

Ecological Survey & Habitat Mapping

**Shannon-Erne Ecological Assessment:
Survey of the Shannon Erne Waterway from
Lough Scur to Aghoo Bridge,
Co Leitrim.**



Planning & Environmental Consultants

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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 18km of the Shannon Erne Waterway from Lough Scur to Aghoo Bridge. Waterways Ireland wish to enhance their knowledge of the local flora fauna and habitats along this section of the waterway.

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.

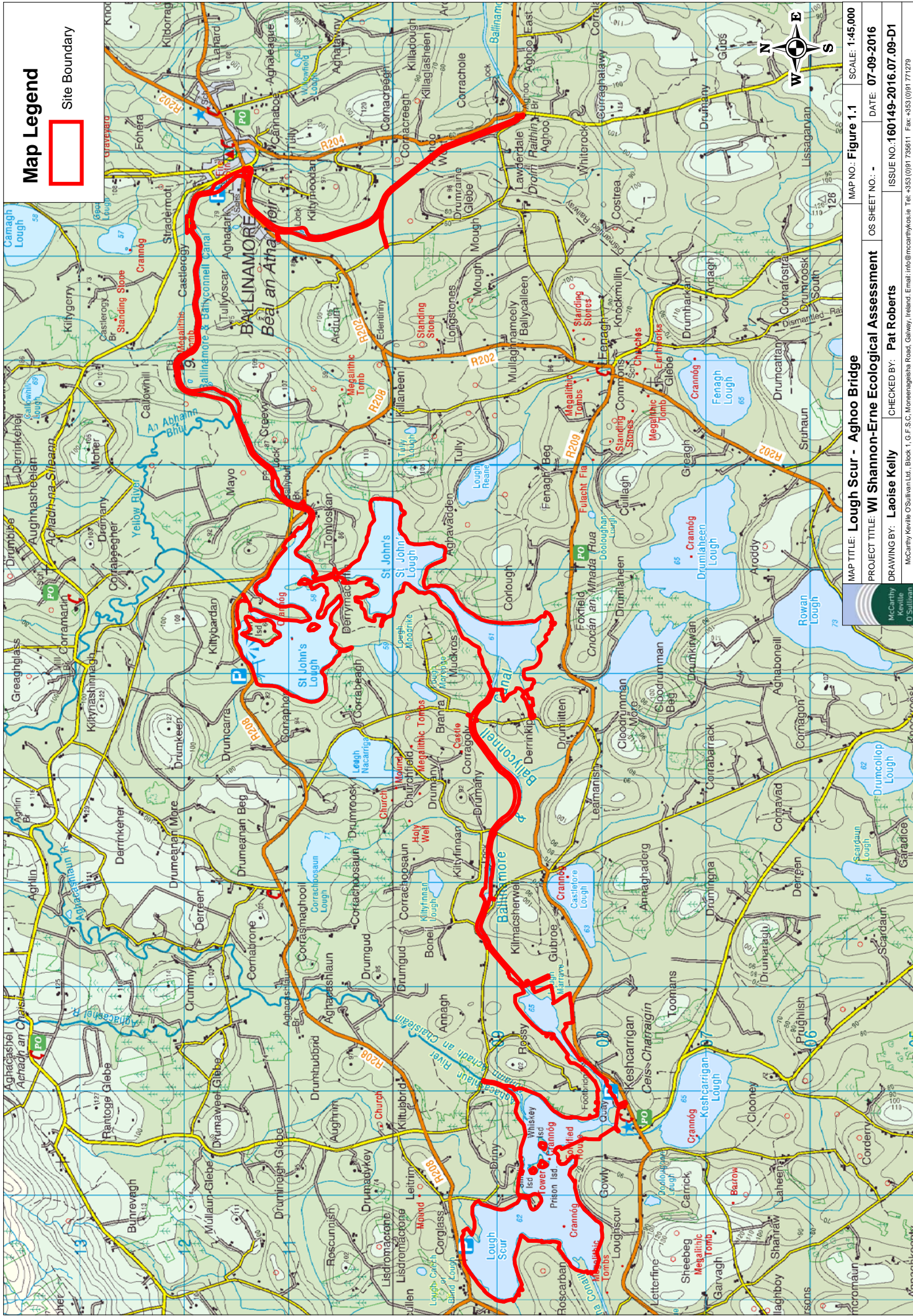
For the purposes of the survey the study site has been split up into 10 sections (see Table 1.1). These sections follow the sequence of bridges and Loughs encountered along the survey section of the Shannon Erne Waterway. Section 1 is the westernmost section at Lough Scur, while section 10 is the easternmost section ending at Aghoo Bridge.

An overview of the site between Lough Scur and Aghoo Bridge is shown in Figure 1.1. Figure 1.1a and Figure 1.1b shows the location of the study area, and the 10 section divisions. The Habitat Mapping Figures are provided as **Appendix I**.

Map Legend



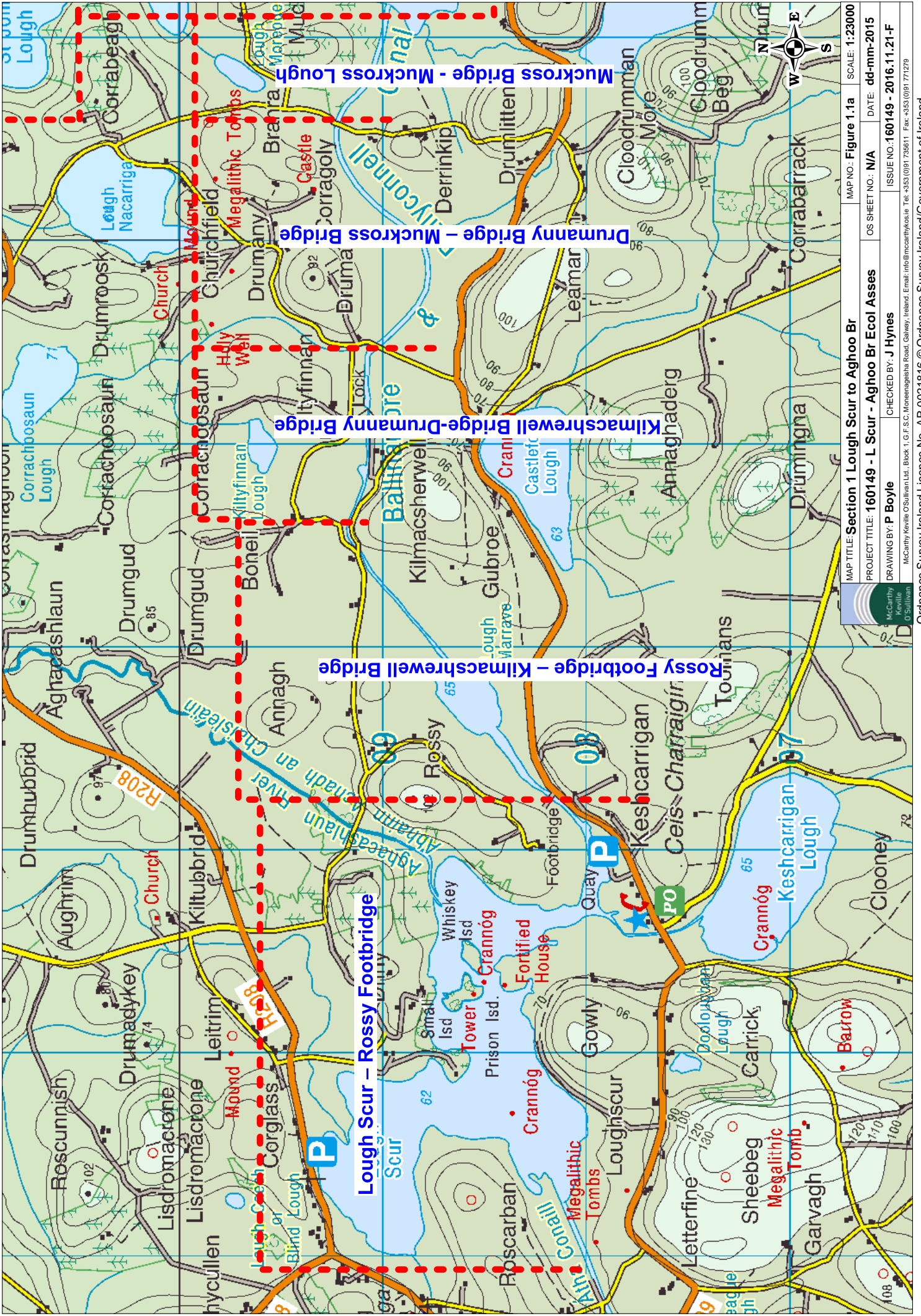
Site Boundary



MAP TITLE: Lough Scur - Aghoo Bridge	MAP NO.: Figure 1.1	SCALE: 1:45,000
PROJECT TITLE: W1 Shannon-Erne Ecological Assessments	OS SHEET NO.: -	DATE: 07-09-2016
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Lough Scur - Rossy Footbridge

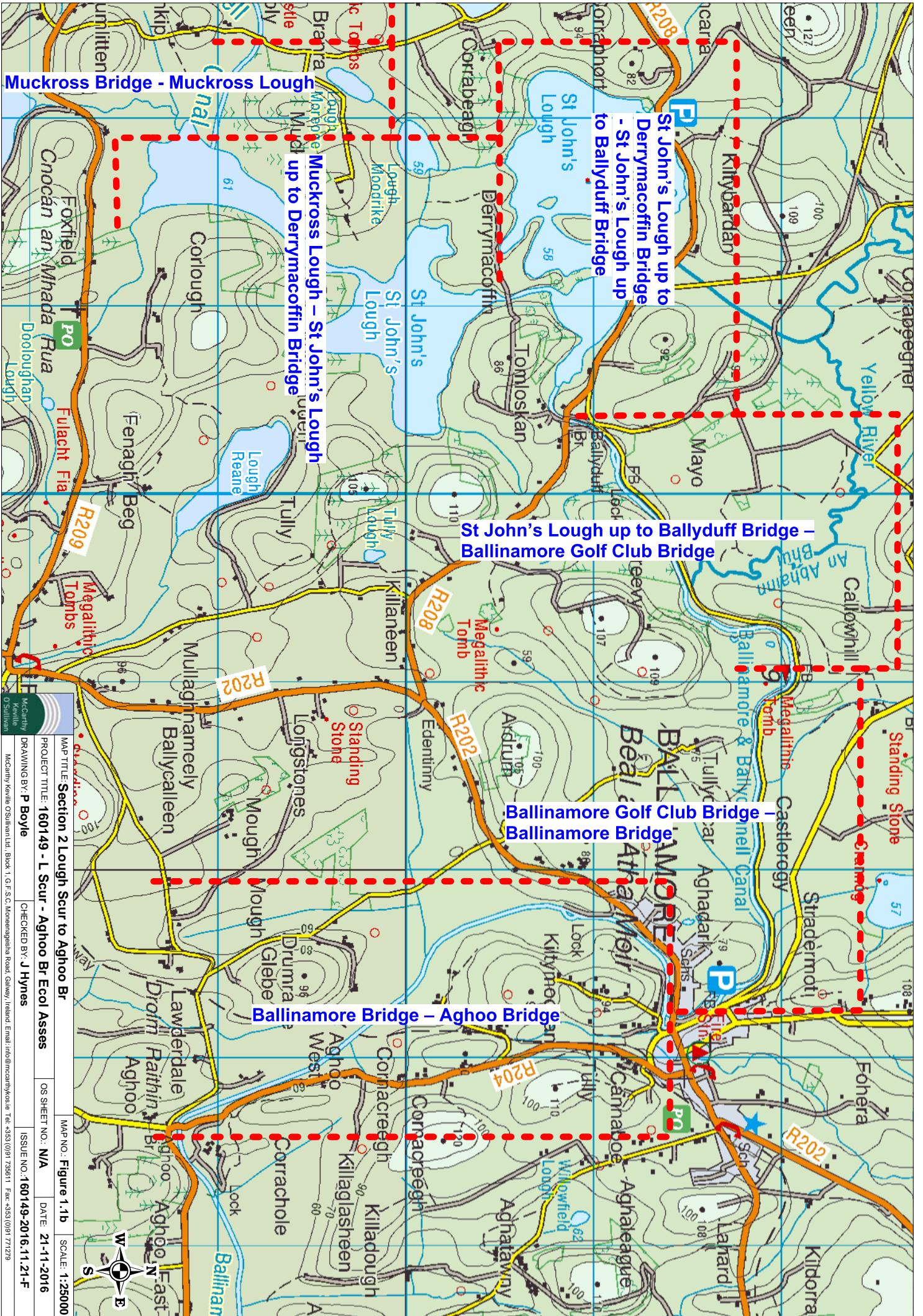
Rossy Footbridge - Kilmacshrewell Bridge

Kilmacshrewell Bridge-Drumranny Bridge

Drumranny Bridge - Muckross Bridge

Muckross Bridge - Muckross Lough

MAP TITLE: Section 1 Lough Scur to Aghoo Br	MAP NO: Figure 1.1a	SCALE: 1:23000
PROJECT TITLE: 160149 - L Scur - Aghoo Br Ecol Asses	OS SHEET NO: N/A	DATE: dd-mm-2015
DRAWING BY: P Boyle	CHECKED BY: J Hynes	ISSUE NO: 160149 - 2016.11.21-F
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Muckross Bridge - Muckross Lough

Muckross Lough - St John's Lough
Muck up to Derrymacoffin Bridge

St John's Lough up to
Derrymacoffin Bridge
- St John's Lough up
to Ballyduff Bridge

St John's Lough up to Ballyduff Bridge -
Ballinamore Golf Club Bridge

Ballinamore Golf Club Bridge -
Ballinamore Bridge

Ballinamore Bridge - Aghoo Bridge



 MAP TITLE: Section 2 Lough Scur to Aghoo Br
 PROJECT TITLE: 160149 - L Scur - Aghoo Br Ecol Asses
 DRAWING BY: P Boyle
 CHECKED BY: J Hynes
 OS SHEET NO: NA
 DATE: 21-11-2016
 MAP NO: Figure 1.1b
 SCALE: 1:25000
 ISSUE NO: 160149-2016.11.21-F
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Table 1.1 Breakdown of the sections of the study area

Number	Description	Habitat Map Figures
1	Lough Scur – Rossy Footbridge	3.1 – 3.5
2	Rossy Footbridge – Kilmacshrewell Bridge	3.5 – 3.7
3	Kilmacshrewell Bridge-Drumanny Bridge	3.7 – 3.10
4	Drumanny Bridge – Muckcross Bridge	3.10 – 3.11
5	Muckcross Bridge - Muckcross Lough	3.11 – 3.12
6	Muckcross Lough – St John’s Lough up to Derrymacoffin Bridge	3.12 – 3.13
7	St John’s Lough up to Derrymacoffin Bridge - St John’s Lough up to Ballyduff Bridge	3.13 – 3.15
8	Ballyduff Bridge – Ballinamore Golf Club Bridge	3.15 – 3.19
9	Ballinamore Golf Club Bridge – Ballinamore Bridge	3.19 – 3.21
10	Ballinamore Bridge – Aghoo Bridge	3.21 – 3.24

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.

A multidisciplinary ecological walkover and boat survey of the study area was conducted on the 11th, 12th, 18th and 19th of August 2016. The survey was undertaken by John Hynes B.Sc. (Env.) M.Sc (Eco) GradCIEEM with assistance from Dr. Pamela Boyle B.Sc. (Env.) M.Sc (Eco) and Laoise Kelly B.Sc. (Env.). The multidisciplinary survey was designed to detect the presence, or likely presence, of a range of protected habitats and species. Given that a large portion of the study area is occupied by lacustrine habitats, a boat was provided by Waterways Ireland to facilitate the study.

Habitats were identified in accordance with the Heritage Council’s *‘Guide to Habitats in Ireland’* (Fossitt, 2000) which classifies habitats based on the vegetation present and management history. Habitat mapping was undertaken with regard to guidance set out in *‘Best Practice Guidance for Habitat Survey and Mapping’* (Smith *et al.*, 2011). The site was assessed and the habitats within the Waterways Ireland property boundary were classified and mapped in accordance with these documents. Plant nomenclature for vascular plants follows *‘New Flora of the British Isles’* (Stace, 2010), while mosses and liverworts nomenclature follows *‘Mosses and Liverworts of Britain and Ireland - a field guide’* (British Bryological Society, 2010).

An Otter survey was conducted as per NRA (2009) 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 signs within study area. This involved a search for all Otter signs e.g. spraints, prints, slides, trails, couches and holts. In addition to the watercourses, a 10m riparian buffer was

considered to comprise part of the Otter habitat (NPWS 2009. *Threat Response Plan: Otter* (2009-2011).

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.

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.

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.

During the multi-disciplinary walkover survey the presence of non-native invasive species was recorded. The survey focused on the identification of invasive species listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2015).

The ecological survey was undertaken during the optimal time of year to undertake a habitat and flora survey (Smith *et. al* 2011). A full and comprehensive survey was achieved.

2 DESK STUDY

2.1 Designated Areas

2.1.1 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 animal and plant species and over 200 "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'.

Habitats Directive/Special Areas of Conservation

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, Atlantic Salmon, and Killarney Fern) whose conservation also requires the designation of **SAC**. **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.

Species can be listed in more than one Annex, as is the case with Otter and Lesser Horseshoe Bat which are listed on both **Annex II** and **Annex IV**.

Birds Directive/Special Protection Areas

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**).

2.1.2 Nationally Designated Sites

Natural Heritage Areas (NHAs) are sites that are designated for the protection of flora, fauna, habitats and geological sites of national importance. Management of NHAs is guided by planning policy and the Wildlife Acts, 1976-2012.

Proposed NHAs (pNHAs) were published on a non-statutory basis in 1995 but have not since been statutorily proposed or designated. These sites are of significance for wildlife and habitats.

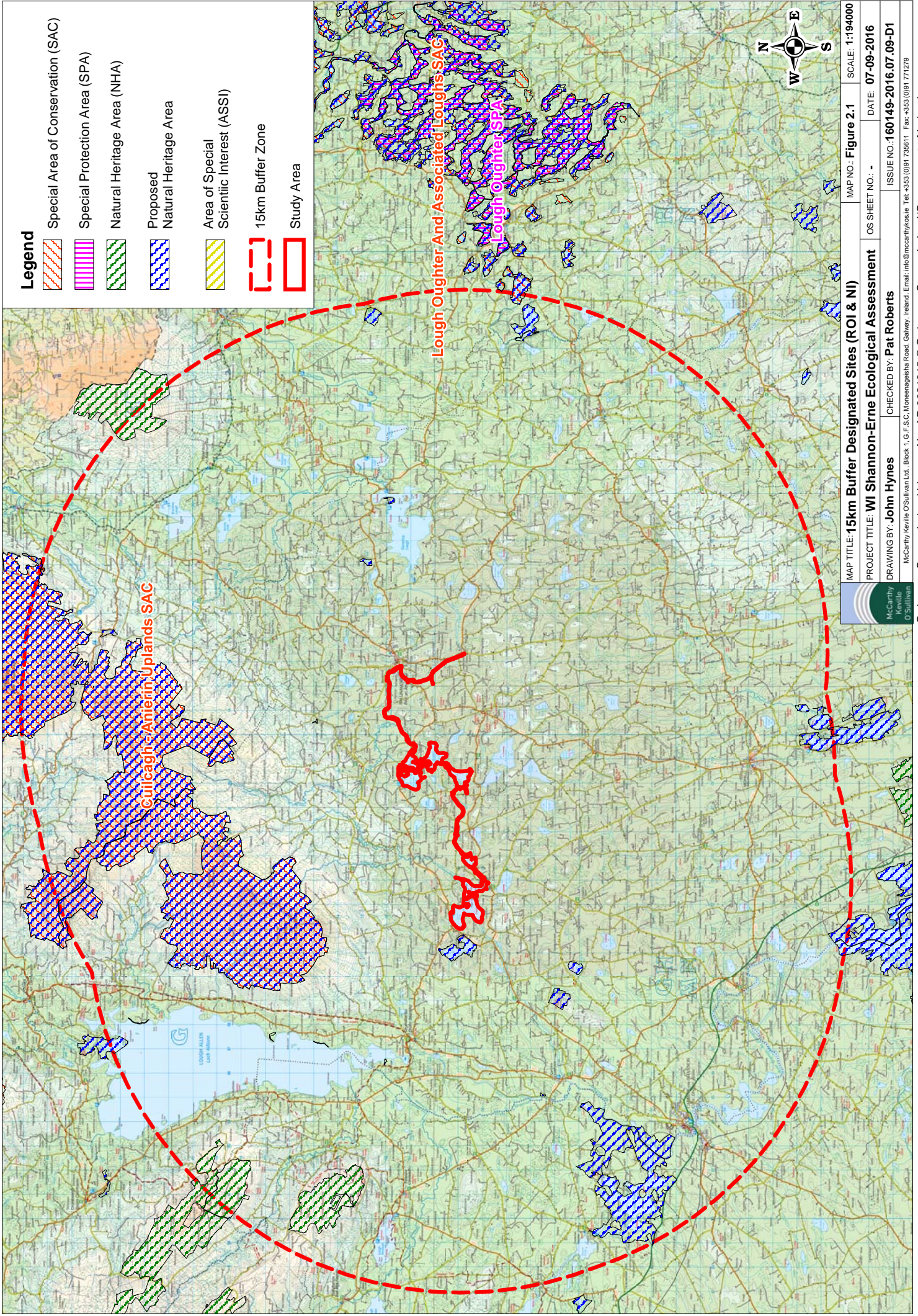
2.2 Designated Sites

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)
Special Areas of Conservation (SAC)	
Lough Oughter And Associated Loughs SAC (000007)	14.5km
Cuilcagh - Anierin Uplands SAC (000584)	5.1km
Special Protected Areas (SPA)	
There are no SPAs within the 15km buffer radius of the study area.	
Natural Heritage Areas (NHA)	
Kilronan Mountain Bog NHA (000617)	10.6km
Corry Mountain Bog NHA (002321)	12.9km
Slieve Rushen Bog NHA (000009)	13.8km
Proposed Natural Heritage Area (pNHA)	
Carrickaport Lough (001920)	0.24km
Cromlin Bridge Wood (001409)	2.7km
Annaghealy Lough (001402)	3.9km
Sheemore Wood (001421)	4.0km
Corduff Lough (001407)	4.2km
Cuilcagh - Anierin Uplands (000584)	5.1km
Lough Allen, South End and Parts (000427)	6.1km
Garadice Lough Wood (001413)	6.6km
Drumhierny Wood (001412)	7.4km
Lough Drumharlow (001643)	10.5km
Blackrock's Cross (000976)	11.2km
Glasshouse Lake (000983)	13.0km
Lough Rinn (001417)	13.5km
Lough Sallagh (001808)	13.6km
Clonty Lough (000977)	13.9km
Lough Errew (001807)	14.0km
Kilgarriff Marsh (000426)	14.2km
Lough Oughter And Associated Loughs (000007)	14.5km
Lough Boderg And Lough Bofin (001642)	14.5km



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 I 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 (H00, H01, H10 and H11), during the 1987-1999 atlas survey. No Flora Protection Order species were recorded from the hectads. One species was recorded from hectad H11 that is listed as *vulnerable* under the Irish Red Data Book List; Green-flowered Helleborine (*Epipactis phyllanthes*). One species was recorded from hectad H01 that is listed as *Rare* under the Irish Red Data Book List; Smooth Brome (*Bromus racemosus*).

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 (H00, H01, H10 and H11), 13 are protected under the EU Birds Directive or mentioned on the Birds of Conservation Concern in Ireland (BoCCI) Red List (Table 2.2). Birds listed under Annex I of the EU Birds Directive are offered special legislative protection. Of the species recorded in the relevant hectads, four are listed under Annex I of the Birds Directive and nine are listed on the BoCCI Red List.

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.

Table 2.2: Bird species recorded in hectads H00, H01, H10 and H11 that are protected under the EU Birds Directive or mentioned on the BoCCl Red List

Common Name	Scientific Name	Breeding				Wintering				Annex I	BoCCl Red List
		H00	H01	H10	H11	H00	H01	H10	H11		
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	Conf-breed	-	Non-breed	-	-	-	-	-	-	Yes
Curllew	<i>Numenius arquata</i>	Poss-breed	-	Non-breed	-	-	Yes	-	-	-	Yes
Goldeneye	<i>Bucephala clangula</i>	-	-	Non-breed	Non-breed	Yes	-	Yes	Yes	-	Yes
Grey Wagtail	<i>Motacilla cinerea</i>	Non-breed	-	Conf-breed	Prob breed	-	-	Yes	-	-	Yes
Lapwing	<i>Vanellus vanellus</i>	-	-	Conf-breed	-	-	-	Yes	Yes	-	Yes
Meadow Pipit	<i>Anthus pratensis</i>	Conf-breed	Conf-breed	Conf-breed	Poss-breed	Yes	Yes	Yes	Yes	-	Yes
Pochard	<i>Aythya ferina</i>	-	-	-	-	Yes	-	-	-	-	Yes
Tufted Duck	<i>Aythya fuligula</i>	Prob-breed	Conf-breed	Poss-breed	-	Yes	Yes	Yes	Yes	-	Yes
Woodcock	<i>Scolopax rusticola</i>	-	-	Prob-breed	Poss-breed	-	-	-	Yes	-	Yes
Hen Harrier	<i>Circus cyaneus</i>	Non-breed	Poss-breed	-	-	-	Yes	-	-	Yes	-
Kingfisher	<i>Alcedo atthis</i>	Poss-breed	-	-	Poss-breed	-	-	-	-	Yes	-
Whooper Swan	<i>Cygnus cygnus</i>	-	-	-	-	Yes	-	Yes	Yes	Yes	-
Peregrine	<i>Falco peregrinus</i>	-	Poss-breed	-	-	-	-	-	-	Yes	-

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

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 Lough Scur and Aghoo Bridge. There is a water sampling point approximately 0.8km north of Lough Scur which is recorded as being Q4 Good Status. This watercourse flows into Lough Scur approximately 1.4km (hydraulic distance) downstream.. Prior to 2004 there were four water quality assessment points on the Yellow River between Lough Scur and Aghoo Bridge: 1) Aghacashlaun – Br SW of Drumany, Point 2) Yellow (Ballinamore) – 0.6km u/s Ballinamore Br. and 3) Yellow (Ballinamore) – 0.6km d/s Ballinamore Br.. 4) Yellow (Ballinamore)-Br nr Riverdale (Aghoo). The surface water quality at point 1 was assigned *Good Status Q4*. The water quality at points 2 and 4 was assigned *High Status Q5*. The surface water quality at point 3 was assigned *Moderate Status Q3-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 Yellow system is classified as River Waterbody and it lies within the Water Management Unit IE_NE_ErneMid. The waterbody codes in the study area are Yellow (Ballinamore)_30 and ADHACASHLAUN_030. 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 status of the waterbodies to the west of the study area is “*Good*” while the status of the waterbodies to the east is “*Poor*” based on their overall ecological status. The rivers in the study area have not been assigned a WFD 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 H00, H01, H10 and H11 in which the study area is located. 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 2.3 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 2015 or that are red listed in published national red lists.

