

# Ecological Survey & Habitat Mapping

**Shannon-Erne Ecological Assessment:  
Survey of the Shannon Erne Waterway from  
Ballyconnell to Lough Erne,  
Co Cavan.**



Planning & Environmental Consultants

## DOCUMENT DETAILS

**Client:** Waterways Ireland

**Project title:** Shannon-Erne Ecological Assessment: Survey of the Shannon Erne Waterway from Ballyconnell to Lough Erne, Co Cavan.

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**Project Number:** 150523

**Document Title:** Habitat Mapping & Ecological Survey

**Doc. File Name:** 150523 – Eco-Survey – 2015.19.11 – F

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### Document Issue:

Rev	Status	Issue Date	Document File Name	Author(s)	Approved By:
01	Draft	10/19/2015	150523 – Eco-Survey – 2015.10.19 – D1	SD/JH	JH
01	Final	19/11/2015	150523 – Eco-Survey – 2015.19.11 – F	SD/JH	JH

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# 1 INTRODUCTION

## 1.1 General Introduction

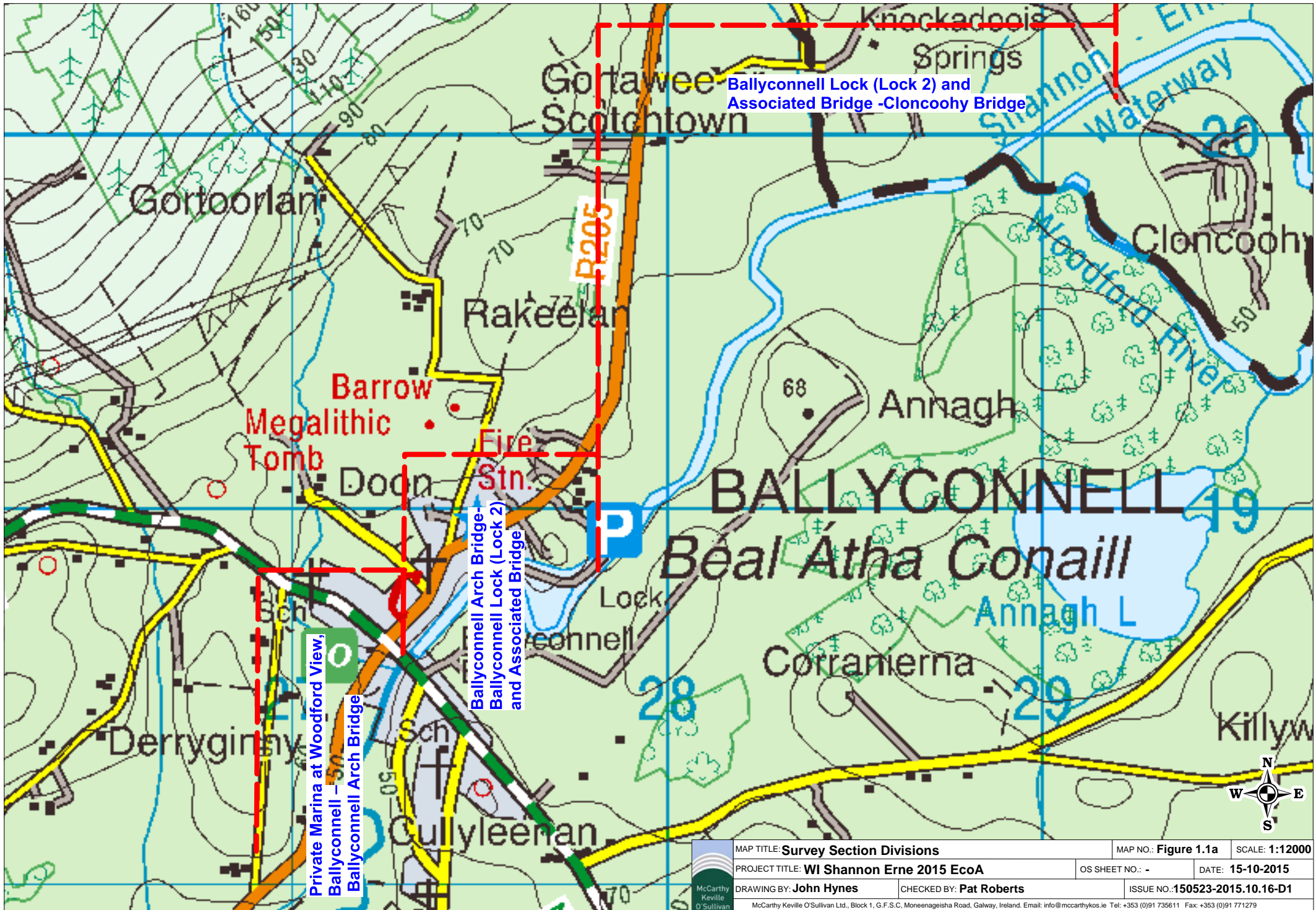
Waterways Ireland have appointed McCarthy Keville O’Sullivan (McCarthyKOS) to undertake an Ecological Survey of approximately 14.8km of the Shannon Erne Waterway from Ballyconnell to Lough Erne. The watercourse forms the border between Northern Ireland and the Republic of Ireland at some locations. Waterways Ireland wish to enhance their knowledge of the local flora fauna and habitats along this section of the canal.

The objectives of the project as set out by Waterways Ireland are as follows:

- Complete a detailed desktop study and consultation exercise regarding the existing information available pertaining to the Study Areas
- Classification of habitats and preparation of habitat maps identifying habitats (according to Level III Fossitt) within the allocated Study Areas adhering to Waterways Ireland GIS Data Standard Guidelines
- Generation of habitat boundary polygons based on OSI mapping
- Identification, mapping and provision of detailed information about habitats, including Annex I habitats and Annex II species within the Study Area.
- Identification of Ecologically Sensitive Areas.
- Preparation of a digital habitat GIS dataset and habitat maps for the allocated Study Area which will be provided in an ArcGIS compatible format.
- Preparation of a report providing written information and photographs about habitats identified, bird, mammal and aquatic survey results, invasive species present and desk study results.

For the purposes of the survey the study site has been split up into 7 sections (see Table 1.1). These sections follow the sequence of bridges and locks encountered along the survey section of the Shannon Erne Waterway. Section 1 is the westernmost section at a private marina in Ballyconnell, while section 7 is the easternmost section ending at the junction with Lough Erne.

Figure 1.1a and Figure 1.1b shows the location of the study area, and the 7 section divisions. The Habitat Mapping Figures are provided as **Appendix I**.



Ballyconnell Lock (Lock 2) and Associated Bridge - Cloncoohy Bridge

Ballyconnell Arch Bridge - Ballyconnell Lock (Lock 2) and Associated Bridge

Private Marina at Woodford View, Ballyconnell - Woodford View, Ballyconnell Arch Bridge

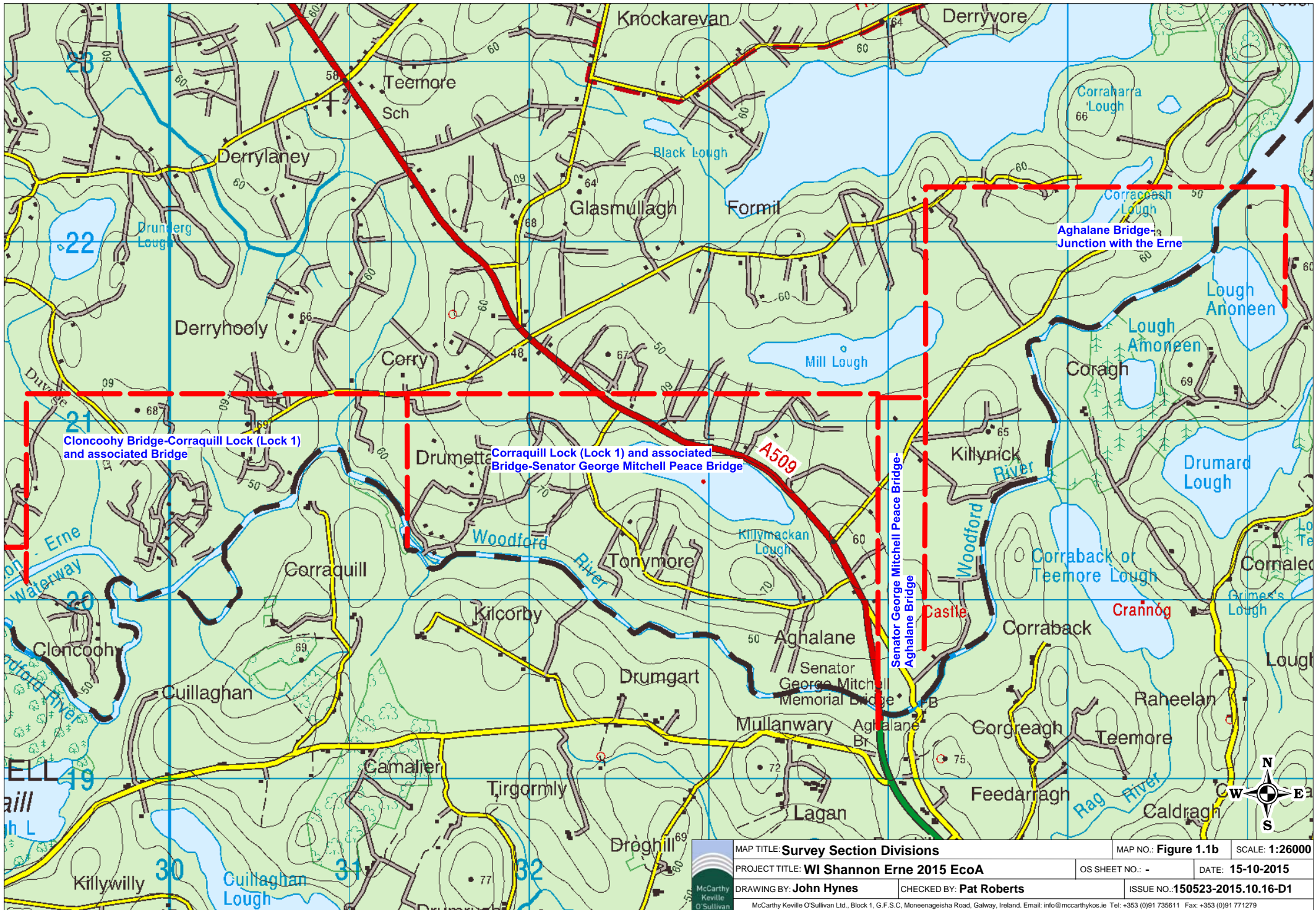
MAP TITLE: **Survey Section Divisions** MAP NO.: **Figure 1.1a** SCALE: **1:12000**


PROJECT TITLE: **WI Shannon Erne 2015 EcoA** OS SHEET NO.: **-** DATE: **15-10-2015**

DRAWING BY: **John Hynes** CHECKED BY: **Pat Roberts** ISSUE NO.: **150523-2015.10.16-D1**

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		<b>MAP TITLE: Survey Section Divisions</b>	<b>MAP NO.: Figure 1.1b</b>	<b>SCALE: 1:26000</b>
<b>PROJECT TITLE: WI Shannon Erne 2015 EcoA</b>		<b>OS SHEET NO.: -</b>	<b>DATE: 15-10-2015</b>	
<b>DRAWING BY: John Hynes</b>		<b>CHECKED BY: Pat Roberts</b>		<b>ISSUE NO.: 150523-2015.10.16-D1</b>
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**Table 1.1 Breakdown of the sections of the study area.**

Number	Description	Habitat Map Figures
1	Private Marina at Woodford View, Ballyconnell – Ballyconnell Arch Bridge	Figure 3.1
2	Ballyconnell Arch Bridge-Ballyconnell Lock (Lock 2) and Associated Bridge	Figure 3.1-3.2
3	Ballyconnell Lock (Lock 2) and Associated Bridge-Cloncoohy Bridge	Figures 3.2-3.3
4	Cloncoohy Bridge-Corraquill Lock (Lock 1) and associated Bridge	Figures 3.3-3.6
5	Corraquill Lock (Lock 1) and associated Bridge-Senator George Mitchell Peace Bridge	Figures 3.6-3.8
6	Senator George Mitchell Peace Bridge-Aghalane Bridge	Figure 3.8
7	Aghalane Bridge-Junction with the Erne	Figure 3.8-3.12

## 1.2 Methodology

The flora and habitats of the site were assessed by means of a desk study of information and literature pertinent to the site and surrounding area, information pertaining to legislation/designations and other notable ecological records. In addition, a field survey of the site, including a habitat survey, was carried out by a suitably qualified ecologist.

Seasonal factors that affect distribution patterns and habits of species were taken into account when conducting the surveys. The potential of the site to support certain populations (in particular those of conservation importance that may not have been recorded during the field survey due to their seasonal absence or nocturnal/cryptic habits) was assessed.

The field walkover survey were conducted from the 01<sup>st</sup> -03<sup>rd</sup> of September 2015, which falls within the recognised optimum period for vegetation surveys/habitat mapping i.e. May to September (NRA, 2008; The Heritage Council, 2010). The site was assessed and the habitats within and adjacent to the site were classified according to the guidelines set out in 'A Guide to Habitats in Ireland' (Fossitt, 2000), which classifies habitats based on the vegetation present and management history. The site was walked systematically and habitats were assessed, classified and sketched onto field maps of the site.

Sites within the Northern Ireland boundary were also classified in line with JNCC Handbook for Phase 1 Habitat Survey.

The main channel was surveyed for Otter as per NRA guidelines (Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes) in order to determine the presence or absence of otter holts in the river bank. This involved a search for all potential otter signs e.g. spraints, prints, couches



and holts along the river corridor and within adjacent habitats. All bird species observed or heard within the site were recorded and a search for the presence or signs of mammals, amphibians and reptiles was undertaken during the visit.

Summer is possibly the most appropriate time of year for ecological surveys when many plant species are in flower and faunal activity is at its peak. However, summer field visits are limited and may not record all the species that potentially use the site (e.g. wintering wildfowl). Ideally surveys should be carried out in all seasons. It was deemed unnecessary to carry out surveys in all seasons as it was possible to classify each habitat and identify many of the species present, based on the site survey in June/September. Using this information, together with published information on the site and its environs, it is considered that a comprehensive ecological assessment was achieved.

An aquatic plant survey, using a grapnel, was carried out at random locations within each survey section within the Study Area. Species collected were identified and an aquatic species inventory was compiled. Polarised sunglasses were also used to aid in visual observation of fish species within the river.

On the occasion of the site visits, the weather was sunny, warm and dry with blue skies and a light breeze.

## 2 DESK STUDY

### 2.1 Background to Designated Sites

#### **Natural Heritage Areas and proposed Natural Heritage Areas**

Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs) are heritage sites that were designated for the protection of flora, fauna, habitats and geological sites of **national** importance. Management of NHAs/pNHAs is guided by planning policy and the Wildlife (Amendment) Act 2000. It was from these NHAs that the most important sites were selected for international designation as European sites.

#### **Areas of Special Scientific Interest (ASSI) Northern Ireland**

Areas of Special Scientific Interest (ASSI) are areas of land that have been identified by scientific survey as being of the highest degree of conservation value. They have a well-defined boundary and by and large remain in private ownership. The law relating to ASSIs is contained in the Environment (Northern Ireland) Order 2002. NIEA must, as required by the law laid down in the Order, declare land as ASSIs if it is of special scientific interest because of the flora or fauna that is found on it, or because of geological features.

#### **European Sites**

The Habitats Directive (together with the Birds Directive) forms the cornerstone of Europe's nature conservation policy. It is built around two pillars: the Natura 2000 network of protected sites and the strict system of species protection. All in all the directive protects over 1.000 animals and plant species and over 200 so called "habitat types" (e.g. special types of forests, meadows, wetlands, etc.), which are of European importance.

With the introduction of the EU Habitats Directive (92/43/EEC) and Birds Directive (79/409/EEC) which were transposed into Irish law as S.I. No. 94/1997 *European Communities (Birds and Natural Habitats) Regulations 1997*, the European Union formally recognised the significance of protecting rare and endangered species of flora and fauna, and also, more importantly, their habitats. The 1997 Regulations and their amendments were subsequently revised and consolidated in S.I. No. 477/2011-*European Communities (Birds and Natural Habitats) Regulations 2011*. This legislation requires the establishment and conservation of a network of sites of particular conservation value that are to be termed 'European Sites'.

Articles 3 – 9 of the EU Habitats Directive (92/43/EEC) provide the EU legislative framework of protecting rare and endangered species of flora and fauna, and habitats. **Annex I** of the Directive lists habitat types whose conservation requires the designation of **Special Areas of Conservation (SAC)**. Priority habitats, such as Turloughs, which are in danger of disappearing within the EU territory are also listed in Annex I. **Annex II** of the Directive lists animal and plant species (e.g. Marsh Fritillary, Salmon, and Killarney Fern) whose conservation also requires the designation of **Special Areas of Conservation**. **Annex IV** lists animal and plant species in need of strict protection such as Lesser Horseshoe Bat and Otter, and **Annex V** lists animal and plant species whose taking in the wild and exploitation may be subject to management measures. In Ireland, species listed under Annex V include Irish Hare, Common Frog and Pine Marten.

Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds (Birds Directive) has been substantially amended several times. In the interests of clarity and

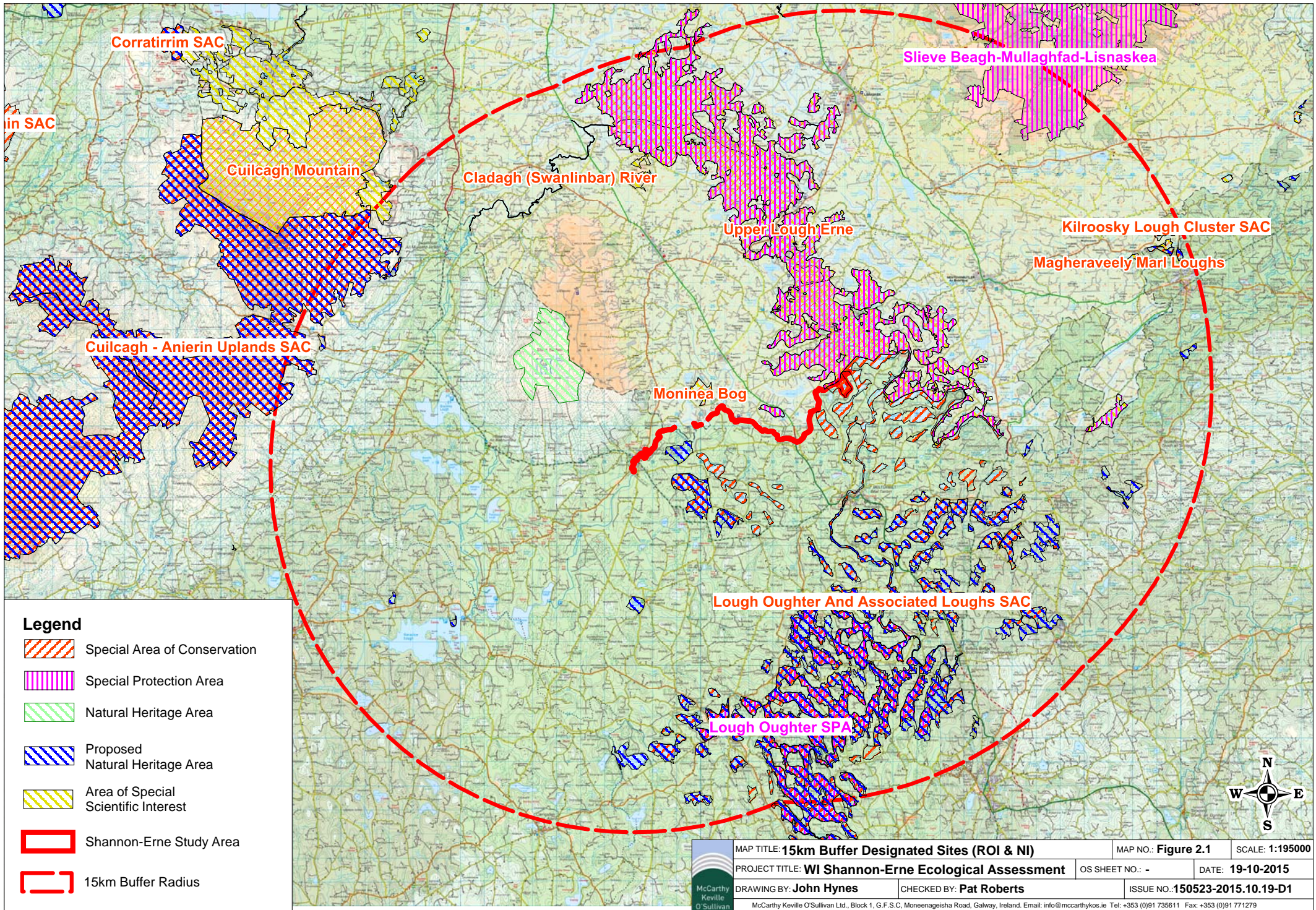
rationality the said Directive was codified in 2009 and is now cited as Directive 2009/147/EC. The Directive instructs Member States to take measures to maintain populations of all bird species naturally occurring in the wild state in the EU (**Article 2**). Such measures may include the maintenance and/or re-establishment of habitats in order to sustain these bird populations (**Article 3**).

A subset of bird species have been identified in the Directive and are listed in **Annex I** as requiring special conservation measures in relation to their habitats. These species have been listed on account of inter alia: their risk of extinction; vulnerability to specific changes in their habitat; and/or due to their relatively small population size or restricted distribution. **Special Protection Areas** (SPAs) are to be identified and classified for these Annex I listed species and for regularly occurring migratory species, paying particular attention to the protection of wetlands (**Article 4**).

## 2.2 Designated Sites

Using the GIS software, MapInfo (Version 10.0), designated sites within a 15 kilometre radius of the site of the study area were identified. Details of these sites, including their distance from the study area, are provided in Table 2.1 below.

Figure 2.1 shows the site location in relation to the designated sites within 15km radius.



