An Chomhairle Oidhreachta
The Heritage Council

Fingal County Council
Comhairle Contae Fhine Gall



Historic Road Bridges

Fingal County Council

JOHN CRONIN & ASSOCIATES
ARCHAEOLOGY | CONSERVATION | HERITAGE | PLANNING

&

ATKINS

Volume 2
Built Heritage & Ecological Inventory of Bridges

Contents

Preamble

In September 2008 John Cronin & Associates and Atkins were commissioned by Fingal County Council to undertake a study of a selection of fifteen historic road bridges. The aims of the study were as follows:

- Undertake a desktop review that collates and consolidates existing information on the bridges within the study
- Assess the natural and built heritage significance of the bridges
- Produce a plan that recommends conservation and maintenance measures for the bridges which will provide the basis for short and long term remediation works and an ongoing maintenance programme
- Prepare a supporting photographic survey of the bridges

The fifteen bridge structures within the study area are situated upon five different watercourses including the Delvin River, the Ballyboghill River, the Broadmeadow River, the Ward River and the Royal Canal. Many of these watercourses, together with their riparian habitats and associated structures including bridges, provide valuable wildlife corridors and refuges for wildlife in areas of intensive agriculture and human activity.

The following document represents the results of detailed built heritage and ecological assessment of each bridge. A photographic record from both a built heritage and ecological perspective is included for each bridge.

The fieldwork was undertaken by Eamonn Hunter (John Cronin & Associates) and Eamonn Delany (Atkins). The inventory was edited by John Cronin (JCA) and George Smith (Atkins).

The key points noted at the start of individual records for each bridge in the following inventory are laid out to provide a clear overview of the major items of note for anyone proposing to carry out works to the particular structure. They encompass the built and natural heritage significance of the structure, the designations and legislation pertaining to the site along with priorities for repair and recommendations.

Where legally protected status is noted, the necessary consents from relevant bodies (the local authority in the case of a Protected Structure or structures within an Architectural Conservation Area (ACA) and the Department of Environment, Heritage and Local Government in the case of a Recorded Monument) will be required prior to any works taking place. The designation of a watercourse as being 'salmonid' places a responsibility on those proposing works which may impact on the watercourse to be mindful of the effects on the river from run-off as a result of maintenance or repair. This includes taking measures to prevent excessive amounts of lime from entering the water which could bring about a damaging alteration in the pH of the water. Approval of any works including suitable herbicides, use of lime within the vicinity of bridges over watercourses should be sought from the local Fisheries Board. No in-stream works should take place except during the months of April to October. Work within designated areas (SACs, SPAs or NHAs) must be approved first by the National Parks and Wildlife Service. The combined built and ecological heritage recommendations made here have been elaborated on and discussed within the context of bridge history and ecology in the Fingal area and in Ireland generally in section 6 of Volume 1 of this study.

The purpose of these key points made for each site is to highlight, at a glance, the most important issues relating to that particular structure. This is a means of ensuring that "appropriate assessment" of the site is made by those charged with maintaining and repairing it, as the essential considerations are listed from the outset in each bridge record to be made available and familiar to all relevant Fingal County Council staff. By setting out these key points, which are supported by data in the inventory record and discussed in the accompanying general document, those proposing works on the site will not be able to defend improper practices which may have a detrimental effect on built heritage or ecological significance of a bridge site by claiming to be ill-informed. Suitable mitigation measures will have to be laid out prior to commencement of works to address and minimise to an acceptable level the negative impacts of any proposals.

1. Gormanstown Bridge

Key points

- *One of the oldest structures on an early, principal route north from Dublin, Gormanstown Bridge may contain significant amounts of thirteenth century fabric with later extensions. The bridge provides a habitat for a significant diversity of flora, it has good potential for bat activity which is high in the surrounding area and it is located on the salmonid Delvin River.*

- *Recorded Monument (under the National Monuments Code)*
  Protected Structure (under the Local Government (Planning and Development) Act, 2000).

- *Repair priorities: - removal of tree growth on the structure*
  - use of appropriate lime mortars in any repair works
  - maintenance of grass verges and road drainage should be ongoing.
  Continued bat potential on the structure depends on retention of the good commuter tree-lines up and downstream of the bridge and on a sympathetic approach to any pointing works proposed for the structure, particularly on the arch soffit.

