



**Towards a cross-border cultural heritage atlas for the North West:
Data availability, webhosting and guiding principles for the GIS mapping
of heritage inventory and other datasets**

Working Paper 1

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December 2016

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Re-inventory-ing Heritage: Exploring the potential of public participation GIS to capture heritage values and dissonance (REINVENT)*

REINVENT is a two-year EU-funded research project which addresses the challenges pertaining to the management of cultural heritage in contested cross-border contexts in Europe, with a focus on the cross-border cultural landscape of Derry~Londonderry.

The project engages with participatory practices in cultural heritage management and the application of Geographical Information Systems (GIS) to mapping heritage on a cross-border basis on the island of Ireland. More specifically, a public participation GIS (PPGIS) methodology and tool will be developed to capture a plurality of heritage values ascribed by a range of communities at multiple spatial scales in the region.

It is argued that mediating between the competing uses of heritage is ultimately founded on identifying value conflicts and 'dissonance' to manage any contestation over time. Developing strategies to address these challenges in local contexts can greatly assist spatial planning and cultural heritage management policymakers/practitioners.

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**This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 705697.*

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ABBREVIATIONS AND ACRONYMS

AONB	Area of Outstanding Natural Beauty
AIRO	All-Island Research Observatory
ASI	Archaeological Survey of Ireland
ATC	Area of Townscape Character
BHARNI	Built Heritage at Risk Northern Ireland Register
BPN	Building Preservation Notice
DAERA	Department of Agricultural, Environment and Rural Affairs
DAHRRGA	Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs
DfC	Department for Communities
DfI	Department for Infrastructure
DOE	Department of the Environment
ESRI	Environmental Systems Research Institute
GIS	Geographical Information Systems
HED	Historic Environment Division
HUL	Historic Urban Landscape
MUSSI	Maynooth University Social Sciences Institute
NMS	National Monuments Service
NIAH	National Inventory of Architectural Heritage
NIBD	Northern Ireland Buildings Database
NIEA	Northern Ireland Environment Agency
NIRSA	National Institute for Regional and Spatial Analysis
NISMR	Northern Ireland Sites and Monuments Record
NPWS	National Parks and Wildlife Service
PPGIS	Public Participation Geographical Information Systems
REINVENT	Re-inventory-ing Heritage
RMP	Record of Monuments and Places
RPS	Record of Protected Structures
RHM	Register of Historic Monuments
SMR	Sites and Monuments Record
UNESCO	Union Nations Educational, Scientific and Cultural Organization
WHS	World Heritage Site
WHITRAP	World Heritage Institute of Training and Research for the Asia-Pacific Region
WP	Working Paper

1.0 SUMMARY AND RECOMMENDATIONS

This working paper identifies the principal heritage inventories on the island of Ireland, assesses the availability of relevant datasets to facilitate the online GIS-based mapping on a cross-border basis, and makes recommendations concerning the online hosting of a proposed cultural heritage atlas for the cross-border region in the North West of Ireland and the GIS software selected for mapping the heritage inventory and other datasets.

The inventories are firstly categorised by the identity and status of the inventorying authority (central and local government) in addition to whether they principally relate to buildings, monuments, landscapes (including historic parks/gardens) or areas.

The following inventories will be mapped on the proposed cultural heritage atlas, with the geographic extent of the datasets limited to the Derry City & Strabane District Council and Donegal County Council areas:

- Northern Ireland Buildings Database;
- Northern Ireland Sites & Monuments Record;
- Built Heritage at Risk Northern Ireland Register;
- Register of Parks, Gardens & Demesnes of Special Historic Interest (Northern Ireland);
- Northern Ireland Regional Landscape Character Assessment;
- Areas of Outstanding Natural Beauty (Northern Ireland);
- Conservation areas;
- Areas of Townscape Character;
- Building Survey (Ireland);
- Survey of Historic Gardens & Designed Landscapes (Ireland);
- Sites and Monuments Record (Ireland);
- National Parks (Ireland);
- Record of Protected Structures (Ireland);
- Landscape Character Assessment of County Donegal; and
- Architectural Conservation Areas (Ireland).

A range of other, natural and cultural heritage datasets, as detailed in Appendix 1, will also be mapped online.

Much of the heritage inventory data is publicly accessible online in file formats appropriate for GIS-mapping. However, direct requests to the respective organisations will be necessary for certain datasets identified in the working paper.

It is proposed that the cultural heritage atlas will be hosted on the website of the All-Island Research Observatory (AIRO), utilising their existing servers, platforms and map viewer templates, including ESRI's ArcGIS software.

The working paper concludes by elaborating certain guiding principles aimed at achieving commonality in data representation in the cultural heritage atlas across both jurisdictions, including a consistency in visualisation among different categories of heritage, balance in the complexity of the information provided, and common satellite, topographic, street and historic base map layers to help situate the data in its contemporary and historical context.

2.0 INTRODUCTION

The purpose of Working Paper 1 is to identify the principal heritage inventories on the island of Ireland, taking into consideration the distinctive systems currently in place in Northern Ireland and Ireland for the inventorying and protection of cultural heritage. It is important to stress that the geographic focus is on the Derry City & Strabane District Council and Donegal County Council areas, meaning that several of the inventories, designations and datasets referenced below specifically relate to these administrative areas rather than the national/regional scales. Secondly, the availability of relevant datasets to facilitate the online GIS-based mapping of selected heritage inventories on a cross-border basis is determined, including where additional data may be acquired in a format suitable for mapping. The similarities and differences between equivalent inventories from Northern Ireland and Ireland are necessarily important considerations, particularly concerning the official grading or categorisation of entries and the locational and other identifiers provided. The paper proposes how the inventory datasets will be GIS-mapped online to ensure, amongst other things, commonality in data representation across both jurisdictions, including a consistency in visualisation among different categories of heritage, as well as balance in the complexity of the information provided. Finally, recommendations are made in relation to the online hosting of a 'cultural heritage atlas' for the cross-border region in the North West of Ireland and the GIS software selected for mapping the heritage inventory and other datasets.

Working Paper 1 is the first output pertaining to Objective 1 of the REINVENT Project, the overarching purpose, objectives and key deliverables of which are indicated in Figure 1. The recommendations emanating from this paper will shape the creation of the cultural heritage atlas for the cross-border region, and will hence contribute towards fulfilling the second deliverable arising from Objective 1. Furthermore, Working Paper 1 complements, and has been written in concert with, a second working paper focused on developing a Public Participation GIS (PPGIS) methodology and mapping tool to capture heritage values ascribed by diverse communities at multiple spatial scales. The approach proposed in Working Paper 2 will be tested in pursuance of Objective 3 of the project, with the PPGIS data generated during the pilot case study fieldwork in the North West augmenting the cultural heritage atlas referenced above. Both working papers are critical, therefore, to the successful elaboration and outputs of the REINVENT Project.

This paper is structured into three principal sections. The first section categorises the existing heritage inventories in Northern Ireland and Ireland per the identity of the inventorying authority, further segmenting them depending on whether they principally relate

to buildings, monuments, landscapes or areas. The public availability (or not) of datasets, including the format(s) in which data is available for mapping, any exclusions and/or additional data required, in addition to any data clean-up issues immediately apparent, are also considered in the first section. Furthermore, whether the principal heritage inventories are currently GIS-mapped online is determined, including on a cross-border basis on the island of Ireland. The second section addresses the online hosting of the cultural heritage atlas, selection of GIS software and other miscellaneous issues pertinent to the use of data for online mapping. The third and final section proposes how the heritage inventory and other datasets will be represented online with a view to achieving an attractive, legible and informative resource which maps the Northern Ireland and Ireland data in a consistent and informative manner. Action points are established at the end of each section with a view to their follow up and implementation in the next stages of the project.