**Table 2.1 Details of designated sites within a 15 km radius of the target site**

Designated Site Name	Distance from study area (km)
<b>Special Areas of Conservation (SAC)</b>	
Lough Oughter And Associated Loughs SAC (000007)	0km
Upper Lough Erne (UK0016614) [NI]	0km
Moninea Bog (UK0030212) [NI]	0.5km
Cladagh (Swanlinbar) Rive (UK0030116) [NI]	10.5km
Magheravelly Marl Loughs (UK0016621) [NI]	12km
Cuilcagh - Anierin Uplands SAC (000584)	12.5km
Kilroosky Lough Cluster SAC (001786)	13.4km
<b>Special Protected Areas (SPA)</b>	
Upper Lough Erne (UK9020071) [NI]	0km
Lough Oughter SPA (004049)	6.4km
Slieve Beagh-Mullaghfad-Lisnaskea (UK902302) [NI]	12km
<b>Natural Heritage Areas (NHA)</b>	
Slieve Rushen Bog NHA (000009)	3.4km
<b>Proposed Natural Heritage Area (pNHA)</b>	
Annagh Lough (Ballyconnell) (000974)	0.5km
Lough Oughter And Associated Loughs (000007)	1.4km
Clonty Lough (000977)	5.2km
Lough Garrow And Lough Gubdoo (000984)	7.6km
Garadice Lough Wood (001413)	9.5km
Annagheane Lough (001836)	10.9km
Corduff Lough (001407)	11.1km
Glasshouse Lake (000983)	11.2km
Drumcor Lough (001841)	11.4km
Cuilcagh - Anierin Uplands (000584)	12.5km
Kilroosky Lough Cluster (001786)	13.4km
Drumkeen House Woodland (000980)	13.5km
Blackrock's Cross (000976)	13.6km
Lisabuck Lough (001835)	13.7km
<b>Areas of Special Scientific Interest (ASSI)</b>	
Upper Lough Erne – Crom (ASSI071)	0km
Upper Lough Erne – Galloon (ASSI090)	0.4km
Killymackan Lough (ASSI076)	0.6km
Dernish Island (ASSI014)	3.8km
Upper Lough Erne – Trannish (ASSI094)	3.8km
Moninea Bog (ASSI015)	05.km
Knockninny Hill (ASSI166)	9.5km
Inishroosk (ASSI054)	9.6km
Finn Floods (ASSI110)	9.9km
Upper Lough Erne – Belleisle (ASSI093)	10km
Cladagh (Swanlinbar) River (ASSI200)	10.5km
Ballagh (ASSI381)	10.9km
Corraslough Point (ASSI048)	11.9km
Knockballymore Lough (ASSI014)	12km

Areas of Special Scientific Interest (ASSI)	
Kilroosky Lough (ASSI078)	13.8km
Summerhill Lough (ASSI080)	13.9km
Burdautien Lough (ASSI081)	14.2km
Gortalughany (ASSI366)	14.3km
Tempo River (ASSI364)	14.9km

## 2.3 New Flora Atlas

A search was made in the *New Atlas of the British & Irish Flora* (Preston *et al.*, 2002) to investigate whether any rare or unusual plant species listed under Annex II of the EU Habitats Directive, The Irish Red Data Book 1. Vascular Plants (Curtis, 1988) or the Flora (Protection) Order, 1999 had been recorded in the relevant 10km squares in which the study site is situated (H21, H22, H31 and H32), during the 1987-1999 atlas survey. A total of six such species were found. These are outlined below in table 2.2. The list includes two species under the Flora Protection Order and five red listed species. No Annex II species were recorded.

**Table 2.2 Plants recorded in hectads H21, H22, H31 and H32 that are mentioned in published national red data lists (Red Status) or the Flora (Protection) Order (FPO)**

Common name	Scientific name	Status	Location
Small Cudweed	<i>Filago minima</i>	FPO	H21, H31
Small-white Orchid	<i>Pseudorchis albida</i>	FPO, Red Status Vulnerable	H22
Corncockle	<i>Agrostemma githago</i>	Red Status Extinct	H31
Smooth Brome	<i>Bromus racemosus</i>	Red Status Rare	H31
Marsh Yellow-cress	<i>Rorippa islandica</i>	Red Status Rare	H32
Fen Violet	<i>Viola persicifolia</i>	Red Status Rare	H32

## 2.4 Bird Atlases

The most recent bird atlas project took place over four winters and four summers between November 2007 and July 2011. The data has been published in *Bird Atlas 2007-11, The breeding and wintering birds of Britain and Ireland*. Distribution map data is also available online from Birdwatch Ireland Map store <http://blx1.bto.org/mapstore/StoreServlet>.

Of the species recorded in the above dataset from the relevant hectads (H21, H22, H31 and H32), 27 are protected under the EU Birds Directive or mentioned on the Birds of Conservation Concern in Ireland (BoCCI) Red List (Table 2.3). Birds listed under Annex I of the EU Birds Directive are offered special legislative protection. Of the species recorded in the relevant hectads, 10 are listed under Annex I. Birds listed on the BoCCI Red List meet one or more of the following criteria:

- Their breeding population or range has declined by more than 50% in the last 25 years.
- Their breeding population has undergone significant decline since 1900.
- They are of global conservation concern.

There are records of 20 Red Listed birds in the relevant hectads, three of which (Corncrake, Golden Plover and White-tailed Eagle) are also under Annex I. It should be noted that breeding was not proven in all instances where birds were recorded during the breeding atlas surveys, and also that the absence of a record does not necessarily imply that the species was absent from that hectad.

**Table 2.3 Bird species recorded in hectads H21, H22, H31 and H32 that are protected under the EU Birds Directive or mentioned on the BoCCI Red List. Conf-breed – Confirmed Breeding; Non-breed - Recorded in hectad but no breeding evidence observed; Poss-breed - Possible breeding behaviour recorded; Prob-breed – Probable breeding behaviour recorded;- Species not recorded.**

Common Name	Scientific Name	Breeding		Wintering		Annex I	Red List
Barn Owl	<i>Tyto alba</i>	H21	-	H21	-	-	Yes
		H22	-	H22	-		
		H31	Poss-breed	H31	-		
		H32	-	H32	-		
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	H21	Poss-breed	H21	-	-	Yes
		H22	-	H22	-		
		H31	Poss-breed	H31	-		
		H32	Conf-breed	H32	Yes		
Corncrake	<i>Crex crex</i>	H21	-	H21	-	Yes	Yes
		H22	-	H22	-		
		H31	-	H31	-		
		H32	Poss-breed	H32	-		
Curlew	<i>Numenius arquata</i>	H21	-	H21	-	-	Yes
		H22	-	H22	-		
		H31	-	H31	-		
		H32	Conf-breed	H32	-		
Golden Plover	<i>Pluvialis apricaria</i>	H21	-	H21	-	Yes	Yes
		H22	Non-breed	H22	Yes		
		H31	-	H31	-		
		H32	-	H32	-		
Goldeneye	<i>Bucephala clangula</i>	H21	-	H21	Yes	-	Yes
		H22	-	H22	-		
		H31	-	H31	Yes		
		H32	-	H32	Yes		
Grey Wagtail	<i>Motacilla cinerea</i>	H21	Conf-breed	H21	Yes	-	Yes
		H22	Poss-breed	H22	Yes		
		H31	Prob-breed	H31	-		
		H32	Poss-breed	H32	Yes		
Lapwing	<i>Vanellus vanellus</i>	H21	Prob-breed	H21	Yes	-	Yes
		H22	Prob-breed	H22	-		
		H31	Non-breed	H31	Yes		
		H32	Conf-breed	H32	Yes		
Long-tailed Duck	<i>Clangula hyemalis</i>	H21	-	H21	-	-	Yes
		H22	-	H22	-		
		H31	-	H31	Yes		
		H32	-	H32	-		
Meadow Pipit	<i>Anthus pratensis</i>	H21	Prob-breed	H21	Yes	-	Yes
		H22	Conf-breed	H22	Yes		
		H31	Poss-breed	H31	Yes		
		H32	Conf-breed	H32	Yes		
Pintail	<i>Anas acuta</i>	H21	-	H21	-	-	Yes
		H22	-	H22	-		
		H31	-	H31	-		
		H32	-	H32	Yes		
Pochard	<i>Aythya farina</i>	H21	-	H21	Yes	-	Yes
		H22	-	H22	-		

Common Name	Scientific Name	Breeding		Wintering		Annex I	Red List
		H31	-	H31	Yes		
		H32	-	H32	Yes		
Red Grouse	<i>Lagopus lagopus scoticus</i>	H21	-	H21	-	-	Yes
		H22	Prob-breed	H22	-		
		H31	-	H31	Yes		
		H32	-	H32	-		
Redshank	<i>Tringa totanus</i>	H21	-	H21	-	-	Yes
		H22	-	H22	-		
		H31	-	H31	-		
		H32	Poss-breed	H32	-		
Shoveler	<i>Anas clypeata</i>	H21	-	H21	-	-	Yes
		H22	-	H22	-		
		H31	-	H31	Yes		
		H32	-	H32	-		
Tufted Duck	<i>Aythya fuligula</i>	H21	-	H21	Yes	-	Yes
		H22	-	H22	-		
		H31	Prob-breed	H31	Yes		
		H32	Conf-breed	H32	Yes		
White-tailed Eagle	<i>Haliaeetus albicilla</i>	H21	-	H21	-	Yes	Yes
		H22	-	H22	-		
		H31	-	H31	-		
		H32	Non-breed	H32	-		
Wigeon	<i>Anas penelope</i>	H21	-	H21	Yes	-	Yes
		H22	-	H22	-		
		H31	-	H31	Yes		
		H32	-	H32	Yes		
Woodcock	<i>Scolopax rusticol</i>	H21	Pss-breed	H21	-	-	Yes
		H22	-	H22	Yes		
		H31	-	H31	-		
		H32	Poss-breed	H32	Yes		
Yellowhammer	<i>Emberiza citronella</i>	H21	-	H21	-	-	Yes
		H22	-	H22	-		
		H31	-	H31	-		
		H32	Poss-breed	H32	-		
Common Tern	<i>Sterna hirundo</i>	H21	-	H21	-	Yes	-
		H22	-	H22	-		
		H31	-	H31	-		
		H32	Conf-breed	H32	-		
Hen Harrier	<i>Circus cyaneus</i>	H21	Prob-breed	H21	-	Yes	-
		H22	Conf-breed	H22	Yes		
		H31	Non-breed	H31	-		
		H32	-	H32	Yes		
Kingfisher	<i>Alcedo atthis</i>	H21	Poss-breed	H21	Yes	Yes	-
		H22	-	H22	Yes		
		H31	Conf-breed	H31	-		
		H32	Poss-breed	H32	Yes		
Little Egret	<i>Egretta garzetta</i>	H21	-	H21	-	Yes	-
		H22	-	H22	-		
		H31	-	H31	Yes		
		H32	Non-breed	H32	-		
Merlin		H21	-	H21	-	Yes	-



Common Name	Scientific Name	Breeding		Wintering		Annex I	Red List
	<i>Falco columbarius</i>	H22	-	H22	Yes		
		H31	-	H31	-		
		H32	-	H32	Yes		
Peregrine	<i>Falco peregrines</i>	H21	-	H21	-	Yes	-
		H22	-	H22	Yes		
		H31	-	H31	-		
		H32	-	H32	Yes		
Whooper Swan	<i>Cygnus cygnus</i>	H21	-	H21	Yes	Yes	-
		H22	Non-breed	H22	Yes		
		H31	-	H31	Yes		
		H32	Non-breed	H32	Yes		

## 2.5 Water Quality (EPA & WFD web-mappers)

The EPA Envision web-mapper was consulted regarding the water quality status of the Woodford River. There are no current EPA Surface water quality assessment points on the Shannon-Erne waterway between Ballyconnell and Lough Erne. Prior to 2004 there was a water quality assessment point at Ballyconnell Quay, which is within the study area. In 2004 the watercourse was assigned *Good Status* Q4.

River Basin Management Plans (RBMPs) have been published for all River Basin Districts in Ireland in accordance with the requirements of the Water Framework Directive. The online WaterMaps viewer (<http://watermaps.wfdireland.ie>) is an integral part of the River Basin Management Plan and provides access to information at individual waterbody level and at Water Management Unit level for all the River Basin Districts in Ireland. Waterbodies can relate to surface waters (these include rivers, lakes, estuaries [transitional waters], and coastal waters), or to groundwaters.

The Woodford system is classified as River Waterbody and it lies within the Water Management Unit IE\_NE\_ErneMid. The waterbody code is IE\_Xb\_36\_east\_5. In accordance with the requirement of the Water Framework Directive the status of a waterbody is defined by its chemical status and its ecological status, whichever is worse. Waters are ranked in one of 5 status classes: High, Good, Moderate, Poor, Bad. The overall status of the Woodford waterbody is "*Good*" based on its overall ecological status.

## 2.6 NPWS Records

NPWS online records were searched to see if any rare or protected species of flora or fauna were recorded in the relevant hectads H21, H22, H31 and H32 in which the study area falls. An information request was also sent to National Parks and Wildlife Service requesting information on rare and protected species pertaining to the grid squares in the study area. Table 2.4 lists rare and protected species recorded within the study area that are protected under Annex I of the Birds Directive, under Annex II, IV or V of the Habitats Directive, under the Flora Protection Order or that are red listed in published national red lists.

**Table 2.4 Records for rare and protected species, NPWS**

Common Name	Scientific Name	Status	Location
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	BoCCI Red List, WA 1976/2000	H32
Curlew	<i>Numenius arquata</i>	BoCCI Red List, WA 1976/2000	H21, H22, H32
Golden Eagle	<i>Aquila chrysaetos</i>	Annex I EU BD, BoCCI Red List, WA 1976/2000	H22
Golden Plover	<i>Pluvialis apricaria</i>	Annex I EU BD, BoCCI Red List, WA 1976/2000	H22
Hen Harrier	<i>Circus cyaneus</i>	Annex I EU BD, WA 1976/2000	H22
Kingfisher	<i>Alcedo atthis</i>	Annex I EU BD, WA 1976/2000	H21, H31
Lapwing	<i>Vanellus vanellus</i>	BoCCI Red List BoCCI, WA 1976/2000	H21, H31, H32
Pintail	<i>Anas acuta</i>	BoCCI Red List, WA 1976/2000	H32
Red Grouse	<i>Lagopus lagopus</i>	BoCCI Red List, WA 1976/2000	H22
Whooper Swan	<i>Cygnus cygnus</i>	Annex I EU BD, WA 1976/2000	H21, H32
Common Frog	<i>Rana temporaria</i>	Annex V EU HD, WA 1976/2000	H21, H31, H32
White-clawed Crayfish	<i>Austropotamobius pallipes</i>	Annex II, Annex V EU HD, WA 1976/2000	H21
Freshwater Pearl Mussel	<i>Margaritifera margaritifera</i>	Annex II, Annex V EU HD, WA 1976/2000	H22
Brown Long-eared Bat	<i>Plecotus auritus</i>	Annex IV EU HD, WA 1976/2000	H21
Irish Hare	<i>Lepus timidus subsp. hibernicus</i>	Annex V EU HD, WA 1976/2000	H21, H22, H31, H32
Otter	<i>Lutra lutra</i>	Annex II, Annex IV EU HD, WA 1976/2000	H21, H22, H31, H32
Pine Marten	<i>Martes martes</i>	Annex V EU HD, WA 1976/2000	H21, H22, H31, H32
Meadow Crane's-bill	<i>Geranium pratense</i>	Vulnerable PRDB	H21
Smooth Brome	<i>Bromus racemosus</i>	Rare PRDB	H31
Beaked Beardless-moss	<i>Weissia rostellata</i>	Near threatened IUCN, FPO	H31

## 2.7 Biodiversity Ireland Database

The National Biodiversity Database was accessed on 15<sup>th</sup> September 2015 and the following information was obtained. Table 2.5 lists designated and protected species and species of conservation concern recorded within the hectads which overlap with the current study area.

**Table 2.5 National Biodiversity Database Records**

Common Name	Scientific Name	Status	Location
Arctic Tern	<i>Sterna paradisaea</i>	Annex I EU BD, WA 1976/2000	H32
Barn Owl	<i>Tyto alba</i>	BoCCI Red List, WA 1976/2000	H22, H32
Black-headed Gull	<i>Larus ridibundus</i>	BoCCI Red List, WA 1976/2000	H21, H32
Black-necked Grebe	<i>Podiceps nigricollis</i>	BoCCI Red List, WA 1976/2000	H21
Common Scoter	<i>Melanitta nigra</i>	BoCCI Red List, WA 1976/2000	H21, H32
Common Tern	<i>Sterna hirundo</i>	Annex I EU BD, WA 1976/2000	H21, H32
Corn Crane	<i>Crex crex</i>	Annex I EU BD, BoCCI Red List, WA 1976/2000	H21, H32
Eurasian Curlew	<i>Numenius arquata</i>	BoCCI Red List, WA 1976/2000	H21, H22, H32
European Golden Plover	<i>Pluvialis apricaria</i>	Annex I EU BD, BoCCI Red List, WA 1976/2000	H21, H32
European Nightjar	<i>Caprimulgus europaeus</i>	Annex I EU BD, BoCCI Red List, WA 1976/2000	H32
Herring Gull	<i>Larus argentatus</i>	BoCCI Red List, WA 1976/2000	H21, H32
Kingfisher	<i>Alcedo atthis</i>	Annex I EU BD, WA 1976/2000	H21, H32
Merlin	<i>Falco columbarius</i>	Annex I EU BD, WA 1976/2000	H21, H32
Northern Lapwing	<i>Vanellus vanellus</i>	BoCCI Red List, WA 1976/2000	H21, H22, H32
Northern Shoveler	<i>Anas clypeata</i>	BoCCI Red List, WA 1976/2000	H32
Common Redshank	<i>Tringa totanus</i>	BoCCI Red List, WA 1976/2000	H32
Twite	<i>Carduelis flavirostris</i>	BoCCI Red List, WA 1976/2000	H32
Whooper Swan	<i>Cygnus cygnus</i>	Annex I EU BD, WA 1976/2000	H21, H32
Yellowhammer	<i>Emberiza citrinella</i>	BoCCI Red List, WA 1976/2000	H21, H32
Brown Long-eared Bat	<i>Plecotus auritus</i>	Annex IV EU HD, WA 1976/2000	H21, H22, H32
Daubenton's Bat	<i>Myotis daubentonii</i>	Annex IV EU HD, WA 1976/2000	H21, H31
Lesser Noctule	<i>Nyctalus leisleri</i>	Annex IV EU HD, WA 1976/2000	H21, H22, H31
Nathusius's Pipistrelle	<i>Pipistrellus nathusii</i>	Annex IV EU HD, WA 1976/2000	H31

Common Name	Scientific Name	Status	Location
Natterer's Bat	<i>Myotis nattereri</i>	Annex IV EU HD, WA 1976/2000	H22
Pipistrelle	<i>Pipistrellus pipistrellus</i>	Annex IV EU HD, WA 1976/2000	H21
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	Annex IV EU HD, WA 1976/2000	H21, H31
European Otter	<i>Lutra lutra</i>	Annex II, Annex IV EU HD, WA 1976/2000	H21, H22, H31, H32
Pine Marten	<i>Martes martes</i>	Annex V EU HD, WA 1976/2000	H21, H22, H31, H32
Common Frog	<i>Rana temporaria</i>	Annex 5 EU HD, WA 1976/2000	H21, H32
Freshwater Pearl Mussel	<i>Margaritifera margaritifera</i>	Annex II, Annex V EU HD, WA 1976/2000	H22
Freshwater White-clawed Crayfish	<i>Austropotamobius pallipes</i>	Annex II, Annex V EU HD, WA 1976/2000	H21
Stag's-horn Clubmoss	<i>Lycopodium clavatum</i>	Annex V EU HD	H22
Beaked Beardless-moss	<i>Weissia rostellata</i>	FPO, IUCN Near threatened	H31
Small Cudweed	<i>Filago minima</i>	FPO, PRDB Vulnerable	H21

## 2.8 Consultation

Scoping for this Ecological Assessment was circulated in June 2015. A scoping pack, which outlined the current study area, was sent to the following consultees requesting relevant ecological data pertaining to the study area:

- Relevant District Conservation Officers and Rangers with the National Parks and Wildlife Service.
- NIEA Natural Heritage Section
- Relevant Biodiversity (both in NI and Rol) and Heritage Officers.
- Inland Fisheries Ireland
- Bat Conservation Ireland Birdwatch Ireland.
- Relevant County Recorders and the Tree Council of Ireland.

Inland Fisheries Ireland responded by email on the 01/07/2015 and provided ecological data collected over several years for the Shannon-Erne waterway near Leitrim village (at the 12<sup>th</sup> lock). There was no information provided in relation to the current survey area.

At the date of finalising this report in October 2015 no response has been received from any additional organisations consulted during the scoping process.

In addition to the above, an Information Request Form was sent to the NPWS requesting records from the NPWS Rare and Protected Species Database and any additional data available for the current study area. A response with relevant information was received on the 29/06/2015 and the data has been incorporated into this report.

## 3 FIELD STUDY

### 3.1 Flora

#### 3.1.1 Habitats Present on the Site

Habitats present on the site were classified as part of a habitat classification and mapping exercise completed in September 2015, according to the guidelines set out in 'A Guide To Habitats in Ireland' (Fossitt, 2000), which classifies habitats based on the vegetation present and management history.

The habitats recorded from the study area during the site visits are listed below. The habitat names are followed by their corresponding habitat reference code (in brackets).

- Amenity Grassland (GA2)
- Buildings & Artificial Surfaces (BL3)
- Canals (FW3)
- Drainage Ditch (FW4)
- Dry Meadows and Grassy Verges (GS2)
- Dry Calcareous & Neutral Grassland (GS1)
- Eutrophic Lake (FL5)
- Flower Beds and Borders (BC4)
- Hedgerow (WL1)
- Habitat Mosaic of Dry Meadows and Grassy verges and Scrub (GS2/WS1)
- Habitat Mosaic of Wet Grassland and Scrub (GS4/WS1)
- Mixed Broadleaved Woodland (WD1)
- Ornamental/non-native shrubs (WS3)
- Reed & Large Sedge Swamp (FS1)
- Scrub (WS1)
- Spoil & Bare Ground (ED2)
- Stone Walls & other Stonework (BL1)
- Treeline (WL2)
- Wet Grassland (GS4)
- Wet Willow-Alder-Ash Woodland (WN6)
- Improved Agricultural grassland (GA1)

Habitats outside Waterways Ireland property boundary in Northern Ireland were classified in line with the JNCC Handbook for Phase 1 Habitat Survey. The following habitats were recorded with during the site visits along the Shannon Erne waterway in Northern Ireland.

- Buildings (J3.6)
- Swamp (F1)
- Semi-natural Woodland (A1)
- Neutral Grassland (B2)
- Improved Grassland (B4)
- Marshy Grassland (B5)
- Running Water (G2)

The approximate areas and lengths of each habitat recorded within the study area (Republic of Ireland) are provided in Tables 3.1 and 3.2. A full species and habitat inventory for each of the 17 canal sections is provided in Section 4 below. No protected botanical species were identified within the study area during the site visits. The Habitat Mapping Figures are provided as **Appendix I**.

**Table 3.1 Area of Habitat Polygons within Study Area**

Habitat	Area in m <sup>2</sup>
Amenity Grassland (GA2)	3962.6385
Buildings & Artificial Surfaces (BL3)	11922.31403
Canals (FW3)	286,600
Dry Calcareous & Neutral Grassland (GS1)	1324.061
Dry Meadows And Grassy Verges (GS2)	31983.8852
Eutrophic Lake (FL5)	159870.62
Flower Beds And Borders (BC4)	227.322
Habitat Mosaic Dry Meadows And Grassy Verges (GS2)/Spoil And Bare Ground (ED2)	12637.3594
Habitat Mosaic Of Dry Meadows And Grassy Verges And Scrub (GS2/WS1)	11775.116
Habitat Mosaic Of Wet Grassland And Scrub (GS4/WS1)	16518.964
Improved Agricultural Grassland (GA1)	4570.6148
Mixed Broadleaved Woodland (WD1)	5550.813
Ornamental/Non-Native Shrubs (WS3)	742.3298
Reed & Large Sedge Swamp (FS1)	58472.74
Scrub (WS1)	16698.8169
Spoil & Bare Ground (ED2)	2167.6552
Stone Walls & Other Stonework (BL1)	112.339
Wet Grassland (GS4)	43336.344
Wet Willow-Alder-Ash Woodland (WN6)	35213.013

**Table 3.2 Length of Habitat Polylines within Study Area**

Habitat	Length in metres
Drainage Ditch (Fw4)	179.9
Hedgerow (WL1)	544.2
Reed And Large Sedge Swamp (FS1)	1084.7
Stone Walls & Other Stonework (BL1)	274.1
Treeline (WL2)	7692

### 3.1.1.1 Amenity Grassland (GA2)

Amenity Grassland was most commonly associated with built structures and navigational infrastructure such as at locks, bridges, and roads and in the vicinity of houses and towns. The best examples of this habitat type were found in urban areas particularly within Ballyconnell Village (Plate 3.1). This habitat was actively managed and was characterised by a low sward height and low species diversity. Species recorded from amenity grassland areas included Perennial Ryegrass (*Lolium perenne*), Meadow grasses (*Poa* spp.), Daisy (*Bellis perennis*), Dandelion (*Taraxacum agg.*), Rib-wort plantain (*Plantago lanceolata*) and White Clover (*Trifolium repens*). In most areas (away from locks/towns etc.) Amenity Grassland would soon succeed to other habitats such as Dry Meadows & Grassy Verges (GS2) or in time, Scrub (WS1).