Table 2.3 Records for rare and protected species, NPWS

Common Name	Scientific Name	Status	Location
Whooper Swan	<i>Cygnus cygnus</i>	Annex I, WA 1976/2000	H10, H11, H00, H01
Freshwater White-clawed Crayfish	<i>Austropotamobius pallipes</i>	Annex II, WA 1976/2000	H10, H11, H00
Otter	<i>Lutra lutra</i>	Annex II/IV, WA 1976/2000	H10, H11, H00, H01
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	Annex IV, WA 1976/2000	H10, H00
Common Frog	<i>Rana temporaria</i>	Annex V, WA 1976/2000	H10, H11, H00, H01
Black-headed Gull	<i>Chroicocephalus ridibundus</i>	BOCCI Red List, WA 1976/2000	H10, H11, H00
Curlew	<i>Numenius arquata</i>	BOCCI Red List, WA 1976/2000	H11, H01
Lapwing	<i>Vanellus vanellus</i>	BOCCI Red List, WA 1976/2000	H10, H11
Pochard	<i>Aythya ferina</i>	BOCCI Red List, WA 1976/2000	H10, H11
Tufted Duck	<i>Aythya fuligula</i>	BOCCI Red List, WA 1976/2000	H10, H11
Green-flowered Helleborine	<i>Epipactis phyllanthes</i>	Irish Red Data Book	H11
Irish Hare	<i>Lepus timidus subsp. hibernicus</i>	WA 1976/2000 Annex V	H10, H1, H00, H01
Pine Marten	<i>Martes martes</i>	WA 1976/2000 Annex V	H10, H11, H00, H01
Red Deer	<i>Cervus elaphus</i>	WA 1976/2000	H10, H11
European Hedgehog	<i>Erinaceus europaeus</i>	WA 1976/2000	H10, H11, H01
Badger	<i>Meles meles</i>	WA 1976/2000	H10, H11, H00, H01
Stoat	<i>Mustela erminea hibernica</i>	WA 1976/2000	H10, H11, H01
Smooth Newt	<i>Lissotriton vulgaris</i>	WA 1976/2000	H10, H11
Peregrine	<i>Falco peregrinus</i>	Annex I, WA 1976/2000	H00, H01
Brook Lamprey	<i>Lampetra planerii</i>	Annex II, WA 1976/2000	H00
Brown Long-eared Bat	<i>Plecotus auritus</i>	Annex IV, WA 1976/2000	H00
Beaked Beardless Moss	<i>Weissia rostellata</i>	Flora Protection Order	H00
Whiskered Bat	<i>Myotis mystacinus</i>	Annex IV, WA 1976/2000	H01
Red Grouse	<i>Lagopus Lagopus</i>	BoCCI Red Listed, WA 1976/2000	H01

2.7 Biodiversity Ireland Database

The National Biodiversity Database was accessed on 9th September 2016 and the following information was obtained. Table 2.4 lists designated and protected species and species of conservation concern recorded within the hectads which overlap with the current study area.

Table 2.4 National Biodiversity Database Records

Common Name	Scientific Name	Status	Location
Corncrake	<i>Crex crex</i>	Annex I, WA 1976/2000	H11, H00, H01, H10
Whooper Swan	<i>Cygnus cygnus</i>	Annex I, WA 1976/2000	H10, H11, H00, H01
Common Tern	<i>Sterna hirundo</i>	Annex I, WA 1976/2000	H11, H00
Kingfisher	<i>Alcedo atthis</i>	Annex I, WA 1976/2000	H11
Merlin	<i>Falco columbarius</i>	Annex I, WA 1976/2000	H11, H00
Hen Harrier	<i>Circus cyaneus</i>	Annex I, WA 1976/2000	H01
Otter	<i>Lutra lutra</i>	Annex II, IV, WA 1976/2000	H10, H11, H00, H01
Freshwater White-clawed Crayfish	<i>Austropotamobius pallipes</i>	Annex II, V, WA 1976/2000	H10, H11, H01
Marsh Fritillary	<i>Euphydryas aurinia</i>	Annex II, WA 1976/2000	H00
Daubenton's Bat	<i>Myotis daubentonii</i>	Annex IV, WA 1976/2000	H00
Leisler's Bat	<i>Nyctalus leisleri</i>	Annex IV, WA 1976/2000	H00
Whiskered Bat	<i>Myotis mystacinus</i>	Annex IV, WA 1976/2000	H11
Irish Hare	<i>Lepus timidus hibernicus</i>	Annex V, WA 1976/2000	H00
Grey Wagtail	<i>Motacilla cinerea</i>	BOCCI Red List, WA 1976/2000	H00
Common Frog	<i>Rana temporaria</i>	Annex V, WA 1976/2000	H10, H11, H10
Pine Marten	<i>Martes martes</i>	Annex V, WA 1976/2000	H10, H11, H00, H01
Curlew	<i>Numenius arquata</i>	BOCCI Red List, WA 1976/2000	H10, H11, H00
Woodcock	<i>Scolopax rusticola</i>	BOCCI Red List, WA 1976/2000	H10, H11, H01
Lapwing	<i>Vanellus vanellus</i>	BOCCI Red List, WA 1976/2000	H11, H00, H01
Tufted Duck	<i>Aythya fuligula</i>	BOCCI Red List, WA 1976/2000	H01, H00, H10
Meadow Pipit	<i>Anthus pratensis</i>	BOCCI Red List, WA 1976/2000	H11, H10, H00, H01
Yellowhammer	<i>Emberiza citrinella</i>	BOCCI Red List, WA 1976/2000	H10, H11
Black-headed Gull	<i>Larus ridibundus</i>	BOCCI Red List, WA 1976/2000	H10, H11
Herring Gull	<i>Larus argentatus</i>	BOCCI Red List, WA 1976/2000	H10

Common Name	Scientific Name	Status	Location
Yellowhammer	<i>Emberiza citrinella</i>	BOCCI Red List, WA 1976/2000	H01, H00, H10
Red Grouse	<i>Lagopus lagopus</i>	BOCCI Red List, WA 1976/2000	H01
European Eel	<i>Anguilla anguilla</i>	Council Regulation (EC) No 1100/2007	H11, H00
Beaked Beardless Moss	<i>Weissia rostellata</i>	Flora Protection Order	H00
Smooth Newt	<i>Lissotriton vulgaris</i>	WA 1976/2000	H11, H00
Red Squirrel	<i>Sciurus vulgaris</i>	WA 1976/2000	H11, H01
Badger	<i>Meles meles</i>	WA 1976/2000	H11, H00, H01
Hedgehog	<i>Erinaceus europaeus</i>	WA 1976/2000	H10, H11, H00
Pygmy Shrew	<i>Sorex minutus</i>	WA 1976/2000	H11
Stoat	<i>Mustela erminea hibernica</i>	WA 1976/2000	H10, H11
Red Squirrel	<i>Sciurus vulgaris</i>	WA 1976/2000	H10, H11, H00
Red Fox	<i>Vulpes vulpes</i>	WA 1976/2000	H10, H11, H00, H01

2.8 Consultation

Scoping for this Ecological Assessment was circulated in August 2016. 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.
- Relevant Biodiversity and Heritage Officers.
- Inland Fisheries Ireland
- Bat Conservation Ireland
- Birdwatch Ireland.
- Relevant County Recorders and
- Tree Council of Ireland.

Leitrim County council responded in an email dated the 05/08/2016 and provided a recommended suite of data sources relevant to the current study area. The relevant data sources have been considered and included in this report.

At the date of finalising this report in October 2016 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 08/08/2016 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 August 2016, 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).

- Eutrophic Lake (FL5)
- Wet Grassland (GS4)
- Wet Willow-Alder-Ash Woodland (WN6)
- Habitat Mosaic of Wet Grassland and Scrub (GS4/WS1)
- Improved Agricultural grassland (GA1)
- Dry Meadows and Grassy Verges (GS2)
- Scrub (WS1)
- Reed & Large Sedge Swamp (FS1)
- Buildings & Artificial Surfaces (BL3)
- Spoil & Bare Ground (ED2)
- Amenity Grassland (GA2)
- Conifer Plantation (WD4)
- Depositing/lowland rivers (FW2)
- Freshwater Marsh (GM1)
- Dry Calcareous & Neutral Grassland (GS1)
- Habitat Mosaic of Dry Meadows and Grassy verges and Scrub (GS2/WS1)
- Mixed Broadleaved Woodland (WD1)
- Wet Pedunculate Oak/Ash Woodland (WN4)
- Treeline (WL2)
- Drainage Ditches (FW4)
- Hedgerow (WL1)
- Stone walls and other stonework (BL1)

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 ten waterway 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 (ha)
Eutrophic Lake (FL5)	275.72
Wet Grassland (GS4)	38.2
Depositing/lowland River (FW2)	23.63
Wet Willow-Alder-Ash Woodland (WN6)	7.83
Habitat Mosaic Of Wet Grassland And Scrub (GS4/WS1)	7.15
Improved Agricultural Grassland (GA1)	5.7
Dry Meadows And Grassy Verges (GS2)	5.62
Scrub (WS1)	4.85
Reed & Large Sedge Swamp (FS1)	4.74
Buildings & Artificial Surfaces (BL3)	2.11
Spoil & Bare Ground (ED2)	2.09
Amenity Grassland (GA2)	1.98
Conifer Plantation (WD4)	1.97
Freshwater Marsh (GM1)	0.46
Dry Calcareous & Neutral Grassland (GS1)	0.38
Habitat Mosaic Of Dry Meadows And Grassy Verges And Scrub (GS2/WS1)	0.29
Mixed Broadleaved Woodland (WD1)	0.17
Wet Pedunculate Oak/Ash Woodland (WN4)	0.02

Table 3.2 Length of Habitat Polygons within Study Area

Habitat	Length (km)
Treeline (WL2)	7.56
Drainage Ditch (FW4)	4.41
Hedgerow (WL1)	3.04
Stone Walls & Other Stonework (BL1)	0.57

3.1.1.1 Eutrophic Lake (FL5)

Five eutrophic lakes occur within this area (example in Plate 3.1). These lakes range in size from 117.1 hectares to 9 hectares. The lakes surveyed within the study area from west to east are provided in Table 3.3 below.

Table 3.3 Lakes surveyed during the field study

Lake	Area (ha)
Lough Scur	117.1
Marrave	9
Muckross*	28.6
St. Johns Lower*	45.6
St. Johns Upper*	74.3

*Forms St. Johns Lough Complex

The lakes supported similar fringing habitats (described in relevant sections below) throughout but varied in depth and cover of aquatic vegetation. The lakes and fringe habitats were surveyed using a rigid inflatable boat provided and operated by Waterways Ireland staff. This habitat type was classified as an Ecologically Sensitive Area and is further discussed in Section 6



Plate 3.1 Example of Eutrophic Lake, St. John's Lough Upper

3.1.1.2 Wet Grassland (GS4)

Large areas of wet grassland were recorded within and adjacent to the study area (Plate 3.2). 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, 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*). The habitat occasionally graded into Reed and Large Sedge Swamp (FS1) particularly surrounding the lakes. The habitat also formed mosaics with scrub and rank grassland where there was a lack of regular management.



Plate 3.2 Example of Wet Grassland (GS4) identified within the study area

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 main watercourses associated with the study area (i.e. Woodford River) has been categorised as Depositing/lowland River (FW2) but does display some features consistent with canals such as straight embanked channels. This watercourse is typically 5m to 8m wide and found to be free flowing with little macrophyte growth. Overhanging vegetation along these areas was common. A number of smaller, unmodified watercourses drain into the rivers or lakes. These natural watercourses have also been classified as Depositing/lowland River (FW2).

The Woodford River is a highly modified watercourse, typically 10-15m in width and dominated by slow flowing glide habitat. The margins of the watercourse supported varying levels of vegetation from short grassland to occasional reed swamp. Typical species of the margins included 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 lakes.

Recorded aquatic macrophytes included Yellow Water Lily (*Nuphar lutea*), Broad Leaved Pondweed (*Potamogeton natans*), Perfoliate Pondweed (*Potamogeton perfoliatus*), Duckweeds (*Lemna sp.*), Starwort (*Callitriche sp.*), Amphibious Bistort (*Persicaria amphibia*), Water Forget-me-not (*Myosotis scorpioides*), Unbranched bur-reed (*Sparganium emersum*) and Water-cress (*Rorippa nasturtium-aquatica*).

The Woodford River offers an excellent habitat for coarse fish and anglers were observed at various locations along the watercourses.



Plate3.3 Example of Depositing/lowland River, Section of Woodford River facing west at Ballinamore Golf Club

3.1.1.4 Wet Willow/Alder/Ash Woodland (WN6)

This habitat was recorded frequently along the margins of the lakes and dominated the islands within the larger lakes (Plate 3.4). The habitat was typically dominated by Ash (*Fraxinus excelsior*) with significant cover of Sycamore (*Acer pseudoplatanus*). The shrub layer was dominated by Willow species (*Salix* spp.) and ground flora included species such as Yellow Iris (*Iris pseudacorus*), Purple Loosestrife (*Lythrum salicaria*), Meadowsweet (*Filipendula ulmaria*) and Creeping Buttercup (*Ranunculus repens*). This habitat was classified as an ESA and is described in greater detail in Section 6.



Plate 3.4 Example of Wet Willow – Alder – Ash Woodland (WN6) along the margins of St. Johns Lough Upper

3.1.1.5 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 Soft Rush (*Juncus effusus*) commonly recorded from the improved sward (Plate 3.5). Commonly occurring species recorded from the agricultural fields 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 annua*), Creeping Thistle (*Cirsium arvense*), Nettle (*Urtica dioica*), Spear Thistle (*Cirsium vulgare*) and Mouseear (*Cerastium fontanum*).



Plate 3.5 Example of Improved Agricultural Grassland (GA1) adjacent to Lough Scur

3.1.1.6 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 3.6). This habitat was found along the unmown or annually mown bank margins at many locations along the rivers 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 river margin and ruderals on the landward side. 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. 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 occasionally formed a mosaic with Scrub (WS1) particularly in areas where Bramble (*Rubus fruticosus* agg.) had encroached on the bankside.



Plate 3.6 Example of Dry Meadows and Grassy Verge Habitat (GS2) on the outskirts of Ballinamore Town

3.1.1.7 Scrub (WS1)

Scrub (WS1) was recorded frequently 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 3.7)

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 and occasionally formed mosaics with Reed and large sedge swamp (FS1).



Plate 3.7 Example of Bramble and Willow Dominated Scrub (WS1) along the Woodford River

3.1.1.8 Reed & 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 frequently encountered along the margins of all five lake systems and in various scattered isolated locations along the rivers (Plate 3.8).

The dominant species recorded from linear fringes included Clubrush (*Schoenoplectus lacustris*) 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 Amphibious Bistort (*Persicaria amphibia*) were occasionally recorded.



Plate 3.8 Example of Reed and Large Sedge Swamp (FS1) habitat on St. Johns Lough Upper

3.1.1.9 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 3.9). 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 3.9 Example of Buildings and artificial surfaces (BL3) at Ballinamore Town

3.1.1.10 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 Ballinamore Town (Plate 3.10). 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 3.10 Example of Amenity grassland (GA2) at Ardrum Lock (no.5)

3.1.1.11 Spoil and Bare Ground (ED2)

The existing towpath along some survey sections within the study area was dominated by paved trackways classified as Spoil and bare ground (ED2) (Plate 3.11). 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.



Plate 3.11 Example of Spoil and Bare Ground habitat (ED2) towpath, south of Ballinamore

3.1.1.12 Conifer Plantation (WD4)

Small areas of Conifer Plantation (WD4) were primarily recorded adjacent to lakes and were dominated by monocultures of Sitka Spruce (*Picea sitchensis*) (Plate 3.12). Frequently a treeline dominated by Sycamore (*Acer pseudoplatanus*), Willow (*Salix* sp) or Ash (*Fraxinus excelsior*) occurred adjacent to the shoreline. This habitat is of low ecological concern and is likely to be subject to felling and replanting after a number of years.



Plate 3.12 Example of Conifer plantation (WD4) and Willow/Ash treeline(WL2) along Lough Scur shoreline

3.1.1.13 Freshwater Marsh (GM1)

Freshwater Marsh (GM1) was encountered along the fringes of the lakes (Plate 3.14). Plant species commonly recorded in these areas include Purple Loosestrife (*Lythrum salicaria*), Water Mint (*Mentha aquatica*), Meadowsweet (*Filipendula ulmaria*), Creeping Bent (*Agrostis stolonifera*), Horetail sp (*Equisetum* sp.) and Marsh Thistle (*Cirsium palustre*). This habitat frequently graded into wet grassland or improved agricultural grassland on the landward side.



Plate 3.14 Example of Freshwater marsh (GM1) along lakemargin

3.1.1.14 Mixed broadleaf woodland (WD1)

Small areas of Mixed broadleaved woodland was recorded throughout the study area (Plate 3.15). The woodland areas were dominated by Ash (*Fraxinus excelsior*) and Sycamore (*Acer pseudoplatanus*) with occasional occurrences of Pedunculate Oak (*Quercus petraea*). The shrub layer comprised 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*).

3.1.1.15 Dry calcareous and 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 3.16).

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*).

3.1.1.16 Wet Pedunculate Oak/Ash Woodland (WN4)

A small area of Oak/Ash/Hazel woodland occurs adjacent to Aghoo Bridge (Plate 3.17). This is dominated by Pedunculate Oak (*Quercus robur*) with Holly (*Ilex aquifolium*) and Willow (*Salix* sp.) shrub layer. The ground flora contained species including Ivy (*Hedera helix*), Bramble (*Rubus fruticosus* agg.), Meadowsweet (*Filipendula ulmaria*) and Golden-saxifrage (*Chrysosplenium oppositifolium*).



Plate 3.17 Exmapple of Wet peduncultae oak/ash woodland (WN4) adjacent to Aghoo Bridge

3.1.1.17 Hedgerow (WL1)/Treeline (WL2)

An abundance of treeline and hedgerow habitats was recorded along the survey area (Plates 3.18a & 3.18b). 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 3.18a Example of Hedgerow (WL1) as typically found forming property boundaries within the study area; Plate 3.1b Example of Treelines (WL2) adjacent to the Shannon Erne Waterway

3.1.1.18 Drainage Ditch (FW4)

Drainage ditches occurred frequently throughout the study area. These water features frequently drained into the lake and river systems and were variable in depth, width and macrophyte vegetation growth (Plate 3.19). Over the majority of the study area, the drains varied in width between 0.5 and 2.5m. 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.



Plate 3.19 Example of Drainage Ditch (FW4) within the study area

3.1.1.19 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 3.20).

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 3.20 Example of Stone Walls and Other Stonework in Ballinamore town

3.2 Aquatic Flora

Aquatic flora was sampled using a grapnel at multiple random locations within each river 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 lakes.

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) and Ivy-leaved Duckweed (*Lemna trisulca*).

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

3.3 Fauna

3.3.1 Birds

The bird species recorded during the site visits are listed in Table 3.4. 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 – Cormorant, House Martin, Kingfisher, Mistle Thrush, Mute Swan, 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 3.4 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
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

Common Name	Scientific Name	Conservation Status (Colhoun & Cummins 2013)
Cormorant	<i>Phalacrocorax carbo</i>	Amber-listed
Goldfinch	<i>Carduelis carduelis</i>	Green-listed
Great tit	<i>Parus major</i>	Green-listed
Grey Heron	<i>Ardea cinerea</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
Kingfisher	<i>Alcedo atthis</i>	Amber-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
Mute Swan	<i>Cygnus olor</i>	Amber-listed
Pied Wagtail	<i>Motacilla alba yarrellii</i>	Green-listed
Raven	<i>Corvus corax</i>	Green-listed
Reed Bunting	<i>Emberiza schoeniclus</i>	Green-listed
Robin	<i>Erithacus rubecula</i>	Green-listed
Snipe	<i>Gallinago gallinago</i>	Amber-listed
Starling	<i>Sturnus vulgaris</i>	Amber-listed
Swallow	<i>Hirundo rustica</i>	Amber-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 including Badger (*Meles meles*) and Otter (*Lutra lutra*). It is likely that other species such as Fox (*Meles meles*) and Stoat (*Mustela erminea*) are likely to present but evidence of these species were not identified. Otter is listed under Annex II and IV of the EU Habitat Directive. 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 river 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 river and lakes 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*) 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 – 4.30. Species listed on the Invasive Species Ireland “Most unwanted” list are highlighted in bold in the tables below.

4.1 Section 1: Lough Scur – Rossy Footbridge (Boat Survey)

Table 4.1 Habitats Classified in Section 1 Lough Scur – Rossy Footbridge (Boat Survey)

Habitats	Habitat Code
Eutrophic Lakes	FL5
Reed and Large Sedge Swamp	FS1
Depositing/lowland Rivers	FW2
Buildings & Artificial Surfaces	BL3
Scrub	WS1
Improved Agricultural Grassland	GA1
Amenity Grassland	GA2
Dry Meadows and Grassy Verges	GS2
Wet Grassland	GS4
Freshwater Marsh	GM1
Spoil and Bare Ground	ED2
Conifer Plantation	WD4
Wet Willow/Alder/Ash Woodland	WN6
Habitat Mosaic of Dry Meadows and Grassy Verges and Scrub	GS2/WS1
Habitat Mosaic of Wet Grassland and Scrub	GS4/WS1
Treeline	WL2
Drainage Ditch	FW4

Table 4.2 Plant Species Recorded in Section 1 Lough Scur – Rossy Footbridge (Boat Survey)

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>Alopecurus pratensis</i>	Meadow Foxtail
<i>Angelica sylvestris</i>	Angelica
<i>Anthoxanthum odoratum</i>	Sweet Vernal
<i>Anthriscus sylvestris</i>	Cow Parsley
<i>Arrhenatherum elatius</i>	False Oat-grass
<i>Bellis perennis</i>	Daisy
<i>Betula pubescens</i>	Downy Birch
<i>Calystegia sepium</i>	Hedge Bindweed
<i>Cardamine pratensis</i>	Cuckoo Flower
<i>Centaurea nigra</i>	Knapweed
<i>Cerastium fontanum</i>	Mouse Ear
<i>Chamerion angustifolium</i>	Rosebay Willowherb
<i>Cirsium arvense</i>	Creeping Thistle
<i>Cirsium palustre</i>	Marsh Thistle

Scientific name	Common Name
<i>Cirsium vulgare</i>	Spear Thistle
<i>Comarum palustre</i>	Marsh Cinquefoil
<i>Corylus avellana</i>	Hazel
<i>Crataegus monogyna</i>	Hawthorn
<i>Dactylis glomerata</i>	Cocksfoot
<i>Dactylis glomerata</i>	Cocksfoot
<i>Epilobium hirtum</i>	Great Willowherb
<i>Equisetum spp.</i>	Horsetail
<i>Festuca spp.</i>	Fescue
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Fraxinus excelsior</i>	Ash
<i>Galium aparine</i>	Cleavers
<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>Iris pseudacorus</i>	Yellow Iris
<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>Loentodon sp.</i>	Hawkbit
<i>Lolium perenne</i>	Perennial Rygrass
<i>Lychnis flos-cuculi</i>	Ragged Robin
<i>Lycopus europaeus</i>	Gypsywort
<i>Lythrum salicaria</i>	Purple Loosestrife
<i>Mentha aquatica</i>	Water Mint
<i>Plantago lanceolata</i>	Ribwort Plantain
<i>Plantago major</i>	Greater Plantain
<i>Poa annua</i>	Annual Meadowgrass
<i>Potamogeton alpinus</i>	Reddish Pondweed
<i>Potentilla anserina</i>	Silverweed
<i>Potentilla erecta</i>	Tormentil
<i>Prunella vulgaris</i>	Selfheal
<i>Prunus spinosa</i>	Blackthorn
<i>Ranunculus flammula</i>	Lesser Spearwort
<i>Ranunculus acris</i>	Meadow Buttercup
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Rubus fruticosus agg</i>	Bramble
<i>Rumex acetosa</i>	Common Sorrell
<i>Rumex crispus</i>	Curled Dock
<i>Rumex hydrolapathum</i>	Water Dock
<i>Rumex obtusifolius</i>	Broad-leaved Dock
<i>Salix cinerea</i>	Grey Willow
<i>Salix viminalis</i>	Osier
<i>Schoenoplectus lacustris</i>	Common Club-rush

Scientific name	Common Name
<i>Senecio jacobaea</i>	Ragwort
<i>Sorbus aucuparia</i>	Rowan
<i>Taraxacum agg.</i>	Dandelion
<i>Trifolium pratense</i>	Red Clover
<i>Trifolium repens</i>	White Clover
<i>Ulex europaeus</i>	Gorse
<i>Urtica dioica</i>	Nettle
<i>Vicia cracca</i>	Tufted Vetch

Table 4.3 Aquatic Plant Species Recorded in Section 1 Lough Scur – Rossy Footbridge (Boat Survey)

Scientific name	Common Name
<i>Alisma plantago-aquatica</i>	Water-plantain
<i>Nuphar lutea</i>	Yellow Water-lily
<i>Persicaria amphibia</i>	Amphibious Bistort
<i>Phalaris arundinaceae</i>	Reed Canary-grass
<i>Potamogeton alpinus</i>	Reddish Pondweed
<i>Typha latifolia</i>	Bulrush

4.2 Section 2: Rossy Footbridge – Kilmacshrewell Bridge (Walked Survey)

Table 4.4 Habitats Classified in Section 2 Rossy Footbridge – Kilmacshrewell Bridge (Walked Survey)

Habitats	Habitat Code
Eutrophic Lakes	FL5
Depositing/Lowland River	FW2
Reed and Large Sedge Swamp	FS1
Buildings & Artificial Surfaces	BL3
Scrub	WS1
Dry Meadows and Grassy Verges	GS2
Wet Grassland	GS4
Habitat Mosaic of Wet Grassland and Scrub	GS4/WS1
Treeline	WL2
Drainage Ditch	FW4
Stone wall sand other stonework	BL1

Table 4.5 Plant Species Recorded in Section 2 Rossy Footbridge – Kilmacshrewell Bridge (Walked Survey)

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>Alopecurus pratensis</i>	Meadow Foxtail
<i>Anagallis tenella</i>	Bog Pimpernel
<i>Angelica sylvestris</i>	Angelica
<i>Anthoxanthum odoratum</i>	Sweet Vernal
<i>Anthriscus sylvestris</i>	Cow Parsley
<i>Arrhenatherum elatius</i>	False Oat-grass
<i>Asplenium scolopendrium</i>	Hart's-tongue Fern
<i>Bellis perennis</i>	Daisy
<i>Calluna vulgaris</i>	Ling
<i>Calystegia sepium</i>	Hedge Bindweed
<i>Cardamine pratensis</i>	Cuckoo Flower
<i>Cares disticha</i>	Brown Sedge
<i>Carex echinata</i>	Star Sedge
<i>Carex nigra</i>	Common Sedge
<i>Carex panicea</i>	Carnation Sedge
<i>Carex viridula</i>	Yellow sedge
<i>Centaurea nigra</i>	Knapweed
<i>Cerastium fontanum</i>	Mouse Ear
<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>Comarum palustre</i>	Marsh Cinquefoil
<i>Corylus avellana</i>	Hazel

Scientific name	Common Name
<i>Cotoneaster horizontalis</i>	Cotoneaster
<i>Crataegus monogyna</i>	Hawthorn
<i>Dactylis glomerata</i>	Cocksfoot
<i>Deschampia cespitosa</i>	Tufted Hair-grass
<i>Digitalis purpurea</i>	Foxglove
<i>Epilobium hirsutum</i>	Great Willowherb
<i>Epilobium montanum</i>	Broad-leaved Willowherb
<i>Equisetum</i> spp.	Horsetail
<i>Eriophorum angustifolium</i>	Common Cottongrass
<i>Festuca</i> spp.	Fescue
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Fraxinus excelsior</i>	Ash
<i>Galium aparine</i>	Cleavers
<i>Galium uliginosum</i>	Fen Bedstraw
<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>Hydrocotyle vulgaris</i>	Marsh Pennywort
<i>Hypericum elodes</i>	Marsh St. John's-wort
<i>Hypericum tetrapterum</i>	Square-stalked St. John's-wort
<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>Ligustrum vulgare</i>	Privet
<i>Linum</i> sp.	Flax
<i>Loentodon</i> sp.	Hawkbit
<i>Lolium perenne</i>	Perennial Ryegrass
<i>Lotus pedunculatus</i>	Greater Bird's-foot-trefoil
<i>Lychnis flos-cuculi</i>	Ragged Robin
<i>Lycopus europaeus</i>	Gypsywort
<i>Lythrum salicaria</i>	Purple Loosestrife
<i>Mentha aquatica</i>	Water Mint
<i>Menyanthes trifoliata</i>	Bog Bean
<i>Molinia caerulea</i>	Purple moor-grass
<i>Petasites hybridus</i>	Butterbur
<i>Phalaris arundinacea</i>	Reed Canary Grass
<i>Plantago lanceolata</i>	Ribwort Plantain
<i>Plantago major</i>	Greater Plantain
<i>Poa annua</i>	Annual Meadow-grass
<i>Poa pratensis</i>	Smooth meadow Grass
<i>Poa trivialis</i>	Rough Meadow Grass
<i>Potentilla anserina</i>	Silverweed
<i>Potentilla erecta</i>	Tormentil