Figure 1: REINVENT Project purpose, objectives and deliverables

RESEARCH PURPOSE	
To develop and test a PPGIS methodology and mapping tool to capture the diverse range of heritage values ascribed by communities in the cross-border cultural landscape of Derry~Londonderry to inform cultural heritage management policies and practices	
OBJECTIVE 1	DELIVERABLE(S)
To map official heritage inventories using GIS, creating an embryonic 'cultural heritage atlas' for the cross-border region in the North West of Ireland centred on Derry~Londonderry	- Cultural heritage atlas - Working Paper 1
OBJECTIVE 2	DELIVERABLE(S)
To develop a public participation GIS-based methodology and associated mapping tool to capture 'unofficial' heritage values ascribed by a range of communities at different spatial scales, exploring potential commercial opportunities for its wider application	- PPGIS-based methodology - Mapping tool - Working Paper 2
OBJECTIVE 3	DELIVERABLE(S)
To validate methodology and mapping tool through pilot cases at different spatial scales, overlaying the unofficial values ascribed by a range of communities with those derived from the official heritage inventories	- Augmented cultural heritage atlas - Working Paper 3
OBJECTIVE 4	DELIVERABLE(S)
To inform spatial planning and cultural heritage management policies and practices and embed knowledge of PPGIS within local cultural heritage management networks	- Final report to Consultative Group

2.1 Definitions and delimitations

The REINVENT Project is focused on the cross-border cultural landscape of Derry~Londonderry and it is recognised that such a conceptualisation of the study area potentially encompasses many diverse heritage resources. Indeed, the emergent Historic Urban Landscape (HUL) approach advocated by the Union Nations Educational, Scientific and Cultural Organization (UNESCO) broadly defines such landscapes as follows:

‘the historic urban landscape is the urban area understood as the result of a historic layering of cultural and natural values and attributes, extending beyond the notion of ‘historic centre’ or ‘ensemble’ to include the broader urban context and its geographical setting. This wider context includes notably the site’s topography, geomorphology, hydrology and natural features, its built environment, both historic and contemporary, its infrastructures above and below ground, its open spaces and gardens, its land use patterns and spatial organization, perceptions and visual relationships, as well as all other elements of the urban structure. It also includes social and cultural practices and values, economic processes and the intangible dimensions of heritage as related to diversity and identity.’ (UNESCO, 2011)

The number of heritage inventories relating to cultural landscapes is significant and potentially open-ended given a pluralistic understanding of heritage as being ‘the contemporary use of the past’ (Graham *et al.*, 2000, p.2). Technological advances also ensure that the distinctive aspects of the cultural heritage of a place, whether folk songs, oral histories and soundscapes, can more readily be recorded in digital repositories and represented online to the wider public (for example, see Purkis, 2016).¹ In addition, a plethora of other intangible cultural heritage that can be mapped, such as place names (and townlands), language areas (the Gaeltacht), and folk customs – for instance, see the IMPROVE project’s recent good practice guide on *Mapping the Field & Placenames of County Donegal*. However, time and other constraints demand that certain delimitations are applied in terms of the heritage inventories considered in this working paper for the REINVENT Project and subsequently mapped online in the cultural heritage atlas for the North West. As such, the predominant focus remains on the historic environment as it encompasses buildings, monuments, landscapes and areas. Nonetheless, the natural heritage and other relevant datasets and designations indicated in Appendix 1 are also

¹ Purkis’s (2016) project focused on people’s life histories in the North West of Ireland (cross-border) following a digital curatorial process and resulting, amongst other things, in the ‘Local People’ exhibition in 2013 and a related website: www.localpeopleireland.com.

proposed for mapping, and this list is undoubtedly extendable, time and other resources permitting.

2.2 Cross-border Cultural Landscape of Derry~Londonderry

The cross-border cultural landscape of Derry~Londonderry is not delineated on an official map and the phraseology itself is undoubtedly problematic and open to contestation from multiple differing perspectives.² That such a cultural landscape exists, however fuzzily defined, and whatever it is ultimately referred to as, is clearly evidenced by such recent initiatives as the Foyle Landscape Project 2011-2013, led by the Foyle Civic Trust in the run up to the UK city of culture year. The project sought to celebrate the shared built, natural and cultural landscape of the River Foyle basin, and resulted in a series of published outputs including *The Foyle Source Book* and the *Foyle Landscape Heritage Trail Map*.³ Other publications with a particular emphasis on the historic environment that celebrate the cross-border landscape and shared history of the North West include *Plantation Architecture and Landscape in Derry and Donegal* (McLaren, 2010) and *North West Ulster* (Rowan, 1979). In addition, the policy context for cross-border cooperation on cultural heritage in the North West is relatively favourable, despite the myriad uncertainties created by the United Kingdom's (Brexit) recent vote to leave the European Union (McClelland, 2016). For instance, the 2013 *Framework for Cooperation for the Spatial Strategies of Northern Ireland and the Republic of Ireland* endorses cross-border cooperation and identifies heritage management within a landscape context as an 'important emerging planning issue' on the island of Ireland (DRD and DoEHLG, 2013, p.21). International treaties such as the European Landscape Convention similarly encourage 'transfrontier co-operation on local and regional level' in cross-border cultural landscapes, and recommends 'the pooling and exchange of experience, and the results of research projects' between regional stakeholders (Council of Europe, 2000, p.4). Thus, in the context of ever closer institutional cooperation between Derry City & Strabane District Council and Donegal County Council, and the burgeoning focus on cross-border cultural landscapes, this is an opportune moment to progress thinking on the Cross-border Cultural Landscape of Derry~Londonderry.

² For instance, this terminology makes no reference is made to the Donegal side of the border, while the official name of the city has long been a source of conflict within the community. However, the city is by far the largest urban centre in the North West of Ireland and is thus a dominant economic player within the wider cross-border hinterland, forming a 'linked gateway' with nearby Letterkenny in the respective strategic spatial planning documents in both jurisdictions.

³ The heritage trail map can be downloaded here: <http://foylecivictrust.org/wp-content/uploads/2014/07/Foyle-Landscape-Heritage-Map.pdf>

2.3 Historic Urban Landscape Approach

The HUL approach is broadly adopted for the REINVENT Project, at least in conceptualising the case study area and articulating an emerging management framework under which the research can positively impact on heritage conservation policies and practices. This approach to the conservation of urban areas was given impetus by the 2011 UNESCO Recommendation on the Historic Urban Environment, although the development of the concept has a much longer historical trajectory and such thinking is nothing new for cultural geographers (Bandarin, 2012; Taylor, 2016). The Recommendation is a soft-law to be implemented by national governments on a voluntary base, but innovative case studies of its usage are already emerging from cities in Asia, Europe, south America, Australasia and Africa (Taylor, 2015, 2016; Avila and Pérez, 2016; Sanjod *et al.*, 2016; WHITRAP, 2016). The definition of historic urban landscapes noted above indicates the plurality of the HUL approach, recognising the importance of tangible and intangible values, the layering of cultural and natural features of significance, and the interaction of urban areas with their wider geographic setting. As stressed in *The HUL Guidebook*, the approach is principally concerned with guiding change within dynamic and constantly changing urban environments, taking a holistic and interdisciplinary perspective to the inclusive management of heritage resources, and seeking to integrate conservation within the wider sustainable development of historic cities. Furthermore, advocates underline the need to adopt new conservation tools, including those designed to improve public participation 'in the definition of the value system of an historic place' (Bandarin, 2012, p.226). Thus, PPGIS is a digital method that can potentially enhance the HUL approach, particularly as the REINVENT Project relates to the management of heritage in contested cross-border contexts, which has hitherto not provided a focus for the international literature on historic urban landscapes.

3.0 HERITAGE INVENTORIES ON THE ISLAND OF IRELAND

This section identifies the principal heritage inventories (and statutory designations) on the island of Ireland and broadly evaluates the accessibility of datasets associated with these inventories. The discussion initially deals with Northern Ireland before considering Ireland and then subsequently focusing on the progress made by The Heritage Council towards mapping heritage datasets on a cross-border basis. As inventorying and designatory functions are differentially located in both jurisdictions across central and local government, the availability of datasets and their cross-compatibility is inevitably impacted. Moreover, management of the historic environment in Northern Ireland has historically been organised in a more centralised manner, albeit the recent devolution of powers to local government level has somewhat diminished the centralised nature of the governance apparatus, creating a multi-level system more closely resembling counterparts in Great Britain. By way of contrast, local councils in Ireland retain primary responsibility for the designation of historic buildings and architectural conservation areas through their local development plan, whilst enjoying a minimal role in relation to the inventorying of the former.

The inventories are firstly grouped per the identity of the inventorying authority, whether created by central or local government, and are further categorised into one of four principal categories:

- Buildings;
- Monuments;
- Landscapes (including historic parks/gardens); and
- Areas.

It is recognised that these categories are broad and that many overlaps exist between different types of heritage. For example, sites will sometimes contain listed buildings and scheduled monuments, and in some cases both designations apply to the same physical structure. Moreover, the legislative definition of listed buildings covers a diverse range of things, including milestones, water pumps, telephone kiosks and other structures that would be considered buildings in the conventional sense. Nonetheless, these principal categories, which are colour-coded in each of the tables below, help in structuring the analysis while maintaining a level of consistency across the multiple inventories considered.

Several important distinctions and definitions are worth making at this point, however. Firstly, inventorying necessarily entails the recording of buildings, monuments and other structures

or places that are not subsequently 'selected' for statutory protection, meaning that official 'lists' are most typically derived from much larger inventory datasets. For example, the Northern Ireland Buildings Database records buildings listed as being of special architectural and historic interest in addition to others judged as not meeting this standard, or that have been demolished, but were deemed sufficiently important to merit written recording. This may have implications for the official weighting and importance attached to specific inventories, the regularity with which they are updated, and other issues in terms of data availability from a centralised source.