Plate 3.1. Amenity Grassland at Ballyconnell Lock (2)

### 3.1.1.2 Buildings and Artificial Surfaces (BL3)

Throughout the study area the most common forms of this habitat type included domestic dwellings, abandoned buildings, artificial surfaces adjacent to locks, agricultural sheds and yards, tarmac sections of pathways and roadways (Plate 3.2). Generally, built habitats are not considered of high ecological significance and do not offer particularly good floral or faunal habitat. Built structures that were made of natural stone such as the locks and several of the bridges were included under the classification Stone Walls and Other Stonework (BL1).



**Plate 3.2. Tarmac pathway in an amenity park at Ballyconnell**

### 3.1.1.3 Depositing/Lowland River (FW2)

The Shannon-Erne Waterway was constructed in the early nineteenth century to allow the transport of freight between the River Shannon in the Republic of Ireland and the River Erne in Northern Ireland (Plate 3.3).

The watercourse (Woodford River) is a highly modified watercourse and was typically 10-15m in width and dominated by slow flowing glide habitat. The watercourse was best classified as a Canal (FW3) due to its modified nature. The waters were turbid along the entire survey section. Areas of riffles and faster flowing waters were recorded, south of Ballyconnell Lock, where the watercourse branched off and followed the apparent natural watercourse route. There was also evidence of bank stabilisation and possible river enhancement works in this area as it appeared that large boulders had been placed instream to increase flow and provide a refuge for aquatic life.

The margins of the watercourse supported varying levels of vegetation from short grassland to occasional reed swamp. Typical species of the margins included Reed Canary Grass (*Phalaris arundinacea*), Common Reed (*Phragmites australis*), Common Clubrush (*Schoenoplectus lacustris*), Angelica (*Angelica sylvestris*),



Amphibious Bistort (*Persicaria amphibia*) and Branched Bur-reed (*Sparganium erectum*).

Aquatic flora was sampled using a grapnel at random locations within each marker section of the survey area. The grapnel was deployed several times at each location, in order to obtain a good sample. Aquatic macrophytes were relatively scarce within the study area and no evidence of macrophytes was recorded from several watercourse sections. Macrophytes were typically associated with man-made structures including jetties, the edges of wide meanders and surrounding lakes including Lough Anoneen and Corraback Lough. Macrophytes were also recorded from wide drainage channels recorded on the approach to Lough Anoneen.

Recorded aquatic macrophytes included Yellow Water Lily (*Nuphar lutea*), Broad Leaved Pondweed (*Potamogeton natans*), Perfoliate Pondweed (*Potamogeton perfoliatus*), Aquatic moss (*Fontinalis* sp.), Duckweeds (*Lemna* sp.), Starwort (*Callitriche* sp.), Amphibious Bistort (*Persicaria amphibia*), Spiked Water Milfoil (*Myriophyllum spicatum*), Water Forget-me-not (*Myosotis scorpioides*), Water Plantain (*Alisma plantago aquatica*), Unbranched bur-reed (*Sparganium emersum*), Water-cress (*Rorippa nasturtium-aquatica*), Water starwort (*Callitriche* sp), Ivy-leaved Duckweed (*Lemna trisulca*) and the non-native Nuttall's Waterweed (*Elodea nuttallii*).

The Woodford River offers an excellent habitat for coarse fish and anglers were observed catching small Roach (*Rutilus rutilus*) at Ballyconnell village. Perch were observed from the watercourse under Cloncoohy Bridge.



**Plate 3.3. Waterway section to the east of George Mitchell Peace Bridge**

#### 3.1.1.4 Drainage Ditch (FW4)

Over several sections of the study area, the towpath was accompanied by a drainage ditch inland of the path (Plate 3.4). This drain was often on the property boundary and was in many areas associated with a treeline or hedgerow. In some areas the drain was a defined channel with drier lands behind. Over the majority of the study area, the drains varied in width between 0.5 and 2.5m. All of the drains were dominated by a benthic substrate of silt and were invariably choked with vegetation. Typical species recorded from the drainage ditches included Floating Sweet-grass (*Glyceria fluitans*), Fool's Watercress (*Apium nodiflorum*), Reed Canary-grass (*Phalaris arundinacea*), Great Willowherb (*Epilobium hirsutum*), Yellow Iris (*Iris pseudacorus*) and occasional Branched Bur Reed (*Sparganium erectum*). In areas of more open water, species such as Duckweed (*Lemna* spp.) and Water Starwort (*Callitriche* sp.) were observed. Large drainage ditches were recorded on the approach to Lough Anoneen. The drainage in this area is inefficient and several of the drainage ditches and the Woodford navigation had burst their banks, flooding adjacent low-lying lands.



Plate 3.4. Drainage channel recorded on the approach to Lough Anoneen

### 3.1.1.5 Dry Meadows and Grassy Verges (GS2)

The presence of rank, overgrown grassland dominated by tall tussocky grasses and creeping herbs is generally indicative of the habitat 'Dry Meadows and Grassy Verges' as described in *'A Guide to Habitats in Ireland'* (Fossitt, 2000). Unmown strips of tall grassland vegetation within the study area are best described as Dry Meadows and Grassy Verges (Plate 3.5). This habitat was found along the unmown or annually mown bank margins at many locations along the navigation towpath and along roadside verges.

Where encountered within the study area, the habitat was dominated by tall grasses and creeping herbs with a reasonable proportion of hydrophilous species along the canal margin and ruderals on the landward side of the towpath. Tall tussocky grasses such as Cocksfoot (*Dactylis glomerata*) and False-oat Grass (*Arrhenatherum elatius*) and creeping herbs such as Bird's-foot Trefoil (*Lotus corniculatus*), Meadow Vetchling (*Lathyrus pratensis*) and Meadow Buttercup (*Ranunculus acris*) were recorded. Tall herbs such as Cow Parsley (*Anthriscus sylvestris*) were also frequently recorded in this habitat. Other species commonly recorded include Ribwort Plantain (*Plantago lanceolata*), Meadow grasses (*Poa* spp.), Yorkshire Fog (*Holcus lanatus*), Crested Dog's Tail (*Cynosurus cristatus*), Silverweed (*Potentilla anserina*), Sorrel (*Rumex acetosa*), Meadow Buttercup (*Ranunculus repens*) and Greater Willowherb (*Epilobium hirsutum*). The habitat often formed a mosaic with Scrub (WS1) particularly in areas where Bramble (*Rubus fruticosus* agg.) had encroached on the bankside (i.e. west of Senator George Mitchell Peace Bridge)



**Plate 3.5. Typical example of Dry Meadows and Grassy Verge Habitat (GS2). (West of Senator George Mitchell Peace Bridge)**

### 3.1.1.6 Dry Calcareous & Neutral Grassland (GS1)

Dry calcareous grassland is defined as 'unimproved or semi-improved dry grassland that may be either calcareous or neutral, but not acid' (Fossitt, 2000). This habitat was recorded in isolated areas and dominated by rank vegetation with a relatively poor species diversity. Species recorded from this habitat included grasses common in calcareous grassland habitats such as Annual Meadow-grass (*Poa annua*), Crested Dog's-tail (*Cynosurus cristatus*), Quaking Grass (*Briza media*) and Timothy (*Phleum pratense*). Additional grasses recorded included Cock's-foot (*Dactylis glomerata*) and Yorkshire Fog (*Holcus lanatus*) (Plate 3.6).

Broadleaved herbs within this habitat included Red and White Clovers (*Trifolium pratense* and *T. repens*), Ladies Bedstraw (*Galium verum*), Tufted Vetch (*Vicia cracca*), Bush Vetch (*Vicia sepium*), Bird's Foot Trefoil (*Lotus corniculatus*), Self-heal (*Prunella vulgaris*), Yarrow (*Achillea millefolium*), Knapweed (*Centurea nigra*) and Ox-eye Daisy (*Leucanthemum vulgare*).



**Plate 3.6. Rank Dry Calcareous and Neutral Grassland (GS1) (East Senator George Mitchell Peace Bridge).**

### 3.1.1.7 Eutrophic Lake (FL5)

One Eutrophic lake was recorded within the study area, namely Lough Anoneen (Plate 3.7). This lake forms part of the Lough Oughter and Associated Loughs SAC (000007). The lake habitat and water quality therein was not subject to a comprehensive survey. Given that the Lough is included within the SAC designated lands, it is presumed that Anoneen Lough has links to the Annex I habitat Natural Eutrophic Lakes [3150] for which the SAC is designated however this was not confirmed by detailed surveys. This habitat was classified as an Ecologically Sensitive Area is further discussed in Section 6



**Plate 3.7. Anoneen Lough**

### 3.1.1.8 Improved Agricultural Grassland (GA1)

Much of the land in the vicinity of the Shannon Erne Waterway study area is of high agricultural quality with much of it being managed for grass and beef/sheep production. Agricultural grassland in the vicinity of the study area generally had a wet grassland influence with *Juncus effusus* commonly recorded from the improved sward (Plate 3.8). Commonly occurring species recorded from the agricultural fields adjacent to the towpath included Perennial Ryegrass (*Lolium perenne*), White Clover (*Trifolium repens*), Dandelion (*Taraxacum agg.*), Silverweed (*Potentilla anserina*), Yorkshire Fog (*Holcus lanatus*), Cocksfoot (*Dactylis glomerata*), Creeping Buttercup (*Ranunculus repens*), Annual Meadow Grass (*Poa annual*), Creeping Thistle (*Cirsium arvense*), Nettle (*Urtica dioica*), Spear Thistle (*Cirsium vulgare*) and Mouseear (*Cerastium fontanum*).



Plate 3.8. Agricultural Grassland (GA1), with *Juncus effusus* in the sward.

### 3.1.1.9 Mixed Broadleaved Woodland (WD1)

A small area of Mixed broadleaved woodland was recorded to the west of Ballyconnell Lock 12, with a larger areas of this habitat recorded to the east of Cloncoohy Bridge (Plate 3.9) within the Republic of Ireland. At Ballyconnell, the woodland occurred on the northern watercourse bank and the woodland was dominated by Pedunculate Oak (*Quercus robur*) and Ash (*Fraxinus excelsior*).

The larger woodland area was dominated by Ash with an understory of Hazel (*Corylus avellana*) and Holly (*Ilex aquifolium*), Blackthorn (*Prunus spinosa*) and Hawthorn (*Crataegus monogyna*) and a ground flora which included Bramble (*Rubus fruticosus* agg.), Ivy (*Hedera helix*) and Remote Sedge (*Carex remota*). The larger area of Mixed broadleaved woodland was classified as an Ecologically Sensitive Area given that is linked to a larger expanse of woodland and given that is unique within the study corridor. The woodland is also likely to be a refuge for a range of species including Bats Badger, Fox and Pine marten.



**Plate 3.9. Mixed Broadleaved Woodland (WD1)**

### 3.1.1.10 Ornamental/non-native Shrub (WS3) & Flower Beds & Borders (BC4)

Occasional areas of flower beds and borders and Ornamental/non-native shrubs were recorded. These often occurred in conjunction with villages waterway infrastructure and housing as was the case at Ballyconnell (Plate 3.10).

These areas were planted for decoration and landscaping and were well maintained and managed. Typically where they occurred they featured a range of non-native ornamental shrubs and bedding species such as Marigolds, Dahlias, and Petunias.

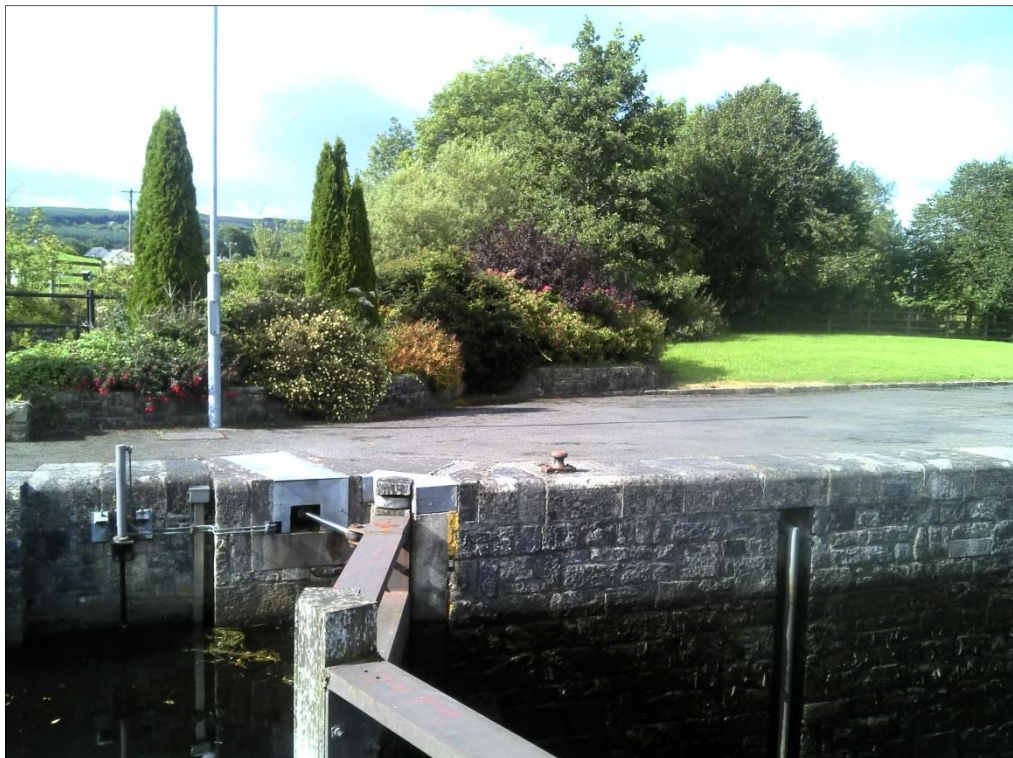


Plate 3.10. Ornamental/non-native shrubs (WS3), Lock 2.



### 3.1.1.11 Reed and Large Sedge Swamp (FS1)

This habitat is classified as being a species poor stand of herbaceous vegetation that is dominated by reeds and other large grasses or sedges. This habitat was found in various scattered isolated locations throughout the study area and was most commonly recorded as a fringe along the watercourse (Plate 3.11). The habitat was recorded surrounding Lough Anoneen in two distinct vegetation zones i.e. Clubrush zone and Common Reed zone.

The dominant species recorded from linear fringes included Clubrush (*Schoenoplectus lacustris*) Common Reed (*Phragmites australis*) and Reed Canary-grass (*Phalaris arundinacea*). The most commonly recorded broadleaved herbs included Watermint (*Mentha aquatica*), Wild Angelica (*Angelica sylvestris*), and Meadowsweet (*Filipendula ulmaria*). Water Horsetail (*Equisetum fluviatile*), and Hemp-agrimony (*Eupatorium cannabinum*) were occasionally recorded.



Plate 3.11. Fringing Clubrush dominated FS1 habitat. (On the approach to Anoneen Lough)

### 3.1.1.12 Scrub (WS1)

An abundance of Scrub (WS1) was recorded along the waterway corridor. The habitat varied substantially in species composition and management. The main species recorded in this habitat included Willow (*Salix* spp), Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*), Bramble (*Rubus fruticosus* agg.), Elder (*Sambucus nigra*) and Gorse (*Ulex europaeus*) (Plate 3.12)

Bramble (*Rubus fruticosus* agg.) Scrub (WS1) also formed intimate mosaics with areas of Dry Meadows and Grassy Verges (GS2) where the grassland had not been mown annually. In wetter areas, Scrub often formed mosaics with Wet grassland habitats as was the case surrounding Lough Anoneen.



**Plate 3.12. Gorse Dominated Scrub on towpath at Ballyconnell.**

### 3.1.1.13 Spoil and Bare Ground (ED2)

The existing canal towpath along some survey sections within the study area was dominated by paved trackways classified as Spoil and bare ground (ED2) (Plate 3.13). The trackways were mainly constructed from carboniferous Clause 804 or smaller grade paving gravel. The paved towpath occurred in areas that were actively utilized for recreation.

This habitat generally supported little vegetation cover except for common grasses and herbs growing up through the road gravel, e.g. Yorkshire Fog (*Holcus lanatus*), Annual Meadow-grass (*Poa annua*), Common Mouse-ear (*Cerastium fontanum*), Red Bartsia (*Odontites vernus*) and Rib-wort Plantain (*Plantago lanceolata*) This habitat type often graded into Dry meadows and grassy verges (GS2) where the towpath was less frequently utilised and vegetation recolonization was occurring. In such instances the habitat was classified as a mosaic.



Plate 3.13. Spoil and Bare Ground habitat (ED2) towpath, east of Ballyconnell.

#### 3.1.1.14 Stone Walls and Other Stonework (BL1)

The habitat Stone walls and other stonework (BL1) was recorded in many locations within the study area. This habitat includes stone walls, other than those of intact buildings. In the case of the study area, the habitat occurred on bridges, walls in locks and along other parts of the river bank (Plate 3.14).

Stone walls and other stonework of this type provide habitat for a number of specialised species, including ferns, lichens and mosses. Plant species recorded growing on stonework within the study area included Common Ivy (*Hedera helix*), Wall-rue (*Asplenium ruta-muraria*), Maidenhair Spleenwort (*Asplenium trichomanes*) and occasional Brambles (*Rubus fruticosus* agg.).



Plate 3.14. Example of Stone Walls and Other Stonework at Ballyconnell Lock 2

### 3.1.1.15 Hedgerow (WL1)/Treeline (WL2)

An abundance of treeline and hedgerow habitats was recorded along the survey area (Plates 3.15 & 3.16). These habitats varied in species composition and management. The dominant species recorded from hedgerow habitats included Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*), Dog Rose (*Rosa canina*), Bramble (*Rubus fruticosus agg.*), Willow (*Salix spp.*), Elder (*Sambucus nigra*) and Gorse (*Ulex europaeus*).

Guelder Rose (*Viburnum opulus*) was recorded from more species rich hedgerow examples

Treelines were recorded throughout the study area and were dominated by Ash, (*Fraxinus excelsior*), Sycamore (*Acer pseudoplatanus*) and Alder (*Alnus glutinosa*) with Beech (*Fagus sylvatica*) and Pedunculate Oak (*Quercus robur*) recorded occasionally.



**Plate 3.15. Hedgerow (WL1) as typically found forming property boundaries within the study area**



**Plate 3.16. Fringing *Salix alba* Treelines (WL2) on the approach to Senator George Mitchell Peace Bridge**

### 3.1.1.16 Wet Grassland (GS4)

Large areas of wet grassland were recorded within and adjacent to the study area (Plate 3.17). Some of these areas were dominated by rushes such as Soft Rush (*Juncus effusus*) and Sharp Flowered Rush (*Juncus acutiflorus*). Additional frequently recorded species included Marsh Foxtail (*Alopecurus geniculatus*), Sweet Vernal-grass (*Anthoxanthum odoratum*), Creeping Bent (*Agrostis stolonifera*), Silverweed (*Potentilla anserina*), Common Bent (*Agrostis capillaris*), Yorkshire Fog (*Holcus lanatus*), Devilsbit Scabious (*Succisa pratensis*), Watermint (*Mentha aquatica*), Rib-wort Plantain (*Plantago lanceolata*), Meadow Buttercup (*Ranunculus acris*), Creeping Buttercup (*Ranunculus repens*), Lesser Spearwort (*Ranunculus flammula*) and Ragged Robin (*Lychnis flos-cuculi*).

On the landward side of the towpath, this habitat often graded into Improved agricultural grassland (GA1). In some areas, it had a high proportion of tall herbs such as Great Willowherb (*Epilobium hirsutum*) and Meadowsweet (*Filipendula ulmaria*) and the habitat graded into Reed and Large Sedge Swamp (FS1) surrounding Lough Anoneen. The habitat also formed intimate mosaics with scrub and rank grassland where there was a lack of regular management adjacent to the watercourse towpath.



Plate 3.17. Wet Grassland (GS4) dominated by tussocks of *Juncus effuses*

### 3.1.1.17 Wet willow-alder-ash Woodland (WN6)

This habitat was recorded in the townland of Corraquilla, and included a strip of wet woodland verging the watercourse corridor (Plate 3.18). Continuing inland, and outside the property boundary, the woodland was dryer in nature and transitioned to Mixed broadleaved woodland (WD1) with dryer ground conditions prevailing. A second area of wet woodland was recorded at the extreme east of the survey area at the confluence with the Erne. This habitat was classified as and ESA at the two locations described above. The habitat is described in greater detail in Section 6.



Plate 3.18. Wet Woodland (WN6) along existing drainage feature (Corraquilla)

## 3.2 Aquatic Flora

Aquatic flora was sampled using a grapnel at random and multiple locations within each canal section of the survey area. Given the scarcity of macrophytes within the study area the grapnel was deployed several times within each section, in order to obtain a representative sample.

Macrophytes were typically associated with man-made structures including jetties, the edges of wide meanders and surrounding lakes including Lough Anoneen. Macrophytes were also recorded from wide drainage channels recorded on the approach to Lough Anoneen.

Recorded aquatic macrophytes included Yellow Water Lily (*Nuphar lutea*), Broad Leaved Pondweed (*Potamogeton natans*), Perfoliate Pondweed (*Potamogeton perfoliatus*), Aquatic moss (*Fontinalis* sp.), Duckweeds (*Lemna* sp.), Starwort (*Callitriche* sp.), Amphibious Bistort (*Persicaria amphibia*), spiked Water milfoil (*Myriophyllum spicatum*), Water Forget-me-not (*Myosotis scorpioides*), Water Plantain (*Alisma plantago aquatica*), Unbranched bur-reed (*Sparganium emersum*), Water-cress (*Rorippa nasturtium-aquatica*), Water starwort (*Callitriche* sp), Ivy-leaved

Duckweed (*Lemna trisulca*) and the non-native Nuttall's Waterweed (*Elodea nuttallii*) (Plate 3.19).

The margins of the canal supported varying levels of vegetation from short grassland to occasional reed swamp. Typical species of the canal margins included Reed Canary Grass (*Phalaris arundinacea*), Common Reed (*Phragmites australis*), Common Clubrush (*Schoenoplectus lacustris*), Angelica (*Angelica sylvestris*), Amphibious Bistort (*Persicaria amphibia*) and Branched Bur-reed (*Sparganium erectum*).



**Plate 3.19. *Elodea nuttallii* recorded from grapnel sample at Jetty (232323, 319,999)**

### **3.3 Fauna**

#### **3.3.1 Birds**

Table 3.3 shows the bird species recorded during the site visits. Records were taken of bird species seen or heard. The bird species recorded were typical of the habitat types found within the study area and typical of the survey effort. It is likely that a greater range of species utilise the study area. Kingfisher were observed during the site visit. Kingfisher, is listed on Annex I of the E.U. Birds Directive. Two BoCCI Red-listed species were recorded including Grey Wagtail and Meadow Pipit. Eight species –House Martin Kingfisher, Mistle Thrush, Mute Swan, Skylark, Snipe, Starling and Swallow - are on the Amber BoCCI list indicating that they are birds of medium conservation concern (Amber-list species are those with an unfavourable conservation status in Europe; those whose population or range has declined moderately in recent years; those whose population has declined historically but made a substantial recent recovery; rare breeders; and those with internationally important or localised populations). The remainder recorded during the fieldwork were green listed, i.e. they are common birds with favourable conservation status.