Scientific name	Common Name
<i>Potentilla sterilis</i>	Barren Strawberry
<i>Prunella vulgaris</i>	Selfheal
<i>Prunus spinosa</i>	Blackthorn
<i>Prunus</i> spp.	Cherry (ornamental)
<i>Pteridium aquilinum</i>	Bracken
<i>Ranunculus flammula</i>	Lesser Spearwort
<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 Sorrell
<i>Rumex crispus</i>	Curled Dock
<i>Rumex hydrolapathum</i>	Water 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>Sambucus nigra</i>	Elder
<i>Schoenoplectus lacustris</i>	Common Club Rush
<i>Senecio jacobaea</i>	Ragwort
<i>Sorbus aucuparia</i>	Rowan
<i>Sorbus aucuparia</i>	Mountain Ash
<i>Sphagnum capillifolium</i>	-
<i>Sphagnum palustre</i>	-
<i>Stachys palustris</i>	Marsh Woundwort
<i>Stachys sylvatica</i>	Hedge Woundwort
<i>Succisa pratensis</i>	Devil's-bit Scabious
<i>Taraxacum</i> agg.	Dandelion
<i>Torilis japonica</i>	Hedge Parsley
<i>Trifolium pratense</i>	Red Clover
<i>Trifolium repens</i>	White Clover
<i>Ulex europaeus</i>	Gorse
<i>Urtica dioica</i>	Nettle
<i>Vicia cracca</i>	Tufted Vetch
<i>Vicia</i> spp.	Vetch

Table 4.6 Aquatic Plant Species Recorded in Section 2 Rossy Footbridge – Kilmacshrewell Bridge (Walked Survey)

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
<i>Lemna trisulca</i>	Ivy-leaved Duckweed
<i>Nuphar lutea</i>	Yellow Water-lily
<i>Persicaria amphibian</i>	Amphibious Bistort
<i>Phalaris arundinacea</i>	Reed-canary Grass
<i>Potamogeton natans</i>	Broad-leaved Pondweed
<i>Rorippa nasturtium-aquatica</i>	Water-cress

Scientific name	Common Name
<i>Sparganium emersum</i>	Floating Bur-reed
<i>Sparganium erectum</i>	Branched Bur-reed
<i>Typha latifolia</i>	Reedmace

4.3 Section 3: Kilmacshrewell Bridge-Drumanny Bridge

Table 4.7 Habitats Classified in Section 3 Kilmacshrewell Bridge – Drumanny Bridge

Habitats	Habitat Code
Buildings & Artificial Surfaces	BL3
Depositing/Lowland River	FW2
Scrub	WS1
Amenity Grasland	GA2
Dry Meadows and Grassy Verges	GS2
Wet Grassland	GS4
Wet Willow/Alder/Ash Woodland	WN6
Hedgerow	WL1
Treeline	WL2
Drainage Ditch	FW4

Table 4.8 Plant Species Recorded in Section 3 Kilmacshrewell Bridge – Drumanny Bridge

Scientific name	Common Name
<i>Acer pseudoplatanus</i>	Sycamore
<i>Aesculus hippocastanum</i>	Horse Chestnut
<i>Agrostis capillaris</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>Anthoxanthum odoratum</i>	Sweet Vernal
<i>Anthriscus sylvestris</i>	Cow Parsley
<i>Arrhenatherum elatius</i>	False Oat-grass
<i>Asplenium scolopendrium</i>	Hart's-tongue Fern
<i>Bellis perennis</i>	Daisy
<i>Calystegia sepium</i>	Hedge Bindweed
<i>Cares disticha</i>	Brown Sedge
<i>Carex nigra</i>	Common Sedge
<i>Centaurea nigra</i>	Knapweed
<i>Cerastium fontanum</i>	Mouse Ear
<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>Crataegus monogyna</i>	Hawthorn
<i>Dactylis glomerata</i>	Cocksfoot
<i>Deschampsia cespitosa</i>	Tufted Hair-grass
<i>Epilobium hirsutum</i>	Great Willowherb
<i>Epilobium montanum</i>	Broad-leaved Willowherb
<i>Equisetum</i> spp.	Horsetail

Scientific name	Common Name
<i>Festuca</i> spp.	Fescue
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Fraxinus excelsior</i>	Ash
<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>Hypericum tetrapterum</i>	Square-stalked St. John's-wort
<i>Juncus acutiflorus</i>	Sharp-flowered Rush
<i>Juncus effusus</i>	Soft Rush
<i>Juncus inflexus</i>	Hard Rush
<i>Lapsana communis</i>	Nipplewort
<i>Lathyrus pratensis</i>	Meadow Vetchling
<i>Loentodon</i> sp.	Hawkbit
<i>Lolium perenne</i>	Perennial Ryegrass
<i>Lythrum salicaria</i>	Purple Loosestrife
<i>Plantago lanceolata</i>	Ribwort Plantain
<i>Plantago major</i>	Greater Plantain
<i>Poa annua</i>	Annual Meadow-grass
<i>Poa pratensis</i>	Smooth meadow Grass
<i>Poa trivialis</i>	Rough Meadow Grass
<i>Potentilla anserina</i>	Silverweed
<i>Potentilla erecta</i>	Tormentil
<i>Potentilla sterilis</i>	Barren Strawberry
<i>Prunella vulgaris</i>	Selfheal
<i>Prunus spinosa</i>	Blackthorn
<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 Sorrell
<i>Rumex crispus</i>	Curled Dock
<i>Salix cinerea</i>	Grey Willow
<i>Salix viminalis</i>	Osier
<i>Senecio jacobaea</i>	Ragwort
<i>Sonchus asper</i>	Prickley Sowthistle
<i>Sonchus oleraceus</i>	Smooth Sowthistle
<i>Stachys sylvatica</i>	Hedge Woundwort
<i>Succisa pratensis</i>	Devil's-bit Scabious
<i>Symphoricarpos albus</i>	Snowberry
<i>Taraxacum</i> agg.	Dandelion
<i>Torilis japonica</i>	Hedge Parsley
<i>Trifolium pratense</i>	Red Clover
<i>Trifolium repens</i>	White Clover
<i>Ulex europaeus</i>	Gorse
<i>Urtica dioica</i>	Nettle

Scientific name	Common Name
<i>Vicia cracca</i>	Tufted Vetch
<i>Vicia</i> spp.	Vetch

Table 4.9 Aquatic Plant Species Recorded in Section 3 Kilmacshrewell Bridge – Drummanny Bridge

Scientific name	Common Name
<i>Nuphar lutea</i>	Yellow Water-lily
<i>Phalaris arundinacea</i>	Reed-canary Grass
<i>Potamogeton natans</i>	Broad-leaved Pondweed
<i>Typha latifolia</i>	Reedmace

4.4 Section 4: Drummanny Bridge – Muckcross Bridge

Table 4.10 Habitats Classified in Section 4 Drummanny Bridge – Muckcross Bridge

Habitats	Habitat Code
Buildings & Artificial Surfaces	BL3
Depositing/Lowland River	FW2
Scrub	WS1
Wet Grassland	GS4
Hedgerow	WL1
Treeline	WL2

Table 4.11 Plant Species Recorded in Section 4 Drummanny Bridge – Muckcross Bridge

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>Alopecurus pratensis</i>	Meadow Foxtail
<i>Angelica sylvestris</i>	Angelica
<i>Anthoxanthum odoratum</i>	Sweet Vernal
<i>Anthriscus sylvestris</i>	Cow Parsley
<i>Arrhenatherum elatius</i>	False Oat-grass
<i>Asplenium scolopendrium</i>	Hart’s-tongue Fern
<i>Bellis perennis</i>	Daisy
<i>Calystegia sepium</i>	Hedge Bindweed
<i>Cardamine pratensis</i>	Cuckoo Flower
<i>Carex nigra</i>	Common Sedge
<i>Carex panicea</i>	Carnation Sedge
<i>Centaurea nigra</i>	Knapweed
<i>Cerastium fontanum</i>	Mouse Ear
<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>Crataegus monogyna</i>	Hawthorn
<i>Cynosures cristatus</i>	Crested Dog’s-tail
<i>Dactylis glomerata</i>	Cocksfoot
<i>Dactylorhiza fuchsii</i>	Common Spotted Orchid

Scientific name	Common Name
<i>Deschampia cespitosa</i>	Tufted Hair-grass
<i>Digitalis purpurea</i>	Foxglove
<i>Epilobium hirsutum</i>	Great Willowherb
<i>Equisetum</i> spp.	Horsetail
<i>Festuca</i> spp.	Fescue
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Fraxinus excelsior</i>	Ash
<i>Galium aparine</i>	Cleavers
<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>Hypericum tetrapterum</i>	Square-stalked St. John's-wort
<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>Linum</i> sp.	Flax
<i>Loentodon</i> sp.	Hawkbit
<i>Lythrum salicaria</i>	Purple Loosestrife
<i>Mentha aquatica</i>	Water Mint
<i>Plantago lanceolata</i>	Ribwort Plantain
<i>Plantago major</i>	Greater Plantain
<i>Poa annua</i>	Annual Meadow-grass
<i>Poa pratensis</i>	Smooth meadow Grass
<i>Poa trivialis</i>	Rough Meadow Grass
<i>Potentilla anserina</i>	Silverweed
<i>Potentilla erecta</i>	Tormentil
<i>Prunus spinosa</i>	Blackthorn
<i>Quercus robur</i>	Oak
<i>Ranunculus flammula</i>	Lesser Spearwort
<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 Sorrell
<i>Rumex crispus</i>	Curled Dock
<i>Rumex obtusifolius</i>	Broad-leaved 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>Sambucas nigra</i>	Elder
<i>Senecio jacobaea</i>	Ragwort
<i>Stachys palustris</i>	Marsh Woundwort
<i>Stachys sylvatica</i>	Hedge Woundwort

Scientific name	Common Name
<i>Symphoricarpos albus</i>	Snowberry
<i>Taraxacum agg.</i>	Dandelion
<i>Trifolium pratense</i>	Red Clover
<i>Trifolium repens</i>	White Clover
<i>Ulex europaeus</i>	Gorse
<i>Urtica dioica</i>	Nettle
<i>Vicia cracca</i>	Tufted Vetch
<i>Vicia spp.</i>	Vetch

Table 4.12 Aquatic Plant Species Recorded in Section 4 Drummany Bridge – Muckcross Bridge

Scientific name	Common Name
<i>Nuphar lutea</i>	Yellow Water-lily
<i>Phalaris arundinaceae</i>	Reed Canary-grass
<i>Potamogeton natans</i>	Broad-leaved Pondweed
<i>Typha latifolia</i>	Reedmace

4.5 Section 5: Muckross Bridge - Muckross Lough

Table 4.13 Habitats Classified in Section 5 Muckross Bridge – Muckross Lough

Habitats	Habitat Code
Wet Grassland	GS4
Depositing/Lowland River	FW2
Conifer Plantation	WD4
Habitat Mosaic of Wet Grassland and Scrub	GS4/WS1
Drainage Ditch	FW4

Table 4.14 Plant Species Recorded in Section 5 Muckross Bridge – Muckross Lough

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>Alopecurus pratensis</i>	Meadow Foxtail
<i>Angelica sylvestris</i>	Angelica
<i>Anthoxanthum odoratum</i>	Sweet Vernal
<i>Anthriscus sylvestris</i>	Cow Parsley
<i>Arrhenatherum elatius</i>	False Oat-grass
<i>Asplenium scolopendrium</i>	Hart's-tongue Fern
<i>Calystegia sepium</i>	Hedge Bindweed
<i>Cardamine pratensis</i>	Cuckoo Flower
<i>Carex nigra</i>	Common Sedge
<i>Carex panicea</i>	Carnation Sedge
<i>Centaurea nigra</i>	Knapweed
<i>Cerastium fontanum</i>	Mouse Ear
<i>Chamerion angustifolium</i>	Rosebay Willowherb
<i>Cirsium palustre</i>	Marsh Thistle
<i>Cirsium vulgare</i>	Spear Thistle
<i>Crataegus monogyna</i>	Hawthorn
<i>Cynosures cristatus</i>	Crested Dog's-tail

Scientific name	Common Name
<i>Dactylis glomerata</i>	Cocksfoot
<i>Deschampia cespitosa</i>	Tufted Hair-grass
<i>Digitalis purpurea</i>	Foxglove
<i>Epilobium hirsutum</i>	Great 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>	Cleavers
<i>Geranium robertianum</i>	Herb Robert
<i>Glyceria fluitans</i>	Floating Sweet Grass
<i>Hedera helix</i>	Ivy
<i>Holcus lanatus</i>	Yorkshire Fog
<i>Hypericum tetrapterum</i>	Square-stalked St. John's-wort
<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>Linum</i> sp.	Flax
<i>Loentodon</i> sp.	Hawkbit
<i>Lythrum salicaria</i>	Purple Loosestrife
<i>Mentha aquatica</i>	Water Mint
<i>Plantago lanceolata</i>	Ribwort Plantain
<i>Plantago major</i>	Greater Plantain
<i>Poa annua</i>	Annual Meadow-grass
<i>Poa pratensis</i>	Smooth meadow Grass
<i>Poa trivialis</i>	Rough Meadow Grass
<i>Potentilla anserina</i>	Silverweed
<i>Potentilla erecta</i>	Tormentil
<i>Quercus robur</i>	Oak
<i>Ranunculus flammula</i>	Lesser Spearwort
<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 Sorrell
<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>Sambucus nigra</i>	Elder
<i>Senecio jacobaea</i>	Ragwort
<i>Stachys palustris</i>	Marsh Woundwort
<i>Stachys sylvatica</i>	Hedge Woundwort
<i>Taraxacum</i> agg.	Dandelion
<i>Trifolium pratense</i>	Red Clover

Scientific name	Common Name
<i>Ulex europaeus</i>	Gorse
<i>Urtica dioica</i>	Nettle
<i>Vicia cracca</i>	Tufted Vetch
<i>Vicia</i> spp.	Vetch

Table 4.15 Aquatic Plant Species Recorded in Section 5 Muckcross Bridge – Muckcross Lough

Scientific name	Common Name
<i>Mysotis scorpioides</i>	Water Forget-me-not
<i>Nuphar lutea</i>	Yellow Water-lily
<i>Phalaris arundinaceae</i>	Reed Canary-grass
<i>Phragmites australis</i>	Common Reed
<i>Potamogeton natans</i>	Broad-leaved Pondweed

4.6 Section 6 Muckcross Lough – St John’s Lough up to Derrymacoffin Bridge

Table 4.16 Habitats Classified in Section 6 Muckcross Lough - St.John’s Lough up to Derrymacoffin Bridge

Habitats	Habitat Code
Eutrophic Lakes	FL5
Depositing/lowland Rivers	FW2
Improved Agricultural Grassland	GA1
Dry Meadows and Grassy Verges	GS2
Wet Grassland	GS4
Scrub	WS1
Conifer Plantation	WD4
Wet Willow/Alder/Ash Woodland	WN6
Mixed Broadleaf Woodland	WD1
Treeline	WL2
Stone walls and other stone work	BL1
Drainage Ditch	FW4

Table 4.17 Plant Species Recorded in Section 6 Muckcross Lough - St.John’s Lough up to Derrymacoffin Bridge

Scientific name	Common Name
<i>Acer pseudoplatanus</i>	Sycamore
<i>Agrostis stolonifera</i>	Creeping Bent
<i>Alnus glutinosa</i>	Alder
<i>Angelica sylvestris</i>	Angelica
<i>Chamerion angustifolium</i>	Rosebay Willowherb
<i>Cirsium palustre</i>	Marsh Thistle
<i>Cladium mariscus</i>	Saw Sedge
<i>Crataegus monogyna</i>	Hawthorn
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Fraxinus excelsior</i>	Ash
<i>Holcus lanatus</i>	Yorkshire Fog
<i>Juncus effusus</i>	Soft Rush
<i>Larix</i> sp.	Larch sp.

Scientific name	Common Name
<i>Lolium perenne</i>	Perennial Rye-grass
<i>Lythrum salicaria</i>	Purple Loosestrife
<i>Mentha aquatica</i>	Water Mint
<i>Nuphar lutea</i>	Yellow Water-lily
<i>Persicaria amphibia</i>	Amphibious Bistort
<i>Phalaris arundinaceae</i>	Reed Canary-grass
<i>Picea sitchensis</i>	Sitka Spruce
<i>Plantago lanceolata</i>	Ribwort Plantain
<i>Potamogeton natans</i>	Broad-leaved Pondweed
<i>Ranunculus repens</i>	Creeping Buttercup
<i>Rubus fruticosus</i> agg.	Bramble
<i>Salix</i> sp.	Willow
<i>Schoenoplectus lacustris</i>	Common Club-rush
<i>Trifolium repens</i>	White Clover
<i>Ulex europaeus</i>	Gorse

Table 4.18 Aquatic Plant Species Recorded in Section 6 Muckcross Lough - St.John's Lough up to Derrymacoffin Bridge

Scientific name	Common Name
<i>Iris pseudacorus</i>	Yellow Iris
<i>Mysotis scorpioides</i>	Water Forget-me-not
<i>Nuphar lutea</i>	Yellow Water-lily
<i>Phalaris arundinaceae</i>	Reed Canary-grass
<i>Phragmites australis</i>	Common Reed

4.7 Section 7 St John's Lough up to Derrymacoffin Bridge - St John's Lough up to Ballyduff Bridge

Table 4.19 Habitats Classified in Section 7 St Johns Lough up to Derrymacoffin Bridge – St Johns Lough up to Ballyduff Bridge

Habitats	Habitat Code
Eutrophic Lakes	FL5
Reed and Large Sedge Swamp	FS1
Depositing/lowland Rivers	FW2
Buildings & Artificial Surfaces	BL3
Scrub	WS1
Improved Agricultural Grassland	GA1
Amenity Grasland	GA2
Dry Meadows and Grassy Verges	GS2
Wet Grassland	GS4
Freshwater Marsh	GM1
Spoil and Bare Ground	ED2
Conifer Plantation	WD4
Wet Willow/Alder/Ash Woodland	WN6
Stone walls and other stone work	BL1
Treeline	WL2
Drainage Ditch	FW4

Table 4.20 Plant Species Recorded in Section 7 St Johns Lough up to Derrymacoffin Bridge – St Johns Lough up to Ballyduff Bridge

Scientific name	Common Name
<i>Agrostis stolonifera</i>	Creeping Bent
<i>Alnus glutinosa</i>	Alder
<i>Bellis perennis</i>	Daisy
<i>Calystegia sepium</i>	Hedge Bindweed
<i>Cirsium palustre</i>	Marsh Thistle
<i>Corylus avellana</i>	Hazel
<i>Crataegus monogyna</i>	Hawthorn
<i>Equisetum fluviatile</i>	Water Horsetail
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Fraxinus excelsior</i>	Ash
<i>Geranium robertianum</i>	Herb Robert
<i>Glyceria fluitans</i>	Floating Sweet-grass
<i>Hedera helix</i>	Ivy
<i>Holcus lanatus</i>	Yorkshire Fog
<i>Juncus effusus</i>	Soft Rush
<i>Lolium perenne</i>	Perennial Rye-grass
<i>Lythrum salicaria</i>	Purple Loosestrife
<i>Mentha aquatica</i>	Water Mint
<i>Persicaria amphibia</i>	Amphibious Bistort
<i>Picea sitchensis</i>	Stika Spruce
<i>Potamogeton natans</i>	Broad-leaved Pondweed
<i>Ranunculus flammula</i>	Lesser Spearwort
<i>Rubus fruticosus</i> agg	Bramble
<i>Salix</i> sp.	Willow
<i>Schoenoplectus lacustris</i>	Common Club-rush
<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>Trifolium pratense</i>	Red Clover
<i>Trifolium repens</i>	White Clover
<i>Ulex europaeus</i>	Gorse
<i>Urtica dioica</i>	Nettle
<i>Veronica beccabunga</i>	Brooklime
<i>Veronica chamaedrys</i>	Germander Speedwell

Table 4.21 Aquatic Plant Species Recorded in Section 7 St Johns Lough up to Derrymacoffin Bridge – St Johns Lough up to Ballyduff Bridge

Scientific name	Common Name
<i>Apium nodiflorum</i>	Fool's Water-cress
<i>Callitriche stagnalis</i>	Water-starwort
<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

4.8 Section 8 Ballyduff Bridge – Ballinamore Golf Club Bridge

Table 4.22 Habitats Classified in Section 8 Ballyduff Bridge – Ballinamore Golf Club Bridge

Habitats	Habitat Code
Depositing/lowland Rivers	FW2
Buildings & Artificial Surfaces	BL3
Scrub	WS1
Amenity Grassland	GA2
Dry Calcareous and Neutral Grassland	GS1
Dry Meadows and Grassy Verges	GS2
Wet Grassland	GS4
Conifer Plantation	WD4
Wet Willow/Alder/Ash Woodland	WN6
Habitat Mosaic of Dry Meadows and Grassy Verges and Scrub	GS2/WS1
Treeline	WL2

Table 4.23 Plant Species Recorded in Section 8 Ballyduff Bridge – Ballinamore Golf Club Bridge

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>Alopecurus pratensis</i>	Meadow Foxtail
<i>Anagallis tenella</i>	Bog Pimpernel
<i>Angelica sylvestris</i>	Angelica
<i>Anthoxanthum odoratum</i>	Sweet Vernal
<i>Anthriscus sylvestris</i>	Cow Parsley
<i>Arrhenatherum elatius</i>	False Oat-grass
<i>Asplenium scolopendrium</i>	Hart's-tongue Fern
<i>Bellis perennis</i>	Daisy
<i>Calluna vulgaris</i>	Ling
<i>Calystegia sepium</i>	Hedge Bindweed
<i>Cardamine pratensis</i>	Cuckoo Flower
<i>Cares disticha</i>	Brown Sedge
<i>Carex echinata</i>	Star Sedge
<i>Carex nigra</i>	Common Sedge
<i>Carex panicea</i>	Carnation Sedge
<i>Carex viridula</i>	Yellow sedge
<i>Centaurea nigra</i>	Knapweed
<i>Cerastium fontanum</i>	Mouse Ear
<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>Comarum palustre</i>	Marsh Cinquefoil
<i>Corylus avellana</i>	Hazel
<i>Cotoneaster horizontalis</i>	Cotoneaster
<i>Crataegus monogyna</i>	Hawthorn

Scientific name	Common Name
<i>Dactylis glomerata</i>	Cocksfoot
<i>Deschampia cespitosa</i>	Tufted Hair-grass
<i>Digitalis purpurea</i>	Foxglove
<i>Epilobium hirsutum</i>	Great Willowherb
<i>Epilobium montanum</i>	Broad-leaved Willowherb
<i>Equisetum</i> spp.	Horsetail
<i>Eriophorum angustifolium</i>	Common Cottongrass
<i>Festuca</i> spp.	Fescue
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Fraxinus excelsior</i>	Ash
<i>Galium aparine</i>	Cleavers
<i>Galium uliginosum</i>	Fen Bedstraw
<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>Hydrocotyle vulgaris</i>	Marsh Pennywort
<i>Hypericum elodes</i>	Marsh St. John's-wort
<i>Hypericum tetrapterum</i>	Square-stalked St. John's-wort
<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>Ligustrum vulgare</i>	Privet
<i>Linum</i> sp.	Flax
<i>Loentodon</i> sp.	Hawkbit
<i>Lolium perenne</i>	Perennial Ryegrass
<i>Lotus pedunculatus</i>	Greater Bird's-foot-trefoil
<i>Lychnis flos-cuculi</i>	Ragged Robin
<i>Lycopus europaeus</i>	Gypsywort
<i>Lythrum salicaria</i>	Purple Loosestrife
<i>Mentha aquatica</i>	Water Mint
<i>Menyanthes trifoliata</i>	Bog Bean
<i>Molinia caerulea</i>	Purple moor-grass
<i>Petasites hybridus</i>	Butterbur
<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>Potentilla erecta</i>	Tormentil
<i>Potentilla sterilis</i>	Barren Strawberry
<i>Prunella vulgaris</i>	Selfheal
<i>Prunus spinosa</i>	Blackthorn
<i>Prunus</i> spp.	Cherry (ornamental)
<i>Pteridium aquilinum</i>	Bracken

Scientific name	Common Name
<i>Ranunculus flammula</i>	Lesser Spearwort
<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 Sorrell
<i>Rumex crispus</i>	Curled Dock
<i>Rumex hydrolapathum</i>	Water 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>Sambucas nigra</i>	Elder
<i>Schoenoplectus lacustris</i>	Common Club Rush
<i>Senecio jacobaea</i>	Ragwort
<i>Sorbus aucuparia</i>	Rowan
<i>Sorbus acucparia</i>	Mountain Ash
<i>Sparganium emersum</i>	Floating Bur-reed
<i>Sparganium erectum</i>	Branched Bur-reed
<i>Sphagnum capillifolium</i>	-
<i>Sphagnum palustre</i>	-
<i>Stachys palustris</i>	Marsh Woundwort
<i>Stachys sylvatica</i>	Hedge Woundwort
<i>Succisa pratensis</i>	Devil's-bit Scabious
<i>Taraxacum</i> agg.	Dandelion
<i>Torilis japonica</i>	Hedge Parsley
<i>Trifolium pratense</i>	Red Clover
<i>Trifolium repens</i>	White Clover
<i>Ulex europaeus</i>	Gorse
<i>Urtica dioica</i>	Nettle
<i>Vicia cracca</i>	Tufted Vetch
<i>Vicia</i> spp.	Vetch

Table 4.24 Aquatic Plant Species Recorded in Section 8 Ballyduff Bridge – Ballinamore Golf Club Bridge

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
<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>Potamogeton natans</i>	Broad-leaved Pondweed
<i>Rorippa nasturtium-aquatica</i>	Water-cress
<i>Typha latifolia</i>	Reedmace

4.9 Section 9 Ballinamore Golf Club Bridge – Ballinamore Bridge

Table 4.25 Habitats Classified in Section 9 Ballinamore Golf Club Bridge – Ballinamore Bridge

Habitats	Habitat Code
Depositing/lowland Rivers	FW2
Buildings & Artificial Surfaces	BL3
Scrub	WS1
Improved Agricultural Grassland	GA1
Amenity Grassland	GA2
Dry Meadows and Grassy Verges	GS2
Wet Grassland	GS4
Treeline	WL2
Drainage Ditch	FW4
Stone walls and other stone work	BL1

Table 4.26 Plant Species Recorded in Section 9 Ballinamore Golf Club Bridge – Ballinamore Bridge

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>Alopecurus pratensis</i>	Meadow Foxtail
<i>Anagallis tenella</i>	Bog Pimpernel
<i>Angelica sylvestris</i>	Angelica
<i>Anthoxanthum odoratum</i>	Sweet Vernal
<i>Anthriscus sylvestris</i>	Cow Parsley
<i>Arrhenatherum elatius</i>	False Oat-grass
<i>Asplenium scolopendrium</i>	Hart's-tongue Fern
<i>Bellis perennis</i>	Daisy
<i>Calluna vulgaris</i>	Ling
<i>Calystegia sepium</i>	Hedge Bindweed
<i>Cardamine pratensis</i>	Cuckoo Flower
<i>Cares disticha</i>	Brown Sedge
<i>Carex echinata</i>	Star Sedge
<i>Carex nigra</i>	Common Sedge
<i>Carex panicea</i>	Carnation Sedge
<i>Carex viridula</i>	Yellow sedge
<i>Centaurea nigra</i>	Knapweed
<i>Cerastium fontanum</i>	Mouse Ear
<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>Comarum palustre</i>	Marsh Cinquefoil
<i>Corylus avellana</i>	Hazel
<i>Cotoneaster horizontalis</i>	Cotoneaster
<i>Crataegus monogyna</i>	Hawthorn