Secondly, the differing terminology and conceptualisations applied in defining heritage, as discussed by Ahmad (2006), are complex and varied. For example, Harrison (2013) refers to official and unofficial heritage depending on whether it is recognised by the state through statute, while a variety of other distinctions are drawn in the academic and policy literature between natural and built, tangible and intangible, moveable and immovable heritage. The specific adjectives developed over the decades to denote the process of protecting different types of heritage are also equally diverse, including scheduling, listing, designating and recording. Indeed. The term listed building is employed in Northern Ireland whereas the official equivalent in Ireland is protected structure. However, for the purposes of this working paper, the terms designated and non-designated will be consistently applied to distinguish between, respectively, those buildings, monuments, landscapes and areas that have been afforded statutory protection by the state (central and local), and those that have not.

Thirdly, and related to the points made above, inventorying and designatory authorities are not necessarily one-and-the-same organisation. By way of illustration, the National Inventory of Architectural Heritage (NIAH) is charged with inventorying architectural heritage in Ireland. However, the NIAH is confined to making recommendations to local planning authorities through the Minister insofar as proposed designations are concerned, with local councils ultimately responsible for the inclusion of structures on the Record of Protected Structures (RPS). This, again, has implications for how heritage inventory datasets should be approached. For example, data clean-up may be required prior to mapping the NIAH's survey results to ensure no duplication of records occurs when overlaying details of the council's RPS entries. Such a split between the inventorying and designatory functions potentially creates inconsistencies if data is not held or updated by a single organisation or within a centralised database.

Finally, several of the heritage inventories referenced below are not inventories at all, but rather have been labelled as such for the purposes of this discussion. For instance, the

power to designate conservation areas is applied by local councils to discrete (usually urban) areas individually recognised for their architectural and historic interest, and their protection does not necessarily emerge from a comprehensive process of inventorying. The term inventory is, therefore, applied rather loosely in terms of what it encompasses, with several suggested inventories in this paper more accurately referring to specific designations (e.g. conservation areas). Moreover, as with the terminology issues considered above, the word inventory is applied for consistency-sake in the text given the variety of terms otherwise in use to denote the end-product of the inventorying process, including register, record, database and assessment.

3.1 NORTHERN IRELAND

The inventorying (and designation) of heritage in Northern Ireland is predominantly a central government function controlled by the Department for Communities (DfC), under the auspices of the Historic Environment Division (HED), and the Department of Agricultural, Environment and Rural Affairs (DAERA), the latter through the Northern Ireland Environment Agency (NIEA). In addition, the Department for Infrastructure (DfI) is responsible for policy development, oversight and the provision of guidance for councils in respect of local development management and planning. Local councils are central in the day-to-day management of the historic environment in Northern Ireland through the planning system, but their inventorying and designatory powers are modest in comparison with their counterparts across the border.⁴ The principal heritage inventories and their key focus are initially considered below, beginning with those maintained by central government, with the subsequent sub-sections reviewing whether the existing heritage inventories are GIS-mapped online is subsequently reviewed, as is the public availability of inventory datasets and apparent data exclusions.

3.1.1 Inventories and their key focus

Historic Environment Division

The Historic Environment Division (HED) is the primary heritage inventorying and designatory authority in Northern Ireland with responsibility for the 'listing' of buildings, 'scheduling' of historic monuments, compilation of the Register of Parks, Gardens and

⁴ The Planning Act (Northern Ireland) 2011 confers local councils with the power to temporarily list buildings through the serving of a Building Preservation Notice (BPN), albeit the final decision to follow through with statutory protection, or not, ultimately rests with central government and the DfC.

Demesnes of Special Historic Interest and the management of State Care sites and monuments. The HED maintains and updates the inventories referenced in Figure 2, including the Northern Ireland Buildings Database (NIBD) and the Northern Ireland Sites and Monuments Record (NISMR), both of which are substantial datasets containing details of designated and non-designated heritage assets, and which continue to expand through ongoing inventorying processes. Indeed, most entries in the former are undesignated, and both the statutory list of buildings of special architectural and historic interest and the schedule of historic monuments in effect represent much smaller subsets of these larger inventories created over several decades.⁵

Figure 2: Heritage inventories under the remit of the Historic Environment Division

CATEGORY	INVENTORY	ONLINE SEARCHABLE	KEY FOCUS
Buildings	Northern Ireland Buildings Database	Yes, via searchable database: click here *	Contains records of buildings of sufficient architectural or historic interest to merit a survey. Most information relates to listed buildings, however, buildings which do not meet this standard, or have been demolished or removed from the list, are also included
	Built Heritage at Risk Northern Ireland Register	Yes, via searchable database (currently offline)	Highlights almost 500 buildings & monuments of architectural & historic interest whose future seems threatened & may be suitable for restoration and repair
Monuments	Northern Ireland Sites & Monuments Record	Yes, via searchable database: click here *	Holds information on over 16,000 archaeological sites & historic monuments, including scheduled monuments, those currently in State Care, as well as undesignated sites
Landscapes	Heritage Gardens Inventory	Yes, via PDF: click here *	Contains a comprehensive record of over 700 historic parks, gardens and demesnes with information gathered through site inspection, & map & documentary research
	Register of Parks, Gardens & Demesnes of Special Historic Interest	Yes, via PDF: click here *	Established to identify those parks, gardens & demesnes that can be considered of exceptional importance within Northern Ireland

*Accessed 02/11/16

⁵ The First Survey of listed buildings, for example, began in the 1970s and was finally completed in 1994. The Second Survey is currently ongoing.

The Built Heritage at Risk Northern Ireland Register (BHARNI) is a standalone searchable database maintained by the Ulster Architectural Heritage Society in partnership with the HED which largely contains details of designated buildings, with some monuments, and additional non-designated entries 'at risk' from vacancy and dereliction. Thus, most BHARNI entries already feature in the NIBD and the NISMR, and their inclusion in the cultural heritage atlas will inevitably lead to some buildings and monuments having multiple entries. Finally, the Register of Parks, Gardens and Demesnes of Special Historic Interest indicates those sites initially identified in the Heritage Gardens Inventory that local councils are requested to identify for protection through local development plans. The latter Register also incorporates supplementary sites retaining only a few elements of their historic form, thereby preventing them from attaining higher-level recognition. The number of parks, gardens and demesnes on the Register is expected to increase as local councils prepare new area plans.

Northern Ireland Environment Agency

Responsibility for the protection of landscapes in Northern Ireland, as with a range of natural heritage and environmental designations, is retained by the Northern Ireland Environment Agency (NIEA), which recently transferred to DAERA. NIEA's remit extends to Areas of Outstanding Natural Beauty (AONB), World Heritage Sites (WHS), and the completion of landscape character assessments. In respect of the latter, which is of most concern here, several pertinent regional-wide landscape character assessments have been completed since the millennium and these are referenced in Figure 3. The most recent assessment subdivides the countryside into 26 character areas, while the assessment undertaken in the year 2000 resulted in a much larger number of character areas. Furthermore, the northern fringes of the Sperrin AONB lies within the boundaries of the Derry City & Strabane District Council area, so details of that designation are also indicated in Figure 3.

Derry City & Strabane District Council

Local councils in Northern Ireland now have significant powers in relation to the management of the historic environment, including the designation of conservation areas and Areas of Townscape Character (ATCs). The former can be designated at any time, while the latter are usually elaborated through the local development plan. Derry City & Strabane District Council has inherited several conservation areas from the former Department of the Environment (DOE), including three within the centre of Derry~Londonderry. As indicated in Figure 4, the boundaries of each of the conservation areas and ATCs can be viewed online via PDFs. In addition, further local designations can

be elaborated by local councils through their development plan process, including Local Landscape Policy Areas, Areas of High Scenic Value and Areas of Local Nature Conservation and Amenity Importance, each of which are indicated in Appendix 1 and will be mapped in the cultural heritage atlas. Furthermore, councils are mandated to prepare lists of locally significant buildings in their area, although no further progress has yet been made.