**Table 3.3 Birds species recorded during the site visits and their conservation status**



Common Name	Scientific Name	Conservation Status (Colhoun & Cummins 2013)
Blackbird	<i>Turdus merula</i>	Green-listed
Blue tit	<i>Parus caeruleus</i>	Green-listed
Bull Finch	<i>Pyrrhula pyrrhula</i>	Green-listed
Buzzard	<i>Buteo buteo</i>	Green-listed
Chaffinch	<i>Fringilla coelebs</i>	Green-listed
Chiffchaff	<i>Phylloscopus collybita</i>	Green-listed
Coal tit	<i>Parus ater</i>	Green-listed
Goldcrest	<i>Regulus regulus</i>	Green-listed
Goldfinch	<i>Carduelis carduelis</i>	Green-listed
Great tit	<i>Parus major</i>	Green-listed
Grey Wagtail	<i>Motacilla cinerea</i>	Red-listed
Hooded Crow	<i>Corvus corone cornix</i>	Green-listed
House Martin	<i>Delichon urbicum</i>	Amber-listed
Jackdaw	<i>Corvus monedula</i>	Green-listed
Jay	<i>Garrulus glandarius</i>	Green-listed
Kingfisher	<i>Alcedo atthis</i>	Amber-listed
Long-tailed tit	<i>Aegithalus caudatus</i>	Green-listed
Magpie	<i>Pica pica</i>	Green-listed
Mallard	<i>Anas platyrhynchos</i>	Green-listed
Meadow Pipit	<i>Anthus pratensis</i>	Red-listed
Mistle Thrush	<i>Turdus viscivorus</i>	Amber-listed
Moorhen	<i>Gallinula chloropus</i>	Green-listed
Mute Swan	<i>Cygnus olor</i>	Amber-listed
Pheasant	<i>Phasianus colchicus</i>	Green-listed
Pied Wagtail	<i>Motacilla alba yarrellii</i>	Green-listed
Reed Bunting	<i>Emberiza schoeniclus</i>	Green-listed
Robin	<i>Erithacus rubecula</i>	Green-listed
Skylark	<i>Alauda arvensis</i>	Amber-listed
Snipe	<i>Gallinago gallinago</i>	Amber-listed
Song Thrush	<i>Turdus philomelos</i>	Green-listed
Starling	<i>Sturnus vulgaris</i>	Amber-listed
Swallow	<i>Hirundo rustica</i>	Amber-listed
Willow Warbler	<i>Phylloscopus trochilus</i>	Green-listed
Wood Pigeon	<i>Columba palumbus</i>	Green-listed
Wren	<i>Troglodytes troglodytes</i>	Green-listed

### 3.3.2 Mammals

Evidence of numerous species of mammal was recorded along the route of the watercourse within the study area; Badger (*Meles meles*), Fallow Deer (*Dama dama*), Mustelid (Possible Stoat or Mink) and Fox (*Vulpes vulpes*). Otter are likely to be present but no Otter (*Lutra lutra*) spraint was observed. Otter is listed under Annex II and IV of the EU Habitat Directive. Several potential mammal paths, which may have been otter slides were recorded during the survey. Badger Fox and Stoat are protected under the Wildlife Act (1976) and the Wildlife Amendment Act (2000).

The study area is likely to be used by a variety of species due to cover provided by the tall bankside vegetation along the canal and the hedgerow and treelines and scrub which were abundant along the course of the navigation. It is probable that common small mammal species such as Wood Mouse (*Apodemus sylvaticus*), Pygmy Shrew (*Sorex minutus*) and Brown Rat (*Rattus norvegicus*) use the site. In addition, it is also likely that Hare (*Lepus timidus hibernicus*), Rabbit (*Oryctolagus cuniculus*), and Hedgehog (*Erinaceus europaeus*) are found on the site, at least on occasion.

The study site is likely to support a variety of species of bats including Common Pipistrelle (*Pipistrellus pipistrellus*), Soprano Pipistrelle (*Pipistrellus pygmaeus*), Leisler's Bat (*Nyctalus leisleri*), Brown Long Eared Bat (*Plecotus auritus*) and several species of *Myotis* Bats, including Daubenton's Bat. The presence of large areas of scrub, treeline and hedgerows along the canal provide ample suitable foraging and commuting habitat for bats. In addition, the navigation itself is a linear feature in the environment, which bats will use to commute along into adjacent foraging habitats. It is possible that mature trees and some old buildings adjacent to the navigation may host bat roosts.

The study area was not considered suitable for Lesser Horseshoe Bats (*Rhinolophus hipposideros*), which is confined to the western counties and has a preference for closed canopy scrub woodland as foraging habitat. The navigation appears to provide good habitat for Daubenton's Bat in particular with slow flowing water, which would be ideal for hunting insects. All bats are listed under Annex IV of the EU Habitats Directive and afforded protection under the Wildlife Act (1976) and the Wildlife Amendment Act (2000).

### 3.3.3 Significant species that potentially use the site

Although it is likely that mammal species such as Wood Mouse (*Apodemus sylvaticus*), Pygmy Shrew (*Sorex minutus*), Brown Rat (*Rattus norvegicus*) and Otter (*Lutra lutra*) may use the site, it is unlikely that the site hosts a significant faunal population of mammals. Bats may use the waterway as a foraging area as there are suitable commuting routes in the vicinity of the site and there were some potential roosting locations observed during survey.

Otter is protected under the Wildlife Acts 1976 to 2012 and are listed under Annex II and Annex IV of the Habitats Directive (92/43/EEC), which was transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011 (G.I. 477/2011). Annex II lists species of community interest whose conservation requires the designation of Special Areas of Conservation (SACs), while those species listed under Annex IV are those in need of strict protection.

Otters in Northern Ireland are a European Protected Species, and are protected under The Conservation (Natural Habitats etc.) Regulations (Northern Ireland) 1995 (as amended) (also known as the Habitat Regulations), which transposes the Habitats Directive. It is therefore an offence to deliberately capture, injure or kill an otter. It is also an offence to deliberately disturb an otter in any way, or to disturb, damage or destroy an otter's breeding site or resting place unless a licence has been obtained.

All bat species in Ireland are protected under both national legislation – (Wildlife Act, 1976, as amended in 2000) and European legislation – (Habitats Directive (92/43/EEC). In Northern Ireland, bats are protected under the Wildlife (Northern Ireland) Order 1985 as well as European legislation.

There is additional protection for Lesser Horseshoe Bats because of their inclusion in Annex II of the Habitats Directive. The Habitats Directive is transposed into Irish law in the European Communities (Natural Habitats) Regulations (G.I. 94 of 1997). The Irish Government is also a signatory to the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals (Bonn, 1979)) and the Bern Convention, 1982 (The Convention on the Conservation of European Wildlife and Natural Habitats) and has a commitment to the “Eurobats” Agreement (Agreement on the Conservation of Bats in Europe, 1991).

## 4 HABITAT & FLORA INFORMATION BY SECTION

The following chapter provides the information on habitats and species recorded in each of the sections within the study area. These are displayed in tabular form in Tables 4.1 – 4.8. Species listed on the Invasive Species Ireland “Most unwanted” list such as Nuttall’s Waterweed are highlighted in bold in the tables below.

### 4.1 Section 1: Private Marina at Woodford View, Ballyconnell – Ballyconnell Arch Bridge

**Table 4.1. Habitats Classified in Section 1**

Habitats	Habitat Code
Amenity Grassland	(GA2)
Buildings & Artificial Surfaces	(BL3)
Canals	(FW3)
Scrub	(WS1)
Stone Walls & Other Stonework	(BL1)
Treeline	(WL2)
Wet Grassland	(GS4)

**Table 4.2. Plant Species Recorded in Section 1**

Scientific name	Common Name
<i>Acer pseudoplatanus</i>	Sycamore
<i>Acer</i> spp.	Maple (ornamental)
<i>Agrostis stolonifera</i>	Creeping Bent
<i>Alnus glutinosa</i>	Alder
<i>Alopecurus pratensis</i>	Meadow Foxtail
<i>Angelica sylvestris</i>	Angelica
<i>Arrhenatherum elatius</i>	False Oat-grass
<i>Aucuba japonica</i>	Spotted Laurel
<i>Bellis perennis</i>	Daisy
<i>Betula pubescens</i>	Birch
<i>Calystegia sepium</i>	Hedge Bindweed
<i>Carex remota</i>	Remote Sedge
<i>Cerstium fontanum</i>	Mouse Ear
<i>Chamerion angustifolium</i>	Rosebay Willowherb
<i>Cirsium arvense</i>	Creeping Thistle
<i>Cirsium vulgare</i>	Spear Thistle
<i>Cornus sanguine</i>	Dogwood
<i>Crataegus monogyna</i>	Hawthorn
<i>Cupressus leylandii</i>	Leyland Cypress
<i>Cytisus scoparius</i>	Broom
<i>Deschampia cespitosa</i>	Tufted Hair-grass
<i>Epilobium hirsutum</i>	Great Willowherb
<i>Epilobium montanum</i>	Broad-leaved Willowherb
<i>Equisetum</i> spp.	Horsetail
<i>Festuca</i> spp.	Fescue
<i>Fraxinus excelsior</i>	Ash
<i>Fuchsia magellanica</i>	Fuchsia

Scientific name	Common Name
<i>Galium aperine</i>	Clevers
<i>Glyceria fluitans</i>	Floating Sweet Grass
<i>Glyceria maxima</i>	Reed-sweet Grass
<i>Hedera helix</i>	Ivy
<i>Heracleum sphondylium</i>	Hogweed
<i>Holcus lanatus</i>	Yorkshire Fog
<i>Hypericum elodes</i>	Marsh St. John's-wort
<i>Hypericum tetrapterum</i>	Square-stalked St. John's-wort
<i>Juncus effusus</i>	Soft Rush
<i>Ligustrum vulgare</i>	Privet
<i>Lolium perenne</i>	Perennial Ryegrass
<i>Lycopus europaeus</i>	Gypsywort
<i>Lythrum salicaria</i>	Purple Loosestrife
<i>Mentha aquatica</i>	Water Mint
<i>Menyanthes trifoliata</i>	Bog Bean
<i>Plantago lanceolata</i>	Ribwort Plantain
<i>Plantago major</i>	Greater Plantain
<i>Poa annua</i>	Annual Meadow-grass
<i>Potentilla anserina</i>	Silverweed
<i>Prunella vulgaris</i>	Selfheal
<i>Prunus</i> spp.	Cherry (ornamental)
<i>Quercus robur.</i>	Oak
<i>Ranunculus acris</i>	Meadow Buttercup
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Rubus fruticosus</i> agg.	Bramble
<i>Rumex crispus</i>	Curled Dock
<i>Rumex obtusifolius</i>	Broad-leaved Dock
<i>Sagina procumbens</i>	Procumbent Pearlwort
<i>Salix cinerea</i>	Grey Willow
<i>Salix viminalis</i>	Osier
<i>Schoenoplectus lacustris</i>	Common Club Rush
<i>Scropularia auriculata</i>	Water Figwort
<i>Senecio jacobaea</i>	Ragwort
<i>Senecio vulgaris</i>	Groundsel
<i>Solanum dulcamara</i>	Woody Nightshade
<i>Sonchus asper</i>	Prickly Sow-thistle
<i>Sorbus acucparia</i>	Mountain Ash
<i>Sparganium emersum</i>	Floating Bur-reed
<i>Stachys palustris</i>	Marsh Woundwort
<i>Taraxacum</i> agg.	Dandelion
<i>Trifolium pratense</i>	Red Clover
<i>Trifolium repens</i>	White Clover
<i>Tussilago farfara</i>	Coltsfoot
<i>Ulex europaeus</i>	Gorse
<i>Urtica dioica</i>	Nettle
<i>Viburnum opulus</i>	Guelder-rose
<i>Vicia</i> spp.	Vetch

**Table 4.3. Aquatic Plant Species Recorded in Section 1**

Scientific name	Common Name
<i>Alisma plantago-aquatica</i>	Water-plantain
<i>Apium nodiflorum</i>	Fool's Water-cress
<i>Callitriche stagnalis</i>	Water-starwort
<b><i>Elodea nuttallii</i></b>	<b>Nuttall's Waterweed</b>
<i>Lemna trisulca</i>	Ivy-leaved Duckweed
<i>Myriophyllum spicatum</i>	Spiked Water-milfoil
<i>Mysotis scorpioides</i>	Water Forget-me-not
<i>Nuphar lutea</i>	Yellow Water-lily
<i>Persicaria amphibian</i>	Amphibious Bistort
<i>Phalaris arundinacea</i>	Reed-canary Grass
<i>Rorippa nasturtium-aquatica</i>	Water-cress

## 4.2 Section 2: Ballyconnell Arch Bridge-Ballyconnell Lock (Lock 2) and Associated Bridge

**Table 4.4. Habitats Classified in Section 1**

Habitats	Habitat Code
Amenity Grassland	(GA2)
Buildings & Artificial Surfaces	(BL3)
Canals	(FW3)
Dry Meadows And Grassy Verges	(GS2)
Flower Beds And Borders	(BC4)
Hedgerow	(WL1)
Mixed Broadleaved Woodland	(WD1)
Ornamental/Non-Native Shrubs	(WS3)
Scrub	(WS1)
Spoil & Bare Ground	(ED2)
Stone Walls & Other Stonework	(BL1)
Treeline	(WL2)
Wet Grassland	(GS4)

**Table 4.5. Table 4.5. Plant Species Recorded in Section 2**

Scientific name	Common Name
<i>Acer pseudoplatanus</i>	Sycamore
<i>Achillea millefolium</i>	Yarrow
<i>Aesculus hippocastanum</i>	Horse-chestnut
<i>Alnus glutinosa</i>	Alder
<i>Alopecurus pratensis</i>	Meadow Foxtail
<i>Angelica sylvestris</i>	Angelica
<i>Anthriscus sylvestris</i>	Cow Parsely
<i>Arrhenatherum elatius</i>	False-oat Grass
<i>Asplenium ruta-muraria</i>	Wall-rue
<i>Asplenium trichomanes</i>	Maidenhair Spleenwort
<i>Bellis perennis</i>	Daisy
<i>Betula pubescens</i>	Birch
<i>Calystegia sepium</i>	Hedge Bindweed

Scientific name	Common Name
<i>Chamerion angustifolium</i>	Rosebay Willowherb
<i>Cirsium palustre</i>	Marsh Thistle
<i>Crataegus monogyna</i>	Hawthorn
<i>Cymbalaria muralis</i>	Ivy-leaved Toadflax
<i>Cynosurus cristatus</i>	Crested Dog's Tail
<i>Dactylis glomerata</i>	Cocks Foot
<i>Deschampia cespitosa</i>	Tufted Hair-grass
<i>Epilobium cillatum</i>	American Willowherb
<i>Epilobium montanum</i>	Broad-leaved Willowherb
<b><i>Fallopia japonica</i></b>	<b>Japanese Knotweed</b>
<i>Festuca</i> spp.	Fescue
<i>Fraxinus excelsior</i>	Ash
<i>Galium aperine</i>	Clevers
<i>Geranium molle</i>	Dove's-foot Crane's-bill
<i>Geranium robertianum</i>	Herb Robert
<i>Hedera helix</i>	Ivy
<i>Heracleum sphondylium</i>	Hogweed
<i>Holcus lanatus</i>	Yorkshire Fog
<i>Ilex aquifolium</i>	Holly
<i>Juncus effusus</i>	Soft Rush
<i>Lathyrus pratensis</i>	Meadow Vetchling
<i>Lolium perenne</i>	Perennial Ryegrass
<i>Lonicera nitida</i>	Wilson's Honeysuckle
<i>Medicago lupulina</i>	Black Medic
<i>Pinus sylvestris</i>	Lodge pole Pine
<i>Poa annua</i>	Annual Meadow-grass
<i>Prunus laurocerasus</i>	Cherry Laurel (ornamental)
<i>Prunus spinosa</i>	Blackthorn
<i>Quercus robur.</i>	Oak
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Rosa canina</i>	Dog Rose
<i>Rubus fruticosus</i> agg.	Bramble
<i>Rumex crispus</i>	Curled Dock
<i>Salix cinerea</i>	Grey Willow
<i>Salix viminalis</i>	Osier
<i>Sambucus nigra</i>	Elder
<i>Senecio jacobaea</i>	Ragwort
<i>Senecio vulgaris</i>	Groundsel
<i>Sonchus asper</i>	Prickly Sowthistle
<i>Sparganium erectum</i>	Branched Bur-reed
<i>Stachys palustris</i>	Marsh Woundwort
<i>Stachys sylvatica</i>	Hedge Woundwort
<i>Taraxacum</i> agg.	Dandelion
<i>Torilis japonica</i>	Hedge-parsley
<i>Tussilago farfara</i>	Coltsfoot
<i>Ulex europaeus</i>	Gorse
<i>Urtica dioica</i>	Nettle

**Table 4.6. Aquatic Plant Species Recorded in Section 2**

Scientific name	Common Name
<i>Alisma plantago-aquatica</i>	Water-plantain
<b><i>Elodea nuttallii</i></b>	<b>Nuttall's Waterweed</b>
<i>Lemna minor</i>	Duckweed
<i>Nuphur lutea</i>	Yellow Water-lilly
<i>Phalaris arundinacea</i>	Reed-canary Grass
<i>Rorippa nastutium-aquatica</i>	Water-cress

### 4.3 Section 3: Ballyconnell Lock (Lock 2) and Associated Bridge-Cloncoohy Bridge

**Table 4.7. Habitats Classified in Section 3**

Habitats	Habitat Code
Amenity Grassland	(GA2)
Buildings & Artificial Surfaces	(BL3)
Canals	(FW3)
Dry Calcareous & Neutral Grassland	(GS1)
Dry Meadows And Grassy Verges	(GS2)
Habitat Mosaic Dry Meadows And Grassy Verges / Spoil And Bare Ground	(GS2)/ (ED2)
Hedgerow	(WL1)
Mixed Broadleaved Woodland	(WD1)
Ornamental/Non-Native Shrubs	(WS3)
Scrub (	WS1)
Spoil & Bare Ground	(ED2)
Stone Walls & Other Stonework	(BL1)
Treeline	(WL2)
Wet Grassland	(GS4)

**Table 4.8 Plant Species Recorded in Section 3**

Scientific name	Common Name
<i>Acer pseudoplatanus</i>	Sycamore
<i>Achillea millefolium</i>	Yarrow
<i>Agrostis capillaries</i>	Common Bent
<i>Agrostis stolonifera</i>	Creeping Bent
<i>Alnus glutinosa</i>	Alder
<i>Alopecurus pratensis</i>	Meadow Foxtail
<i>Angelica sylvestris</i>	Angelica
<i>Anthriscus sylvestris</i>	Cow Parsley
<i>Arrhenatherum elatius</i>	False-oat Grass
<i>Arum maculatum</i>	Lords-and-ladies
<i>Asplenium ruta-muraria</i>	Wall-rue
<i>Asplenium trichomanes</i>	Maidenhair Spleenwort
<i>Bellis perennis</i>	Daisy
<i>Betula pubescens</i>	Birch
<i>Brachypodium sylvaticum</i>	Wood False-brome
<b><i>Buddleja davidii</i></b>	<b>Butterfly-bush</b>



Scientific name	Common Name
<i>Calystegia sepium</i>	Hedge Bindweed
<i>Calystegia sepium</i>	Hedge Bindweed
<i>Carex hirta</i>	Hairy Sedge
<i>Carex pendula</i>	Pendulous Sedge
<i>Carex remota</i>	Remote Sedge
<i>Chamerion angustifolium</i>	Rosebay Willowherb
<i>Circaea lutetiana</i>	Enchanter's-nightshade
<i>Cirsium arvense</i>	Creeping Thistle
<i>Cirsium palustre</i>	Marsh Thistle
<i>Cirsium vulgare</i>	Spear Thistle
<i>Corylus avellana</i>	Hazel
<i>Crataegus monogyna</i>	Hawthorn
<i>Cymbalaria muralis</i>	Ivy-leaved Toadflax
<i>Cynosurus cristatus</i>	Crested Dog's Tail
<i>Cynosurus cristatus</i>	Crested Dogs-tail
<i>Dactylis glomerata</i>	Cocks Foot
<i>Deschampia cespitosa</i>	Tufted Hair-grass
<i>Deschampsia flexuosa</i>	Wavy Hair-grass
<i>Elytrigia repens</i>	Couch
<i>Epilobium cillatum</i>	American Willowherb
<i>Epilobium hirsutum</i>	Great Willowherb
<i>Epilobium montanum</i>	Broad-leaved Willowherb
<i>Equisetum</i> spp.	Horsetail
<i>Festuca</i> spp.	Fescue
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Fraxinus excelsior</i>	Ash
<i>Galium aperine</i>	Clevers
<i>Geranium robertianum</i>	Herb Robert
<i>Glyceria fluitans</i>	Floating Sweet-grass
<i>Hedera helix</i>	Ivy
<i>Heracleum sphondylium</i>	Hogweed
<i>Holcus lanatus</i>	Yorkshire Fog
<i>Ilex aquifolium</i>	Holly
<i>Juncus effusus</i>	Soft Rush
<i>Lapsana communis</i>	Nipplewort
<i>Lathyrus pratensis</i>	Meadow Vetchling
<i>Lolium perenne</i>	Perennial Ryegrass
<i>Medicago lupulina</i>	Black Medic
<i>Poa annua</i>	Annual Meadow-grass
<i>Poa</i> spp.	Meadow-grass
<i>Prunella vulgaris</i>	Selfheal
<i>Prunus spinosa</i>	Blackthorn
<i>Quercus robur.</i>	Oak
<i>Ranunculus acris</i>	Meadow Buttercup
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Rosa canina</i>	Dog Rose
<i>Rubus fruticosus</i> agg.	Bramble

Scientific name	Common Name
<i>Rumex crispus</i>	Curled Dock
<i>Rumex sanguineus</i>	Wood Dock
<i>Salix cinerea</i>	Grey Willow
<i>Salix viminalis</i>	Osier
<i>Sambucus nigra</i>	Elder
<i>Senecio jacobaea</i>	Ragwort
<i>Senecio vulgaris</i>	Groundsel
<i>Sonchus asper</i>	Prickly Sowthistle
<i>Sparganium erectum</i>	Branched Bur-reed
<i>Stachys palustris</i>	Marsh Woundwort
<i>Stachys sylvatica</i>	Hedge Woundwort
<i>Taraxacum agg.</i>	Dandelion
<i>Torilis japonica</i>	Hedge-parsley
<i>Trifolium pratense</i>	Red Clover
<i>Trifolium repens</i>	White Clover
<i>Tussilago farfara</i>	Coltsfoot
<i>Ulex europaeus</i>	Gorse
<i>Urtica dioica</i>	Nettle
<i>Viola</i> spp.	Violet