Scientific name	Common Name
<i>Dactylis glomerata</i>	Cocksfoot
<i>Deschampia cespitosa</i>	Tufted Hair-grass
<i>Digitalis purpurea</i>	Foxglove
<i>Epilobium hirsutum</i>	Great Willowherb
<i>Epilobium montanum</i>	Broad-leaved Willowherb
<i>Equisetum</i> spp.	Horsetail
<i>Eriophorum angustifolium</i>	Common Cottongrass
<i>Festuca</i> spp.	Fescue
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Fraxinus excelsior</i>	Ash
<i>Galium aparine</i>	Cleavers
<i>Galium uliginosum</i>	Fen Bedstraw
<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>Hydrocotyle vulgaris</i>	Marsh Pennywort
<i>Hypericum elodes</i>	Marsh St. John's-wort
<i>Hypericum tetrapterum</i>	Square-stalked St. John's-wort
<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>Ligustrum vulgare</i>	Privet
<i>Linum</i> sp.	Flax
<i>Loentodon</i> sp.	Hawkbit
<i>Lolium perenne</i>	Perennial Ryegrass
<i>Lotus pedunculatus</i>	Greater Bird's-foot-trefoil
<i>Lychnis flos-cuculi</i>	Ragged Robin
<i>Lycopus europaeus</i>	Gypsywort
<i>Lythrum salicaria</i>	Purple Loosestrife
<i>Mentha aquatica</i>	Water Mint
<i>Menyanthes trifoliata</i>	Bog Bean
<i>Molinia caerulea</i>	Purple moor-grass
<i>Petasites hybridus</i>	Butterbur
<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>Potentilla erecta</i>	Tormentil
<i>Potentilla sterilis</i>	Barren Strawberry
<i>Prunella vulgaris</i>	Selfheal
<i>Prunus spinosa</i>	Blackthorn
<i>Prunus</i> spp.	Cherry (ornamental)
<i>Pteridium aquilinum</i>	Bracken

Scientific name	Common Name
<i>Ranunculus flammula</i>	Lesser Spearwort
<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 Sorrell
<i>Rumex crispus</i>	Curled Dock
<i>Rumex hydrolapathum</i>	Water 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>Sambucus nigra</i>	Elder
<i>Schoenoplectus lacustris</i>	Common Club Rush
<i>Senecio jacobaea</i>	Ragwort
<i>Sorbus aucuparia</i>	Rowan
<i>Sorbus aucuparia</i>	Mountain Ash
<i>Sparganium emersum</i>	Floating Bur-reed
<i>Sparganium erectum</i>	Branched Bur-reed
<i>Sphagnum capillifolium</i>	-
<i>Sphagnum palustre</i>	-
<i>Stachys palustris</i>	Marsh Woundwort
<i>Stachys sylvatica</i>	Hedge Woundwort
<i>Succisa pratensis</i>	Devil's-bit Scabious
<i>Taraxacum</i> agg.	Dandelion
<i>Torilis japonica</i>	Hedge Parsley
<i>Trifolium pratense</i>	Red Clover
<i>Trifolium repens</i>	White Clover
<i>Ulex europaeus</i>	Gorse
<i>Urtica dioica</i>	Nettle
<i>Vicia cracca</i>	Tufted Vetch
<i>Vicia</i> spp.	Vetch

Table 4.27 Aquatic Plant Species Recorded in Section 9 Ballinamore Golf Club Bridge – Ballinamore Bridge

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
<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>Potamogeton natans</i>	Broad-leaved Pondweed
<i>Rorippa nasturtium-aquatica</i>	Water-cress
<i>Typha latifolia</i>	Reedmace

4.10 Section 10 Ballinamore Bridge – Aghoo Bridge

Table 4.28 Habitats Classified in Section 10 Ballinamore Bridge – Aghoo Bridge

Habitats	Habitat Code
Depositing/lowland Rivers	FW2
Buildings & Artificial Surfaces	BL3
Scrub	WS1
Improved Agricultural Grassland	GA1
Amenity Grassland	GA2
Dry Meadows and Grassy Verges	GS2
Wet Grassland	GS4
Spoil and Bare Ground	ED2
Wet Pedunculate Oak/Ash Woodland	WN4
Habitat Mosaic of Wet Grassland and Scrub	GS4/WS1
Treeline	WL2
Drainage Ditch	FW4

Table 4.29 Plant Species Recorded in Section 10 Ballinamore Bridge – Aghoo Bridge

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>Alopecurus pratensis</i>	Meadow Foxtail
<i>Anagallis tenella</i>	Bog Pimpernel
<i>Angelica sylvestris</i>	Angelica
<i>Anthoxanthum odoratum</i>	Sweet Vernal
<i>Anthriscus sylvestris</i>	Cow Parsley
<i>Arrhenatherum elatius</i>	False Oat-grass
<i>Asplenium scolopendrium</i>	Hart's-tongue Fern
<i>Bellis perennis</i>	Daisy
<i>Calluna vulgaris</i>	Ling
<i>Calystegia sepium</i>	Hedge Bindweed
<i>Cardamine pratensis</i>	Cuckoo Flower
<i>Cares disticha</i>	Brown Sedge
<i>Carex echinata</i>	Star Sedge
<i>Carex nigra</i>	Common Sedge
<i>Carex panicea</i>	Carnation Sedge
<i>Carex viridula</i>	Yellow sedge
<i>Centaurea nigra</i>	Knapweed
<i>Cerastium fontanum</i>	Mouse Ear
<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>Comarum palustre</i>	Marsh Cinquefoil
<i>Corylus avellana</i>	Hazel
<i>Cotoneaster horizontalis</i>	Cotoneaster
<i>Crataegus monogyna</i>	Hawthorn

Scientific name	Common Name
<i>Dactylis glomerata</i>	Cocksfoot
<i>Deschampia cespitosa</i>	Tufted Hair-grass
<i>Digitalis purpurea</i>	Foxglove
<i>Epilobium hirsutum</i>	Great Willowherb
<i>Epilobium montanum</i>	Broad-leaved Willowherb
<i>Equisetum</i> spp.	Horsetail
<i>Eriophorum angustifolium</i>	Common Cottongrass
<i>Fallopia japonica</i>	Japanese Knotweed
<i>Festuca</i> spp.	Fescue
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Fraxinus excelsior</i>	Ash
<i>Galium aparine</i>	Cleavers
<i>Galium uliginosum</i>	Fen Bedstraw
<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>Hydrocotyle vulgaris</i>	Marsh Pennywort
<i>Hypericum elodes</i>	Marsh St. John's-wort
<i>Hypericum tetrapterum</i>	Square-stalked St. John's-wort
<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>Ligustrum vulgare</i>	Privet
<i>Linum</i> sp.	Flax
<i>Loentodon</i> sp.	Hawkbit
<i>Lolium perenne</i>	Perennial Ryegrass
<i>Lotus pedunculatus</i>	Greater Bird's-foot-trefoil
<i>Lychnis flos-cuculi</i>	Ragged Robin
<i>Lycopus europaeus</i>	Gypsywort
<i>Lythrum salicaria</i>	Purple Loosestrife
<i>Mentha aquatica</i>	Water Mint
<i>Menyanthes trifoliata</i>	Bog Bean
<i>Molinia caerulea</i>	Purple moor-grass
<i>Petasites hybridus</i>	Butterbur
<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>Potentilla erecta</i>	Tormentil
<i>Potentilla sterilis</i>	Barren Strawberry
<i>Prunella vulgaris</i>	Selfheal
<i>Prunus spinosa</i>	Blackthorn
<i>Prunus</i> spp.	Cherry (ornamental)

Scientific name	Common Name
<i>Pteridium aquilinum</i>	Bracken
<i>Ranunculus flammula</i>	Lesser Spearwort
<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 Sorrell
<i>Rumex crispus</i>	Curled Dock
<i>Rumex hydrolapathum</i>	Water 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>Sambucus nigra</i>	Elder
<i>Schoenoplectus lacustris</i>	Common Club Rush
<i>Senecio jacobaea</i>	Ragwort
<i>Sorbus aucuparia</i>	Rowan
<i>Sorbus aucuparia</i>	Mountain Ash
<i>Sparganium emersum</i>	Floating Bur-reed
<i>Sparganium erectum</i>	Branched Bur-reed
<i>Sphagnum capillifolium</i>	-
<i>Sphagnum palustre</i>	-
<i>Stachys palustris</i>	Marsh Woundwort
<i>Stachys sylvatica</i>	Hedge Woundwort
<i>Succisa pratensis</i>	Devil's-bit Scabious
<i>Taraxacum</i> agg.	Dandelion
<i>Torilis japonica</i>	Hedge Parsley
<i>Trifolium pratense</i>	Red Clover
<i>Trifolium repens</i>	White Clover
<i>Ulex europaeus</i>	Gorse
<i>Urtica dioica</i>	Nettle
<i>Vicia cracca</i>	Tufted Vetch
<i>Vicia</i> spp.	Vetch

Table 4.30 Aquatic Plant Species Recorded in Section 10 Ballinamore Bridge – Aghoo Bridge

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
<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>Potamogeton natans</i>	Broad-leaved Pondweed
<i>Rorippa nasturtium-aquatica</i>	Water-cress
<i>Typha latifolia</i>	Reedmace

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 non-native invasive species Japanese Knotweed (*Fallopia japonica*) was recorded at Ballinamore Golf Club Bridge and the western boundary of Ballinamore Town. 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 Ballinamore



Plate 5.2 Japanese Knotweed (Balinamore Golf Club Bridge)

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

Table 5.1 Invasive species Infestation details

Scientific Name	Location	Grid Reference (ITM)	Details
Japanese Knotweed (<i>Fallopia japonica</i>)	Ballinamore	612571, 811856	Extensive stand adjacent to river and amenity area on outskirts of Ballinamore town
		612852, 811866	Large, extensive stand adjacent to housing development, 15m from river.
	Ballinamore Golf Club Bridge	610852, 812085	Patch of dead stems identified adjacent to river, opposite golf club house.

5.2 Fauna

Badger signs were observed and it is likely the species uses the river corridor for foraging and commuting. Kingfisher (*Alcedo atthis*) was observed along the rivers and lakes. Kingfisher is a species listed in Annex I of the EU Birds Directive. The Annex V species Common Frog was observed south of Lough Marrave. The faunal observation data is presented in Table 5.2 below.

Table 5.2 Target Notes on Fauna recorded during fieldwork

Species	Description	Grid Ref (ITM)
Badger	Sunffle holes and trail	605193, 808952
Kingfisher	Specimens observed commuting.	607835, 811094 & 609532, 810820
Common Frog	Specimen observed	604942, 808554
Bat Roost	Species observed and heard under Ballyduff Bridge	609492, 810881
Otter	Spraint on rock	609160, 811035

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

The ESAs identified in Table 6.1 should be considered as sensitive throughout the study area.

Table 6.1 ESAs noted within the study area

Number	Description
ESA 1	Wet Willow-Ash-Alder Woodland
ESA 2	Eutrophic Lakes
ESA 3	Lake Margin Complex (Lough Marrave)

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

This habitat was recorded frequently throughout the study area, however, this habitat is infrequent in the region. Therefore, Wet Willow-Alder-Ash Woodland has been categorised as an ESA in all locations encountered within the study area. This habitat was typically recorded along lake margins and islands within the lake systems. This habitat is subject to occasional flooding from rising water levels in the lake and it is likely that the habitat transitions to Mixed broadleaved woodland (WD1) where dryer ground conditions prevail inland.

The woodland canopy was dominated by Ash (*Fraxinus excelsior*) and Alder (*Alnus glutinosa*). Sycamore (*Acer pseudoplatanus*) occurred occasionally within the canopy. The understory was dominated Willow (*Salix* sp.), occasional Hawthorn (*Crataegus monogyna*) and Blackthorn (*Prunus spinosa*). Ground flora included Brambles (*Rubus fruticosus* agg.), Ivy (*Hedera helix*), Tutsan (*Hypericum androsaemum*), Herb Robert (*Geranium robertianum*), Angelica (*Angelica sylvestris*), False Brome (*Brachypodium sylvaticum*) and Creeping Buttercup (*Ranunculus repens*).

This habitat type was categorised as an ESA for its naturalness and as it is rare in the wider region. Table 6.2 provides a location and description of where this habitat was encountered throughout the study area.

Table 6.2 Wet Willow alder ash woodland ESAs

Code	Habitat	ESA Name	ESA Description
WN6	Wet willow-alder-ash woodland	Keshcarrigan ESA	Eastern margin of Lough Scur
WN6	Wet willow-alder-ash woodland	Kiltybardan ESA	Crane Island St. Johns Lough Upper
WN6	Wet willow-alder-ash woodland	Aghavadden ESA	Southern margin St Johns Lough Lower
WN6	Wet willow-alder-ash woodland	Aghavadden ESA	Island, south St Johns Lough Lower

Code	Habitat	ESA Name	ESA Description
WN6	Wet willow-alder-ash woodland	Aghavadden ESA	South-western margin St.Johns Lough Lower
WN6	Wet willow-alder-ash woodland	Aghavadden ESA	North-eastern margin Muckcross lake
WN6	Wet willow-alder-ash woodland	Tomloskan ESA	Southern margin St.Johns Lough Upper
WN6	Wet willow-alder-ash woodland	Keshcarrigan ESA	Lough Scur
WN6	Wet willow-alder-ash woodland	Kilmacsherwell ESA	Southern bank of river
WN6	Wet willow-alder-ash woodland	Loughscur ESA	South-western margin of Lough Scur
WN6	Wet willow-alder-ash woodland	Gowly ESA	Southern margin of Lough Scur
WN6	Wet willow-alder-ash woodland	Driny ESA	Northern margin of Lough Scur
WN6	Wet willow-alder-ash woodland	Driny ESA	Northern margin of Lough Scur
WN6	Wet willow-alder-ash woodland	Driny ESA	Northern margin of Lough Scur
WN6	Wet willow-alder-ash woodland	Drumany ESA	Northern bank of river
WN6	Wet willow-alder-ash woodland	Tomloskan ESA	Southern margin St.Johns Lough Upper
WN6	Wet willow-alder-ash woodland	Kiltybardan ESA	Margin Turf Island, St. Johns Lough Upper
WN6	Wet willow-alder-ash woodland	Kiltybardan ESA	Margin Turf Island, St. Johns Lough Upper
WN6	Wet willow-alder-ash woodland	Tomloskan ESA	North margin St. Johns Lough
WN6	Wet willow-alder-ash woodland	Creevy ESA	North bank of river
WN6	Wet willow-alder-ash woodland	Mayo ESA	North bank of river
WN6	Wet willow-alder-ash woodland	Creevy ESA	North bank of river
WN6	Wet willow-alder-ash woodland	Callowhill ESA	North bank of river
WN6	Wet willow-alder-ash woodland	Driny ESA	Northern margin of Lough Scur
WN6	Wet willow-alder-ash woodland	Driny ESA	Northern margin of Lough Scur
WN6	Wet willow-alder-ash woodland	Gowly ESA	Southern margin of Lough Scur
WN6	Wet willow-alder-ash woodland	Kiltybardan ESA	North-western margin St. John Lough Upper
WN6	Wet willow-alder-ash woodland	Derrymacoffin ESA	South-western margin St. Johns Lough Upper
WN6	Wet willow-alder-ash woodland	Tomloskon ESA	St. Johns Lough Upper

Code	Habitat	ESA Name	ESA Description
WN6	Wet willow-alder-ash woodland	Corrapphort ESA	Western margin St. Johns Lough Upper
WN6	Wet willow-alder-ash woodland	Corrapphort ESA	North-western margin St. John Lough Upper
WN6	Wet willow-alder-ash woodland	Aghavadden ESA	South-western margin St. Johns Lough lower
WN6	Wet willow-alder-ash woodland	Aghavadden ESA	South margin St Johns Lough lower
WN6	Wet willow-alder-ash woodland	Aghavadden ESA	East margin Muckcross lake
WN6	Wet willow-alder-ash woodland	Courlough ESA	South margin Muckcross lake
WN6	Wet willow-alder-ash woodland	Tomloskan ESA	St. Johns Lough Upper
WN6	Wet willow-alder-ash woodland	Gowly ESA	Island on Lough Scur, south-west
WN6	Wet willow-alder-ash woodland	Driny ESA	Northern margin of Lough Scur
WN6	Wet willow-alder-ash woodland	Driny ESA	Northern margin of Lough Scur
WN6	Wet willow-alder-ash woodland	Rossy ESA	Eastern margin of Lough Scur
WN6	Wet willow-alder-ash woodland	Gowly ESA	Southern margin of Lough Scur



Plate 6.1 Wet Woodland (WN6) which displayed evidence of occasional inundation during high lake water levels

6.2 ESA 2 – Eutrophic Lakes (FL5)

Five Eutrophic lakes were recorded within the study area (Table 6.3). The lake habitat and water quality therein was not subject to a comprehensive survey. Eutrophic lakes have higher nutrient levels than oligo to mesotrophic lakes and are typically species rich. However, this habitat type has been subject to alteration as a result of over-enrichment with nutrients which has a negative impact on species richness. Eutrophic lakes have links to the Annex I habitat Natural Eutrophic Lakes with *Magnopotamion* or *Hydrocharition* – type vegetation [3150].

Extensive areas of Reed and large sedge swamp (FS1) were recorded throughout the lake systems. The extent of the reed swamp varied. In some areas the habitat occurred as a short, narrow fringing feature along the lake margins. In other areas, such as St. Johns Lough Upper, the habitat formed dense, extensive stands. The dominant species in this habitat were Clubrush (*Schoenoplectus lacustris*) and Reed Canary Grass (*Phalaris arundinacea*). Other species recorded from well developed areas of this habitat Marsh pennywort (*Hydrocotyle vulgaris*), Brookline (*Veronica beccabunga*), Meadowsweet (*Filipendula ulmaria*), Horsetail (*Equisetum* sp.), Creeping Bent (*Agrostis stolonifera*), Floating Sweet-grass (*Glyceria fluitans*), Lesser Spearwort (*Ranunculus flammula*) and Valerian (*Valeriana officinalis*).

Aquatic macrophytes recorded within the lakes include Yellow Lilly (*Nuphur lutea*), Amphibious Bistort (*Persicaria amphibia*) and Broad-leaved Pondweed (*Potamogeton natans*).

The lakes are likely to be important for coarse fish including Pike and Perch. The lake and riparian habitats are likely to be important for waterfowl. Snipe, Mallard, Heron and Mute Swan were recorded frequently utilising the lake habitats.

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 lakes were classified an ESA given their species diversity and importance as natural features within the landscape.

Table 6.3 Eutrophic Lakes ESAs

Code	Habitat	ESA Name	ESA Description
FL5	Eutrophic lakes	Lough Scur ESA	Most western lake in study area, large with several islands supporting semi-natural vegetation
FL5	Eutrophic lakes	Lough Marrave ESA	Supports large wetland areas to the south
FL5	Eutrophic lakes	Muckross Lough ESA	Both semi-natural and conifer plantation along eastern and western margins
FL5	Eutrophic lakes	St Johns Lough Lower ESA	Extensive areas of improved agricultural land along margins, southern margin supports semi-natural woodland
FL5	Eutrophic lakes	St Johns Lough Upper ESA	Large lake, shallow in north where some infilling of wetland vegetation has occurred.



Plate 6.2 Example of Eutrophic Lake (Lough Scur)

6.3 ESA 3 – Gubroe Lake Margin Complex (Lough Marrave)

A wetland complex was recorded to the south of Lough Marrave in the townland of Gubroe. This ESA was recorded outside the WI property boundary but is linked with and dependent on the habitats within the WI property and was included on that basis. Habitats encountered included Poor fen and flush (PF2) and Transition Mire and Quaking (PF3). The habitats in the wetland complex are transitional in nature. Transition Mire and Quaking bog occurs at the transitional zone between open water (Plate 6.3a) and moving inland the habitat grades into and forms an intimate mosaic with Poor Fen (PF1) (Plate 6.3b).

On elevated areas located to the east, dense swards of Purple Moor-grass (*Molinia caerulea*) and scattered tussocks of Ling (*Calluna vulgaris*) were recorded.

Poor Fen and Flush has no links with Annex I habitats however the the habitat should be regarded as a special conservation importance (Fossitt 2000). The habitat Transition mire and quaking bog has links with the annexed habitat Transition mires and quaking bogs [7140].

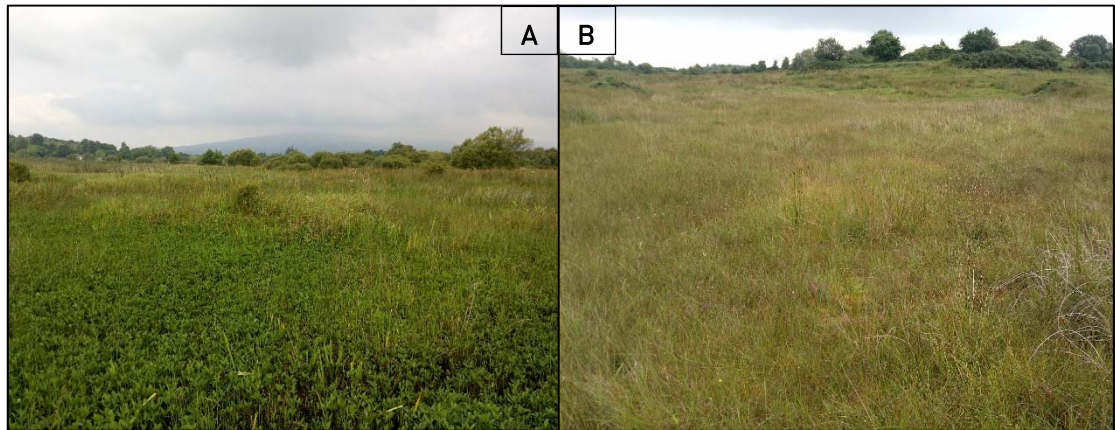
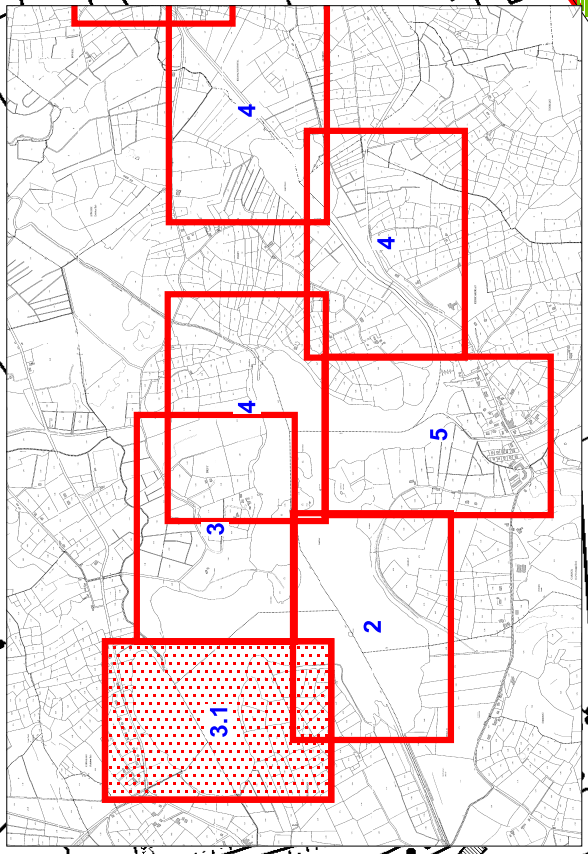
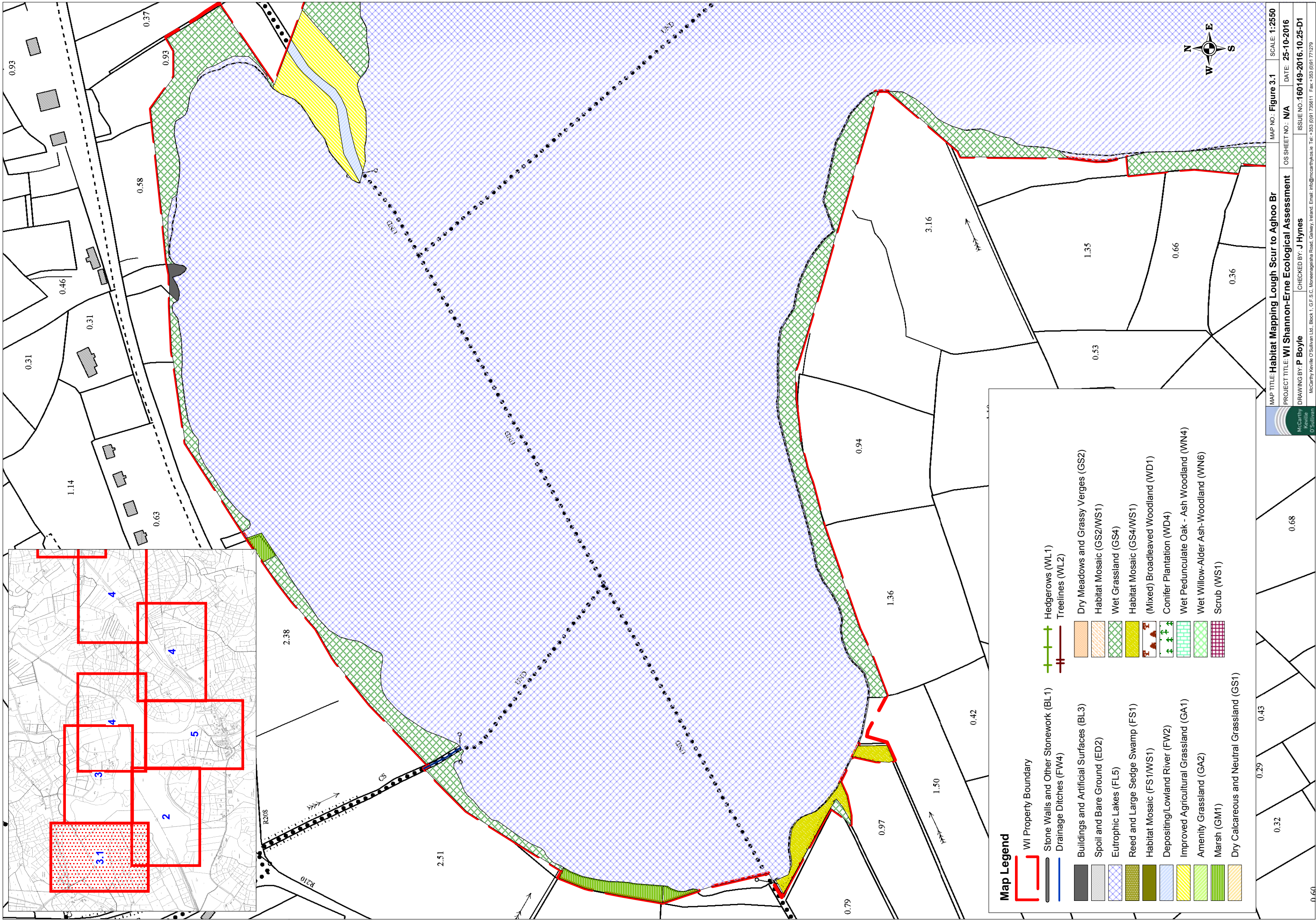


Plate 6.3a Beginnign of Transition mire and Quaking bog close to lakeshore; **6b** Poor fen habitat