Figure 3: Landscape character assessments and Areas of Outstanding Natural Beauty

CATEGORY	INVENTORY	ONLINE SEARCHABLE	KEY FOCUS
Landscapes	Northern Ireland Regional Landscape Character Assessment	Yes, via GIS viewer and individual PDFs: click here *	Provides a strategic overview of the landscape & subdivides the countryside into 26 Regional Landscape Character Areas based upon information on people & place & the combinations of nature, culture & perception which make each part of Northern Ireland unique
	Northern Ireland Landscape Character Assessment 2000	Yes, via individual PDFs: click here *	Subdivides the countryside into 130 Landscape Character Areas, each based upon local patterns of geology, landform, land use, cultural & ecological features
	Areas of Outstanding Natural Beauty	Yes, via webpages: click here *	Designated in recognition of their national importance as landscapes of distinctive character & special scenic value

*Accessed 16/11/16

Figure 4: Heritage inventories under the remit of Derry City & Strabane District Council

CATEGORY	INVENTORY	ONLINE SEARCHABLE	KEY FOCUS
Areas	Conservation areas	Yes, via interactive map and individual PDFs: click here *	Statutorily designated urban areas deemed to be of special architectural or historic interest, the character or appearance of which it is desirable to preserve and enhance
	Areas of Townscape Character	Yes, via individual PDFs: click here *	Urban areas exhibiting a distinct character & intrinsic quality, often based on their historic built form or layout, & which may merit conservation area protection at some future point. Identified through development plan process

*Accessed 02/11/16

3.1.2 Online mapping and dataset availability

The Historic Environment Map Viewer (see Appendix 2), as indicated in Figure 5, features much of the Northern Ireland data related to buildings, monuments and the Register of Historic Parks, Gardens and Demesnes.⁶ Several datasets associated with scheduled monuments, archaeology, defence and industrial heritage are also indicated on the Viewer and are available to download online, including:

- Scheduled Monument Areas;
- Areas of Significant Archaeological Interest;
- Areas of Archaeological Potential;
- Defence Heritage; and
- Industrial Heritage Records.

In addition to the absence of BHARNI entries, several other issues with these mapped datasets are evident. Firstly, most non-designated entries that are otherwise recorded on the NIBD are excluded, representing a comparatively significant number of structures given that the Second Survey of the Derry City & Strabane District Council is complete. Secondly, no reference is made to relevant designations pertaining to entries on the Defence Heritage and Industrial Heritage Records datasets, so a certain amount of duplication is likely to take place when mapped. Thirdly, the defunct local council areas continue to be used as identifiers within the NIBD and the NISMR data, ensuring that information pertaining to the new Derry City & Strabane District Council area is not readily available for immediate, unedited mapping. Acquiring this data prior to mapping or using the software tools available during the process is, therefore, essential to ensure accuracy and up-to-dateness.

The heritage landscapes and areas of Northern Ireland are not well represented online. The Northern Ireland Regional Landscape Character Assessment is mapped via its own GIS viewer and related datasets are also available in various file formats from DAERA's website (albeit devoid of much by way of detailed information over-and-above the polygons). AONB datasets are also available. However, none of the remaining datasets featured in Figure 5 are GIS-mapped online, and digital datasets are not readily available for download. Although the grid references for entries on the Heritage Gardens Inventory are obtainable, it is proposed that neither it, nor the Northern Ireland Landscape Character Assessment 2000, will be mapped as part of the cultural heritage atlas given that the Register of Parks,

⁶ Note that the Historic Environment Map Viewer also includes battle sites, but the related dataset is not available for downloading from the DfC's website.

Gardens & Demesnes of Special Historic Interest and the Regional Landscape Character Assessment are more up-to-date. Finally, the boundaries of conservation areas and ATCs in the Derry City & Strabane District Council area are only viewable online via individual PDF files. As such, these latter designations can either be manually mapped from the PDFs, or preferably the polygon data can be acquired directly from the relevant local council.

Figure 5: Heritage inventories GIS-mapped online in Northern Ireland

CATEGORY	INVENTORY	GIS-MAPPED ONLINE	DATASET AVAILABILITY & EXCLUSIONS
Buildings	Northern Ireland Buildings Database	Yes, on Historic Environment Map Viewer: click here *	Shape & related files available online (most non-designated buildings excluded): click here **
	Built Heritage at Risk Northern Ireland Register	No	Not available
Monuments	Northern Ireland Sites & Monuments Record	Yes, on Historic Environment Map Viewer: click here *	Shape & related files available online: click here **
Landscapes	Heritage Gardens Inventory	No	Information available to view online, via PDF: click here
	Register of Parks, Gardens & Demesnes of Special Historic Interest	Yes, on Historic Environment Map Viewer: click here *	Shape & related files available online (including supplementary sites): click here **
	Northern Ireland Regional Landscape Character Assessment	Yes, via GIS viewer: click here *	Shape & related files available online: click here **
	Northern Ireland Landscape Character Assessment 2000	No	Not available
	Areas of Outstanding Natural Beauty	No	Shape & related files available online: click here
Areas	Conservation areas	No	Available online, via individual PDFs: click here *
	Areas of Townscape Character	No	Available online, via individual PDFs: click here *

*Accessed 02/11/16

**Accessed 04/11/16

3.2 IRELAND

The distribution of functions for the management of the historic environment in Ireland is more evenly balanced between central and local government than is the case in Northern Ireland. For instance, local authorities have greater control over designatory processes relating to buildings and areas through their development plan, although the inventorying and designation of monuments continues to be exercised centrally through the National Monuments Service (NMS). Furthermore, in contrast to Northern Ireland, where responsibility for buildings, monuments and landscapes is dispersed across two government departments, the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs (DAHRRGA) oversees a triumvirate of state services and initiatives in Ireland, including the National Inventory of Architectural Heritage (NIAH), National Monuments Service (NMS) and the National Parks and Wildlife Service (NPWS). The inventories created by each of these central government bodies are considered firstly followed by those managed by Donegal County Council. The online GIS-mapping of the inventories is also determined, as before, in addition to the public availability of inventory datasets and any data exclusion issues immediately apparent from the downloadable files.

3.2.1 Inventories and their key focus

National Inventory of Architectural Heritage

The National Inventory of Architectural Heritage (NIAH) has been responsible since the early 1990s for the inventorying of post-1700 architectural heritage in Ireland. The NIAH's county-by-county surveys provide the basis for Ministerial recommendations to the relevant local planning authority for the inclusion of structures on their Record of Protected Structures (RPS) through the development planning process. To this end, those buildings rated by the NIAH as being of Regional importance or above (i.e. International and National) form the basis of the ministerial recommendations. In addition, the NIAH is currently completing a survey of Historic Gardens and Designed Landscapes, the outputs of which, as with the full extent of the Building Survey, are fully searchable online (see Figure 6).

National Monuments Service

The National Monuments Service (NMS) is responsible for the inventorying of monuments through the Archaeological Survey of Ireland (ASI) as well as their 'recording' and registering' on the Record of Monuments and Places (RMP) and the Register of Historic

Monuments (RHM) respectively. Zones of Archaeological Potential in urban areas, several of which have been identified in County Donegal, are also indicated on the RMP. The Sites and Monuments Record (SMR), like its counterpart in Northern Ireland, retains information on all recorded monuments and places, whether officially designated or not, and is available to search online via the DAHRRGA's Historic Environment Viewer.

Figure 6: Heritage inventories under the remit of the National Inventory of Architectural Heritage

CATEGORY	INVENTORY	ONLINE SEARCHABLE	KEY FOCUS
Buildings	Building Survey	Yes, via searchable database: click here *	Highlights a representative sample of the architectural heritage of each county & raises awareness of the wealth of architectural heritage in Ireland
Landscapes	Survey of Historic Gardens & Designed Landscapes	Yes, via searchable database: click here *	Results from a desktop survey & fieldwork intended to aid understanding of the extent of Ireland's historic gardens & designed landscape. The assessment is not intended as an indication of a site's heritage importance

*Accessed 04/11/16

Figure 7: Heritage inventories under the remit of the National Monuments Service

CATEGORY	INVENTORY	ONLINE SEARCHABLE	KEY FOCUS
Monuments	Sites and Monuments Record	Yes, via Historic Environment Viewer: click here * The RMP is available via individual PDFs: click here *	Contains details of all monuments & places (sites) where it is believed there is a monument known to the ASI pre-dating AD 1700 & including a selection of monuments from the post-AD 1700 period. Includes designated & undesignated sites

*Accessed 04/11/16

National Parks and Wildlife Service

The National Parks and Wildlife Service's (NPWS) remit embraces nature conservation and landscapes, including the management of six National Parks in Ireland. This includes Glenveagh in County Donegal, as indicated via the online interactive map linked to in Figure 8.

Figure 8: Heritage inventories under the remit of the National Parks and Wildlife Service

CATEGORY	INVENTORY	ONLINE SEARCHABLE	KEY FOCUS
Landscapes	National Parks	Yes, via interactive map: click here *	Areas that are set aside to preserve, promote & enhance natural heritage. National Parks are assets of great ecological, social, educational, recreational & aesthetic value which are accessible to the public and their appreciation & enjoyment are encouraged

*Accessed 04/11/16

Donegal County Council

As indicated above, local councils in Ireland have primary responsibility for the inclusion of buildings from their area on the RPS through the local development plan process. Their inventorying and designatory powers extend to landscapes and areas, respectively through the undertaking of landscape character assessments and the creation of architectural conservation areas (ACA), with Letterkenny appearing to be the only ACA in the county.