**Table 4.9. Aquatic Plant Species Recorded in Section 3**

Scientific name	Common Name
<i>Phalaris arundinacea</i>	Reed-canary Grass

#### 4.4 Section 4: Cloncoohy Bridge-Corraquill Lock (Lock 1) and associated Bridge

**Table 4.10. Habitats Classified in Section 4**

Habitats	Habitat Code
Buildings & Artificial Surfaces	(BL3)
Canals	(FW3)
Drainage Ditch	(FW4)
Dry Meadows And Grassy Verges	(GS2)
Habitat Mosaic Of Wet Grassland And Scrub	(GS4/WS1)
Mixed Broadleaved Woodland	(WD1)
Scrub	(WS1)
Treeline	(WL2)
Wet Grassland	(GS4)
Wet Willow-Alder-Ash Woodland	(WN6)

**Table 4.11. Plant Species Recorded in Section 4**

Scientific name	Common Name
<i>Acer pseudoplatanus</i>	Sycamore
<i>Agrostis capillaries</i>	Common Bent
<i>Agrostis stolonifera</i>	Creeping Bent
<i>Alnus glutinosa</i>	Alder
<i>Alopecurus pratensis</i>	Meadow Foxtail
<i>Angelica sylvestris</i>	Angelica

Scientific name	Common Name
<i>Anthriscus sylvestris</i>	Cow Parsley
<i>Arum maculatum</i>	Lords-and-ladies
<i>Bellis perennis</i>	Daisy
<i>Betula pubescens</i>	Birch
<i>Bidens tripartita</i>	Bur-marigold
<i>Brachypodium sylvaticum</i>	Wood False-brome
<i>Calystegia sepium</i>	Hedge Bindweed
<i>Carex hirta</i>	Hairy Sedge
<i>Carex pendula</i>	Pendulous Sedge
<i>Carex remota</i>	Remote Sedge
<i>Carex remota</i>	Remote Sedge
<i>Carex</i> spp.	Sedge
<i>Cerastium fontanum</i>	Mouse Ear
<i>Chamerion angustifolium</i>	Rosebay Willowherb
<i>Circaea lutetiana</i>	Enchanter's-nightshade
<i>Cirsium arvense</i>	Creeping Thistle
<i>Cirsium dissectum</i>	Meadow Thistle
<i>Cirsium palustre</i>	Marsh Thistle
<i>Cirsium vulgare</i>	Spear Thistle
<i>Corylus avellana</i>	Hazel
<i>Crataegus monogyna</i>	Hawthorn
<i>Cynosurus cristatus</i>	Crested Dogs-tail
<i>Dactylis glomerata</i>	Cocks-foot
<i>Deschampsia flexuosa</i>	Wavy Hair-grass
<i>Elytrigia repens</i>	Couch
<i>Epilobium hirsutum</i>	Great Willowherb
<i>Equisetum</i> spp.	Horsetail
<i>Eupatorium cannabinum</i>	Hemp-agrimony
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Fraxinus excelsior</i>	Ash
<i>Galium aperine</i>	Clevers
<i>Galium palustre</i>	Marsh-bedstraw
<i>Geranium robertianum</i>	Herb Robert
<i>Geum urbanum</i>	Wood Avens
<i>Glyceria fluitans</i>	Floating Sweet-grass
<i>Hedera helix</i>	Ivy
<i>Heraculum sphondylium</i>	Hogweed
<i>Holcus lanatus</i>	Yorkshire Fog
<i>Hypericum androsaemum</i>	Tutsan
<i>Ilex aquifolium</i>	Holly
<i>Juncus effusus</i>	Soft Rush
<i>Juncus inflexus</i>	Hard Rush
<i>Lapsana communis</i>	Nipplewort
<i>Lolium perenne</i>	Perennial Ryegrass
<i>Lonicera periclymenum</i>	Honeysuckle
<i>Lycopus europaeus</i>	Gypsywort
<i>Lythrum salicaria</i>	Purple-loosestrife

Scientific name	Common Name
<i>Medicago lupulina</i>	Black Medic
<i>Oxalis acetosella</i>	Wood Sorrel
<i>Persicaria maculosa</i>	Redshank
<i>Plantago lanceolata</i>	Ribwort Plantain
<i>Poa annua</i>	Annual Meadow-grass
<i>Poa</i> spp.	Meadow-grass
<i>Potentilla anserina</i>	Silverweed
<i>Primula vulgaris</i>	Primrose
<i>Prunella vulgaris</i>	Selfheal
<i>Prunus spinosa</i>	Blackthorn
<i>Quercus robur.</i>	Oak
<i>Ranunculus acris</i>	Meadow Buttercup
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Rosa canina</i>	Dog Rose
<i>Rubus fruticosus</i> agg.	Bramble
<i>Rumex crispus</i>	Curled Dock
<i>Rumex obtusifolius</i>	Broad-leaved Dock
<i>Rumex sanguineus</i>	Wood Dock
<i>Salix cinerea</i>	Grey Willow
<i>Salix viminalis</i>	Osier
<i>Schoenoplectus lacustris</i>	Common Club-rush
<i>Senecio jacobaea</i>	Ragwort
<i>Senecio vulgaris</i>	Groundsel
<i>Sonchus asper</i>	Prickly Sowthistle
<i>Sparganium emersum</i>	Floating Bur-reed
<i>Stachys palustris</i>	Marsh Woundwort
<i>Stachys sylvatica</i>	Hedge Woundwort
<i>Stellaria media</i>	Chickweed
<i>Taraxacum</i> agg.	Dandelion
<i>Trifolium pratense</i>	Red Clover
<i>Trifolium repens</i>	White Clover
<i>Tussilago farfara</i>	Coltsfoot
<i>Ulex europaeus</i>	Gorse
<i>Urtica dioica</i>	Nettle
<i>Viola riviniana</i>	Dog-violet
<i>Viola</i> spp.	Violet

**Table 4.12. Aquatic Plant Species Recorded in Section 4**

Scientific name	Common Name
<i>Iris pseudacorus</i>	Yellow Iris

## 4.5 Section 5: Corraquill Lock (Lock 1) and associated Bridge-Senator George Mitchell Peace Bridge

**Table 4.13. Habitats Classified in Section 5**

Habitats	Habitat Code
Buildings & Artificial Surfaces	(BL3)
Canals	(FW3)

Drainage Ditch	(FW4)
Dry Calcareous & Neutral Grassland	(GS1)
Dry Meadows And Grassy Verges	(GS2)
Habitat Mosaic Of Dry Meadows And Grassy Verges And Scrub	(GS2/WS1)
Spoil and Bare Ground	(ED2)
Improved Agricultural Grassland	(GA1)
Scrub	(WS1)
Treeline	(WL2)
Wet Grassland	(GS4)
Wet Willow-Alder-Ash Woodland	(WN6)

**Table 4.14. Plant Species Recorded in Section 5**

Scientific name	Common Name
<i>Agrostis stolonifera</i>	Creeping Bent
<i>Alnus glutinosa</i>	Alder
<i>Alopecurus pratensis</i>	Meadow Foxtail
<i>Angelica sylvestris</i>	Angelica
<i>Anthoxanthum odoratum</i>	Sweet Vernal-grass
<i>Anthriscus sylvestris</i>	Cow Parsley
<i>Arrhenatherum elatius</i>	False-oat Grass
<i>Bellis perennis</i>	Daisy
<i>Brachypodium sylvaticum</i>	Wood False-brome
<i>Calystegia sepium</i>	Hedge Bindweed
<i>Centaurea nigra</i>	Knapweed
<i>Chamerion angustifolium</i>	Rosebay Willowherb
<i>Cirsium arvense</i>	Creeping Thistle
<i>Cirsium palustre</i>	Marsh Thistle
<i>Cirsium vulgare</i>	Spear Thistle
<i>Corylus avellana</i>	Hazel
<i>Crataegus monogyna</i>	Hawthorn
<i>Cynosurus cristatus</i>	Crested Dog's Tail
<i>Dactylis glomerata</i>	Cocksfoot
<i>Deschampsia</i> spp.	Hair-grass
<i>Elymus caninus</i>	Bearded Couch
<i>Elytrigia repens</i>	Couch
<i>Epilobium hirsutum</i>	Great Willowherb
<i>Equisetum</i> sp.	Horsetail
<i>Festuca rubra</i>	Red Fescue
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Fraxinus excelsior</i>	Ash
<i>Galium aperine</i>	Clevers
<i>Geum urbanum</i>	Wood Avens
<i>Hedera helix</i>	Ivy
<i>Heracleum sphondylium</i>	Hogweed
<i>Holcus lanatus</i>	Yorkshire Fog
<i>Hypericum tetrapterum</i>	Square-stalked St. John's-wort
<i>Juncus articulatus</i>	Jointed Rush

Scientific name	Common Name
<i>Juncus effusus</i>	Soft Rush
<i>Juncus inflexus</i>	Hard Rush
<i>Lathyrus pratensis</i>	Meadow Vetchling
<i>Leontodon</i> spp.	Hawkbit
<i>Lolium perenne</i>	Perennial Rye-grass
<i>Lonicera periclymenum</i>	Honeysuckle
<i>Lotus pedunculatus</i>	Greater Bird's-foot-trefoil
<i>Lythrum salicaria</i>	Purple-loosestrife
<i>Mentha aquatica</i>	Water Mint
<i>Phleum pratense</i>	Timothy
<i>Plantago lanceolata</i>	Ribwort Plantain
<i>Plantago major</i>	Greater Plantain
<i>Poa annua</i>	Annual Meadow-grass
<i>Poa</i> spp.	Meadow-grass
<i>Potentilla anserina</i>	Silverweed
<i>Potentilla erecta</i>	Tormentil
<i>Prunella vulagris</i>	Self-heal
<i>Prunus spinosa</i>	Blackthorn
<i>Quercus robur</i>	Oak
<i>Ranunculus acris</i>	Meadow Buttercup
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Rosa canina</i>	Dog Rose
<i>Rubus fruticosus</i> agg.	Bramble
<i>Rumex acetosa</i>	Common Sorrel
<i>Rumex crispus</i> ssp. <i>Crispus</i>	Curled Dock
<i>Rumex obtusifolius</i>	Broad Dock
<i>Salix alba</i>	White Willow
<i>Salix cinerea</i>	Grey Willow
<i>Salix viminalis</i>	Osier
<i>Senecio aquaticus</i>	Marsh Ragwort
<b><i>Snowberry</i></b>	<b><i>Symphoricarpos albus</i></b>
<i>Stachys palustris</i>	Marsh Woundwort
<i>Stachys sylvatica</i>	Hedge Woundwort
<i>Stellaria media</i>	Chickweed
<i>Symphoricarpos albus</i>	Snowberry
<i>Taraxacum</i> agg.	Dandelion
<i>Trifolium pratense</i>	Red Clover
<i>Ulex europaeus</i>	Gorse
<i>Urtica dioica</i>	Nettle
<i>Viburnum opulus</i>	Guelder-rose
<i>Vicia cracca</i>	Tufted vetch
<i>Viola riviniana</i>	Common Dog-violet

**Table 4.15. Aquatic Plant Species Recorded in Section 5**

Scientific name	Common Name
<b><i>Elodea nuttallii</i></b>	<b>Nuttall's Waterweed</b>
<i>Iris pseudacorus</i>	Yellow Iris
<i>Lemna minor</i>	Duckweed

<i>Nuphar lutea</i>	Yellow Water-lily
<i>Phalaris arundinacea</i>	Reed-canary Grass
<i>Potamogeton natans</i>	Broad-leaved Pondweed
<i>Potamogeton perfoliatus</i>	Perfoliate Pondweed
<i>Rumex hydrolapathum</i>	Water Dock

## 4.6 Section 6 Senator George Mitchell Peace Bridge-Aghalane Bridge

**Table 4.16. Habitats Classified in Section 6**

Habitats	Habitat Code
Amenity Grassland	(GA2)
Buildings & Artificial Surfaces	(BL3)
Canals	(FW3)
Dry Calcareous & Neutral Grassland	(GS1)
Dry Meadows And Grassy Verges	(GS2)
Habitat Mosaic Of Dry Meadows And Grassy Verges And Scrub	(GS2/WS1)
Scrub	(WS1)
Spoil & Bare Ground	(ED2)
Treeline	(WL2)

**Table 4.17. Plant Species Recorded in Section 6**

Scientific name	Common Name
<i>Acer pseudoplatanus</i>	Sycamore
<i>Agrostis capillaris</i>	Common Bent
<i>Agrostis stolonifera</i>	Creeping Bent
<i>Alnus glutinosa</i>	Alder
<i>Angelica sylvestris</i>	Angelica
<i>Bellis perennis</i>	Daisy
<i>Calystegia sepium</i>	Bindweed
<i>Chamerion angustifolium</i>	Rosebay Willowherb
<i>Cirsium arvense</i>	Marsh Thistle
<i>Cirsium vulgare</i>	Spear Thistle
<i>Dactylis glomerata</i>	Cocks Foot
<i>Deschampsia cespitosa</i>	Tufted Hair-grass
<i>Elymus caninus</i>	Bearded Couch
<i>Elymus repens</i>	Common Couch
<i>Epilobium hirsutum</i>	Great Willowherb
<i>Equisetum spp.</i>	Horsetail
<i>Fallopia japonica</i>	Japanese Knotweed
<i>Festuca spp.</i>	Fescue
<i>Fraxinus excelsior</i>	Ash
<i>Galium aparina</i>	Clevers
<i>Geranium robertianum</i>	Herb Robert
<i>Hedera helix</i>	Ivy
<i>Holcus lanatus</i>	Yorkshire Fog
<i>Hypericum pulchrum</i>	Slender St John's Wort
<i>Lathyrus pratensis</i>	Meadow Vetchling

<i>Lotus corniculatus</i>	Bird's-foot-trefoil
<i>Lythrum salicaria</i>	Purple-loosestrife
<i>Phelum pratense</i>	Timothy
<i>Potentilla anserina</i>	Silverweed
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Salix alba</i>	White Willow
<i>Senecio vulgaris</i>	Ragwort
<i>Stellaria media</i>	Chickweed
<i>Taraxacum agg. agg.</i>	Dandelion
<i>Urtica dioica</i>	Nettle
<i>Veronica chamaedrys</i>	Germander Speedwell
<i>Vibernum opulus</i>	Guelder Rose
<i>Vicia cracca</i>	Tufted Vetch

**Table 4.18. Aquatic Plant Species Recorded in Section 6**

Scientific name	Common Name
<i>Phalaris arundinaceae</i>	Reed Canary-grass

## 4.7 Section 7 Aghalane Bridge-Junction with the Erne

**Table 4.19. Habitats Classified in Section 7**

Habitats	Habitat Code
Amenity Grassland	(GA2)
Buildings & Artificial Surfaces	(BL3)
Canals	(FW3)
Drainage Ditch	(FW4)
Dry Calcareous & Neutral Grassland	(GS1)
Dry Meadows And Grassy Verges	(GS2)
Eutrophic Lake	(FL5)
Habitat Mosaic Of Dry Meadows And Grassy Verges And Scrub	(GS2/WS1)
Habitat Mosaic Of Wet Grassland And Scrub	(GS4/WS1)
Reed & Large Sedge Swamp	(FS1)
Scrub	(WS1)
Spoil & Bare Ground	(ED2)
Treeline	(WL2)
Wet Grassland	(GS4)
Wet Willow-Alder-Ash Woodland	(WN6)

**Table 4.20. Plant Species Recorded in Section 7**

Scientific name	Common Name
<i>Agrostis capillaries</i>	Common Bent
<i>Agrostis stolonifera</i>	Creeping Bent
<i>Alisma plantago-aquatica</i>	Water-plantain
<i>Alnus glutinosa</i>	Alder
<i>Alopecurus pratensis</i>	Meadow Foxtail
<i>Angelica sylvestris</i>	Angelica
<i>Arrhenatherum elatius</i>	False-oat Grass
<i>Bellis perennis</i>	Daisy



<i>Bidens tripartita</i>	Bur-marigold
<i>Brachypodium sylvaticum</i>	Wood False Brome
<i>Butomus umbellatus</i>	Flowering Rush
<i>Calystegia sepium</i>	Hedge Bindweed
<i>Carex nigra</i>	Common Sedge
<i>Carex panicea</i>	Carnation sedge
<i>Carex remota</i>	Remote Sedge
<i>Carex</i> spp.	Sedge
<i>Cerastium fontanum</i>	Mouse Ear
<i>Cirsium arvense</i>	Creeping Thistle
<i>Cirsium palustre</i>	Marsh Thistle
<i>Cirsium vulgare</i>	Spear Thistle
<i>Conium maculatum</i>	Hemlock
<i>Corylus avellana</i>	Hazel
<i>Crataegus monogyna</i>	Hawthorn
<i>Cynosurus cristatus</i>	Crested dog's-tail
<i>Deschampsia</i> spp.	Hair-grass
<i>Elymus caninus</i>	Bearded Couch
<i>Epilobium ciliatum</i>	American Willowherb
<i>Epilobium hirsutum</i>	Great Willowherb
<i>Equisetum</i> spp.	Horsetail
<i>Eupatorium cannabinum</i>	Hemp-agrimony
<i>Festuca arundinacea</i>	Tall Fescue
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Fraxinus excelsior</i>	Ash
<i>Galium aperine</i>	Clevers
<i>Galium palustre</i>	Marsh-bedstraw
<i>Geranium molle</i>	Dove's-foot Crane's-bill
<i>Glyceria fluitans</i>	Floating Sweet-grass
<i>Glyceria maxima</i>	Reed Sweet-grass
<i>Hedera helix</i>	Ivy
<i>Heracleum sphondylium</i>	Hogweed
<i>Holcus lanatus</i>	Yorkshire Fog
<i>Hydrocotyle vulgaris</i>	Marsh Pennywort
<i>Ilex aquifolium</i>	Holly
<i>Juncus acutiflorus</i>	Sharp-flowered Rush
<i>Juncus effusus</i>	Soft Rush
<i>Juncus inflexus</i>	Hard Rush
<i>Lathyrus pratensis</i>	Meadow Vetchling
<i>Leontodon</i> spp.	Hawkbit
<i>Leucanthemum vulgare</i>	Ox-eye Daisy
<i>Lolium perenne</i>	Perennial Ryegrass
<i>Lonicera periclymenum</i>	Honeysuckle
<i>Lotus conriculatus</i>	Bird's-foot trefoil
<i>Lychnis flos-cuculi</i>	Ragged-robin
<i>Lythrum salicaria</i>	Purple-loosestrife
<i>Mentha aquatica</i>	Water Mint
<i>Odontites vernus</i>	Red Bartsia

<i>Persicaria maculosa</i>	Redshank
<i>Phleum pretense</i>	Timothy-grass
<i>Picea sitchensis</i>	Sitka Spruce
<i>Plantago lanceolata</i>	Ribwort Plantain
<i>Plantago major</i>	Greater Plantain
<i>Poa annua</i>	Annual Meadow-grass
<i>Poa</i> spp.	Meadow-grass
<i>Poa trivialis</i>	Rough Meadow Grass
<i>Populus tremula</i>	Aspen
<i>Potentilla anserina</i>	Silverweed
<i>Potentilla palustris</i>	Marsh Cinquefoil
<i>Prunella vulgaris</i>	Selfheal
<i>Prunus spinosa</i>	Blackthorn
<i>Quercus robur</i>	Oak
<i>Ranunculus acris</i>	Meadow Buttercup
<i>Ranunculus flammula</i>	Lesser Spearwort
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Rosa canina</i>	Dog Rose
<i>Rubus fruticosus</i> agg.	Bramble
<i>Rumex acetosa</i>	Common Sorrel
<i>Rumex crispus</i>	Curled Dock
<i>Rumex obtusifolius</i>	Broad-leaved Dock
<i>Rumex sanguineus</i>	Wood Dock
<i>Sagina procumbens</i>	Procumbent Pearlwort
<i>Salix alba</i>	White Willow
<i>Salix cinerea</i>	Grey Willow
<i>Salix viminalis</i>	Osier
<i>Schoenoplectus lacustris</i>	Club-rush
<i>Scrophularia nodosa</i>	Common Figwort
<i>Senecio aquaticus</i>	Marsh Ragwort
<i>Silene flos-cuculi</i>	Ragged-Robin
<i>Stachys palustris</i>	Marsh Woundwort
<i>Taraxacum</i> agg.	Dandelion
<i>Teucrium scorodonia</i>	Wood Sage
<i>Trifolium pratense</i>	Red Clover
<i>Trifolium repens</i>	White Clover
<i>Urtica dioica</i>	Nettle
<i>Valeriana officinalis</i>	Valerian
<i>Veronica beccabunga</i>	Brooklime
<i>Veronica chamaedrys</i>	Germander Speedwell
<i>Viburnum opulus</i>	Guelder-rose
<i>Vicia cracca</i>	Tufted Vetch

**Table 4.21. Aquatic Plant Species Recorded in Section 7**

Scientific name	Common Name
<i>Elodea nuttallii</i>	<b>Nuttall's Waterweed</b>
<i>Iris pseudacorus</i>	Yellow Iris
<i>Lemna minor</i>	Duckweed
<i>Nuphar lutea</i>	Yellow Water-lily

<i>Phalaris arundinaceae</i>	Reed Canary-grass
<i>Potamogeton perfoliatus</i>	Perfoliate Pondweed
<i>Sparganium emersum</i>	Floating Bur-reed
<i>Sparganium erectum</i>	Branched Bur-reed
<i>Typha latifolia</i>	Bulrush

## 5 TARGET NOTES

During the field survey, a number of significant observations were made in relation to ecologically sensitive or unusual species. Target notes refer to notable flora and fauna records. These include a list of invasive terrestrial plants and their location as well as any rare or protected fauna.

### 5.1 Terrestrial Invasive Species

Amber listed invasive species as per Invasive Species Ireland are “*Those that could represent a significant impact on native species or habitats causing significant decline or loss; or species that could impact either/both Natura 2000 sites and the goals of the Water Framework Directive*”

The amber listed species, Butterfly bush (*Buddleja davidii*) and Snowberry (*Symphoricarpos albus*) were recorded within the study area. Butterfly bush was recorded to the west of Cloncoohy Bridge at Grid Ref: 227965, 318997. Snowberry was recorded to the West of Senator George Mitchell Bridge at Grid Ref: 233771, 319448.