Appendix I

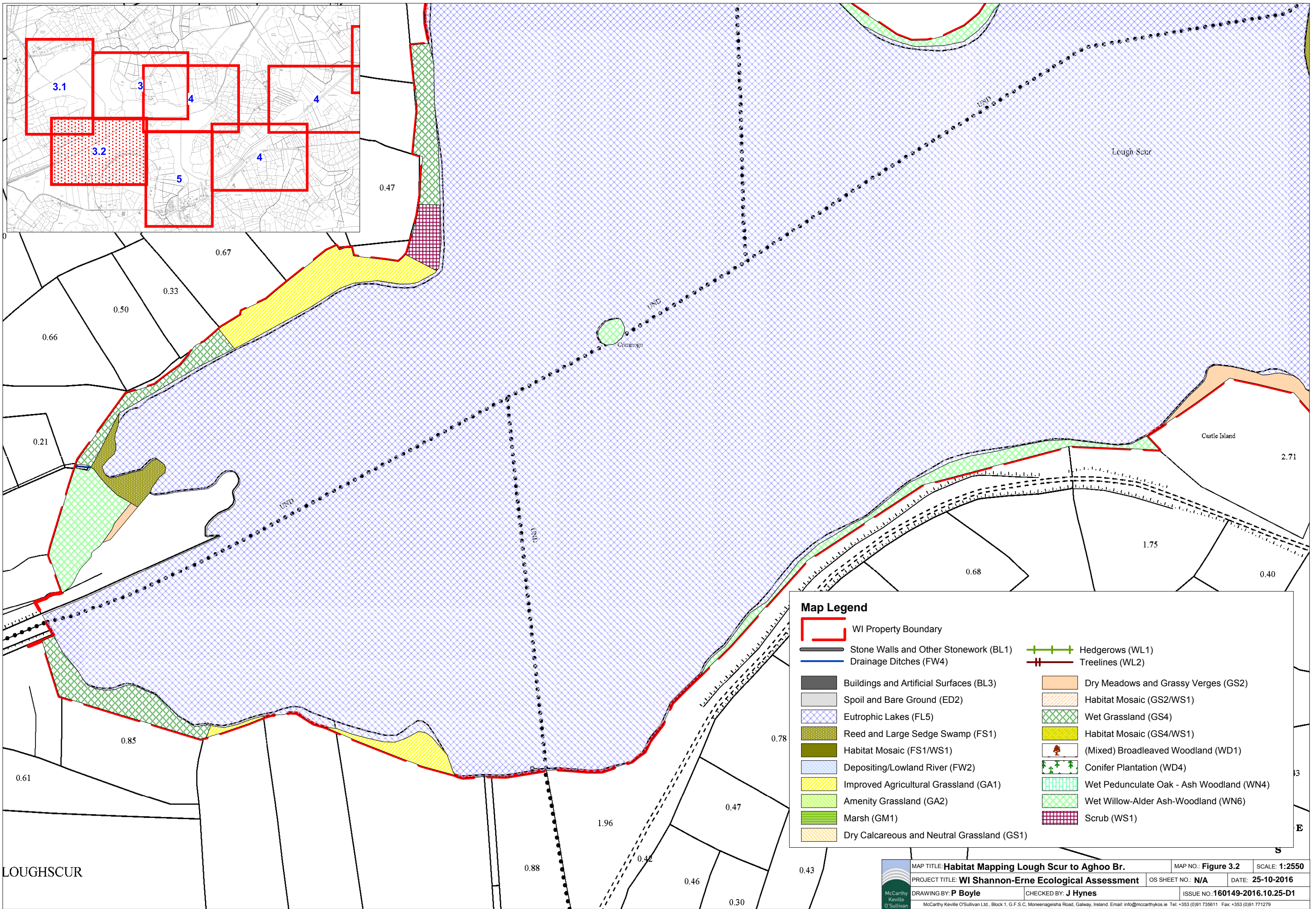
Habitat Mapping



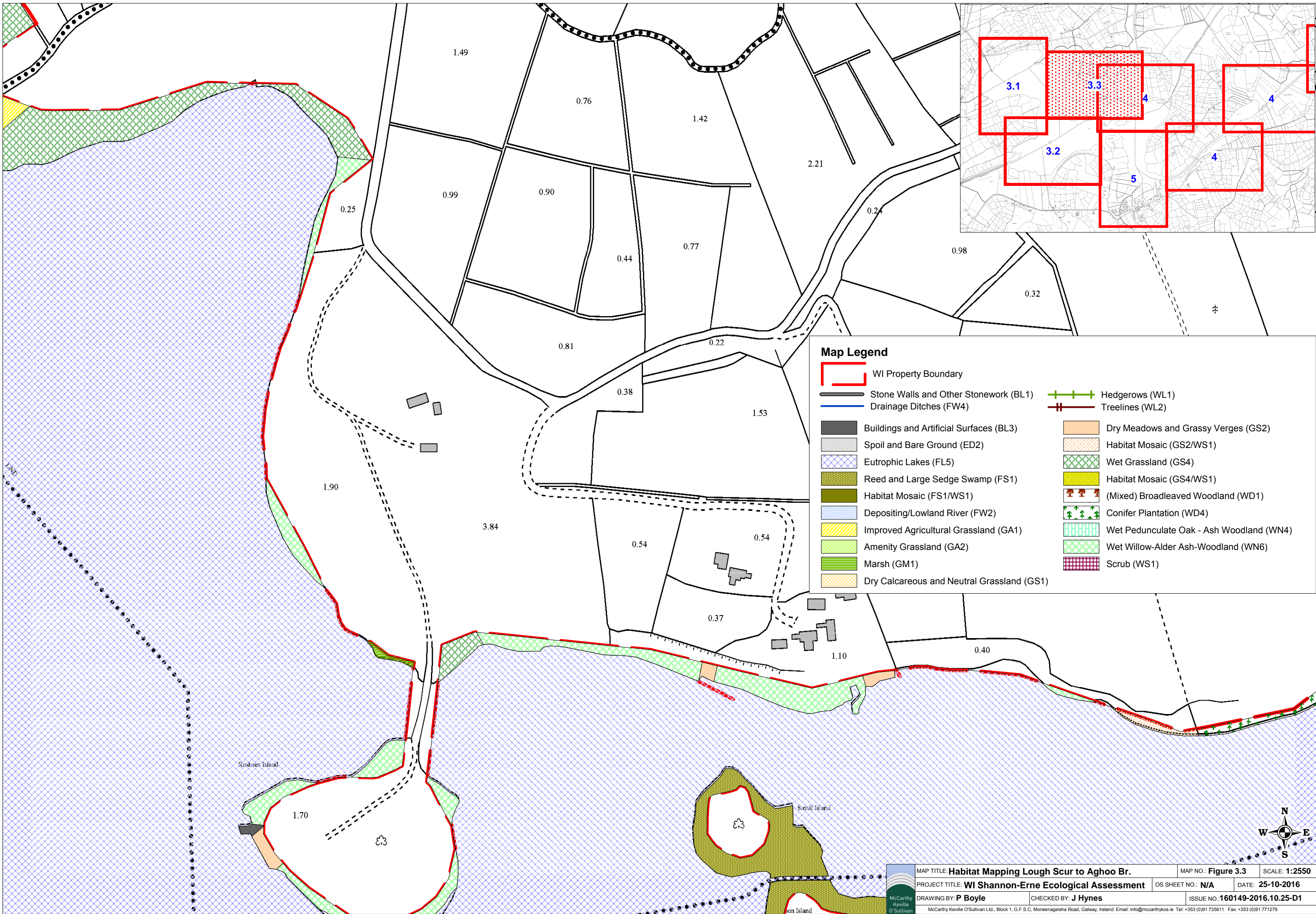
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	Drainage Ditches (FW4)				Wet Grassland (GS4)
	Buildings and Artificial Surfaces (BL3)				Habitat Mosaic (GS4/WS1)
	Spoil and Bare Ground (ED2)				(Mixed) Broadleaved Woodland (WD1)
	Eutrophic Lakes (FL5)				Conifer Plantation (WD4)
	Reed and Large Sedge Swamp (FS1)				Wet Pedunculate Oak - Ash Woodland (WN4)
	Habitat Mosaic (FS1/WS1)				Wet Willow-Alder Ash-Woodland (WN6)
	Depositing/Lowland River (FW2)				Scrub (WS1)
	Improved Agricultural Grassland (GA1)				
	Amenity Grassland (GA2)				
	Marsh (GM1)				
	Dry Calcareous and Neutral Grassland (GS1)				

MAP NO.: **Figure 3.1** SCALE: 1:2550
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 DRAWING BY: **P Boyle** CHECKED BY: **J Hynes** ISSUE NO.: **160149-2016.10.25-D1**
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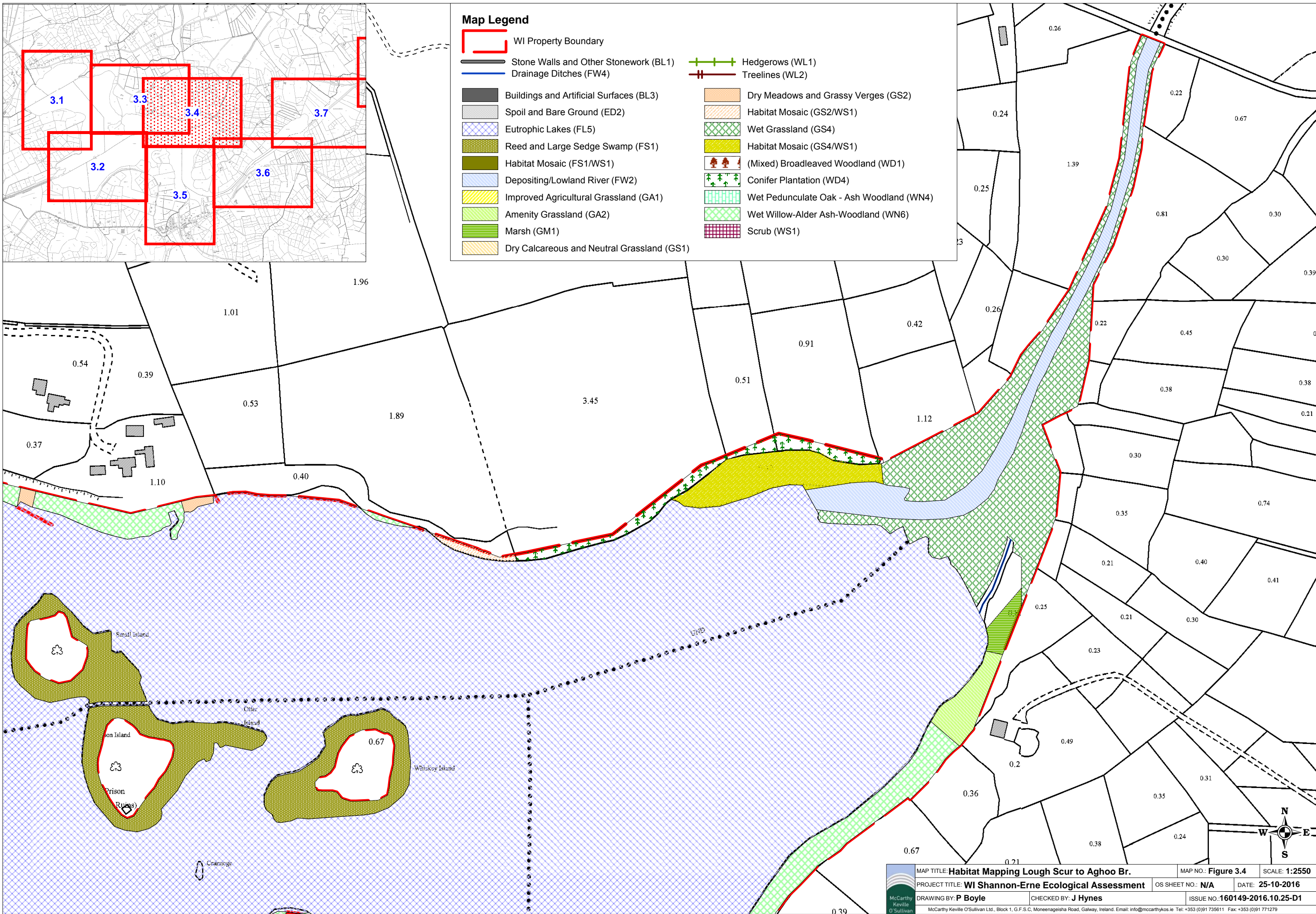
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	Eutrophic Lakes (FL5)
	Reed and Large Sedge Swamp (FS1)
	Habitat Mosaic (FS1/WS1)
	Depositing/Lowland River (FW2)
	Improved Agricultural Grassland (GA1)
	Amenity Grassland (GA2)
	Marsh (GM1)
	Dry Calcareous and Neutral Grassland (GS1)
	Hedgerows (WL1)
	Treelines (WL2)
	Dry Meadows and Grassy Verges (GS2)
	Habitat Mosaic (GS2/WS1)
	Wet Grassland (GS4)
	Habitat Mosaic (GS4/WS1)
	(Mixed) Broadleaved Woodland (WD1)
	Conifer Plantation (WD4)
	Wet Pedunculate Oak - Ash Woodland (WN4)
	Wet Willow-Alder Ash-Woodland (WN6)
	Scrub (WS1)



Map Legend

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- Drainage Ditches (FW4)
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- Spoil and Bare Ground (ED2)
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MAP TITLE: Habitat Mapping Lough Scur to Aghoo Br.	MAP NO.: Figure 3.3	SCALE: 1:2550
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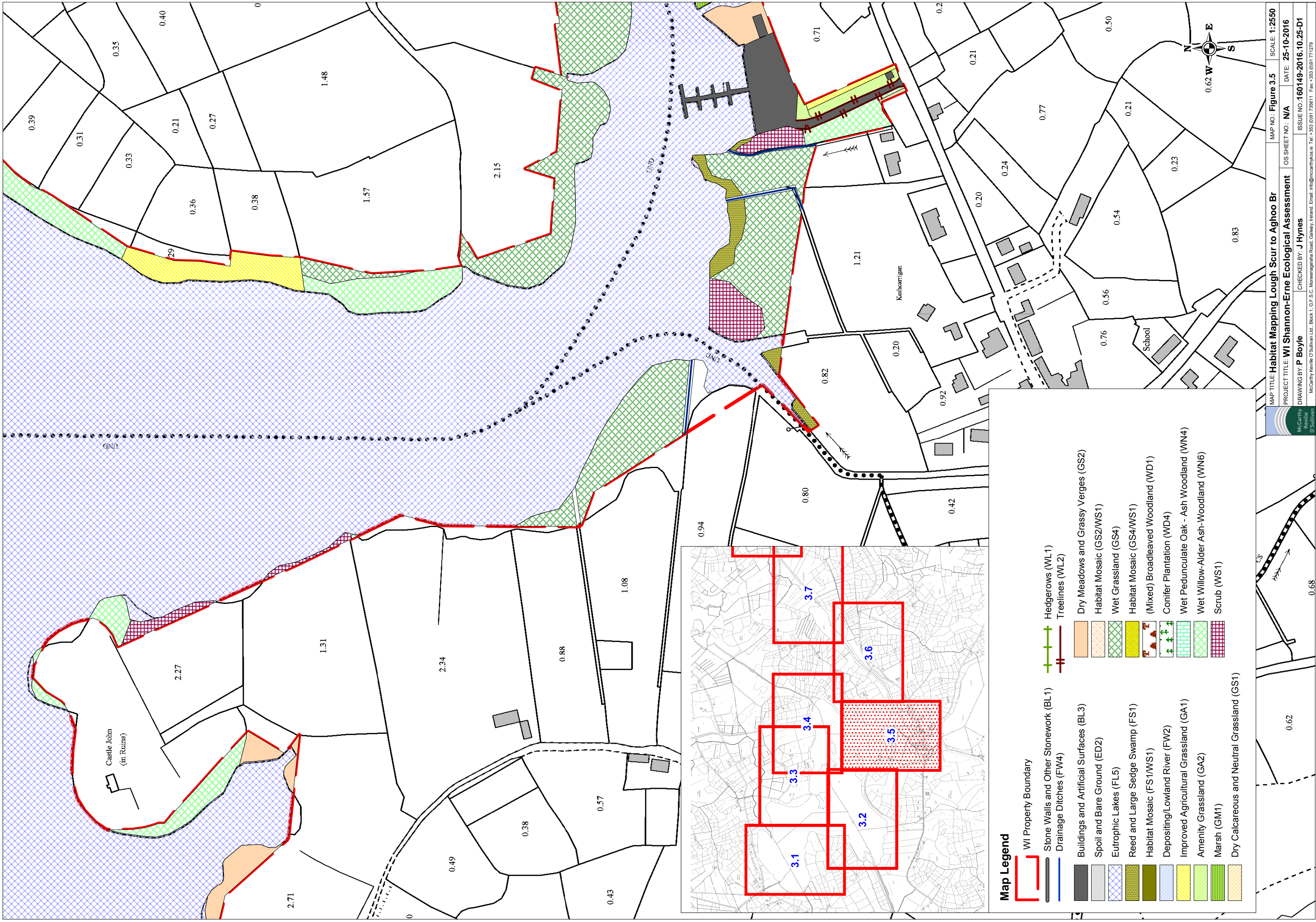


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- Scrub (WS1)

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Map Legend

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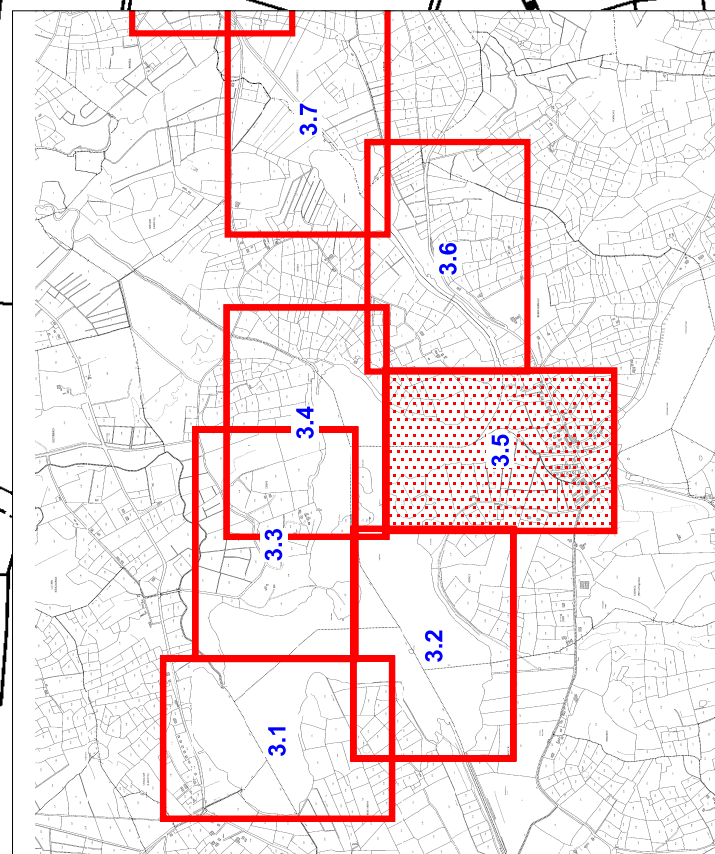
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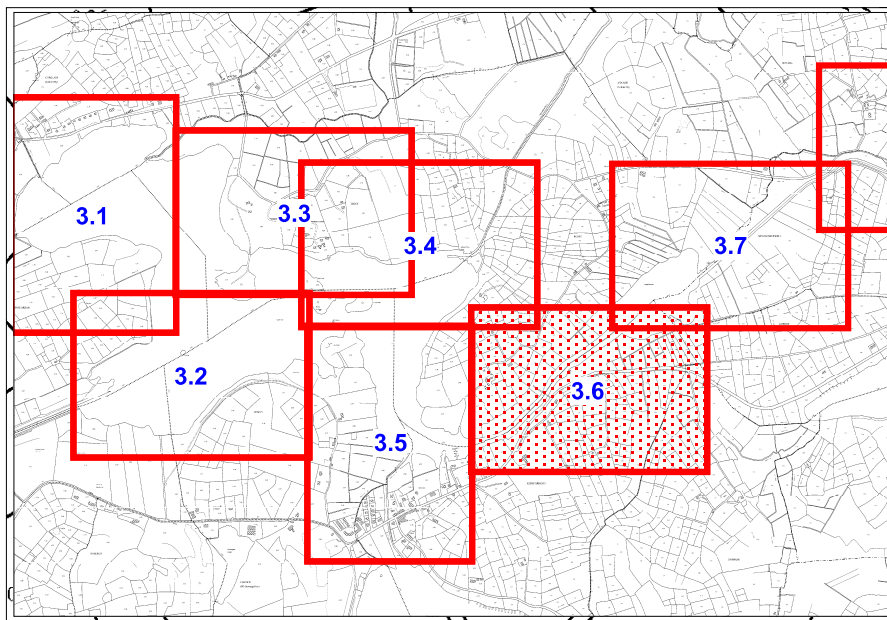
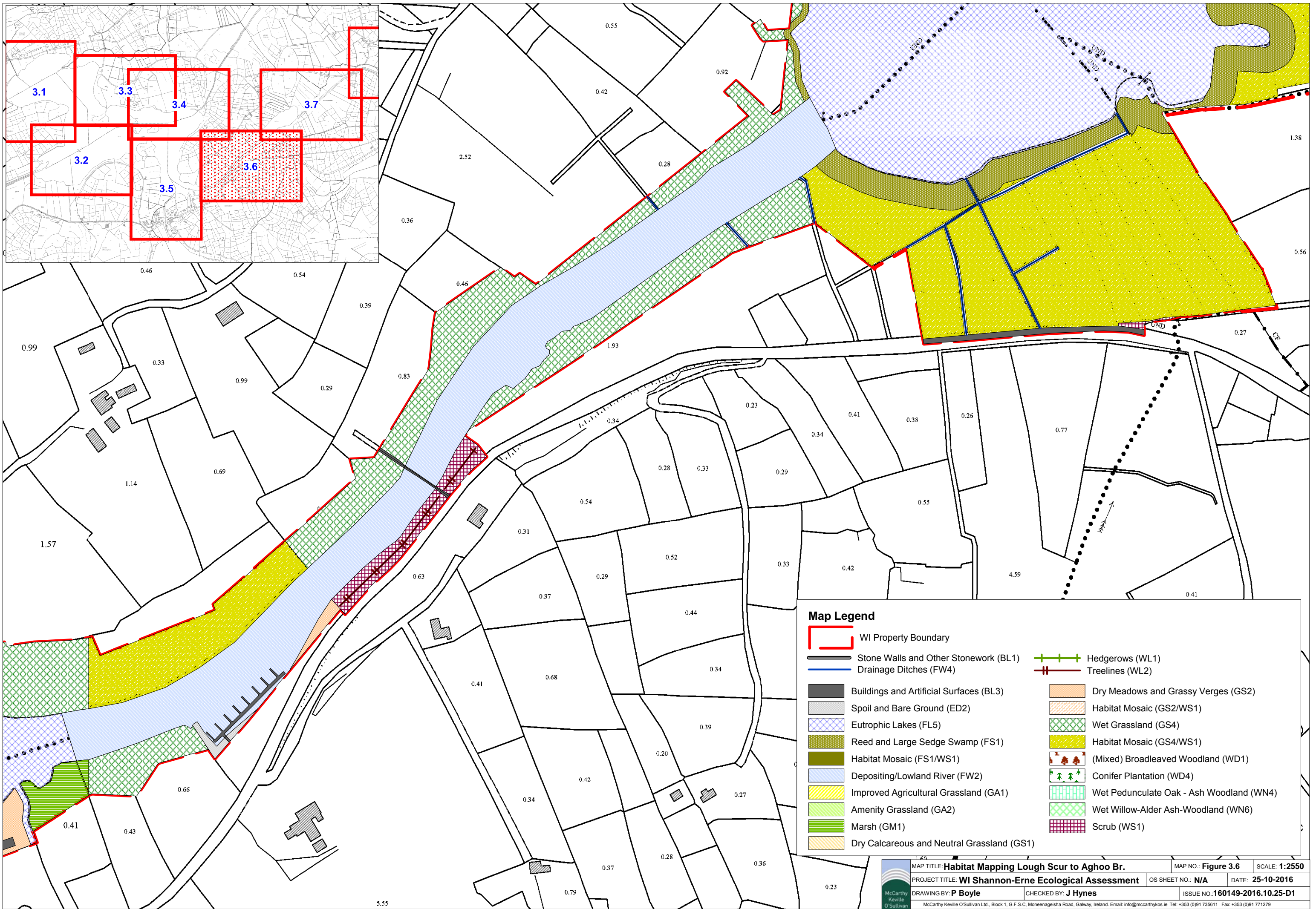
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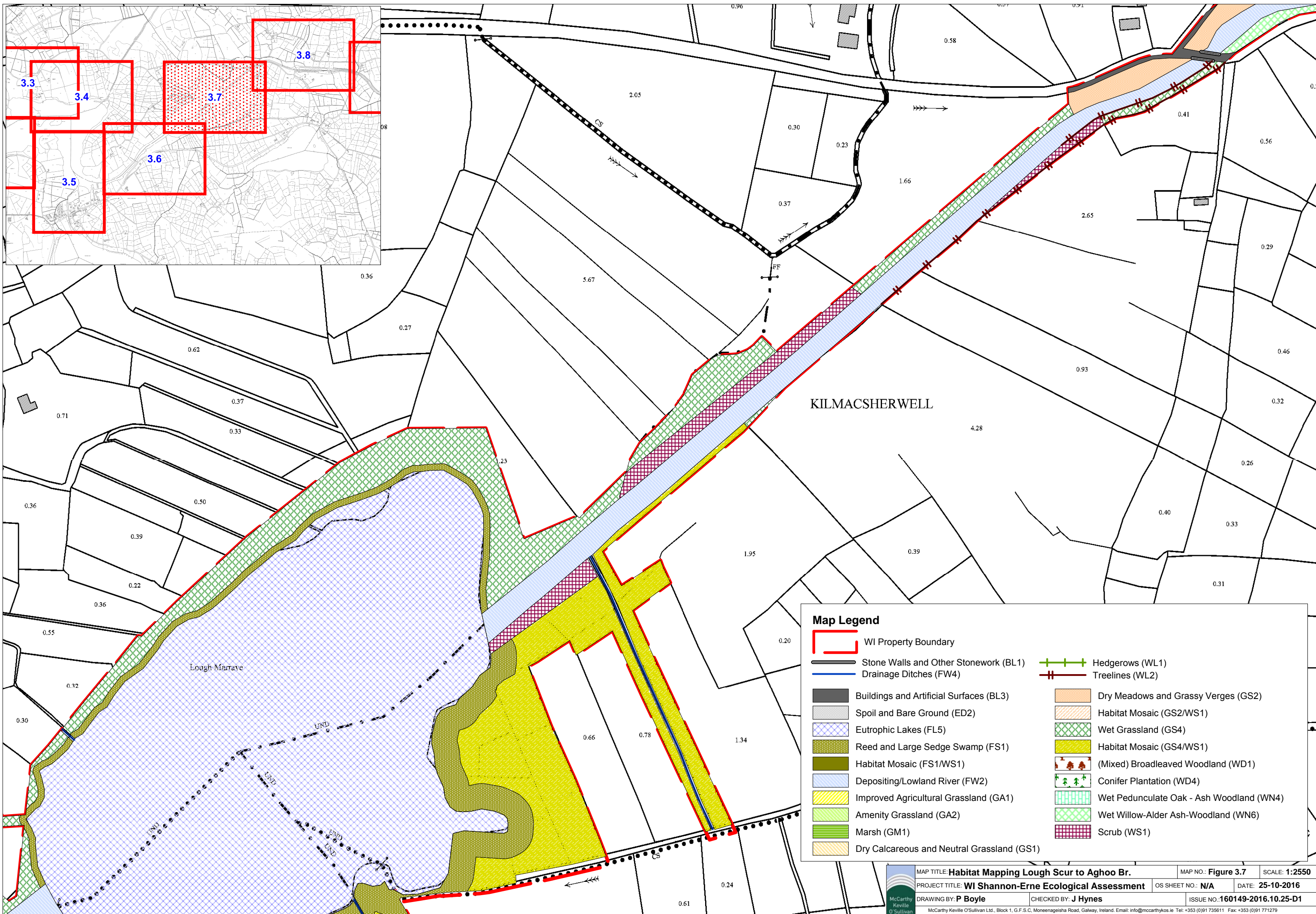
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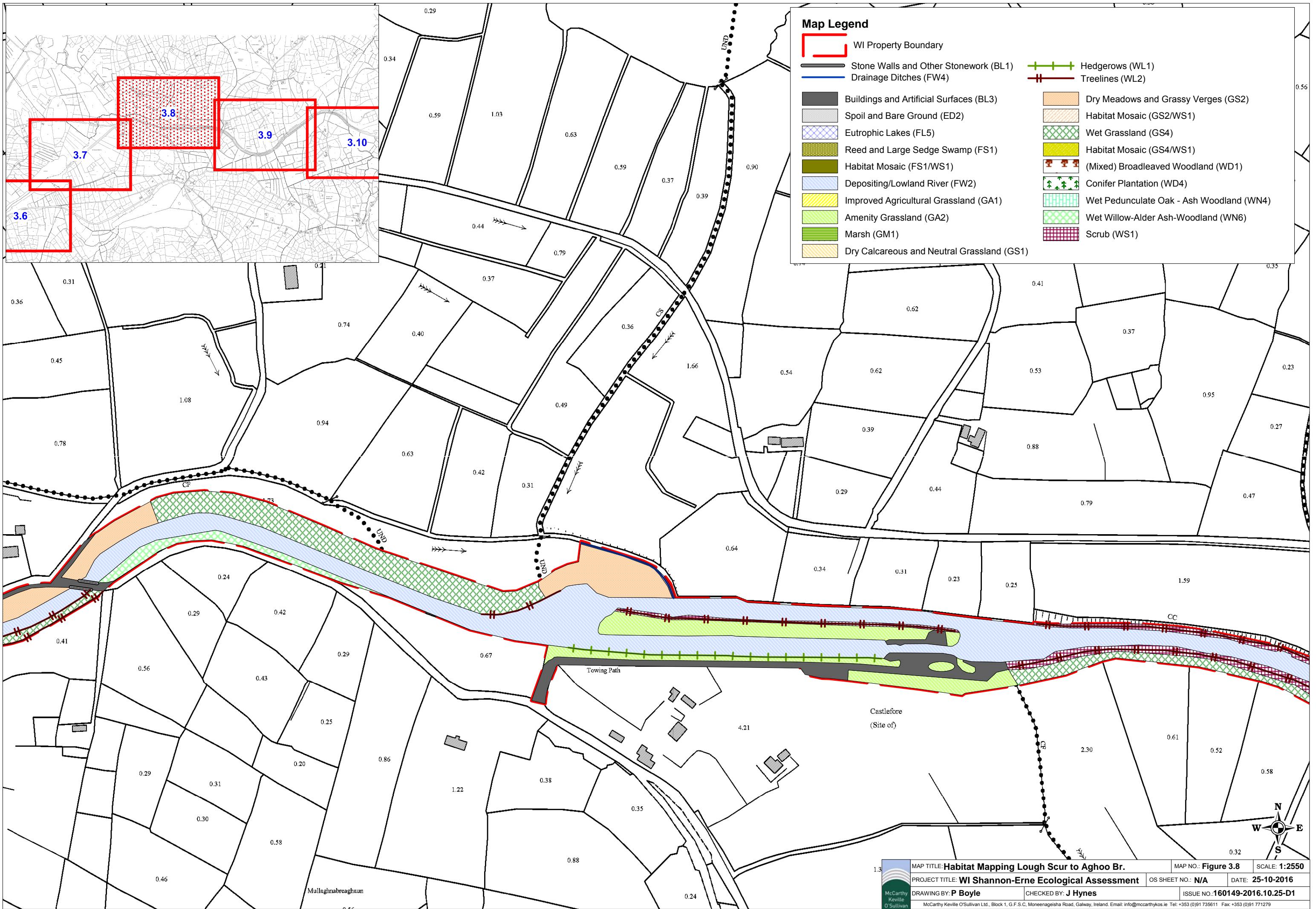