Figure 9: Heritage inventories under the remit of Donegal County Council

CATEGORY	INVENTORY	ONLINE SEARCHABLE	KEY FOCUS
Buildings	Record of Protected Structures	Yes, via individual PDFs: click here *	Those structures recommended for protection by the NIAH & protected by the local council via the development planning process
Landscapes	Landscape Character Assessment of County Donegal	Yes, via individual PDFs: click here *	Classifies & describes the landscape to provide an evidence base to assist in consistent decision making to achieve a balance between the protection, management & planning of the landscape
Areas	Architectural Conservation Areas	No	Places, areas, groups of structures or townscapes that are of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest or that contribute to the appreciation of protected structures, & whose character it is an objective of a development plan to preserve

*Accessed 04/11/16

3.2.2 Online GIS-based mapping and dataset availability

The NIAH's Building Survey and the NMS's SMR datasets are both GIS-mapped online via the Historic Environment Viewer (see Appendix 4), with the related datasets also available for download, including designated and undesignated entries, via two alternative methods. Firstly, as Excel spreadsheets from the websites of the NIAH and NMS respectively, and, secondly, in shape and other file formats through the data export tab of the Historic Environment Viewer. A further dataset related to monuments is likewise available to download from the Historic Environment Viewer, concerning the Zones of Notification surrounding monuments scheduled for inclusion in a forthcoming issue of the RMP. However, it is notable that the two methods of data download provide marginally different datasets. The data export option from the Historic Environment Viewer is preferable for acquiring the NIAH data as those structures included on the RPS for each county are also indicated in the attribute table, whereas this is not the case when downloading the Excel spreadsheet.

The Landscape Character Assessment of County Donegal and National Park boundaries are mapped online via two separate GIS Viewers maintained by Donegal County Council and DAHRRGA respectively. The Survey of Historic Gardens and Designed Landscapes is rudimentarily mapped on a county basis, albeit not in a GIS format. The Heritage Council's Heritage Maps online viewer indicates the extent of the architectural conservation areas designated in County Donegal. However, the data relating to each of these heritage landscape and area categories is not available to download online in a readily available format for GIS mapping, meaning that a direct approach to the responsible organisation will be necessary.

3.3 CROSS-BORDER GIS-BASED MAPPING ON THE ISLAND OF IRELAND

Contrary to the recent overly-definitive assertion by McClelland (2016), significant progress has been made on the GIS-based mapping of cultural heritage on a cross-border basis on the island of Ireland.⁷ The Heritage Maps online viewer (see Appendix 6) created by the Heritage Council includes a breadth of heritage-related datasets from both jurisdictions, including many of those referenced earlier in this paper. Indeed, the resources mapped extend to embrace an impressive array of thematic areas, ranging from archaeology to

⁷ However, the inclusion of Northern Ireland data on Heritage Maps is easily missed as no reference to this fact is made in the explanatory information and no partners contributing data from that jurisdiction are listed among the organisations thanked.

habitats, geology to coastal and marine. Mapped datasets under these diverse themes include the walled towns of Ireland, bat landscapes, historic mine locations and bathing water quality, while a selection of historic, orthographic and satellite base maps also locate these heritage resources in their historical and contemporary contexts. However, as indicated in Figure 11, Heritage Maps remains a work in progress, particularly concerning Northern Ireland data, and several pertinent datasets are currently unrepresented. The REINVENT Project can still, therefore, contribute towards the comprehensive mapping of official heritage inventories on a cross-border basis, and hence fulfil Objective 1 as elaborated in the introduction. Furthermore, the principal innovations deriving from the project from a cross-border mapping perspective will undoubtedly emerge through the PPGIS methodology and data collection process in the North West.

Figure 10: Heritage inventories currently GIS-mapped online in Ireland

CATEGORY	INVENTORY	GIS-MAPPED ONLINE	DATASET AVAILABILITY & EXCLUSIONS
Buildings	Building Survey	Yes, on Historic Environment Viewer: click here *	Shape & related files available online via Historic Environment Viewer Data Export: click here *
	Record of Protected Structures	Yes, on Heritage Maps Viewer: click here *	Shape & related files available online via Historic Environment Viewer Data Export: click here * Also via individual PDF from Donegal County Council website: click here *
Monuments	Sites & Monuments Record	Yes, on Historic Environment Viewer: click here *	Shape & related files available online via Historic Environment Viewer Data Export: click here *
Landscapes	Survey of Historic Gardens & Designed Landscapes	No	Available online, via individual webpages: click here
	Landscape Character Assessment of County Donegal	Yes, via GIS Viewer: click here *	Available online, via individual PDFs: click here *
	National Park	Yes, via GIS Viewer: click here *	Not available
Areas	Architectural Conservation areas	Yes, on Heritage Maps Viewer: click here *	Not available

*Accessed 04/11/16

Figure 11: Relevant datasets currently unrepresented on Heritage Maps

JURISDICTION	CATEGORY	UNREPRESENTED DATASET*
Northern Ireland	Buildings	Non-designated Northern Ireland Buildings Database entries Built Heritage at Risk Northern Ireland Register entries
	Areas	Conservation areas Areas of Townscape Character
	Miscellaneous	Northern Ireland Local Authority boundaries
Ireland	Landscapes	County Donegal Landscape Character Areas County Donegal Historic Gardens & Designed Landscapes

*Accessed 10/11/16

3.4 DATA CAPTURE ACTION POINTS

Much of the heritage inventory data is publicly available online in formats suitable for GIS mapping and the need for significant follow-up action is not anticipated in advance of the mapping process other than data clean-up. However, emerging from the analysis above it is evident that it will be necessary to request certain datasets directly from the responsible organisation, including:

- Request Northern Ireland Buildings Database data (designated *and* non-designated) from HED for the Derry City and Strabane District Council area;
- Seek clarification from HED on Defence Heritage inventory entries and Industrial Heritage Records in relation to any cross-over with official statutory designations;
- Request conservation area and ATC data from Derry City and Strabane District Council;
- Request Survey of Historic Gardens and Designed Landscapes data from the NIAH for County Donegal;
- Request Glenveagh National Park data from the NPWS;
- Request Landscape Character Assessment data from Donegal County Council; and

- Request ACA data from Donegal County Council.

4.0 CULTURAL HERITAGE ATLAS: WEBHOSTING AND SOFTWARE

It is proposed that the cultural heritage atlas be hosted on the website of the All-Island Research Observatory (AIRO), utilising their existing servers, platforms and map viewer templates, including ESRI's ArcGIS software. Several compelling arguments support this approach:

- AIRO is based at Maynooth University and has an unrivalled track-record in mapping diverse datasets on a cross-border basis on the island of Ireland, including the development of extensive working relationships with central and local government on both sides of the Irish border;
- The ArcGIS platform, in addition to being the main GIS software package utilised by AIRO, is also in common usage among governmental organisations, including those from which heritage inventory data is being sourced, hence ensuring a smoother mapping process due to fewer compatibility issues;
- AIRO has a well-established working relationship with key governmental data providers in Northern Ireland and Ireland and a sound understanding of existing licencing and data protection measures in both jurisdictions;
- Utilising existing platforms and online GIS templates for data visualisation ensures that new bespoke solutions do not have to be created from scratch, thus helping maintain the tight project schedule;
- The hosting of the cultural heritage atlas by AIRO guarantees that the mapped data will be archived and publicly accessible after the REINVENT Project concludes in August 2018;
- The high public profile of the AIRO website and its inclusion of multiple mapped resources, data visualisations and a data store with freely downloadable datasets, ensures that the cultural heritage atlas can reach a wide audience. This includes the traffic directed to the website through Twitter, YouTube and AIRO's other communication channels, in addition to regular references to the organisation in the media; and

- A weblink on the REINVENT Project website will be provided to the cultural heritage atlas, as is already the case with several other mapped resources hosted by AIRO (for instance, the All-Island Deprivation Index).

5.0 CULTURAL HERITAGE ATLAS: GUIDING PRINCIPLES IN DATASET MAPPING

As indicated in the introduction, the cultural heritage atlas will be geographically delimited to the two principal local council areas in the North West, namely Donegal County Council and Derry City & Strabane District Council. This reflects, in part, the centring of the REINVENT Project on the historic urban landscape of Derry~Londonderry, although it is recognised that the boundaries of the two council areas are larger than what could conceivably be constituted as the cultural landscape of the city. For instance, Donegal is one of the largest counties in Ireland and borders several other council areas, including Sligo County Council and Fermanagh & Omagh District Council. Furthermore, limiting the heritage resources mapped to these two council areas will help contain the data collection and mapping processes, thereby ensuring that the tight project schedule is maintained. The following principles will guide the mapping of the heritage inventory and other datasets:

- Datasets relating to each of the council areas will be contained in separate layers so that they can be viewed together or individually. The mapping of the data and its visualisation will also be consistently achieved and mirrored, where applicable, on a cross-border basis;
- Base map layers will help situate the data in its contemporary and historical context, including available satellite, topographic, street and historic maps dating back to the nineteenth century, where available;
- Council, municipal/ward and other official/unofficial boundaries will be shown on a comparative basis, including historical boundaries of cultural significance such as townlands and parishes;
- Individual heritage categories – buildings, monuments, landscapes, areas – will be consistently represented on a cross-border basis with points, lines, polygons, matching colours and categories etc. A similar approach will also be applied to the natural heritage and other designations referenced in Appendix 1, ensuring that an appropriate colour palette is utilised in distinguishing between each category; and
- The content and extent of the information pertaining to individual entries will also be consistently maintained, while ensuring that official references, degrees of protection and links to further information are provided where applicable. Detailed profiles of each

heritage category and designation, and the associated summary information proposed for inclusion, will be prepared in advance.