1. Gormanstown Bridge

Locational/Reference Data

Study reference number	**FHBS01**
Fingal Bridge ID	670
Structure name	**Gormanstown Bridge**
Townland 1	Tobersool
Townland 2	Knocknagin
Additional townlands (if more than two)	Gormanstown
Street number	n/a
Street address	Gormanstown/Bridgefoot Road
Associated water course	River Delvin
Grid co-ordinates (easting)	317084
Grid co-ordinates (northing)	265760
NIAH Reference No.	n/a
OS Map	2514
OS Map (Six-Inch Series)	DN001-12

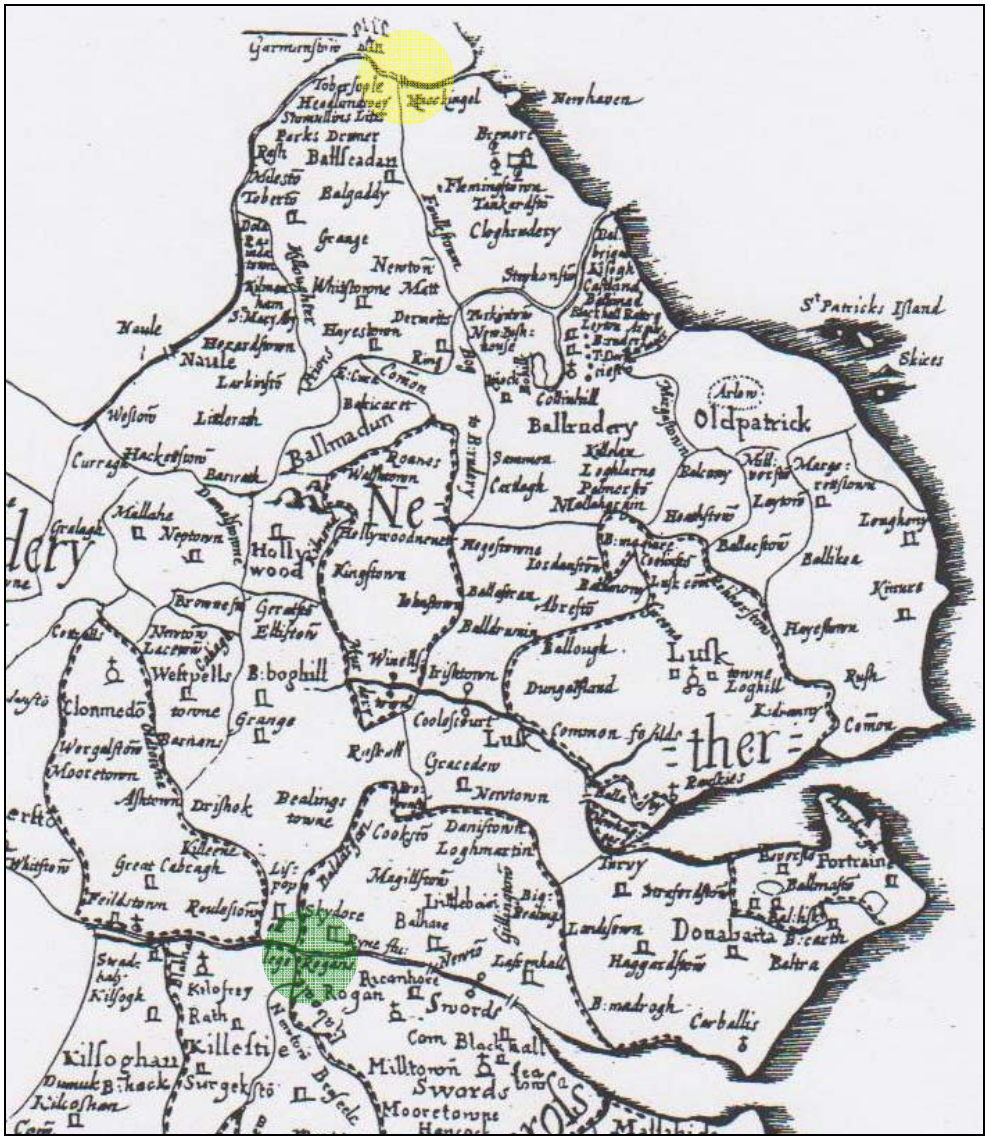
Legal Designations

RPS ref.	4 (Not on Meath RPS)
RMP ref.	DU001-010; ME034-007 (Gormanstown)
Natural Heritage Designation(s)	1.2 km upstream of River Nanny and Estuary Shore SPA (site code 004158)
Owner	Fingal County Council / Meath County Council
Address Owner	