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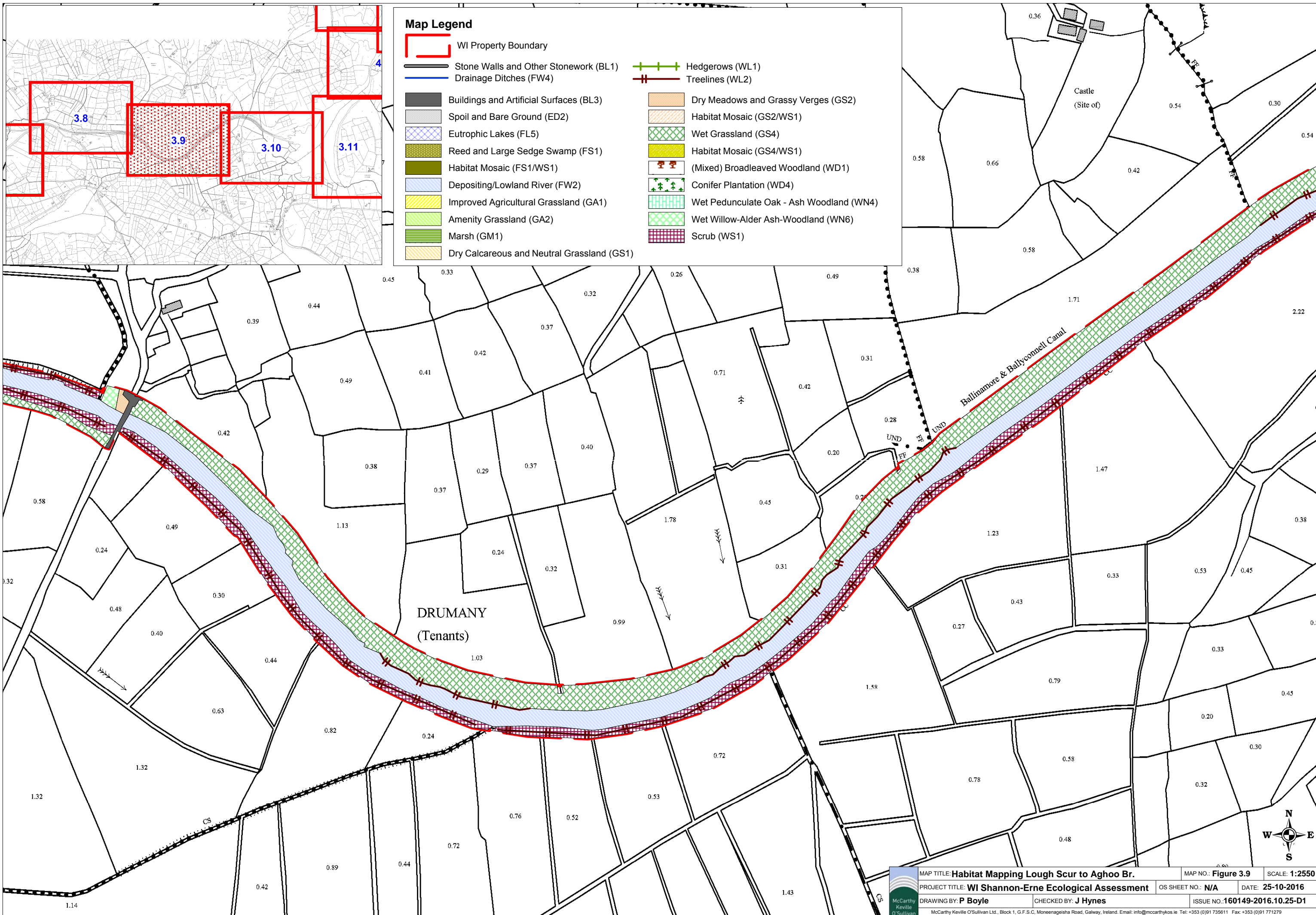
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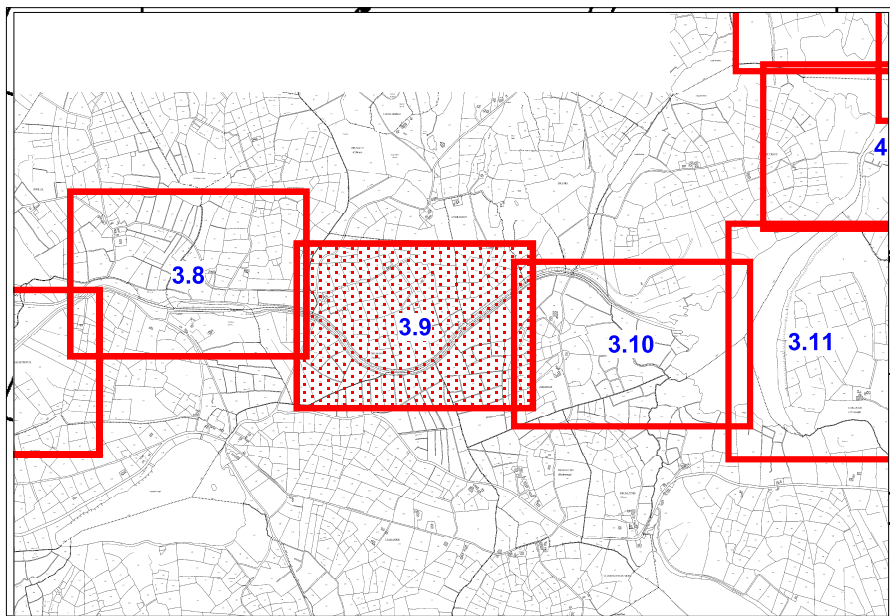
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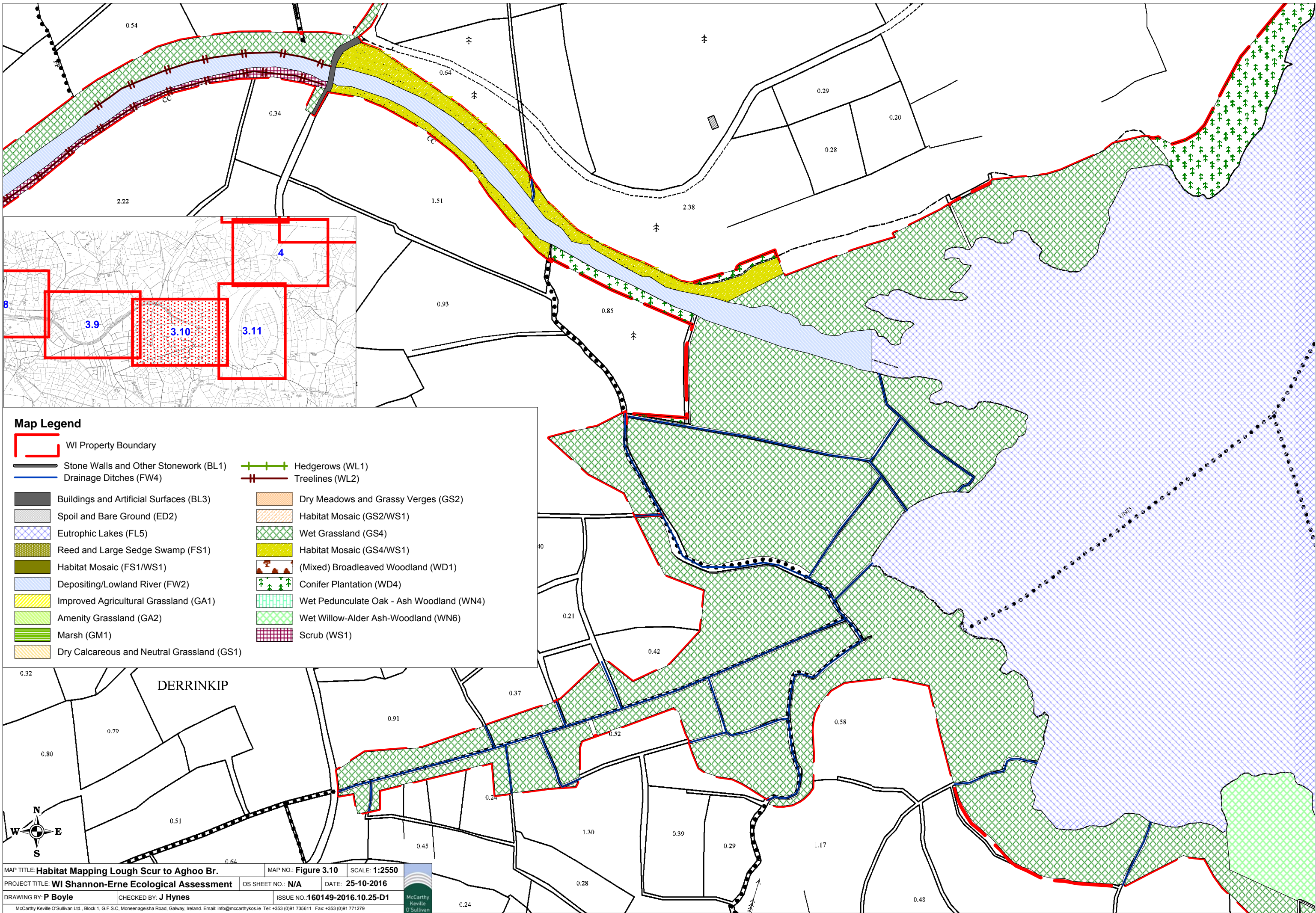
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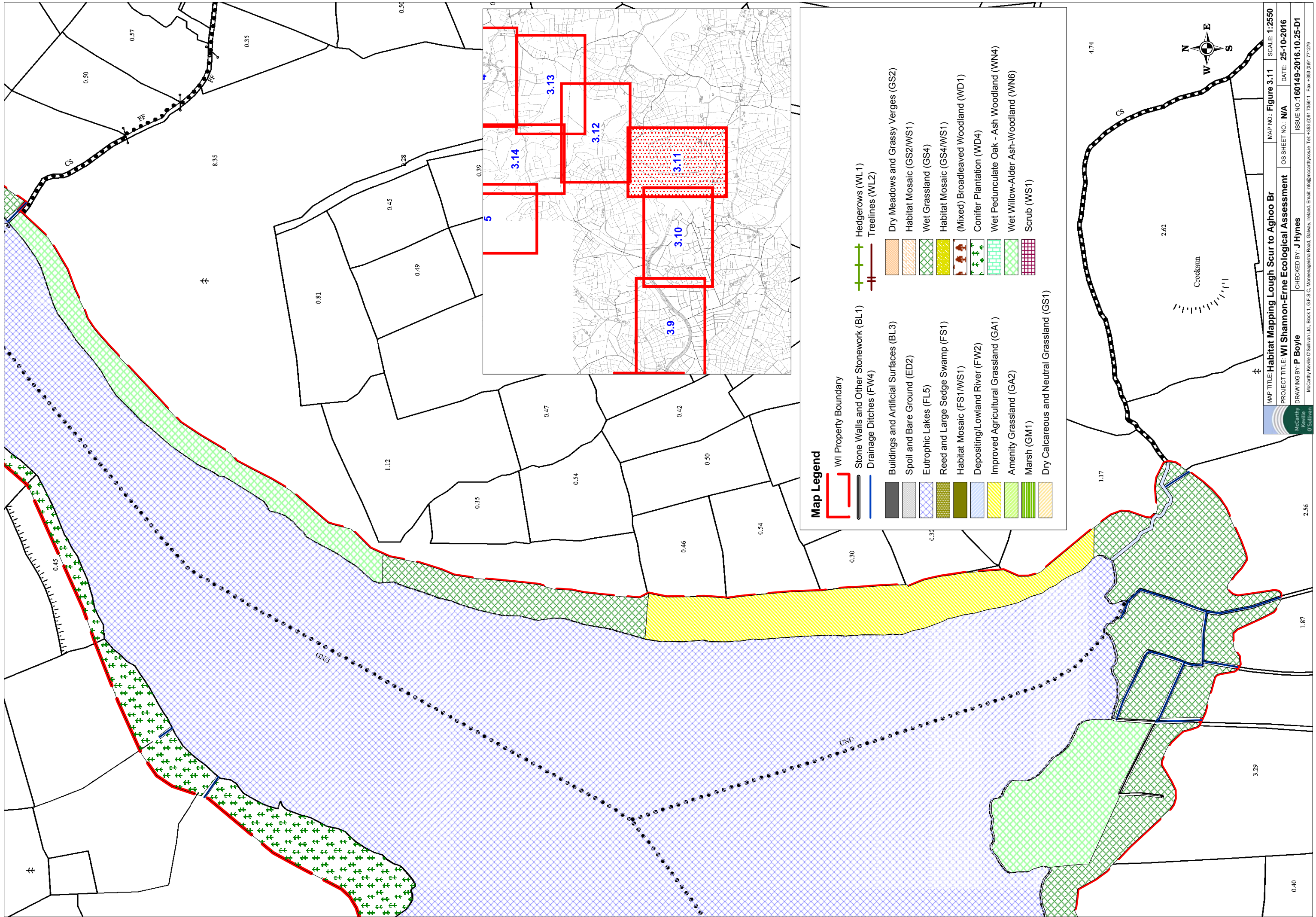
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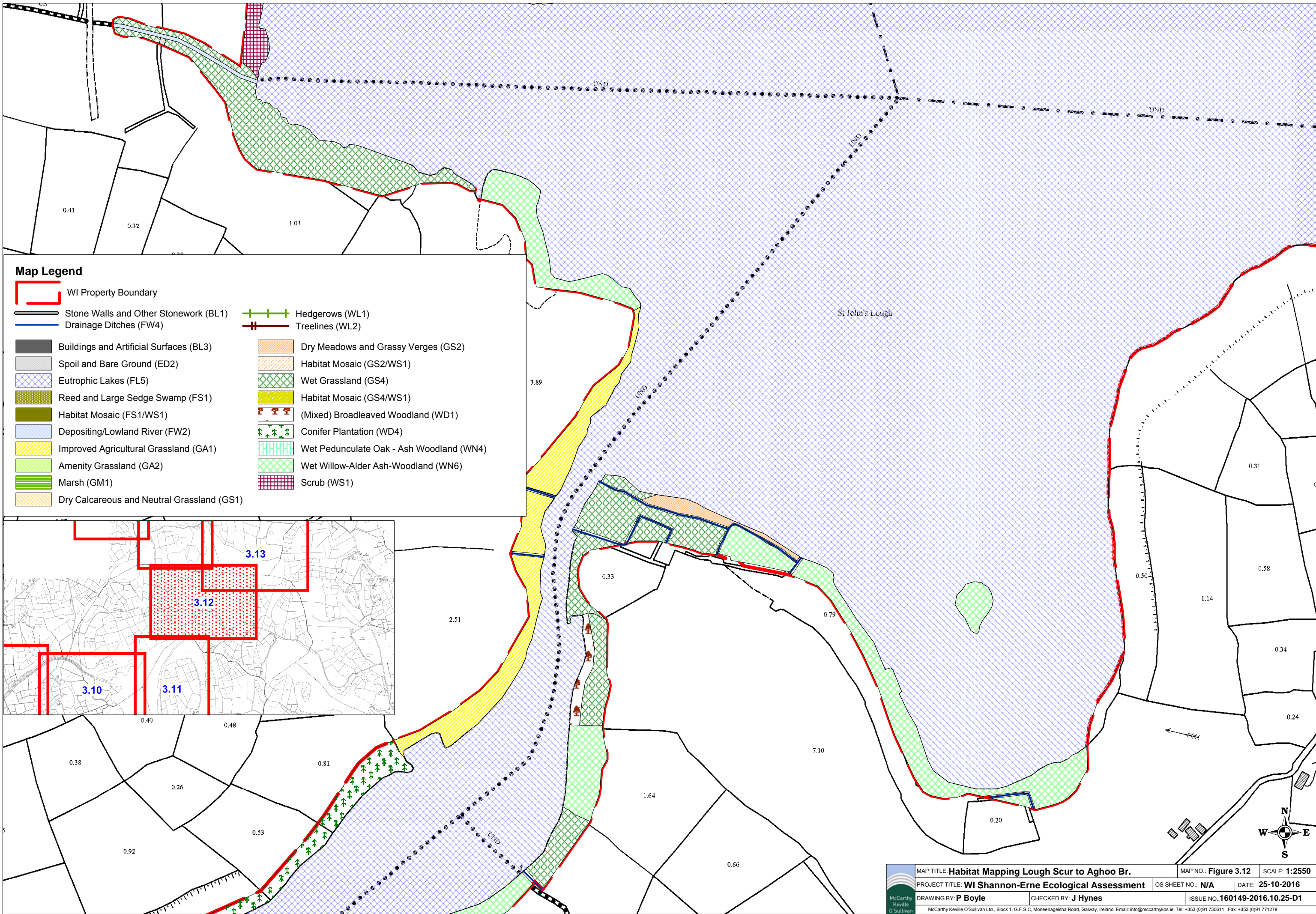
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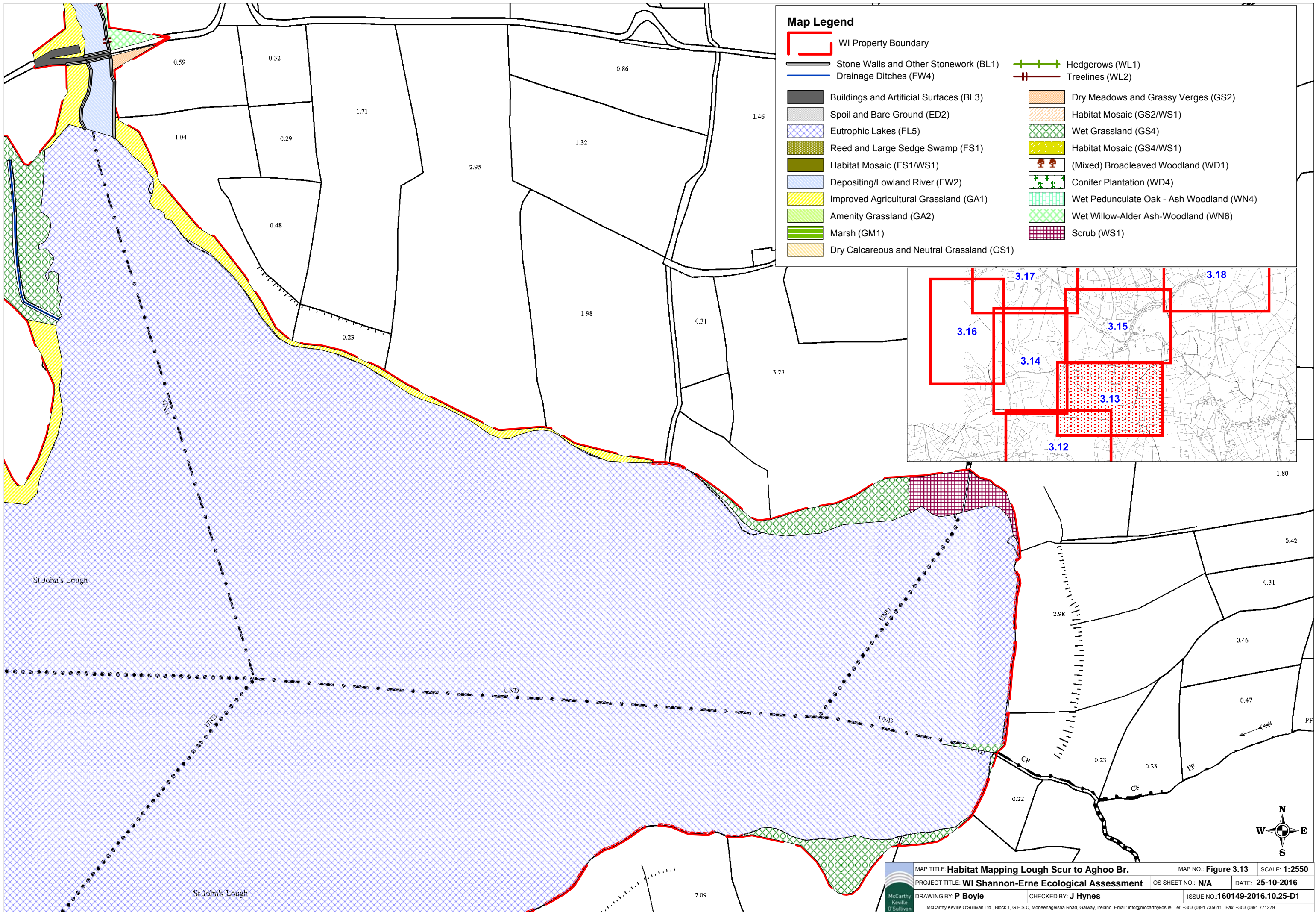




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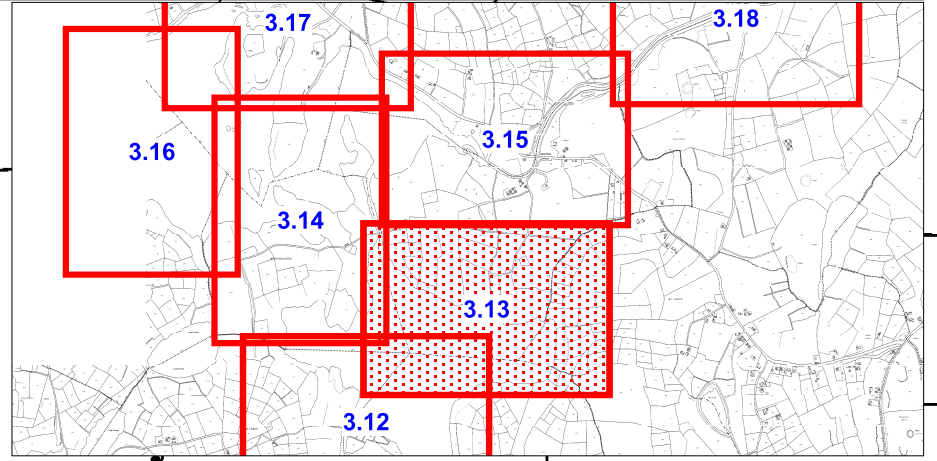
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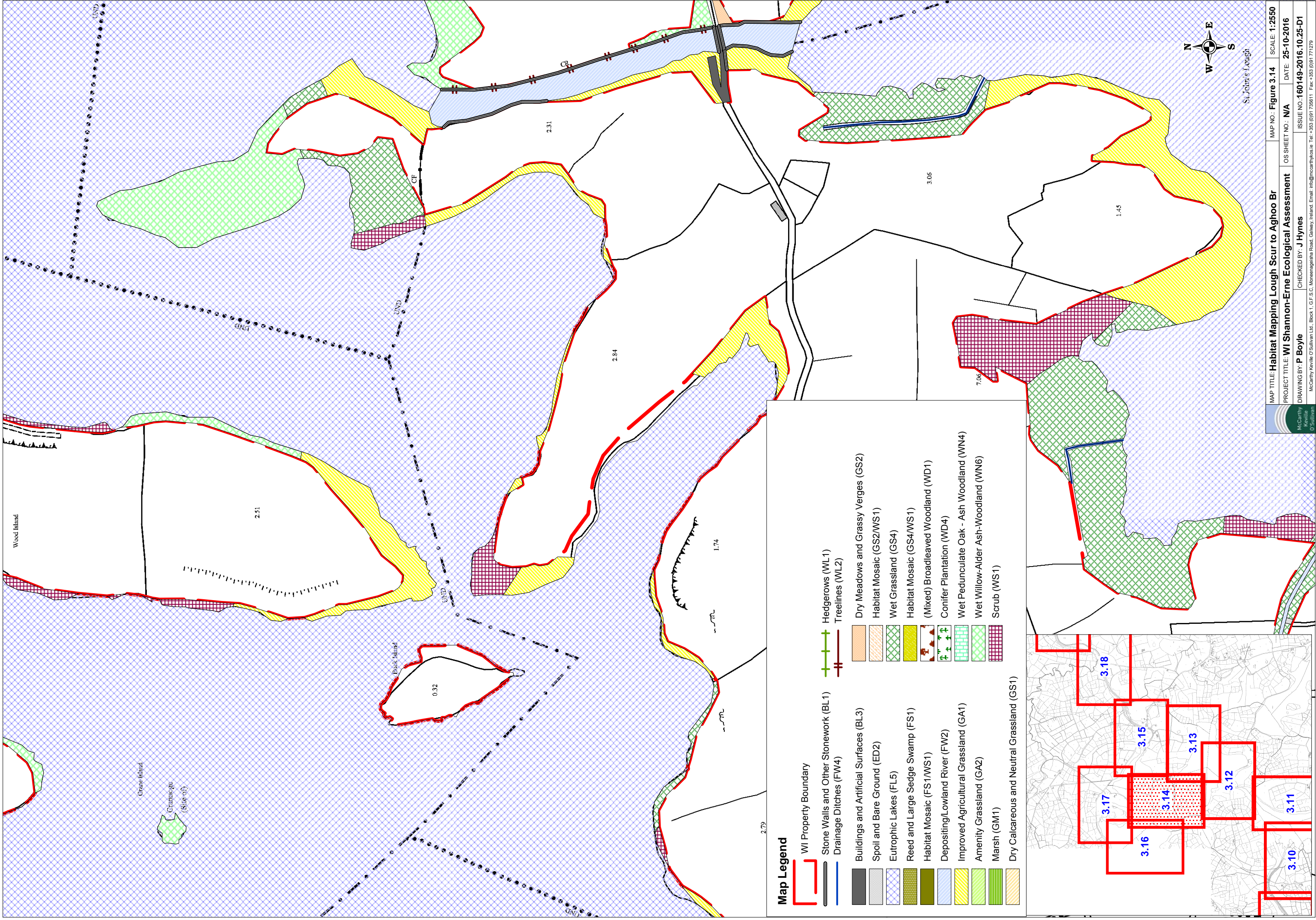