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World Heritage Institute of Training and Research for the Asia and the Pacific Region [WHITRAP] (2016) *The HUL Guidebook: Managing heritage in dynamic and constantly changing urban environments*, Shanghai and Ballarat: WHITRAP and The City of Ballarat

USEFUL WEBSITES

All-Island Research Observatory: <http://airo.ie>
Department of Agricultural, Environment and Rural Affairs: www.daera-ni.gov.uk
Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs: www.ahrrga.gov.ie
Department for Communities: www.communities-ni.gov.uk
Department for Infrastructure: www.infrastructure-ni.gov.uk
Derry City & Strabane District Council: www.derrystrabane.com
Donegal County Council: www.donegalcoco.ie
Donegal County Council Mapping Portal: <http://donegal.maps.arcgis.com>
ESRI Ireland: www.esri-ireland.ie
Foyle Civic Trust: <http://foylecivictrust.org>
The Heritage Council: www.heritagecouncil.ie
Heritage Maps: www.heritagemaps.ie
The Historic Urban Landscape: www.historicurbanlandscape.com
Local People North West Ireland: www.localpeopleireland.com
National Inventory of Architectural Heritage: www.buildingsofireland.ie
National Monuments Service: www.archaeology.ie
National Parks and Wildlife Service: www.npws.ie
Union Nations Educational, Scientific and Cultural Organization: <http://en.unesco.org>

APPENDIX 1

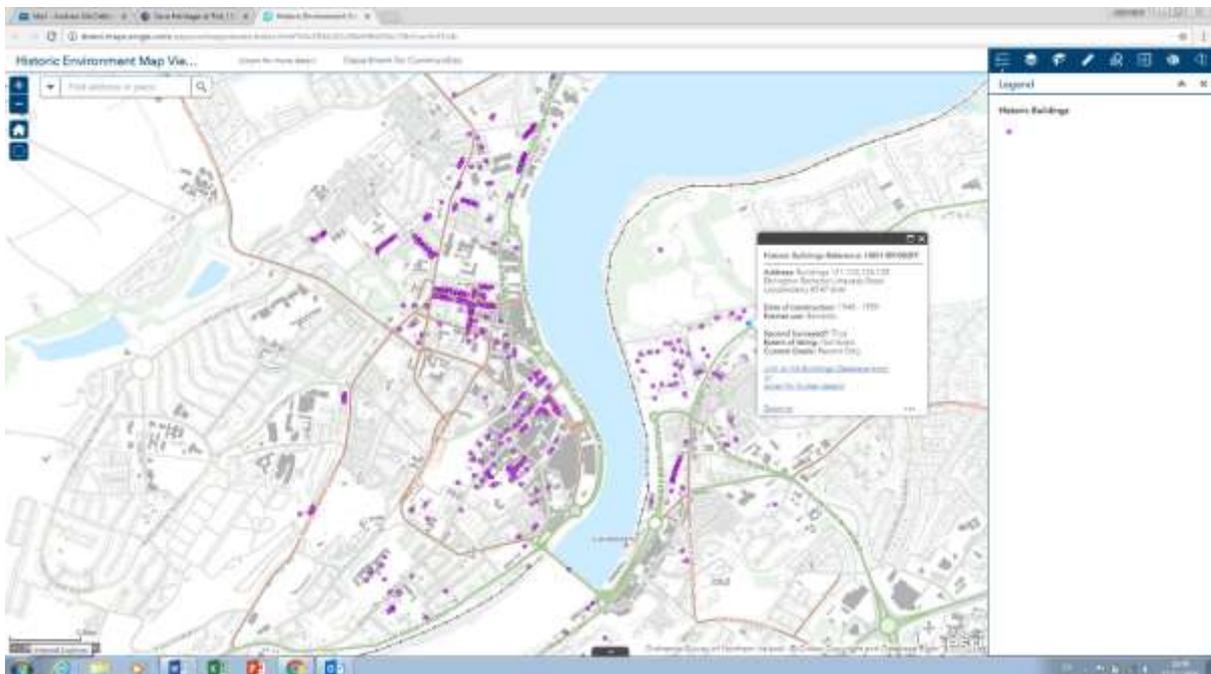
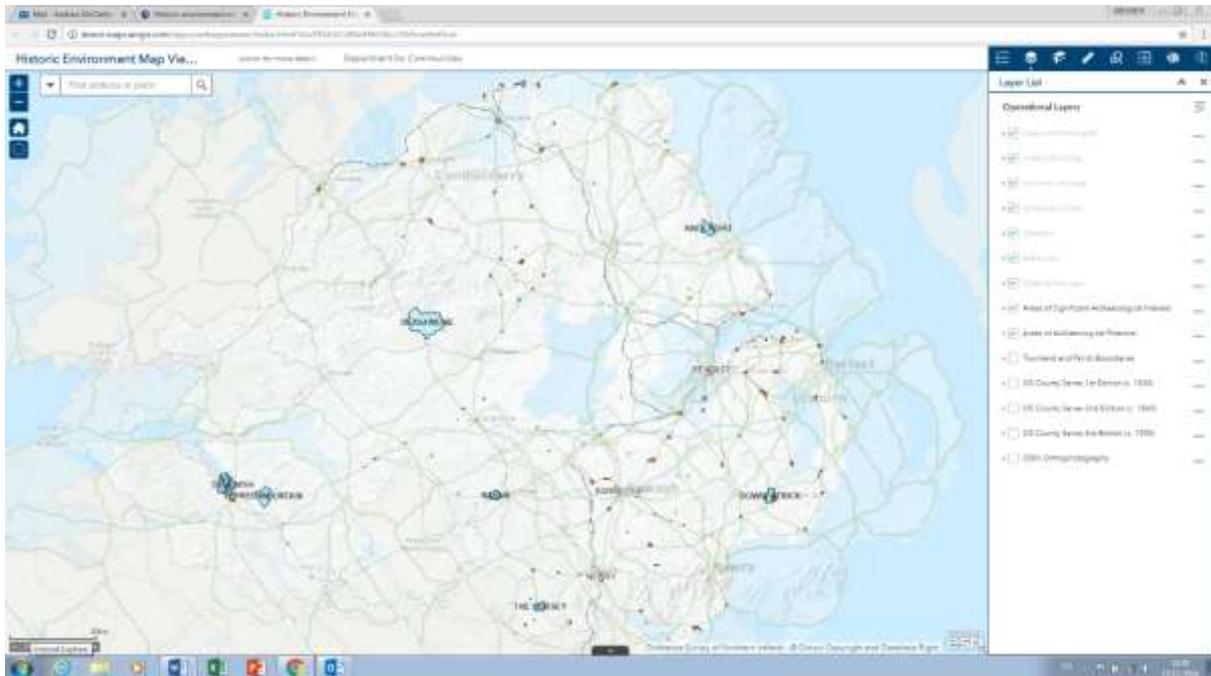
Natural heritage and other datasets proposed for mapping in the embryonic cultural heritage atlas for the North West of Ireland

DATASET	COUNCIL AREA	DATASET AVAILABILITY
Local Landscape Policy Areas	Derry & Strabane	Direct request to Derry City & Strabane District Council
Areas of High Scenic Value	Derry & Strabane	Direct request to Derry City & Strabane District Council
Areas of Local Nature Conservation & Amenity Importance	Derry & Strabane	Direct request to Derry City & Strabane District Council
Countryside Policy Areas	Derry & Strabane	Direct request to Derry City & Strabane District Council
Scheduled Monument Areas	Derry & Strabane	Shape & related files available online: click here
Areas of Significant Archaeological Interest	Derry & Strabane	Shape & related files available online: click here
Areas of Archaeological Potential	Derry & Strabane	Shape & related files available online: click here
Defence Heritage	Derry & Strabane	Shape & related files available online: click here
Industrial Heritage Records	Derry & Strabane	Shape & related files available online: click here
Regional Seascape Character Areas	Derry & Strabane	Shape & related files available online: click here
RAMSAR sites	Derry & Strabane	Shape & related files available online: click here
	County Donegal	Direct request to Donegal County Council
Special Areas of Conservation	Derry & Strabane	Shape & related files available online: click here
	County Donegal	Shape & related files available online: click here
Special Protection Areas	Derry & Strabane	Shape & related files available online: click here
	County Donegal	Shape & related files available online: click here

