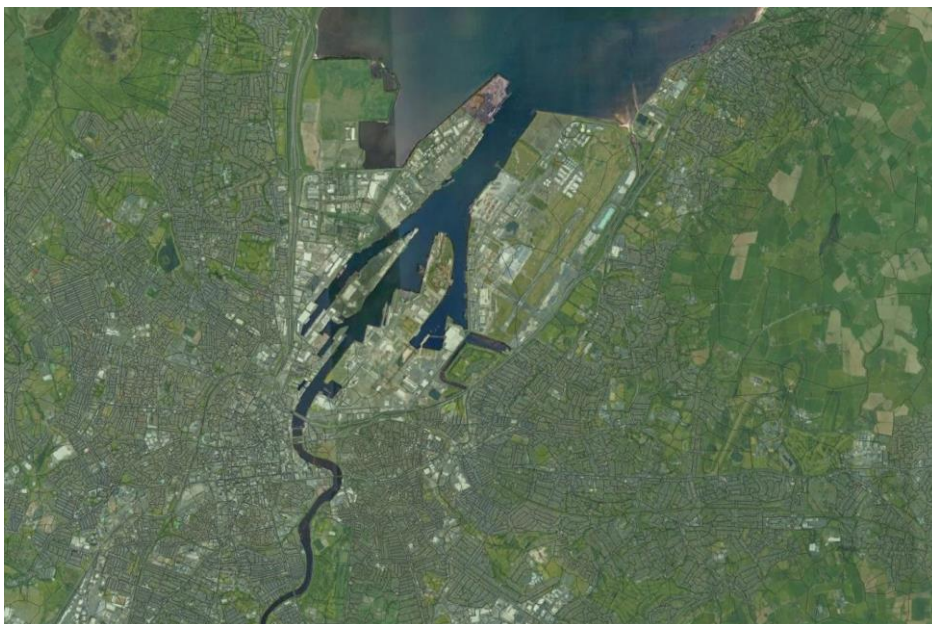
The valid addresses are tessellated by counties, within townland boundaries. These polygons are post processed to align with OSM roads for Northern Ireland, which are filtered to Geoplan's standard classifications, combined with the Railway feature from OSNI Open Data 50k transport layer. Natural features like waterways are deemed to be captured within the townland boundary

5.4 DISCARDS

Addresses that do not fall within the OSNI Large Scale Townland boundaries, are not used to generate Unit Postcode Polygons. If this will result in a full postcode not being represented in the polygon file, then the postcode will be supplied in the discards

5.5 BASE MAPS

For visualisation, the polygons can be overlaid over a variety of base maps – examples below are Open Street Map and Google Satellite view:



6. FUTURE OPPORTUNITIES

6.1.1 Postcode hierarchy aggregation

The postcode hierarchy is not provided in the Postcode Unit file, i.e. Postcode Sector, District and Area because the Vstreets will introduce a restriction to aggregating here.

6.1.2 Sectors, Districts and Areas

Postcode Sector, District and Area Shapefile will be built by removing the Vstreets and aggregating by the respective group. As a result of the multipart polygons, particularly for example BT74 5NH in the table above, the sector and district will have isolated polygons within the larger BT93 district, and BT93 6, and BT93 7 sectors.

6.1.3 Vertical Streets

Whilst the vertical streets provided in the first release adopts a similar approach as those within the OSGB CodePoint with Polygons Product, it is worth noting that there have been ongoing discussions around the representation of vertical streets internally and externally. Some end users will find these useful, others potentially do not. Geoplan have discussed with OSGB potential concepts of using building footprints instead of squares, or providing the vertical streets as a separate point layer entirely that can be sized by the count of addresses. This would allow the layers to be overlaid but remove any potential limitation introduced by the vertical streets within the polygon layer itself.