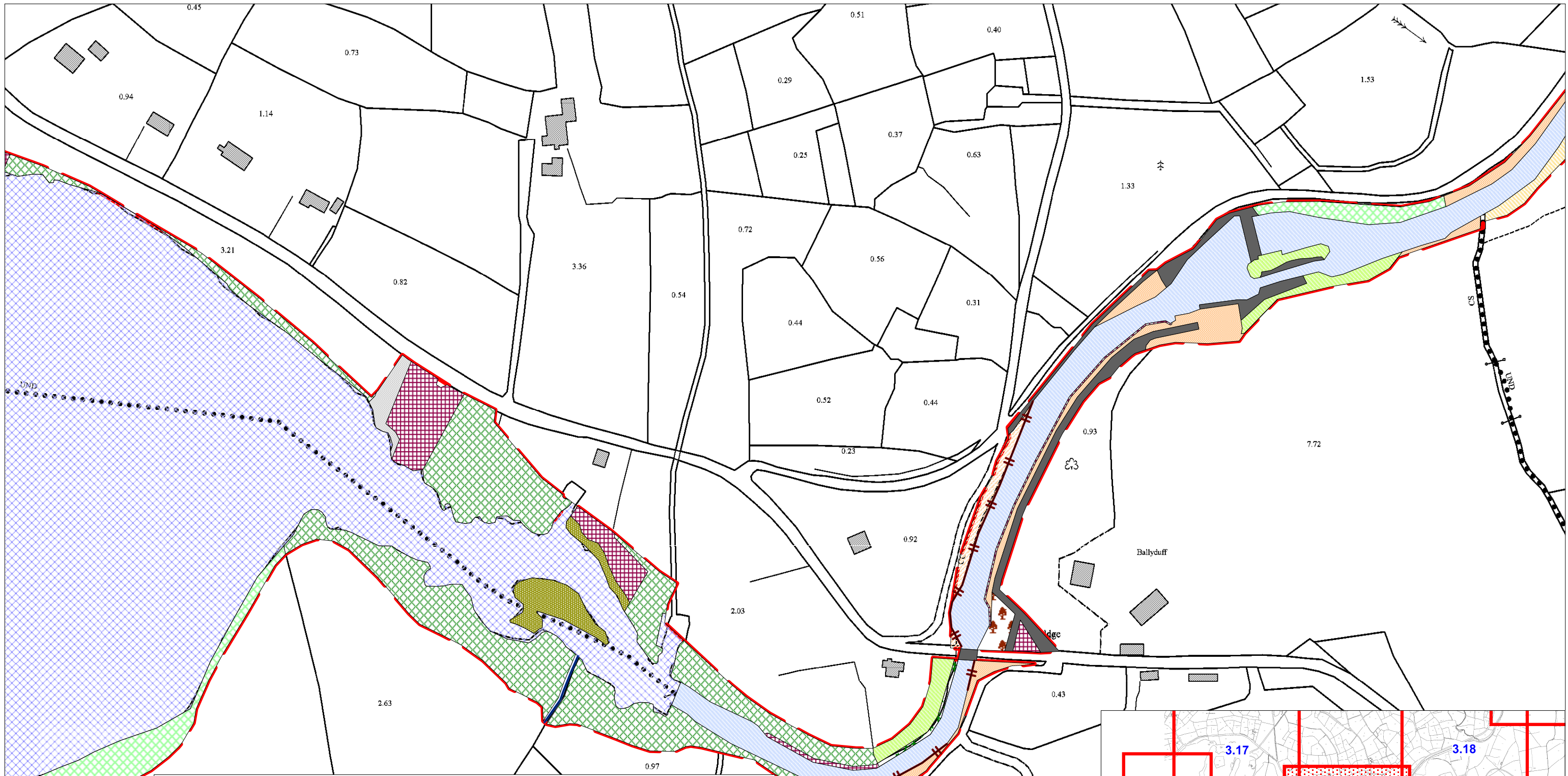


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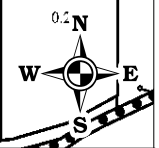
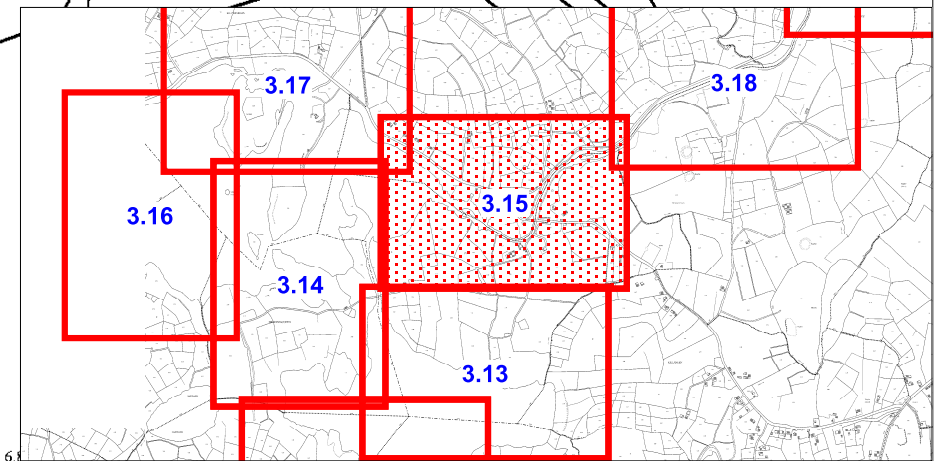


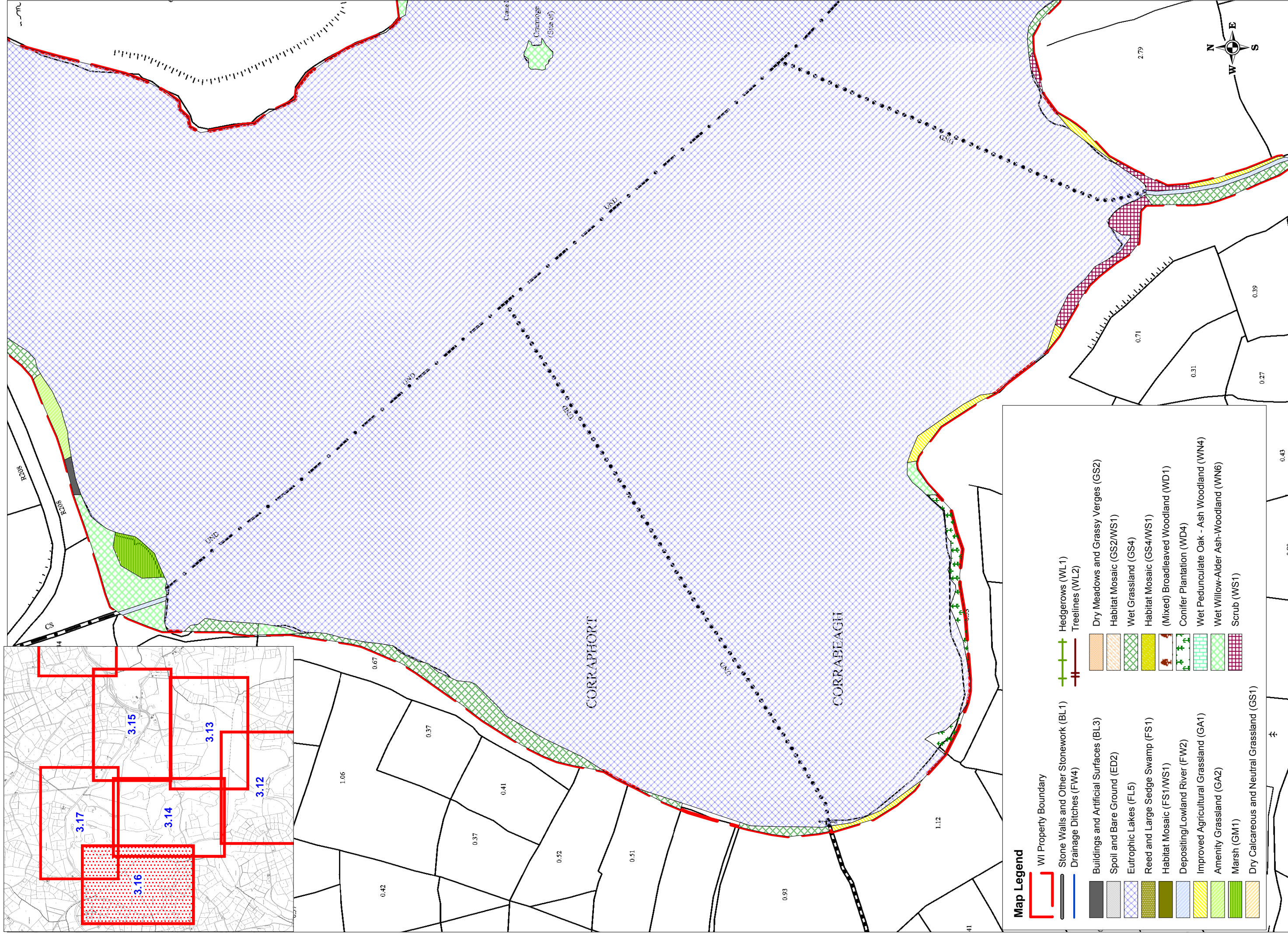




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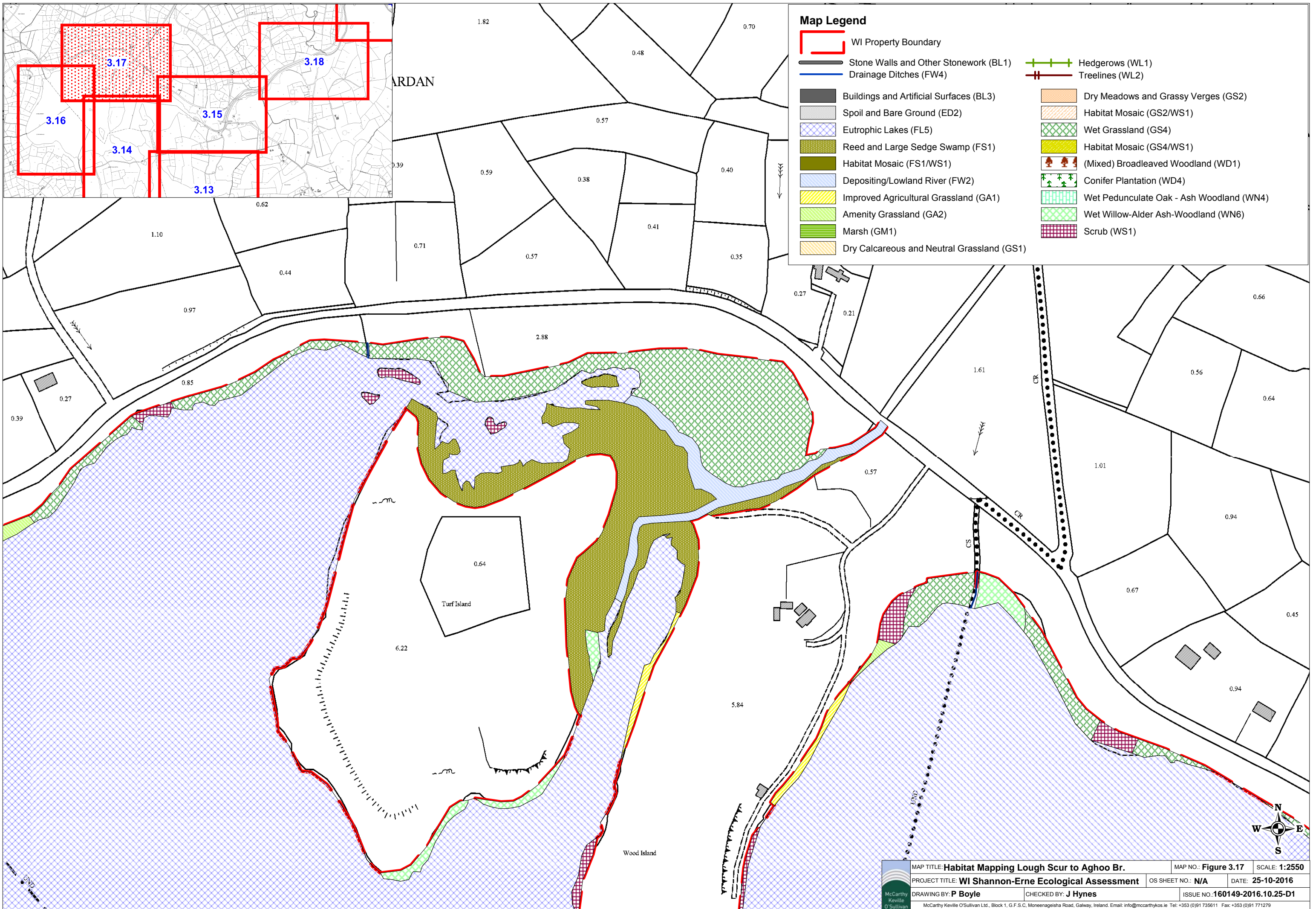












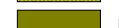
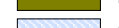







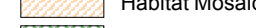



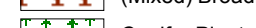
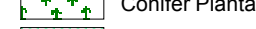

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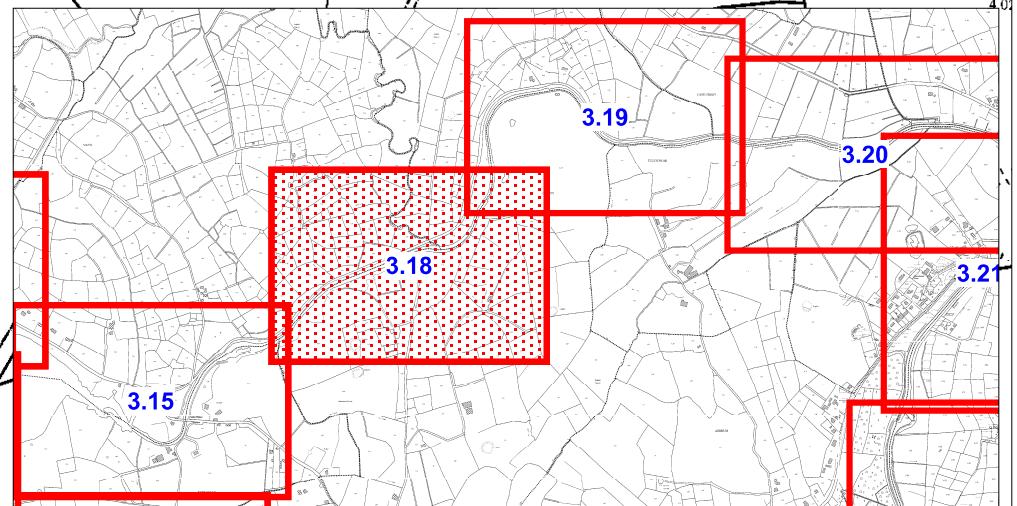
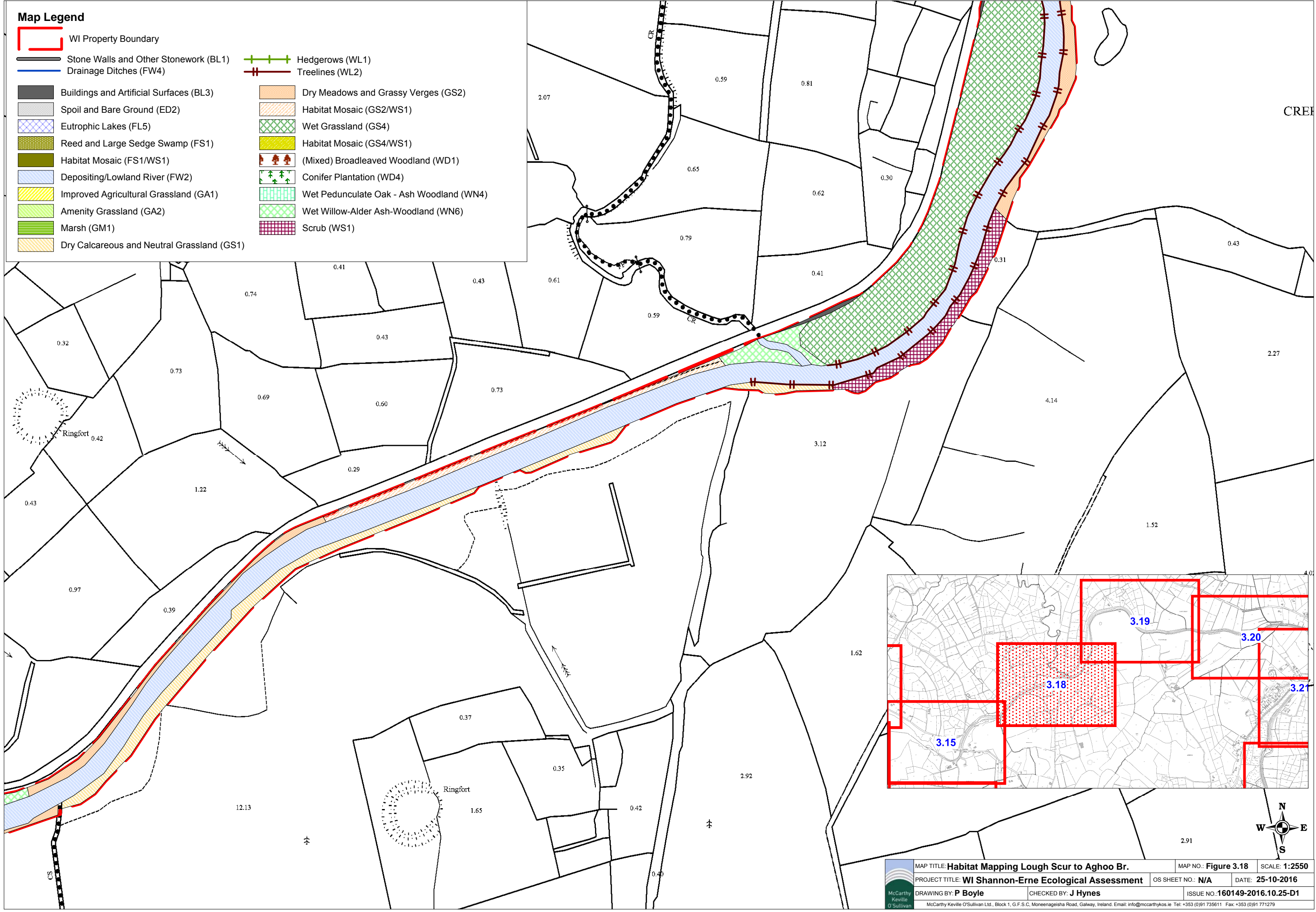
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|--|--|--|-----------------|--|--|
| | WI Property Boundary | | Hedgerows (WL1) | | Dry Meadows and Grassy Verges (GS2) |
| | Stone Walls and Other Stonework (BL1) | | Treelines (WL2) | | Habitat Mosaic (GS2/WS1) |
| | Drainage Ditches (FW4) | | | | Wet Grassland (GS4) |
| | Buildings and Artificial Surfaces (BL3) | | | | Habitat Mosaic (GS4/WS1) |
| | Spoil and Bare Ground (ED2) | | | | (Mixed) Broadleaved Woodland (WD1) |
| | Eutrophic Lakes (FL5) | | | | Conifer Plantation (WD4) |
| | Reed and Large Sedge Swamp (FS1) | | | | Wet Pedunculate Oak - Ash Woodland (WN4) |
| | Habitat Mosaic (FS1/WS1) | | | | Wet Willow-Alder Ash-Woodland (WN6) |
| | Depositing/Lowland River (FW2) | | | | Scrub (WS1) |
| | Improved Agricultural Grassland (GA1) | | | | |
| | Amenity Grassland (GA2) | | | | |
| | Marsh (GM1) | | | | |
| | Dry Calcareous and Neutral Grassland (GS1) | | | | |


MAP NO.: **Figure 3.16** SCALE: **1:2550**
 PROJECT TITLE: **WI Shannon-Erne Ecological Assessment** OS SHEET NO.: **N/A** DATE: **25-10-2016**
 DRAWING BY: **P Boyle** CHECKED BY: **J Hynes** ISSUE NO.: **160149-2016.10.25-D1**
 McCarthy Keville O'Sullivan Ltd., Block 1, G.F.S.C. Moreenagarra Road, Galway, Ireland. Email: info@mccarthykvo.ie Tel: +353 (0)91 779611 Fax: +353 (0)91 771279










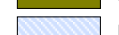

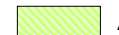














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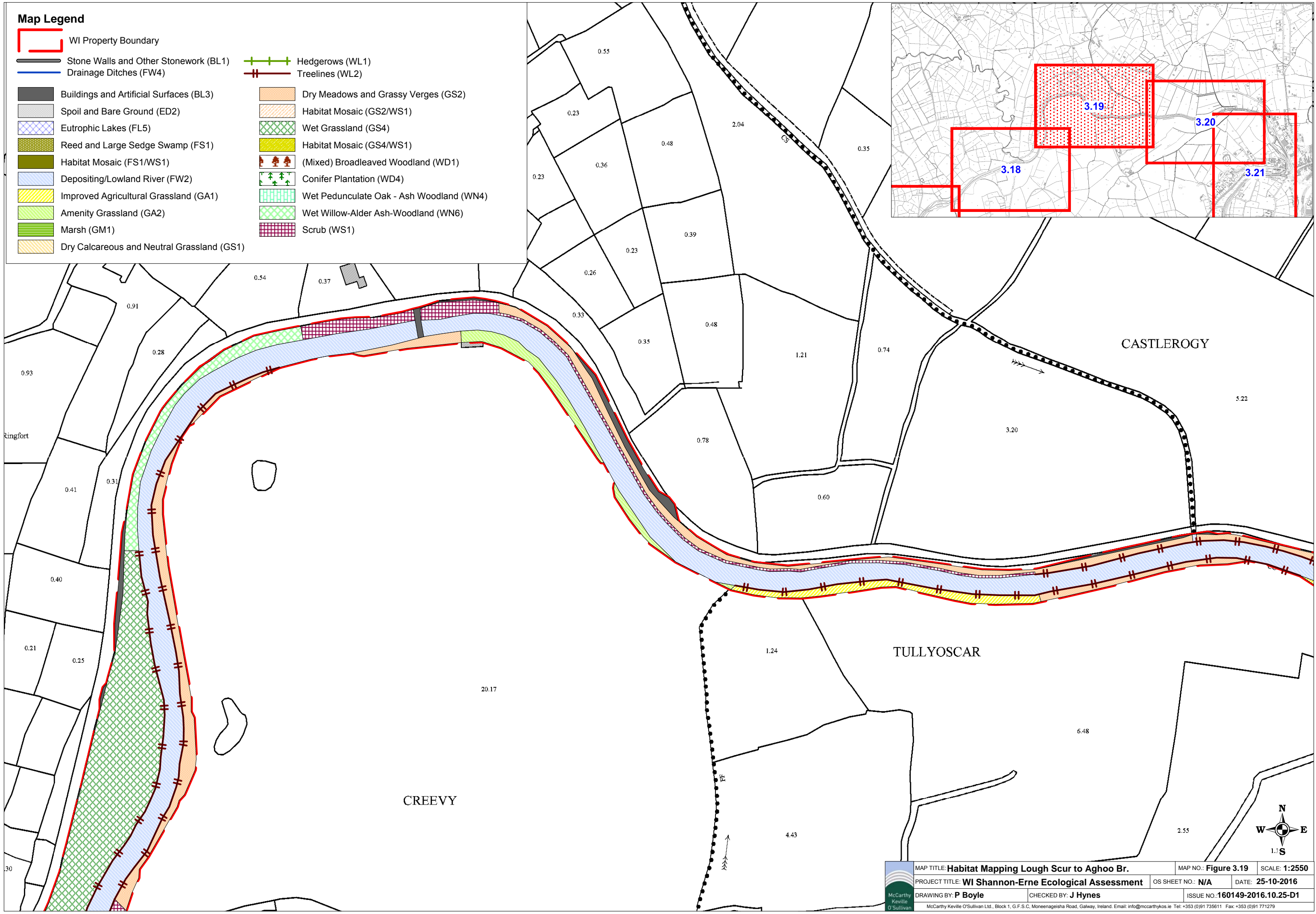
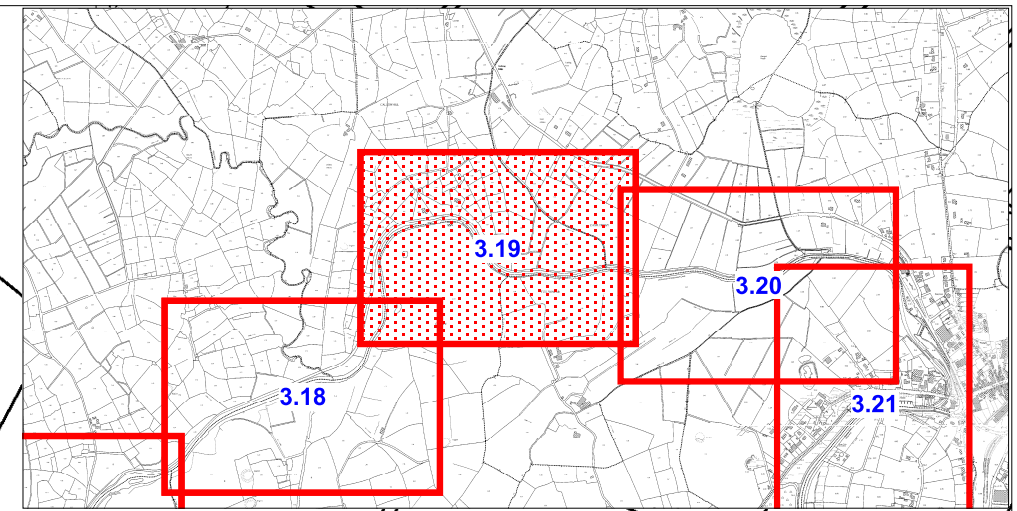
-  WI Property Boundary
-  Stone Walls and Other Stonework (BL1)
-  Drainage Ditches (FW4)
-  Buildings and Artificial Surfaces (BL3)
-  Spoil and Bare Ground (ED2)
-  Eutrophic Lakes (FL5)
-  Reed and Large Sedge Swamp (FS1)
-  Habitat Mosaic (FS1/WS1)
-  Depositing/Lowland River (FW2)
-  Improved Agricultural Grassland (GA1)
-  Amenity Grassland (GA2)
-  Marsh (GM1)
-  Dry Calcareous and Neutral Grassland (GS1)
-  Hedgerows (WL1)
-  Treelines (WL2)
-  Dry Meadows and Grassy Verges (GS2)
-  Habitat Mosaic (GS2/WS1)
-  Wet Grassland (GS4)
-  Habitat Mosaic (GS4/WS1)
-  (Mixed) Broadleaved Woodland (WD1)
-  Conifer Plantation (WD4)
-  Wet Pedunculate Oak - Ash Woodland (WN4)
-  Wet Willow-Alder Ash-Woodland (WN6)
-  Scrub (WS1)