DATASET	COUNCIL AREA	DATASET AVAILABILITY
National Nature Reserves	Derry & Strabane	Shape & related files available online: click here
	County Donegal	Direct request to Donegal County Council
Areas of Special Scientific Interest	Derry & Strabane	Shape & related files available online: click here
Natural Heritage Areas	County Donegal	Shape & related files available online: click here
Proposed Natural Heritage Areas	County Donegal	Shape & related files available online: click here
Areas of Especially High Scenic Amenity	County Donegal	Direct request to Donegal County Council
Rural Area Types	County Donegal	Direct request to Donegal County Council
Seascape Character Assessment	County Donegal	Direct request to Donegal County Council

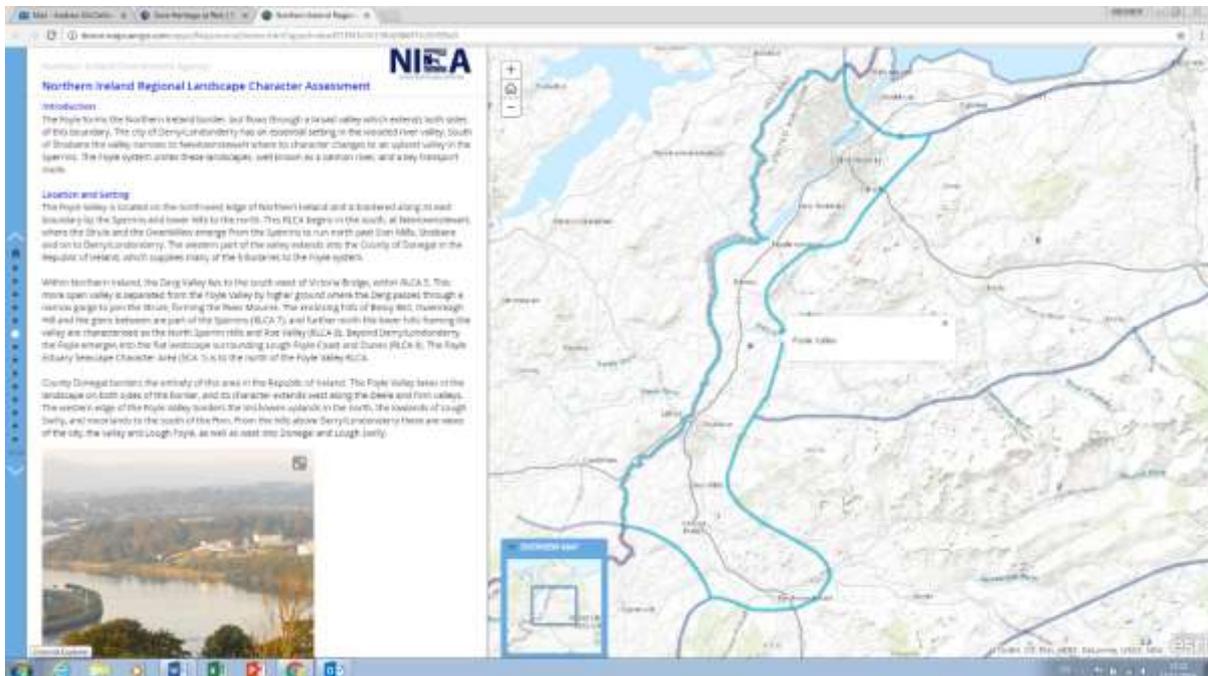
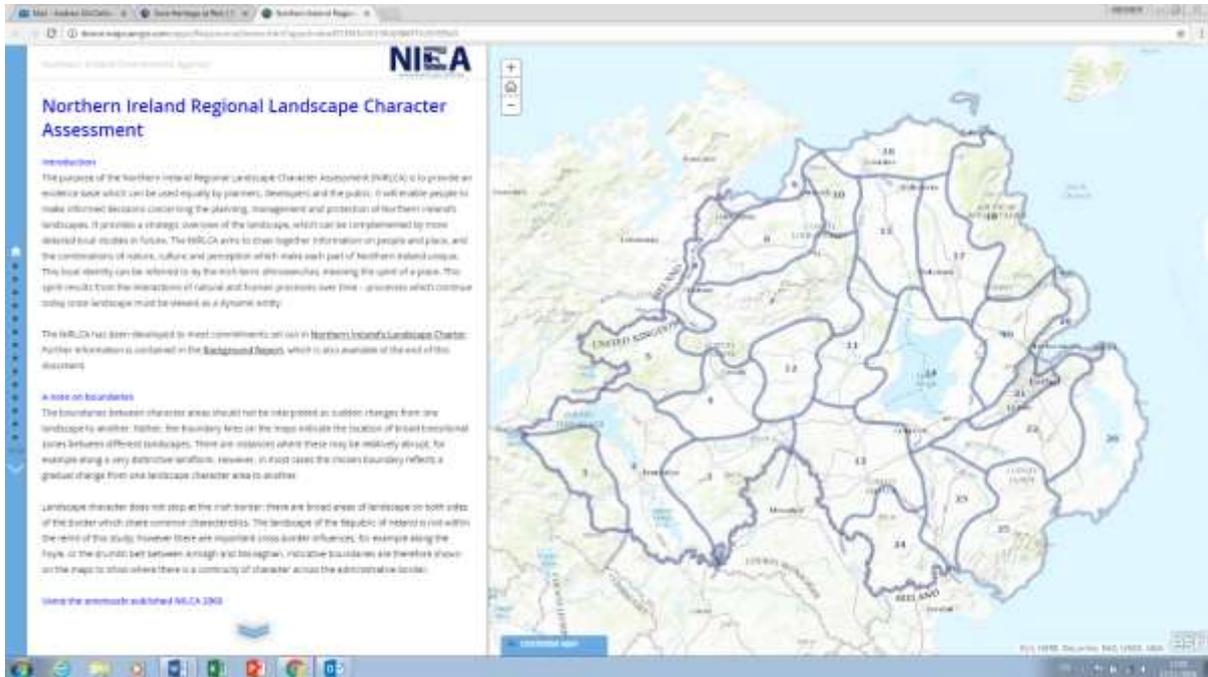
APPENDIX 2

Screenshots of the Historic Environment Map Viewer maintained by the Department for Communities – [click here](#) for online access