The non-native invasive species Japanese Knotweed (*Fallopia japonica*) was recorded at scattered locations to the east of Ballyconnell Arch Bridge. It was also recorded to the west of Aghalane Bridge. This species is listed in **Part 1** of the **Third Schedule** of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011). Regulations 49 and 50 of aforementioned Statutory Instrument include legislative measures to deal with the dispersal and introduction of invasive alien species:

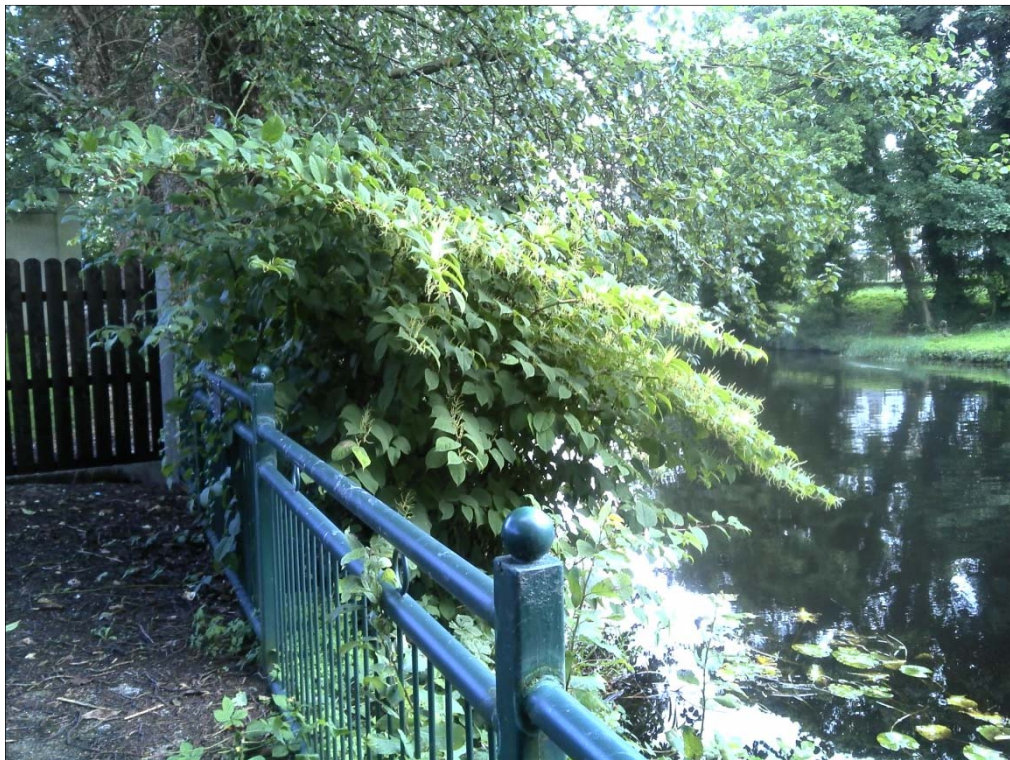
#### **Regulation 49. Prohibition on introduction and dispersal of certain species**

- (1) *‘any person who breeds, reproduces or releases or allows or causes to disperse or escape from confinement, any animal which*
  - a) *is not*
    - i. *ordinarily resident in or is not a regular visitor to the State in a wild state, or*
    - ii. *of a kind that is domesticated or that is in the normal course the subject of human husbandry,*
  - b) *is included in Part 2A of the Third Schedule in any place specified in relation to such animal in the third column of Part 2A of the Third Schedule, or*
  - c) *is included in Part 2B of the Third Schedule in any place specified in relation to such animal in the third column of Part 2B of the Third Schedule,*  
*shall be guilty of an offence.’*
- (2) *‘any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow in any place specified in relation to such plant in the third column of Part 1 of the Third Schedule, any plant which is included in Part 1 of the Third Schedule, shall be guilty of an offence.’*

#### **Regulation 50. Prohibition on dealing in and keeping certain species**

1. *‘a person shall be guilty of an offence if he or she has in his or her possession for sale, or for the purposes of breeding, reproduction or propagation, or offers or exposes for sale, transportation, distribution, introduction or release—*

- a) *an animal or plant listed in Part 1 or Part 2 of the Third Schedule*
  - b) *anything from which an animal or plant referred to in subparagraph (a) can be reproduced or propagated, or*
  - c) *a vector material listed in Part 3 of the Third Schedule in any place in the State specified in the third column of the Third Schedule in relation to such an animal, plant or vector material'*
2. *'a person shall be guilty of an offence if he or she imports or transports*
- a) *an animal or plant listed in Part 1 or Part 2 of the Third Schedule,*
  - b) *anything from which an animal or plant referred to in Part 2 of the Third Schedule can be reproduced or propagated, or*
  - c) *a vector material listed in Part 3 of the Third Schedule*
- into or in or to any place in the State specified in relation to such an animal or plant or vector material in relation to that animal or plant or vector material in the third column of the Third Schedule.'*
3. *'a person shall be guilty of an offence if he or she publishes or causes to be published by any means, including on the internet, any advertisement, catalogue, circular or price list likely to be understood as conveying that such person imports into the State, buys, sells, distributes or provides for the introduction or release, or intends to buy or sell or distribute or introduce or release, in any place in the State as specified in the third column of the Third Schedule,*
- a) *an animal or plant listed in Part 1 or Part 2 of the Third Schedule,*
  - b) *anything from which such an animal or plant can be reproduced or propagated, or*
  - c) *a vector material listed in Part 3 of the Third Schedule.'*



**Plate 5.1. Japanese Knotweed on bankside at (Ballyconnell)**



**Plate 5.2. Japanese Knotweed (Ballyconnell)**

The locations of the identified infestations are outlined below in Table 5.1

**Table 5.1. Knotweed Infestation details**

Scientific Name	Common Name	Grid Reference	Details
Japanese Knotweed <i>(Fallopia japonica)</i>	Ballyconnell Arch Bridge-Ballyconnell Lock (Lock 2) and Associated Bridge	227409, 318725	Large and extensive stand of Knotweed to rear of derelict dwelling
		227361, 318574	Small stands on the bankside
		227360, 318611	Small stands on the bankside
	Senator George Mitchell Peace Bridge-Aghalane Bridge	234113, 319385	Large linear infestation along northern bankside

## 5.2 Aquatic Non-native/Invasive Species

The non-native invasive species Nuttall’s Waterweed (*Elodea nuttallii*) was recorded surrounding the existing concrete jetty located immediately upstream of the development site. This species is listed in **Part 1** of the **Third Schedule** of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011). The locations of the species is provided in Table 5.2 below.

**Table 5.2 Invasive Aquatic Plants and their sample location along the Waterway**

Scientific Name	Common Name	Section	Grid Reference
<i>Elodea nuttallii</i>	Nuttall's Waterweed	Private Marina at Woodford View, Ballyconnell – Ballyconnell Arch Bridge	227219, 318475
		Ballyconnell Arch Bridge-Ballyconnell Lock (Lock 2) and Associated Bridge	227513, 318779
		Corraquill Lock (Lock 1) and associated Bridge-Senator George Mitchell Peace Bridge	232328, 320004
		Aghalane Bridge-Junction with the Erne	234949, 321023

### 5.3 Fauna

Badger signs were observed and it is likely the species uses the canal corridor for foraging and commuting. One sighting was made of Kingfisher (*Alcedo atthis*). Kingfisher is a species listed in Annex I of the EU Birds Directive. The Annex V species Common Frog was observed on the approach to Garadice Lough. The faunal observation data is presented in Table 5.3 below.

**Table 5.3.Target Notes on Fauna recorded during fieldwork.**

Species	Description	Photo No.	Grid Ref
Mammal	Trail	-	215696, 309493
Badger	Outlier Sett entrance, trails and latrine	DSC00093	234963, 321084 &234808, 321411
Badger	Snuffle holes and trails	DSC00024	23516, 320482
Fox	Scat	DSC00001	232306, 320036
Fallow Deer	Droppings in woodland and sighting	DSC00011	231383, 320224
Mustelid	Scat	DSC00002	232220, 320124
Kingfisher	Two specimens observed commuting.	-	232544, 319821
Common Frog	Specimen observed	-	230414, 320399

## 6 ECOLOGICALLY SENSITIVE AREAS

Areas within the study area that were considered to be of particular ecological significance were identified. Criteria for identifying Ecologically Sensitive Areas (ESAs) included the following:

- Links with EU Habitats Directive Annex I habitats
- Species diversity
- Rare or unusual species present
- Rarity within the study area

Table 6.1 and in general, throughout the study area, these habitats should be considered as sensitive.

**Table 6.1 ESAs noted within the study area**

Number	Description	Location
ESA 1	Wet Willow-Ash-Alder Woodland	Corraquilla & confluence with the Erne
ESA 2	Mixed Broad-leaved Woodland	East of Cloncoohy Bridge
ESA 3	Eutrophic Lakes	Lough Anoneen

### 6.1 ESA1 – Wet willow-alder-ash Woodland (WN6)

This habitat was recorded in the townland of Corraquilla, and included a strip of wet woodland verging the watercourse corridor. Continuing inland, and outside the property boundary, the woodland was dryer in nature and transitioned to Mixed broadleaved woodland (WD1) with dryer ground conditions prevailing.

The woodland canopy was dominated by Ash (*Fraxinus excelsior*) and Alder (*Alnus glutinosa*). The understory was dominated Holly (*Ilex aquifolium*) and occasional Hawthorn (*Crataegus monogyna*) and Blackthorn (*Prunus spinosa*). Species recorded from the ground flora included Brambles (*Rubus fruticosus* agg.), Ivy (*Hedera helix*), Tutsan (*Hypericum androsaemum*), Herb Robert (*Geranium robertianum*), Wood Avens (*Geum urbanum*), Honeysuckle (*Lonicera periclymenum*), Deer fern (*Blechnum spicant*) Primrose (*Primula vulgaris*), Dog violet (*Rosa canina*), Lords and Ladies (*Arum maculatum*), Marsh Bedstraw (*Galium palustre*), Remote Sedge (*Carex remota*), Angelica (*Angelica sylvestris*), False Brome (*Brachypodium sylvaticum*) and Meadow Buttercup (*Ranunculus acris*).

Further inland the woodland canopy was dominated by Ash (*Fraxinus excelsior*) with and understory of Hazel (*Corylus avellana*), Holly (*Ilex aquifolium*) and dense Brambles (*Rubus fruticosus* agg.).

The woodland was subject to drainage and a large and wide drainage feature was recorded to the North of the woodland.

A second area of wet woodland was recorded at the extreme east of the survey area at the confluence with the Erne. This woodland was dominated by Ash (*Fraxinus excelsior*) and Grey Willow (*Salix cinerea*). The understory was dominated by nettles and Creeping Bent (*Agrostis stolonifera*), with occasional patches of Brambles. The



woodland was subject to drainage and was grazed by cattle. This area was dry underfoot and did not correspond to the Annex I habitat Alluvial Woodland.

On the banks of the Erne to the east and outside the study area there is a steep embankment which form the boundary between the relatively dry woodland and a narrow strip of wet and inundated woodland (Plate 6.1). This wet strip of woodland was considered to have links to the Annex I habitat Alluvial woodland [91E0]. The woodland is situated on Alluvial soils as per the Teagasc Soils web-mapper as viewed on the 6<sup>th</sup> of October 2015. A representative 20mx20m plot contained to the following suite of positive indicator species as per Perrin et al 2008: *Salix cinerea*, *Alnus glutinosa*, *Crataegus monogyna*, *Agrostis stolonifera*, *Angelica sylvestris*, *Urtica dioica*, *Phalaris arundinacea*, *Galium palustre*, *Filipendula ulmaria*, and *Rumex sanguineus*.

This habitat type was rare throughout the study area and was therefore classified as an Ecologically Sensitive Area (ESA)



Plate 6.1. Wet Woodland (WN6)

## 6.2 ESA 2 – Mixed Broadleaved Woodland (WD1)

A small area of Mixed broadleaved woodland was recorded to the west of Ballyconnell Lock 12, with a larger areas of this habitat recorded to the east of Cloncoohy Bridge within the Republic of Ireland. At Ballyconnell, the woodland occurred on the northern watercourse bank and the woodland was dominated by Pedunculate Oak (*Quercus robur*) and Ash (*Fraxinus excelsior*).

The larger woodland area was dominated by Ash with an understory of Hazel (*Corylus avellana*) and Holly (*Ilex aquifolium*), Blackthorn (*Prunus spinosa*) and Hawthorn (*Crataegus monogyna*) and a ground flora which included Bramble (*Rubus fruticosus* agg.), Ivy (*Hedera helix*) and Remote Sedge (*Carex remota*). The larger area of Mixed broadleaved woodland was classified as an Ecologically Sensitive Area given that is

linked to a larger expanse of woodland and given that is unique within the study corridor. The woodland is also likely to be a refuge for a range of species including Bats Badger, Fox and Pine Marten.



**Plate 6.2 Mixed Broadleaved Woodland (WD1)**

### **6.3 ESA 2 – Eutrophic Lakes (FL5)**

One Eutrophic lake was recorded within the study area, namely Lough Anoneen. This lake forms part of the Lough Oughter and Associated Loughs SAC (000007). The lake habitat and water quality therein was not subject to a comprehensive survey. Given that the Lough is included within the Sac designated lands it is presumed that the Anoneen Lough has links to the Annex I habitat Natural Eutrophic Lakes [3150] for which the SAC is designated.

An extensive area of fringing Reed and large sedge swamp (FS1) was recorded surrounding the entire lakeside margin. The width of the fringing reed swamp averaged between 15-20m in width and was dominated by Clubrush (*Schoenoplectus lacustris*). Two small islands of Clubrush dominated vegetation were also recorded toward to north-western extent of the Lough. The Clubrush zone was backed by a zone of Common Reed (*Phragmites australis*) which was backed by a relatively species rich zone of sedges, grasses and herb interspersed with Willow (*Salix cinerea*) Scrub (WS1). Species recorded from the species rich zone included Reed Canary Grass (*Phalaris arundinacea*), Marsh pennywort (*Hydrocotyle vulgaris*), Hard rush (*Juncus inflexus*), Brookline (*Veronica beccabunga*), Carnation Sedge (*Carex panicea*), Bottle Sedge (*Carex rostrata*), Meadowsweet (*Filipendula ulmaria*), Horsetail (*Equisetum* sp.), Creeping Bent (*Agrostis stolonifera*), Floating Sweet-grass (*Glyceria fluitans*), Lesser Spearwort (*Ranunculus flammula*), Valerian (*Valeriana officinalis*) and Flowering Rush (*Butomus umbellatus*).

On the eastern lake shore the Common Reed zone was far less extensive and the lake margin was typically dominated by the Club rush.

It was not possible to access the lake margins to conduct an aquatic grapnel survey due to the flooded conditions; however macrophytes were recorded at the outflow of the Lough including Yellow Lilly (*Nuphur lutea*), Amphibious Bistort (*Persicaria amphibia*) and Broad-leaved Pondweed (*Potamogeton natans*).

The lakes are likely to be important for coarse fish and the Lough is recognised as a good Pike angling destination by Inland Fisheries Ireland. The lake and riparian habitats are likely to be important for waterfowl. Seventeen snipe were flushed from the lakeside margin during the walkover survey. Thirty-three mute swans were recorded on the lough and mallard were observed and heard calling from the lakeside margins.

The fringing reed swamp provides suitable nesting habitat for a range of waterfowl. It is also likely that Otter may utilise the lacustrine and adjacent habitats. The lough was classified an ESA given its uniqueness within the study area and given that it occurs with a Special Area of Conservation.

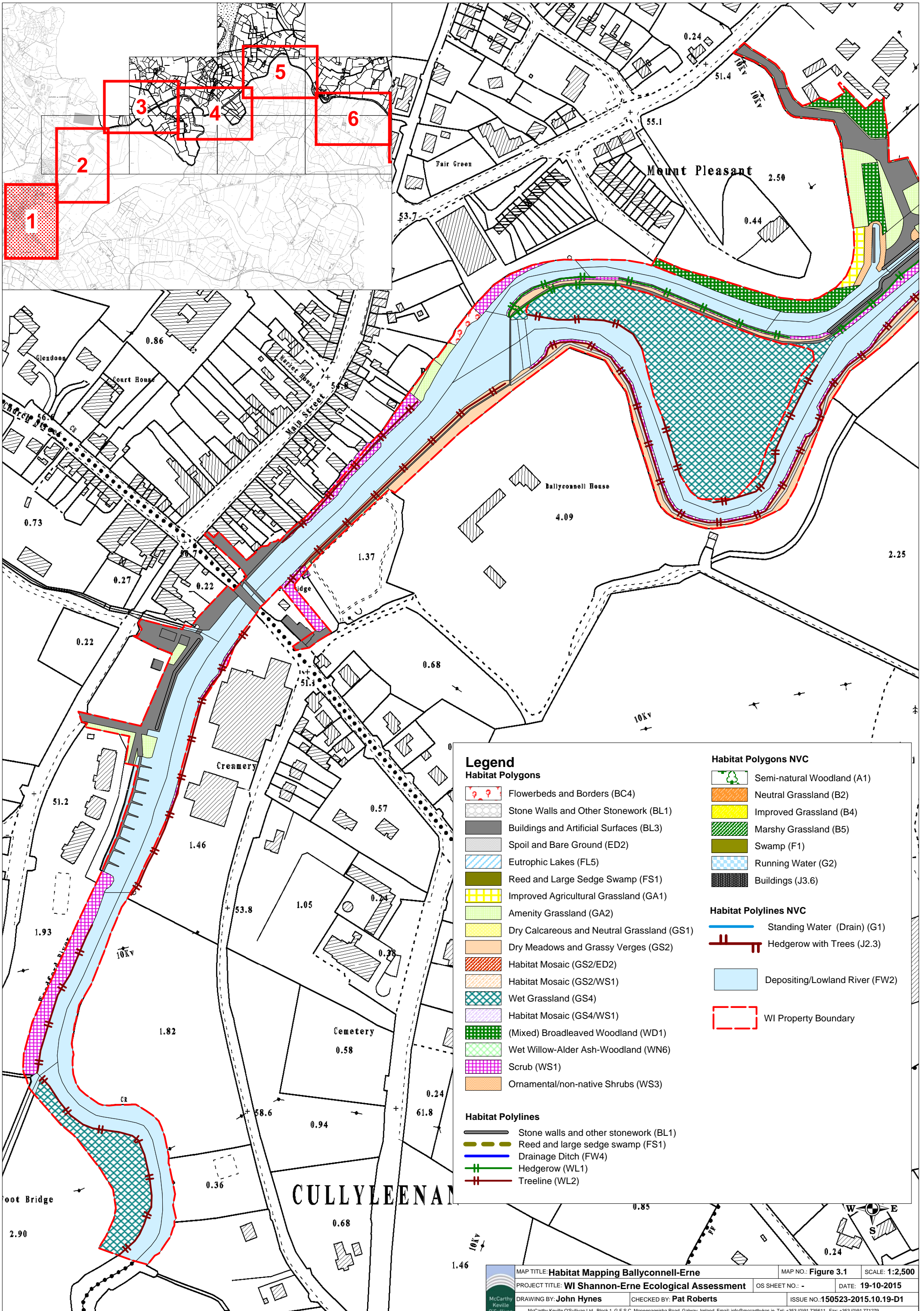


**Plate 6.3 Lough Anoneen**

# Appendix I

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## Habitat Mapping



**Legend**

**Habitat Polygons**

- Flowerbeds and Borders (BC4)
- Stone Walls and Other Stonework (BL1)
- Buildings and Artificial Surfaces (BL3)
- Spoil and Bare Ground (ED2)
- Eutrophic Lakes (FL5)
- Reed and Large Sedge Swamp (FS1)
- Improved Agricultural Grassland (GA1)
- Amenity Grassland (GA2)
- Dry Calcareous and Neutral Grassland (GS1)
- Dry Meadows and Grassy Verges (GS2)
- Habitat Mosaic (GS2/ED2)
- Habitat Mosaic (GS2/WS1)
- Wet Grassland (GS4)
- Habitat Mosaic (GS4/WS1)
- (Mixed) Broadleaved Woodland (WD1)
- Wet Willow-Alder Ash-Woodland (WN6)
- Scrub (WS1)
- Ornamental/non-native Shrubs (WS3)

**Habitat Polylines**

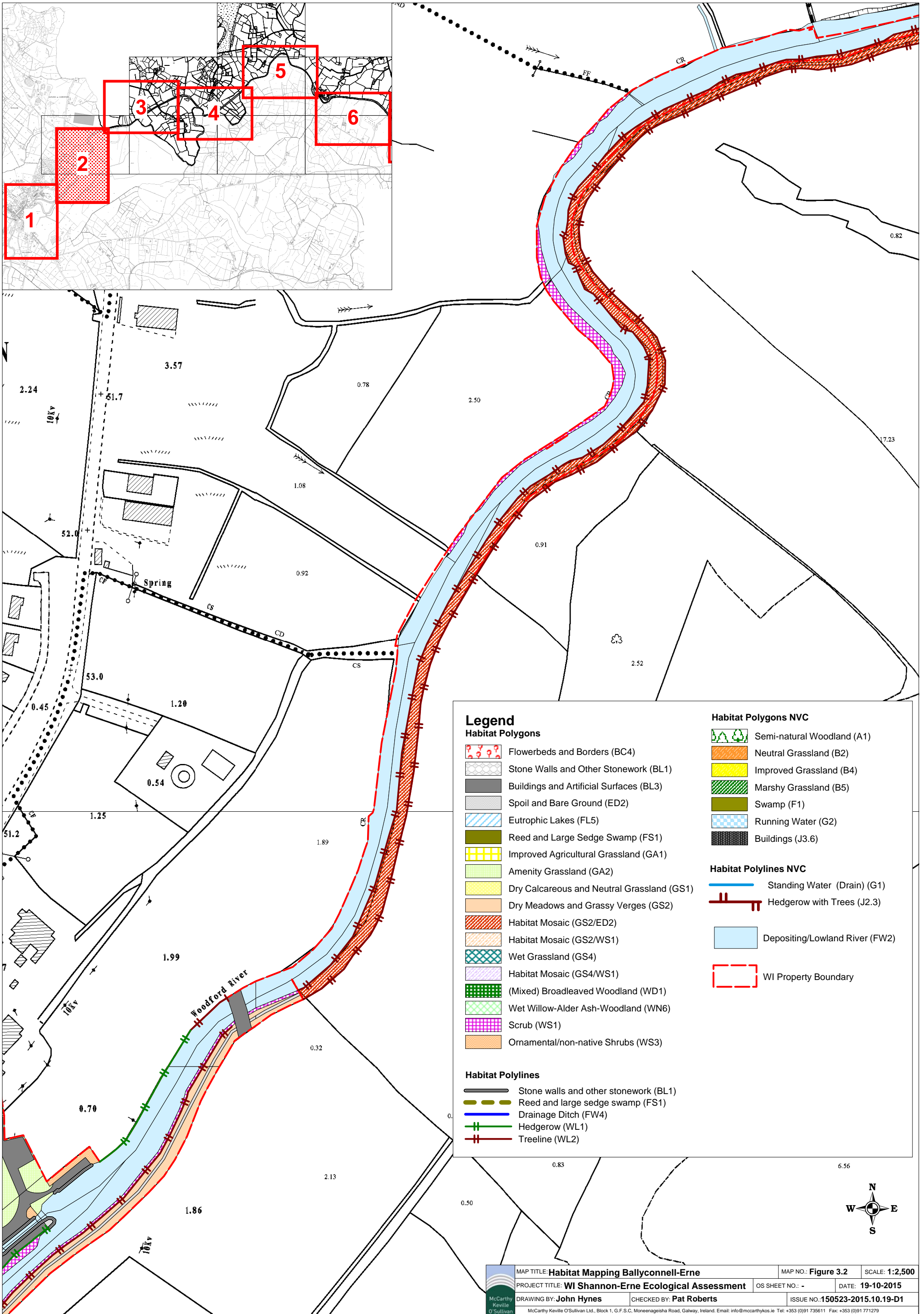
- Stone walls and other stonework (BL1)
- Reed and large sedge swamp (FS1)
- Drainage Ditch (FW4)
- Hedgerow (WL1)
- Treeline (WL2)

**Habitat Polygons NVC**

- Semi-natural Woodland (A1)
- Neutral Grassland (B2)
- Improved Grassland (B4)
- Marshy Grassland (B5)
- Swamp (F1)
- Running Water (G2)
- Buildings (J3.6)

**Habitat Polylines NVC**

- Standing Water (Drain) (G1)
- Hedgerow with Trees (J2.3)
- Depositing/Lowland River (FW2)
- WI Property Boundary



**Legend**

**Habitat Polygons**

- Flowerbeds and Borders (BC4)
- Stone Walls and Other Stonework (BL1)
- Buildings and Artificial Surfaces (BL3)
- Spoil and Bare Ground (ED2)
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**Habitat Polylines**