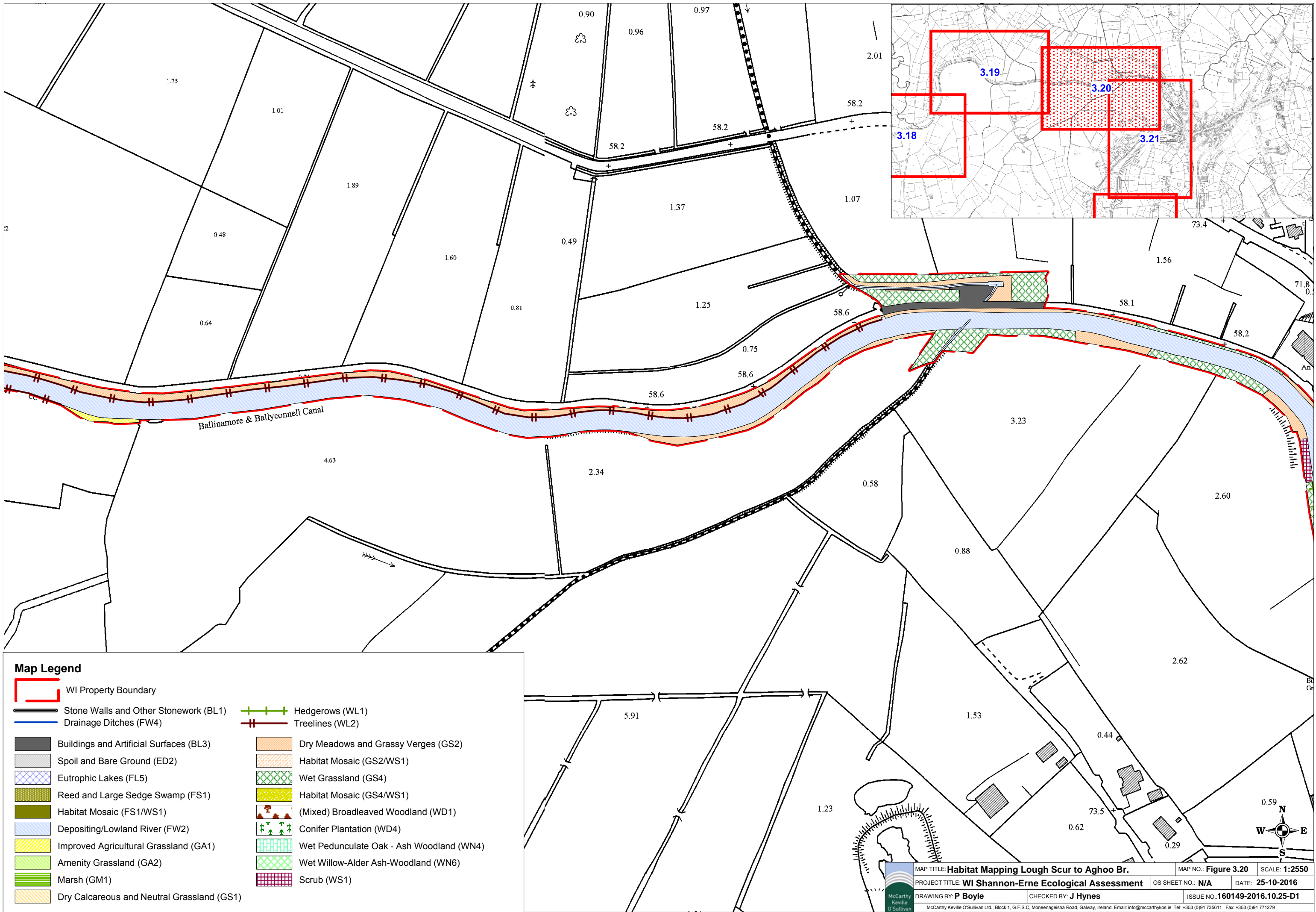
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	PROJECT TITLE: WI Shannon-Erne Ecological Assessment	OS SHEET NO.: N/A	DATE: 25-10-2016
	DRAWING BY: P Boyle	CHECKED BY: J Hynes	ISSUE NO.: 160149-2016.10.25-D1
<small>McCarthy Keville O'Sullivan McCarthy Keville O'Sullivan Ltd., Block 1, G.F.S.C. Moneenageisha Road, Galway, Ireland. Email: info@mccarthys.ie Tel: +353 (0)91 735611 Fax: +353 (0)91 771279</small>			

Map Legend

-  WI Property Boundary
-  Stone Walls and Other Stonework (BL1)
-  Drainage Ditches (FW4)
-  Buildings and Artificial Surfaces (BL3)
-  Spoil and Bare Ground (ED2)
-  Eutrophic Lakes (FL5)
-  Reed and Large Sedge Swamp (FS1)
-  Habitat Mosaic (FS1/WS1)
-  Depositing/Lowland River (FW2)
-  Improved Agricultural Grassland (GA1)
-  Amenity Grassland (GA2)
-  Marsh (GM1)
-  Dry Calcareous and Neutral Grassland (GS1)
-  Hedgerows (WL1)
-  Treelines (WL2)
-  Dry Meadows and Grassy Verges (GS2)
-  Habitat Mosaic (GS2/WS1)
-  Wet Grassland (GS4)
-  Habitat Mosaic (GS4/WS1)
-  (Mixed) Broadleaved Woodland (WD1)
-  Conifer Plantation (WD4)
-  Wet Pedunculate Oak - Ash Woodland (WN4)
-  Wet Willow-Alder Ash-Woodland (WN6)
-  Scrub (WS1)



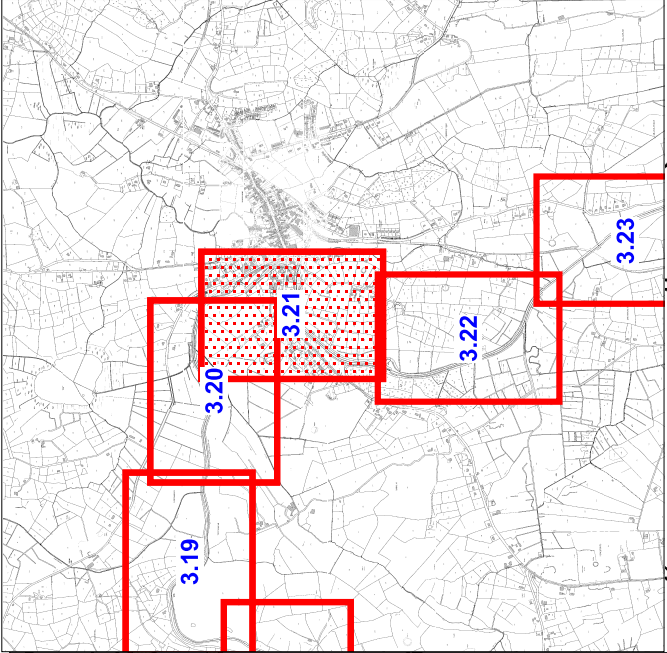
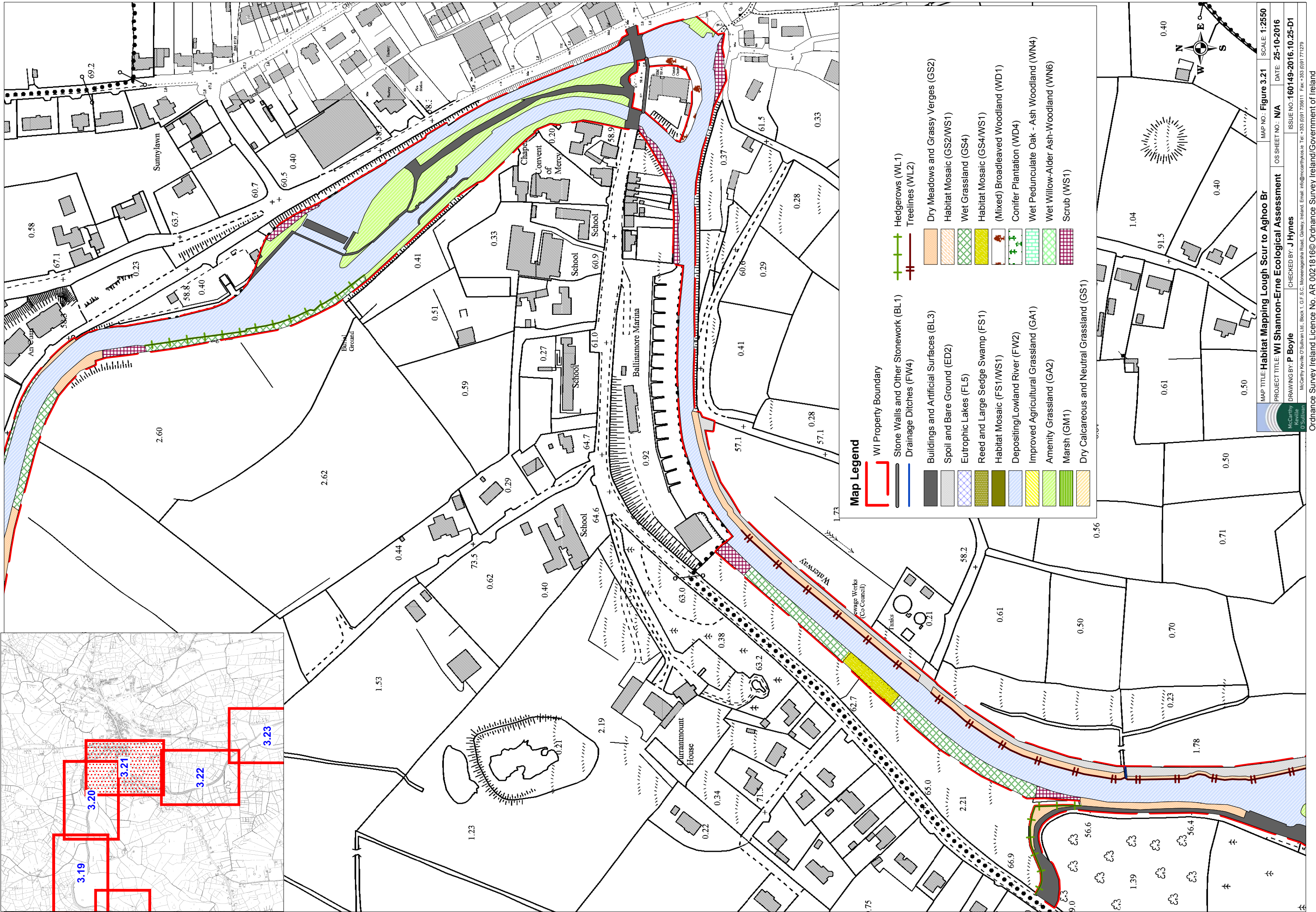
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	PROJECT TITLE: WI Shannon-Erne Ecological Assessment	OS SHEET NO.: N/A	DATE: 25-10-2016
	DRAWING BY: P Boyle	CHECKED BY: J Hynes	ISSUE NO.: 160149-2016.10.25-D1
<small>McCarthy Keville O'Sullivan Ltd., Block 1, G.F.S.C. Moneenageisha Road, Galway, Ireland. Email: info@mccarthynos.ie Tel: +353 (0)91 735611 Fax: +353 (0)91 771279</small>			



Map Legend

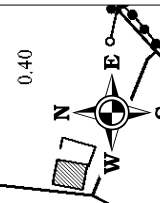
- WI Property Boundary
- Stone Walls and Other Stonework (BL1)
- Drainage Ditches (FW4)
- Buildings and Artificial Surfaces (BL3)
- Spoil and Bare Ground (ED2)
- Eutrophic Lakes (FL5)
- Reed and Large Sedge Swamp (FS1)
- Habitat Mosaic (FS1/WS1)
- Depositing/Lowland River (FW2)
- Improved Agricultural Grassland (GA1)
- Amenity Grassland (GA2)
- Marsh (GM1)
- Dry Calcareous and Neutral Grassland (GS1)
- Hedgerows (WL1)
- Treelines (WL2)
- Dry Meadows and Grassy Verges (GS2)
- Habitat Mosaic (GS2/WS1)
- Wet Grassland (GS4)
- Habitat Mosaic (GS4/WS1)
- (Mixed) Broadleaved Woodland (WD1)
- Conifer Plantation (WD4)
- Wet Pedunculate Oak - Ash Woodland (WN4)
- Wet Willow-Alder Ash-Woodland (WN6)
- Scrub (WS1)

MAP TITLE: Habitat Mapping Lough Scur to Aghoo Br.	MAP NO.: Figure 3.20	SCALE: 1:2550
PROJECT TITLE: WI Shannon-Erne Ecological Assessment	OS SHEET NO.: N/A	DATE: 25-10-2016
DRAWING BY: P Boyle	CHECKED BY: J Hynes	ISSUE NO.: 160149-2016.10.25-D1
McCarthy Keville O'Sullivan Ltd., Block 1, G.F.S.C. Moneenageisha Road, Galway, Ireland. Email: info@mccarthynos.ie Tel: +353 (0)91 735611 Fax: +353 (0)91 771279		

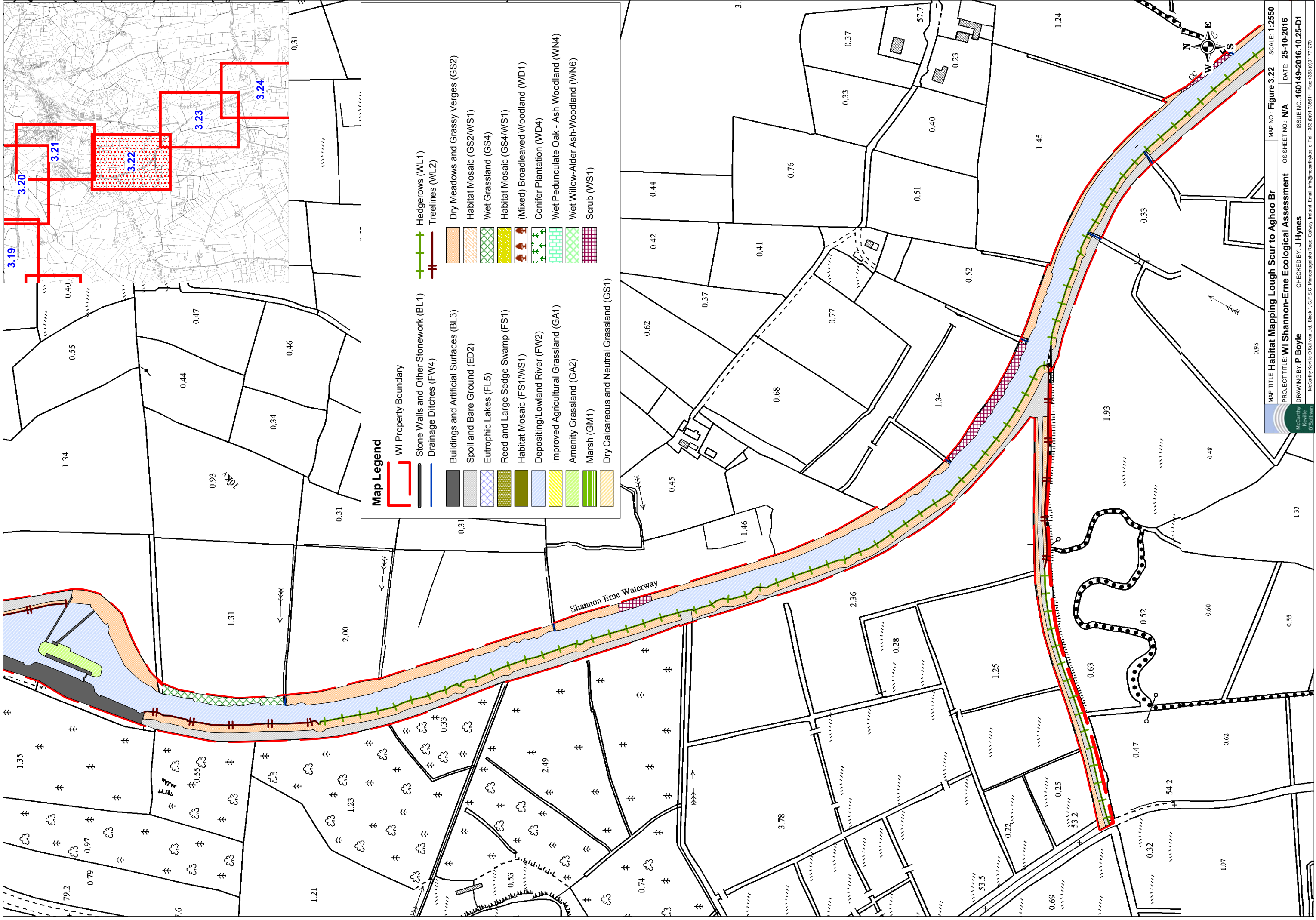


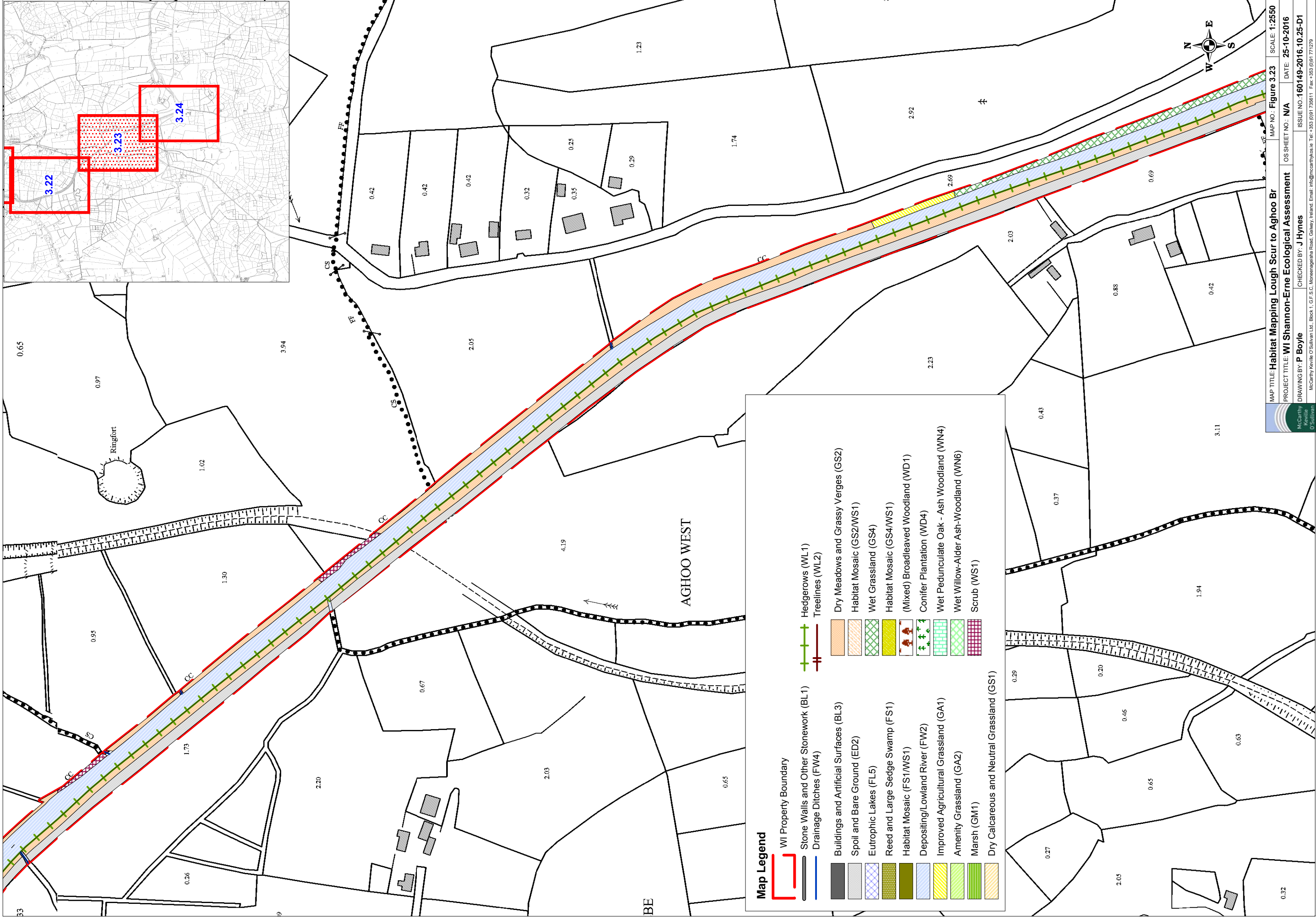
Map Legend

- WI Property Boundary
- Stone Walls and Other Stonework (BL1)
- Drainage Ditches (FW4)
- Buildings and Artificial Surfaces (BL3)
- Spoil and Bare Ground (ED2)
- Eutrophic Lakes (FL5)
- Reed and Large Sedge Swamp (FS1)
- Habitat Mosaic (FS1/WS1)
- Depositing/Lowland River (FW2)
- Improved Agricultural Grassland (GA1)
- Amenity Grassland (GA2)
- Marsh (GM1)
- Dry Calcareous and Neutral Grassland (GS1)
- Hedgerows (WL1)
- Treelines (WL2)
- Dry Meadows and Grassy Verges (GS2)
- Habitat Mosaic (GS2/WS1)
- Wet Grassland (GS4)
- Habitat Mosaic (GS4/WS1)
- (Mixed) Broadleaved Woodland (WD1)
- Conifer Plantation (WD4)
- Wet Pedunculate Oak - Ash Woodland (WN4)
- Wet Willow-Alder Ash-Woodland (WN6)
- Scrub (WS1)



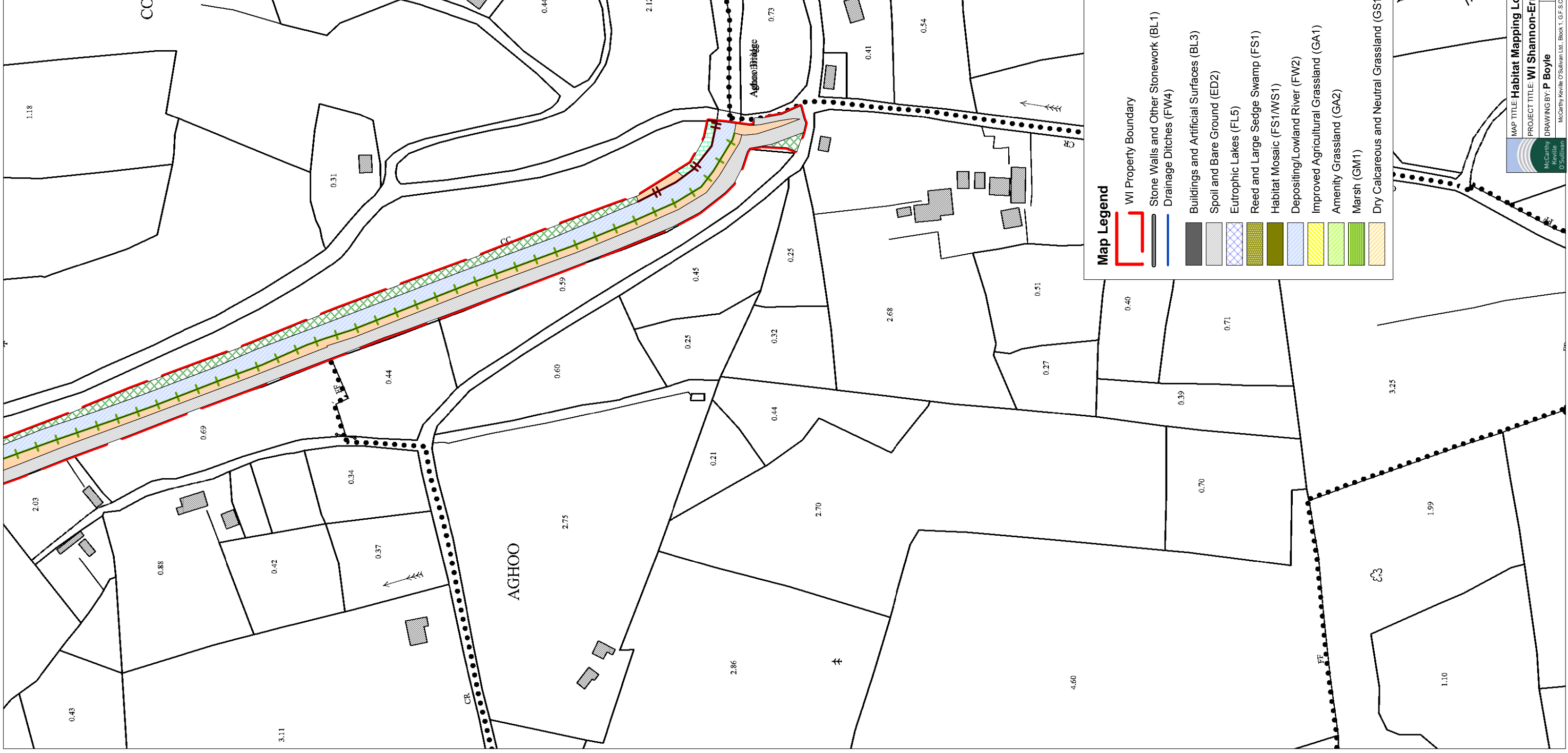
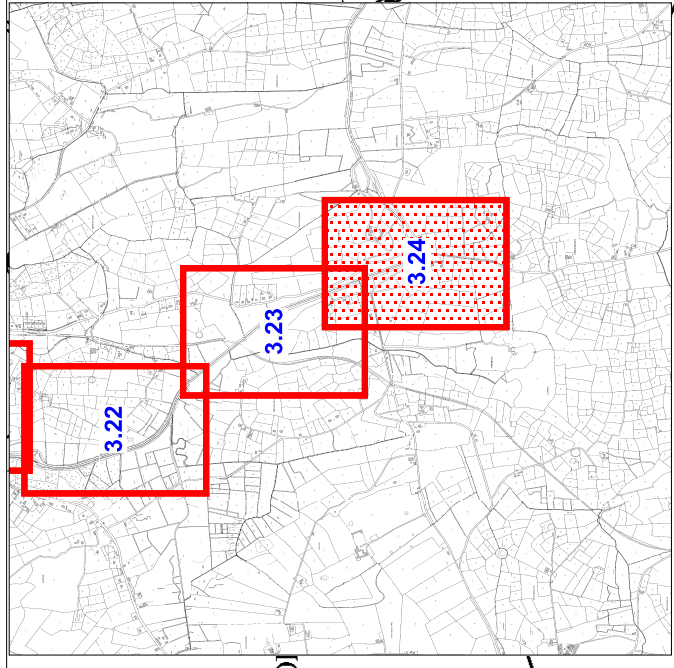
MAP NO: **Figure 3.21** SCALE: 1:2550
 PROJECT TITLE: **WI Shannon-Erne Ecological Assessment** OS SHEET NO: **N/A** DATE: **25-10-2016**
 DRAWING BY: **P Boyle** CHECKED BY: **J Hynes** ISSUE NO: **160149-2016.10.25-D1**
 McCarthy Keville O'Sullivan Ltd., Block 1, G.F.S.C. Moreenagarra Road, Galway, Ireland. Email: info@mccarthykvo.ie Tel: +353 (0)91 729611 Fax: +353 (0)91 771279
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























Map Legend

- WI Property Boundary
- Stone Walls and Other Stonework (BL1)
- Drainage Ditches (FW4)
- Buildings and Artificial Surfaces (BL3)
- Spoil and Bare Ground (ED2)
- Eutrophic Lakes (FL5)
- Reed and Large Sedge Swamp (FS1)
- Habitat Mosaic (FS1/WS1)
- Depositing/Lowland River (FW2)
- Improved Agricultural Grassland (GA1)
- Amenity Grassland (GA2)
- Marsh (GM1)
- Dry Calcareous and Neutral Grassland (GS1)
- Hedgerows (WL1)
- Treelines (WL2)
- Dry Meadows and Grassy Verges (GS2)
- Habitat Mosaic (GS2/WS1)
- Wet Grassland (GS4)
- Habitat Mosaic (GS4/WS1)
- (Mixed) Broadleaved Woodland (WD1)
- Conifer Plantation (WD4)
- Wet Pedunculate Oak - Ash Woodland (WN4)
- Wet Willow-Alder Ash-Woodland (WN6)
- Scrub (WS1)



Map Legend

- | | | |
|---|---|--|
|  WI Property Boundary |  Hedgerows (WL1) |  Dry Meadows and Grassy Verges (GS2) |
|  Stone Walls and Other Stonework (BL1) |  Treelines (WL2) |  Habitat Mosaic (GS2/WS1) |
|  Drainage Ditches (FW4) |  Buildings and Artificial Surfaces (BL3) |  Wet Grassland (GS4) |
|  Spoil and Bare Ground (ED2) |  Eutrophic Lakes (FL5) |  Habitat Mosaic (GS4/WS1) |
|  Reed and Large Sedge Swamp (FS1) |  Habitat Mosaic (Mixed) Broadleaved Woodland (WD1) |  (Mixed) Broadleaved Woodland (WD1) |
|  Habitat Mosaic (FS1/WS1) |  Depositing/Lowland River (FW2) |  Conifer Plantation (WD4) |
|  Improved Agricultural Grassland (GA1) |  Amenity Grassland (GA2) |  Wet Pedunculate Oak - Ash Woodland (WN4) |
|  Marsh (GM1) |  Dry Calcareous and Neutral Grassland (GS1) |  Wet Willow-Alder Ash-Woodland (WN6) |
| | |  Scrub (WS1) |