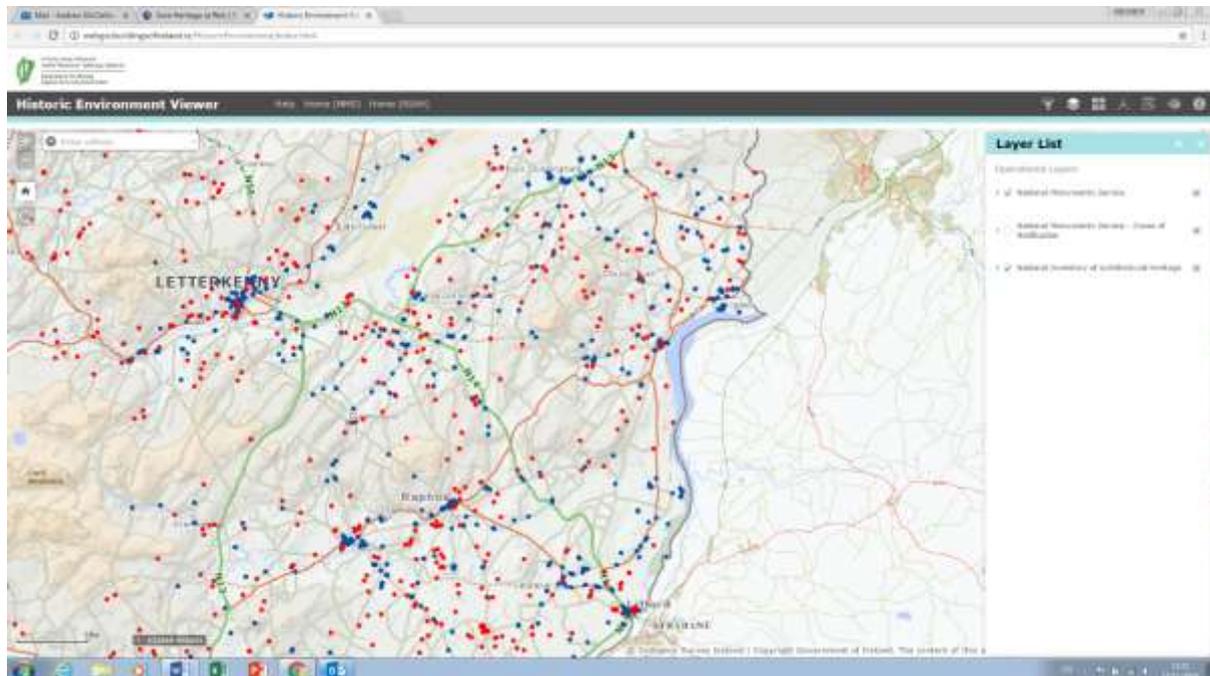
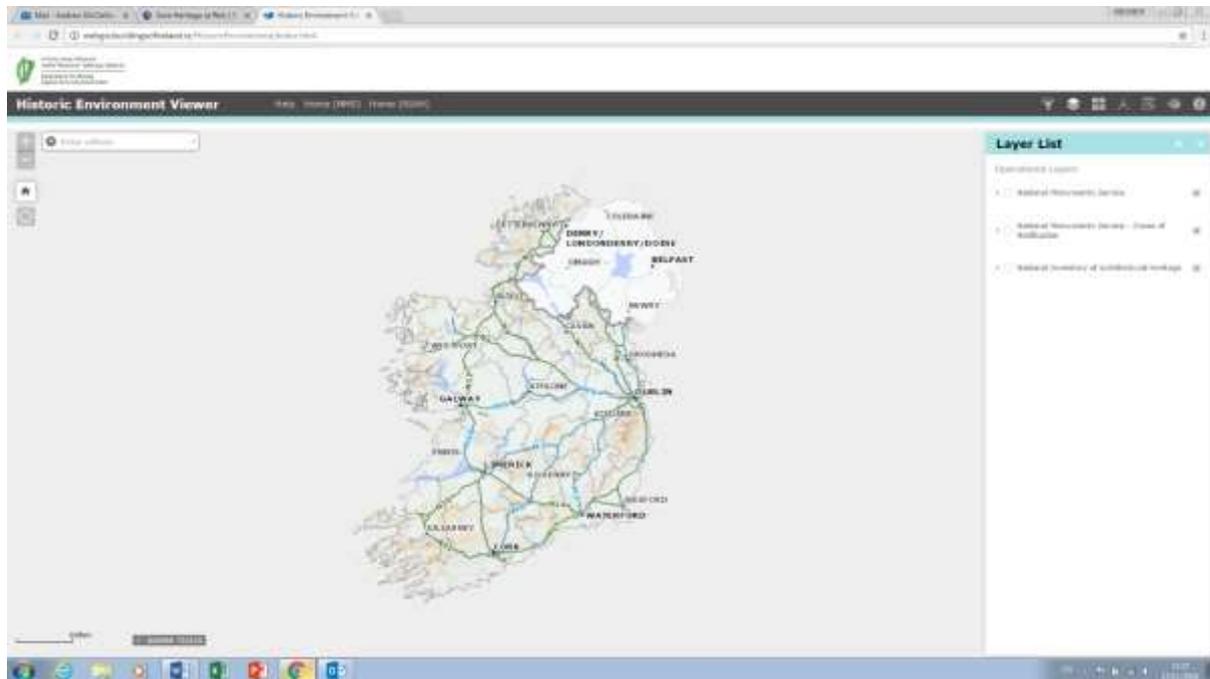
APPENDIX 3

Screenshots of the Northern Ireland Regional Landscape Character Assessment maintained by the Northern Ireland Environment Agency – [click here](#) for online access



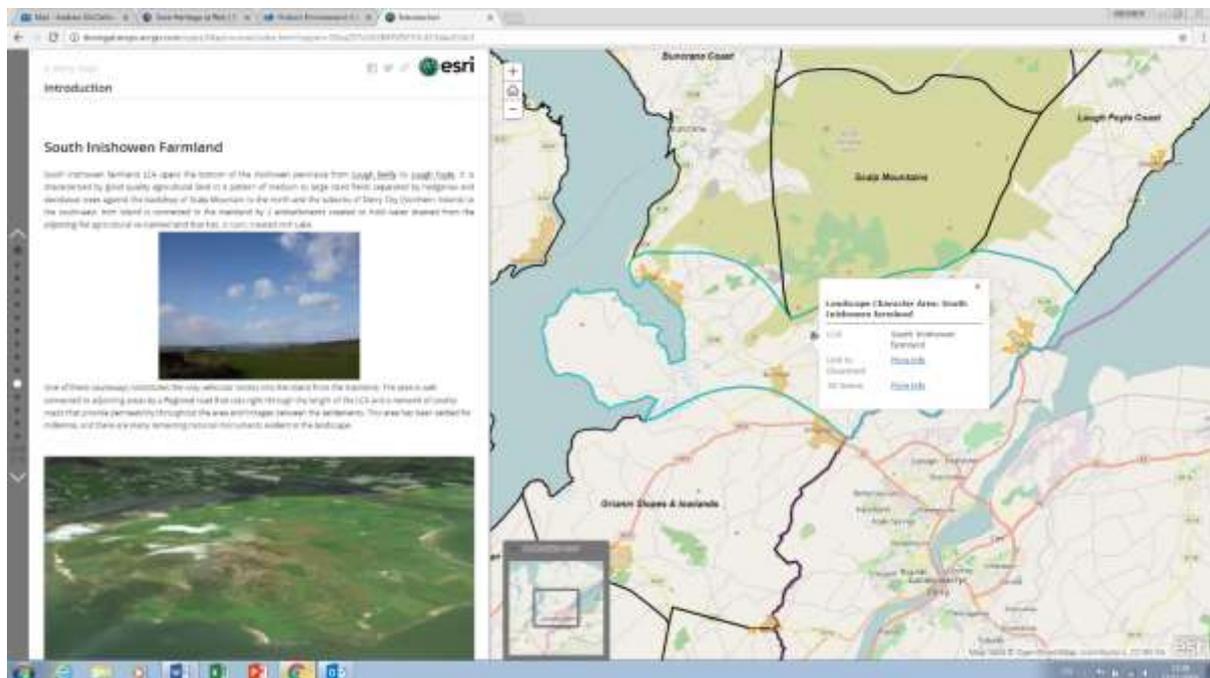
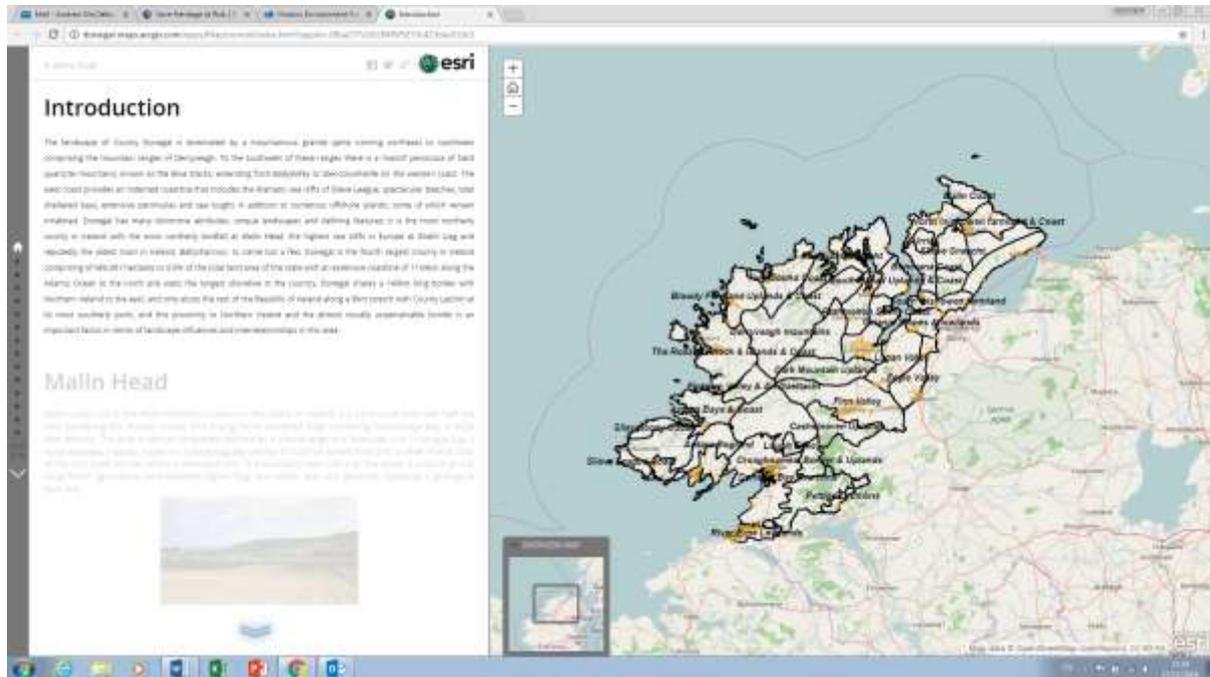
APPENDIX 4

Screenshots of the Historic Environment Viewer maintained by the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs – [click here](#) for online access



APPENDIX 5

Screenshots of the Landscape Character Assessment maintained by Donegal County Council – [click here](#) for online access



APPENDIX 6

Screenshots of Heritage Maps maintained by The Heritage Council – [click here](#) for online access