- Stone walls and other stonework (BL1)
- Reed and large sedge swamp (FS1)
- Drainage Ditch (FW4)
- Hedgerow (WL1)
- Treeline (WL2)

**Habitat Polygons NVC**

- Semi-natural Woodland (A1)
- Neutral Grassland (B2)
- Improved Grassland (B4)
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- Swamp (F1)
- Running Water (G2)
- Buildings (J3.6)



















**Habitat Polylines NVC**

- Standing Water (Drain) (G1)
- Hedgerow with Trees (J2.3)
- Depositing/Lowland River (FW2)
- WI Property Boundary










**Legend**



**Habitat Polygons**

-  Flowerbeds and Borders (BC4)
-  Stone Walls and Other Stonework (BL1)
-  Buildings and Artificial Surfaces (BL3)
-  Spoil and Bare Ground (ED2)
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-  Scrub (WS1)
-  Ornamental/non-native Shrubs (WS3)

**Habitat Polygons NVC**




-  Semi-natural Woodland (A1)
-  Neutral Grassland (B2)
-  Improved Grassland (B4)
-  Marshy Grassland (B5)
-  Swamp (F1)
-  Running Water (G2)
-  Buildings (J3.6)

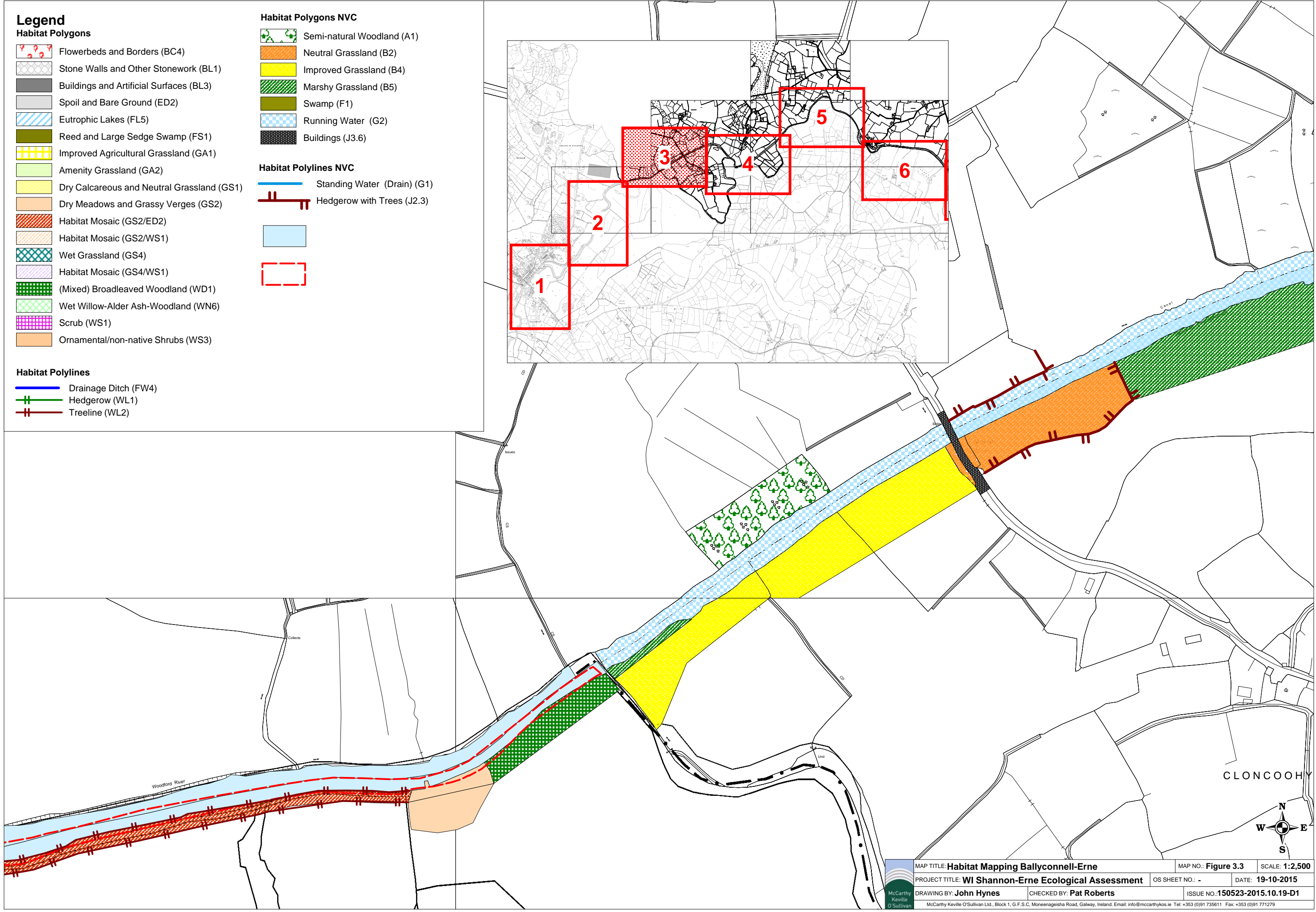
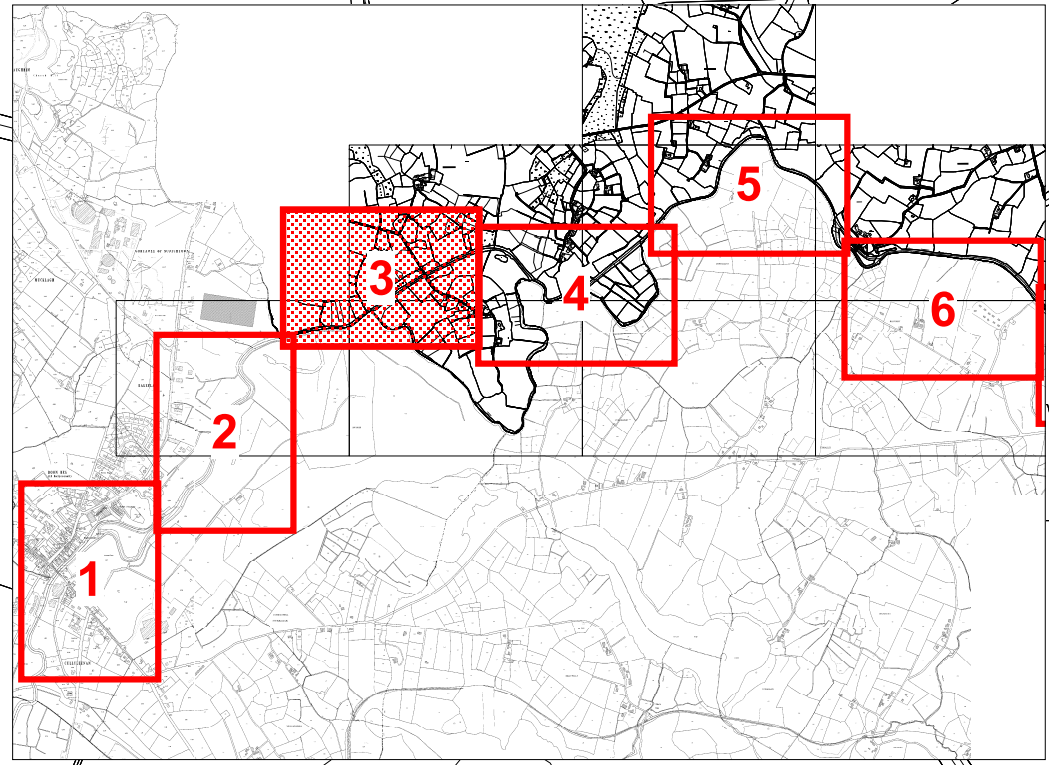
**Habitat Polylines NVC**

-  Standing Water (Drain) (G1)
-  Hedgerow with Trees (J2.3)



**Habitat Polylines**

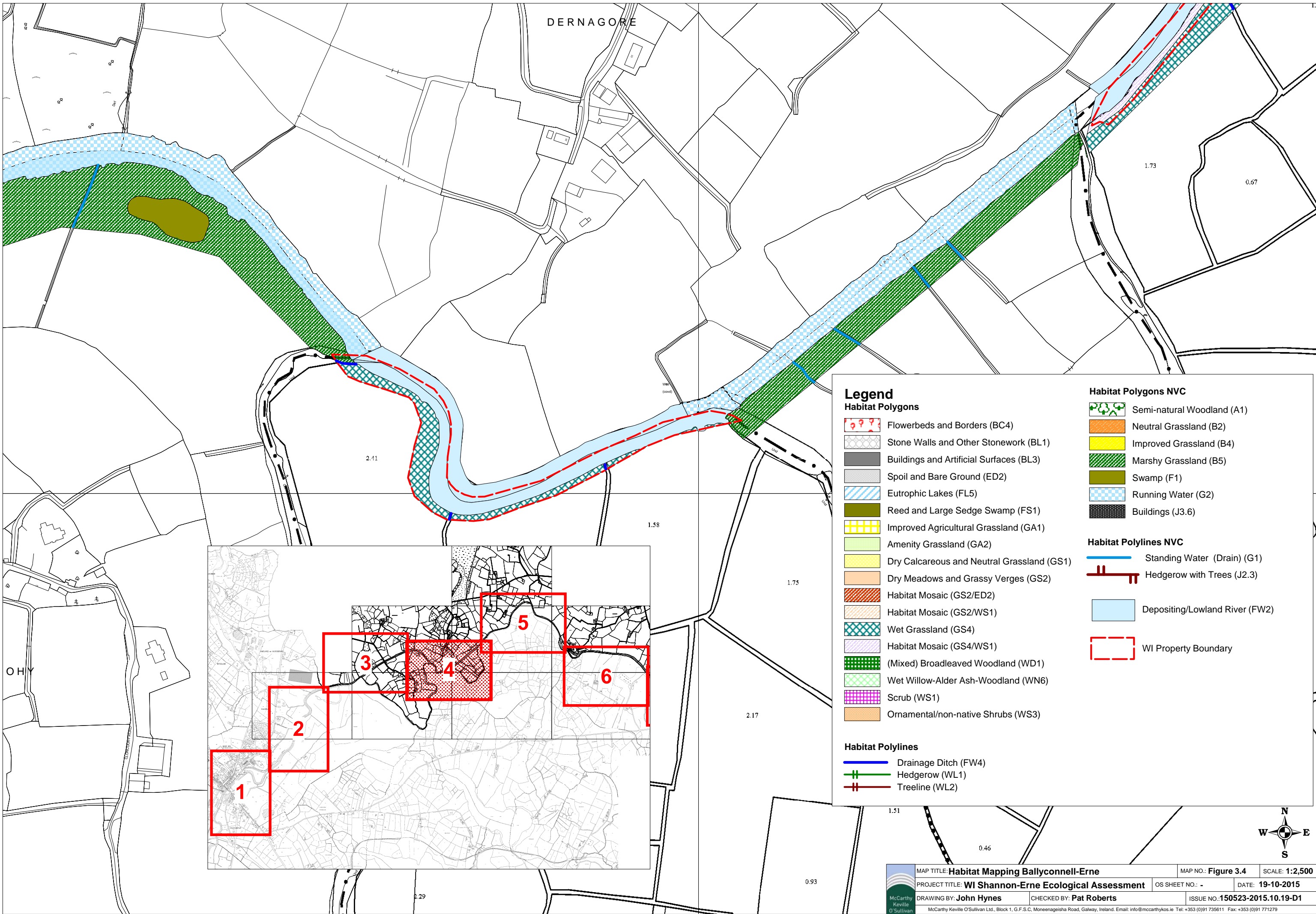
-  Drainage Ditch (FW4)
-  Hedgerow (WL1)
-  Treeline (WL2)



CLONCOOHY



<b>MAP TITLE:</b> Habitat Mapping Ballyconnell-Erne	<b>MAP NO.:</b> Figure 3.3	<b>SCALE:</b> 1:2,500
<b>PROJECT TITLE:</b> WI Shannon-Erne Ecological Assessment	<b>OS SHEET NO.:</b> -	<b>DATE:</b> 19-10-2015
<b>DRAWING BY:</b> John Hynes	<b>CHECKED BY:</b> Pat Roberts	<b>ISSUE NO.:</b> 150523-2015.10.19-D1
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DERNAGORE

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**Legend**

**Habitat Polygons**

- Flowerbeds and Borders (BC4)
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**Habitat Polylines**

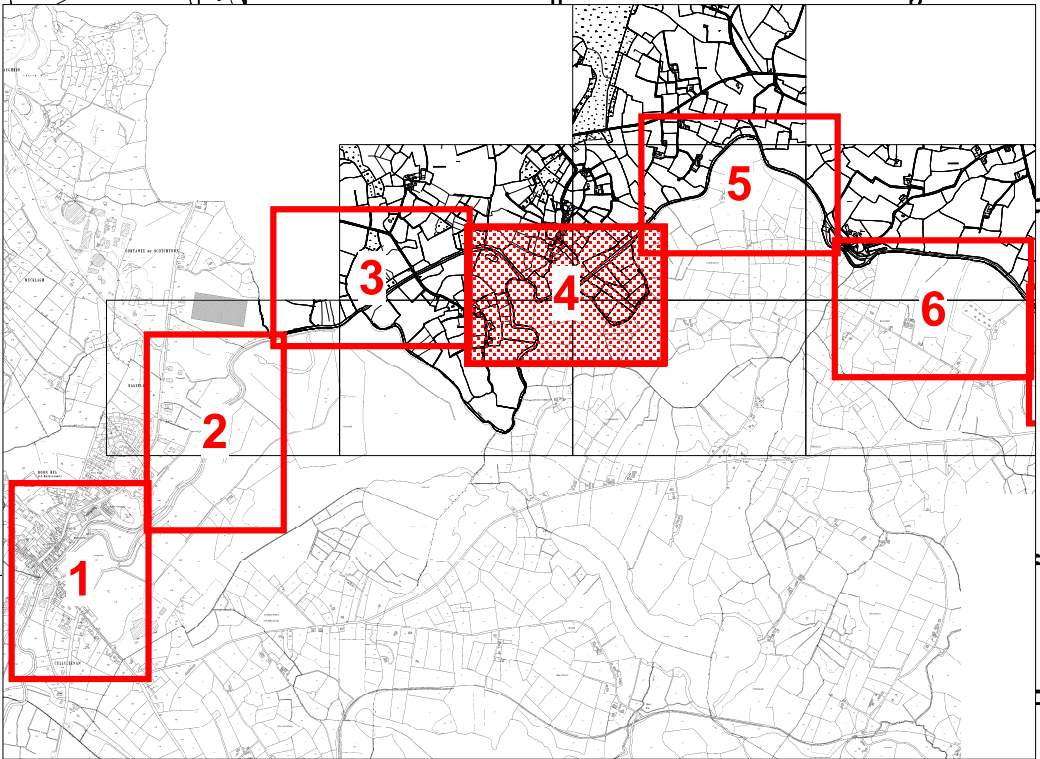
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**Habitat Polygons NVC**

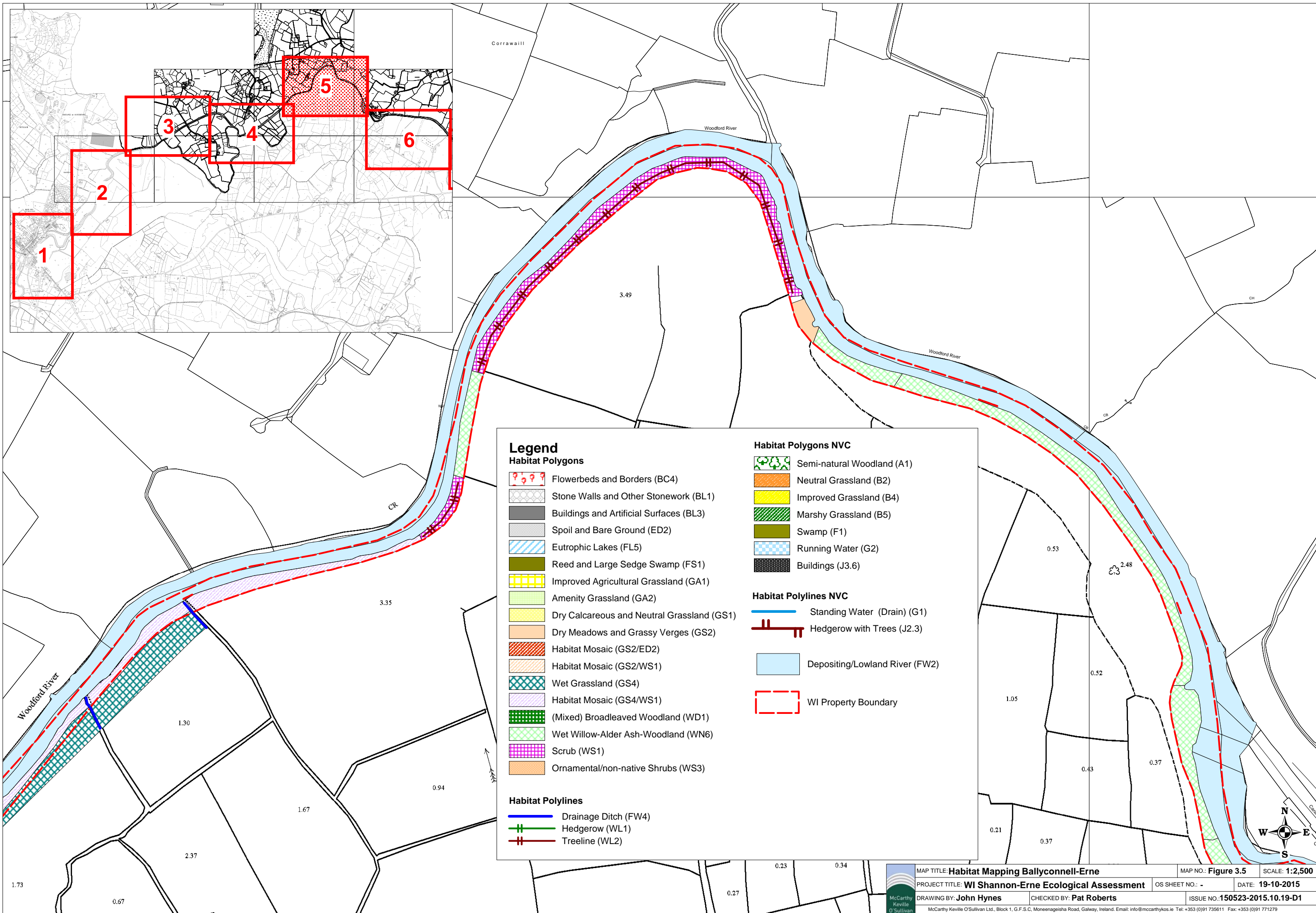
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- Swamp (F1)
- Running Water (G2)
- Buildings (J3.6)

**Habitat Polylines NVC**

- Standing Water (Drain) (G1)
- Hedgerow with Trees (J2.3)
- Depositing/Lowland River (FW2)
- WI Property Boundary







**Legend**

**Habitat Polygons**

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**Habitat Polygons NVC**

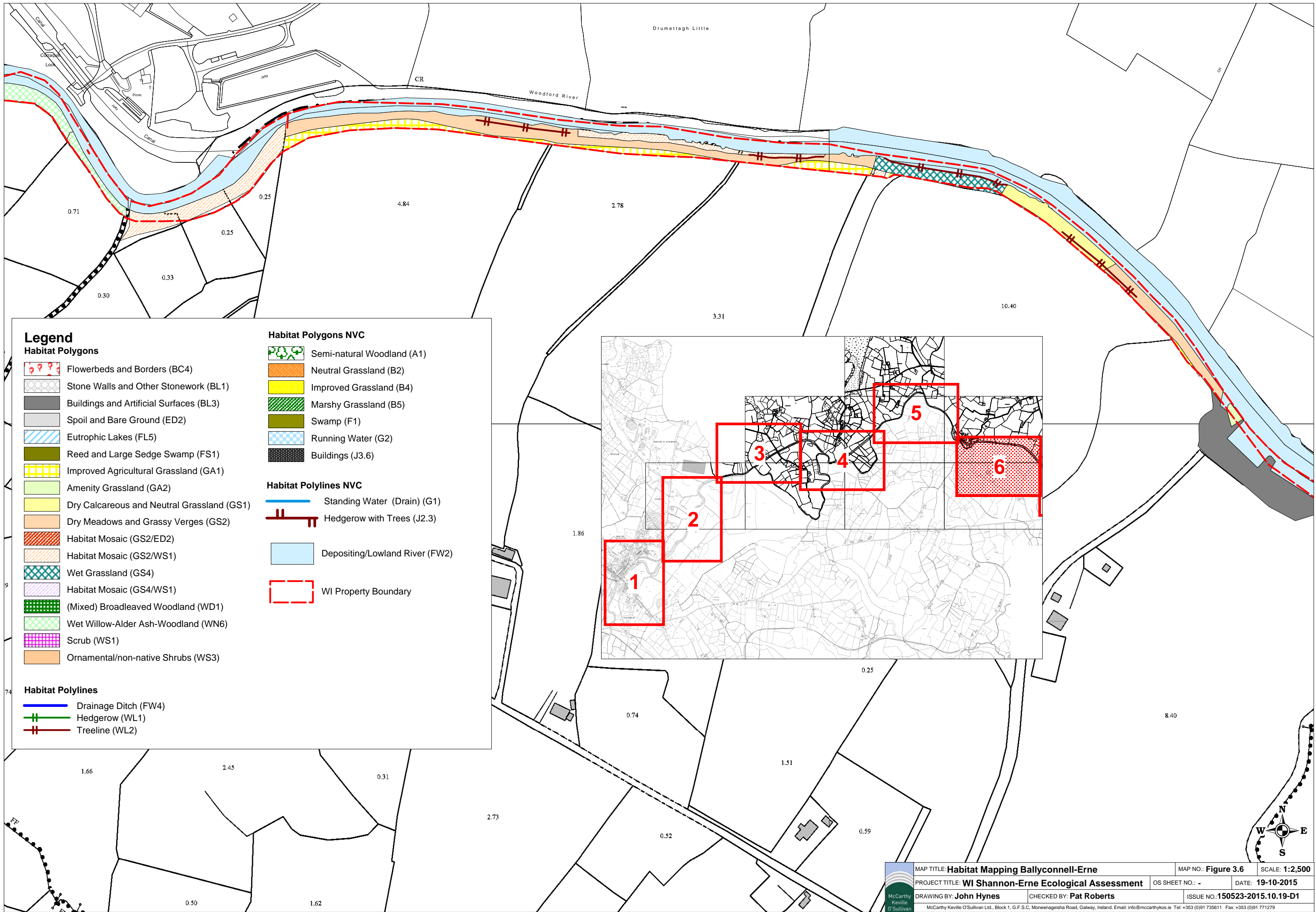
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**Habitat Polylines NVC**

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- Depositing/Lowland River (FW2)
- WI Property Boundary

**Habitat Polylines**

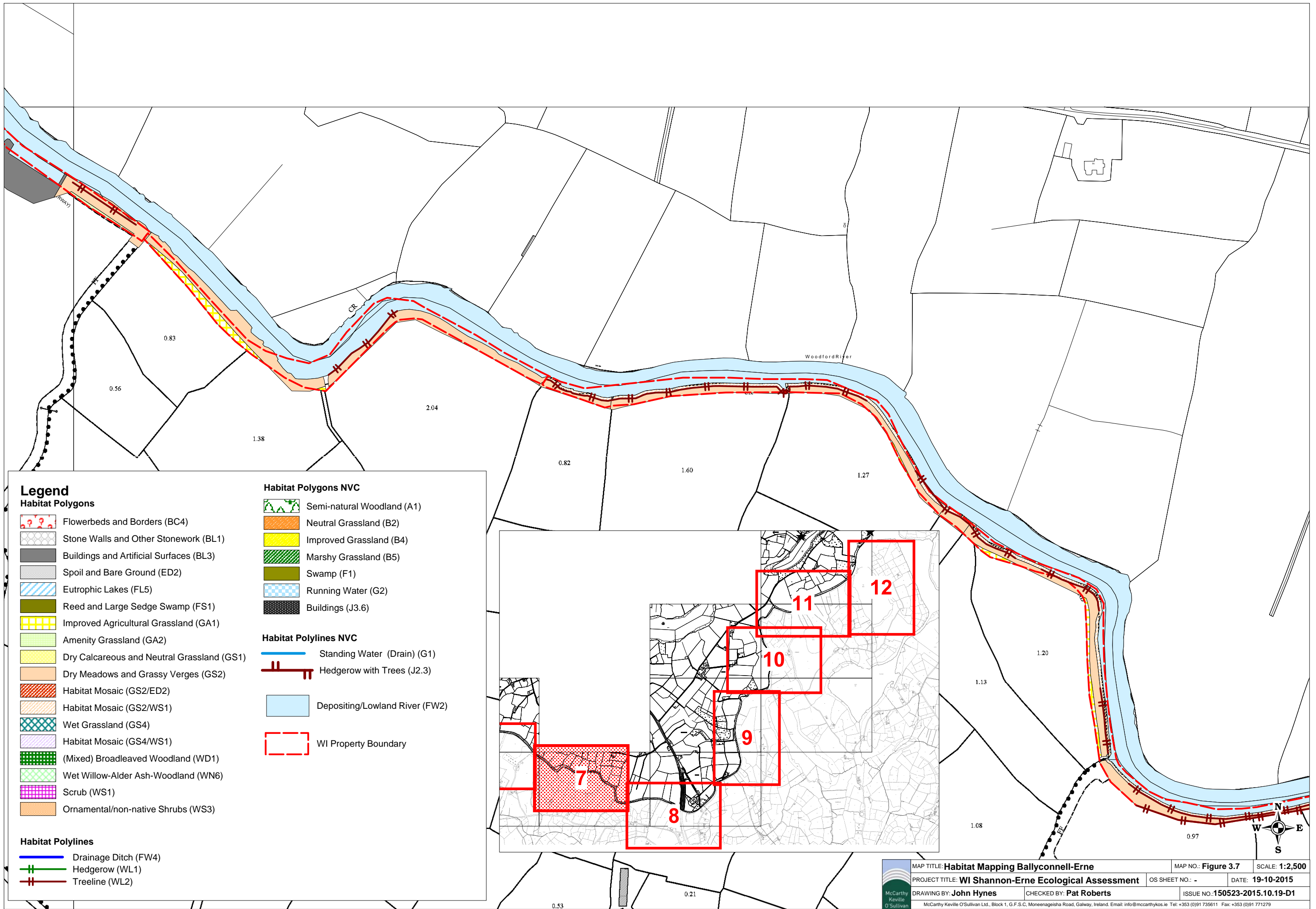
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- Hedgerow (WL1)
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  - Scrub (WS1)
  - Ornamental/non-native Shrubs (WS3)
- Habitat Polygons NVC**
- Semi-natural Woodland (A1)
  - Neutral Grassland (B2)
  - Improved Grassland (B4)
  - Marshy Grassland (B5)
  - Swamp (F1)
  - Running Water (G2)
  - Buildings (J3.6)
- Habitat Polylines NVC**
- Standing Water (Drain) (G1)
  - Hedgerow with Trees (J2.3)
  - Depositing/Lowland River (FW2)
  - WI Property Boundary

- Habitat Polylines**
- Drainage Ditch (FW4)
  - Hedgerow (WL1)
  - Treeline (WL2)



**Legend**

**Habitat Polygons**

- Flowerbeds and Borders (BC4)
- Stone Walls and Other Stonework (BL1)
- Buildings and Artificial Surfaces (BL3)
- Spoil and Bare Ground (ED2)
- Eutrophic Lakes (FL5)
- Reed and Large Sedge Swamp (FS1)
- Improved Agricultural Grassland (GA1)
- Amenity Grassland (GA2)
- Dry Calcareous and Neutral Grassland (GS1)
- Dry Meadows and Grassy Verges (GS2)
- Habitat Mosaic (GS2/ED2)
- Habitat Mosaic (GS2/WS1)
- Wet Grassland (GS4)
- Habitat Mosaic (GS4/WS1)
- (Mixed) Broadleaved Woodland (WD1)
- Wet Willow-Alder Ash-Woodland (WN6)
- Scrub (WS1)
- Ornamental/non-native Shrubs (WS3)

**Habitat Polygons NVC**

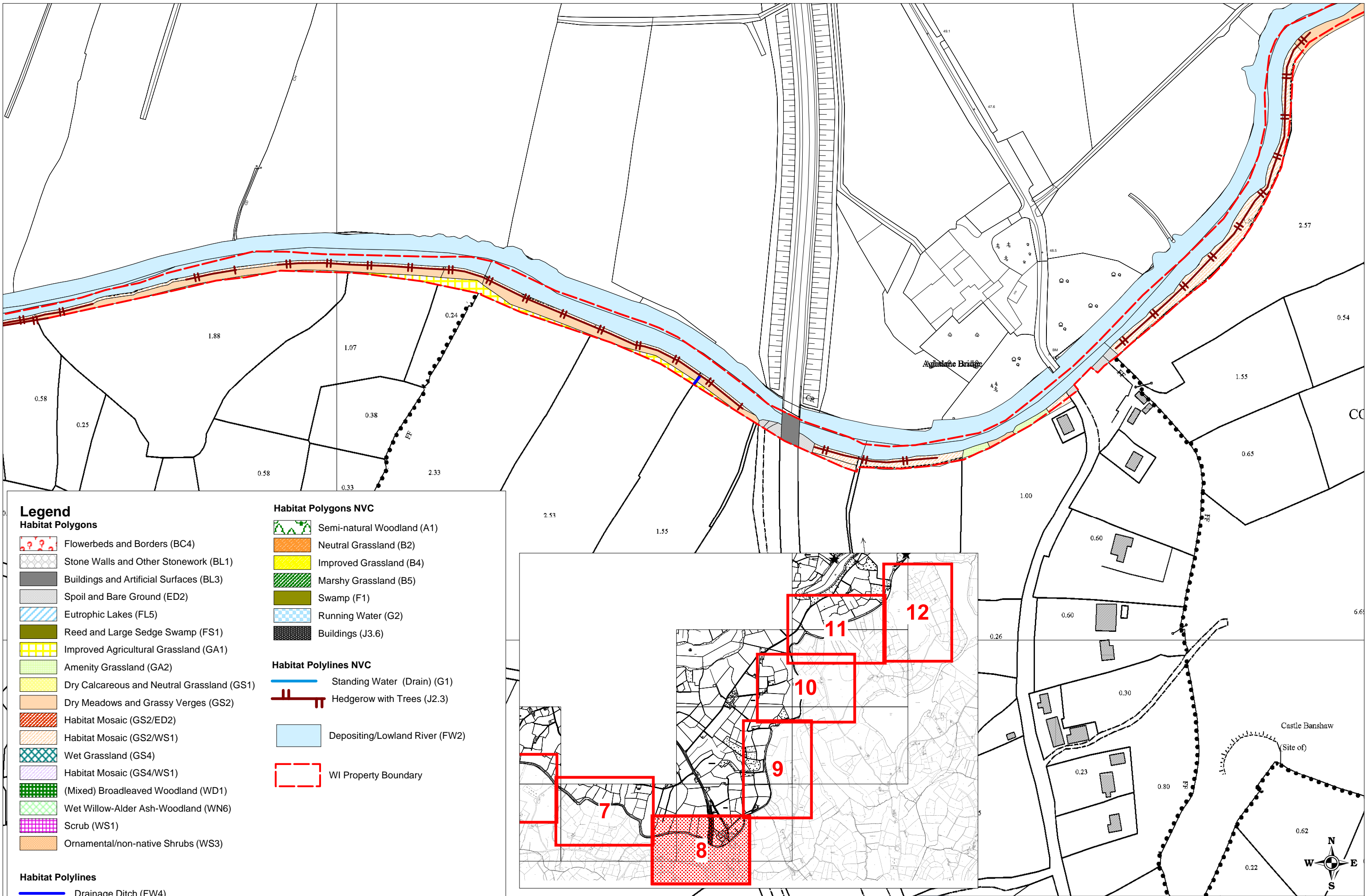
- Semi-natural Woodland (A1)
- Neutral Grassland (B2)
- Improved Grassland (B4)
- Marshy Grassland (B5)
- Swamp (F1)
- Running Water (G2)
- Buildings (J3.6)

**Habitat Polylines NVC**

- Standing Water (Drain) (G1)
- Hedgerow with Trees (J2.3)
- Depositing/Lowland River (FW2)
- WI Property Boundary

**Habitat Polylines**

- Drainage Ditch (FW4)
- Hedgerow (WL1)
- Treeline (WL2)



**Legend**

**Habitat Polygons**

- Flowerbeds and Borders (BC4)
- Stone Walls and Other Stonework (BL1)
- Buildings and Artificial Surfaces (BL3)
- Spoil and Bare Ground (ED2)
- Eutrophic Lakes (FL5)
- Reed and Large Sedge Swamp (FS1)
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**Habitat Polygons NVC**

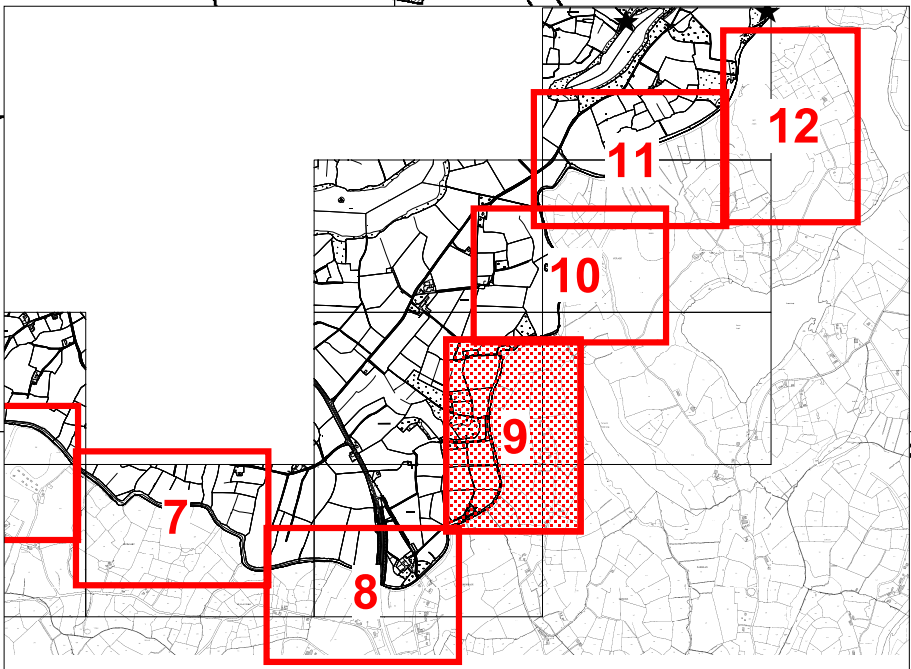
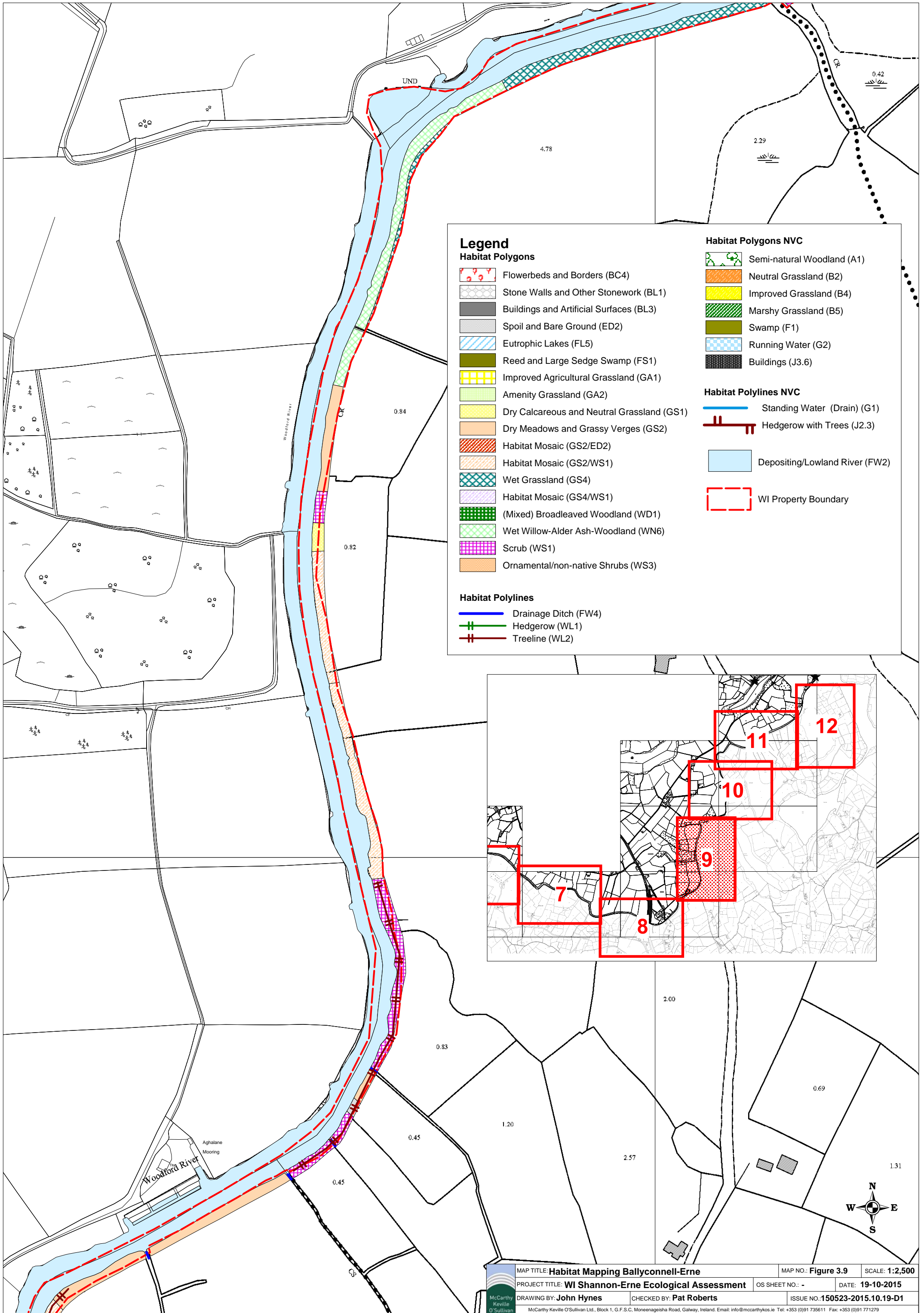
- Semi-natural Woodland (A1)
- Neutral Grassland (B2)
- Improved Grassland (B4)
- Marshy Grassland (B5)
- Swamp (F1)
- Running Water (G2)
- Buildings (J3.6)

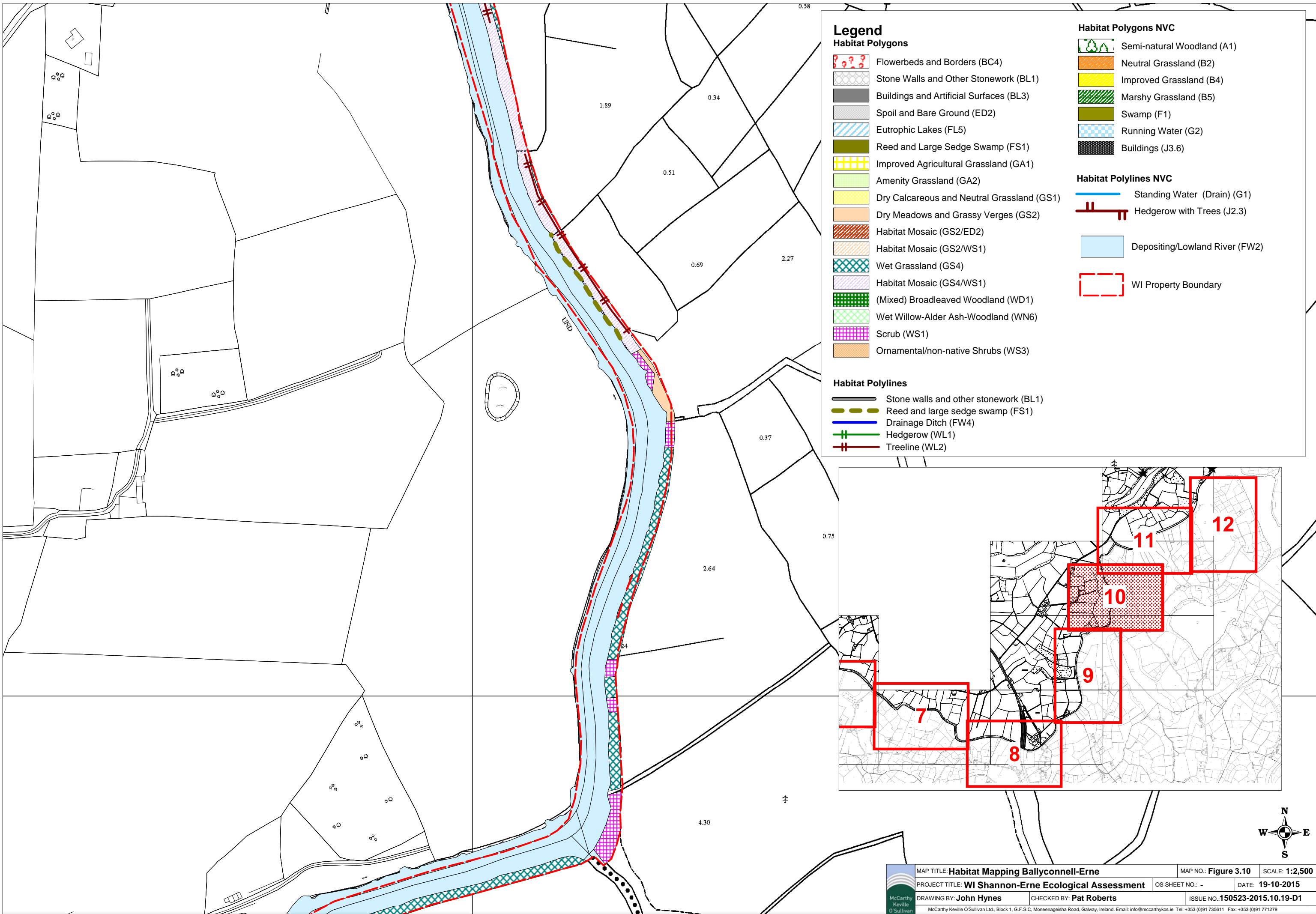
**Habitat Polylines NVC**

- Standing Water (Drain) (G1)
- Hedgerow with Trees (J2.3)
- Depositing/Lowland River (FW2)
- WI Property Boundary

**Habitat Polylines**

- Drainage Ditch (FW4)
- Hedgerow (WL1)
- Treeline (WL2)





**Legend**

**Habitat Polygons**

- Flowerbeds and Borders (BC4)
- Stone Walls and Other Stonework (BL1)
- Buildings and Artificial Surfaces (BL3)
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- Eutrophic Lakes (FL5)
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- Wet Willow-Alder Ash-Woodland (WN6)
- Scrub (WS1)
- Ornamental/non-native Shrubs (WS3)

**Habitat Polylines**

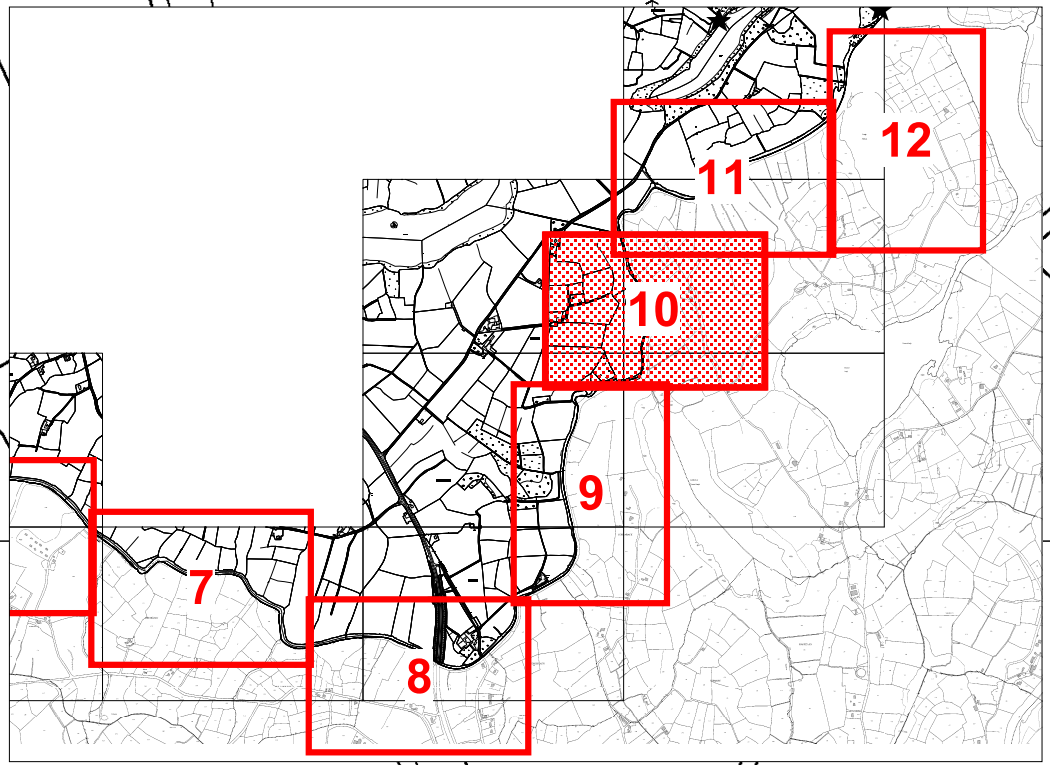
- Stone walls and other stonework (BL1)
- Reed and large sedge swamp (FS1)
- Drainage Ditch (FW4)
- Hedgerow (WL1)
- Treeline (WL2)

**Habitat Polygons NVC**

- Semi-natural Woodland (A1)
- Neutral Grassland (B2)
- Improved Grassland (B4)
- Marshy Grassland (B5)
- Swamp (F1)
- Running Water (G2)
- Buildings (J3.6)

**Habitat Polylines NVC**

- Standing Water (Drain) (G1)
- Hedgerow with Trees (J2.3)
- Depositing/Lowland River (FW2)
- WI Property Boundary



**Legend**

**Habitat Polygons**

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- Stone Walls and Other Stonework (BL1)
- Buildings and Artificial Surfaces (BL3)
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**Habitat Polygons NVC**

- Standing Water (Drain) (G1)
- Hedgerow with Trees (J2.3)
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**Habitat Polygons**

- Stone walls and other stonework (BL1)
- Reed and large sedge swamp (FS1)
- Drainage Ditch (FW4)
- Hedgerow (WL1)
- Treeline (WL2)