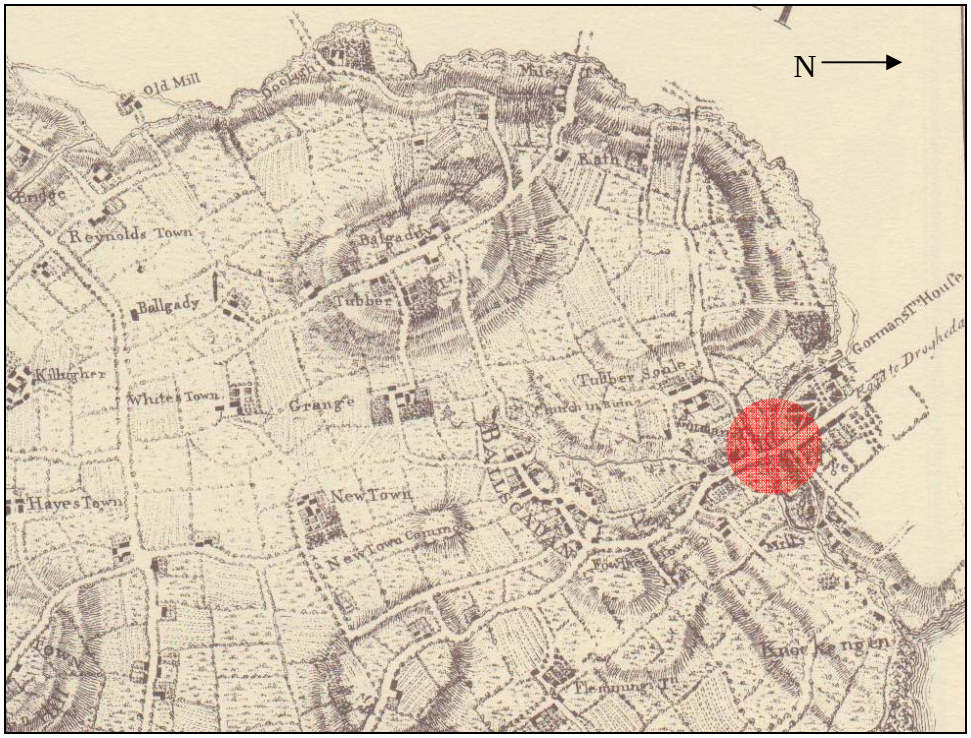
Bridge Form and Configuration

Description	Two-arched stone road bridge over Delvin river on Fingal/Meath county border south of the Gormanstown Castle Estate. Semi-circular stone arches with coarse voussoirs, high rubble stone parapet with round concrete coping on original upstream west side and lower, stone-capped, rubble–built parapet with remains of lime render on later downstream side. Three distinct sections visible on arch soffit. Low pointed breakwater with masonry damaged by tree growth. Abutment to south west corner is cased in cast concrete. Two semi-circular stone arches to north bank just west of bridge. Stone north west approach wall has been recently re-built on gabian basket foundation.
Bridge Type	Road over river
Number of permanent channel arches	2
Number of overflow arches	(2 archways to north bank of western side)
Number of dry arches	0
Approximate span (m)	4.11m and 4.09m
Distance between high-water mark and top of bridge arch (m)	0.6m
Watercourse type (Tidal, canal etc)	Depositing lowland river (FW2)

Drainage within bridge (comment)	Some internal drainage from the parapet walls down through to the underarch
Sewage, other outflows apparent?	None apparent
Water width at bridge (m)	8.0m
Water width (m)	7.0m
Water depth (m)	1.0m
Channel width (m)	10.5
Bank height (m)	1.2m
Substrate - % sand	5
Substrate - % silt	0
Substrate - % gravel	85
Substrate - % cobble	5
Substrate - % boulder	5
Substrate - % concrete	0

NIAH Description	n/a
Cartographic representation	Depicted with two parallel lines near mouth of Delvin River on Down Survey Map (1656) (shaded yellow on extract below).  (Green shading shows Roganstown crossing referred to in record **FHBS08** on pg 90 below.)

Named on Moll's map (1714); shown on Rocque's map within red shaded circle on map below (1760).



Shown on Taylor and Skinner road map (1777) within blue shaded circle on map below:

named on Ordnance Survey maps (1843 and 1908).

Historical background	O'Keeffe and Simmington record that this bridge is possibly the oldest such structure surviving on the original seaboard route of the Dublin to Dunleer turnpike which provided transport to the main linen export port of Dublin from the production centre in the north east of the country. The main road serving this route ceased to pass over Gormanstown Bridge in the last quarter of the eighteenth century when a bridge at Knocknagin on the present R132 was originally constructed. As this bridge is on the Dublin/Meath county border, the Grand Jury records for Meath escaped the burning of records in Dublin in 1922. These records detailed a programme to repair and rebuild the bridge in 1809, and plans for rebuilding of half an arch on the bridge in 1775. Clearly the Dublin County Grand Jury would have been responsible for the second half of the bridge work. The second extension with its dateable masonry and heavy parapet coping stones is the result of this 1775 work presentment. The unusual high parapet on the original downstream side of the structure was probably replicated on the opposite side before the two later extensions were built and its purpose was to protect those crossing the bridge on horse-back from attack with arrows. The two small arches in the northern upstream bank would have been equipped with sluices for the mill race historically located here on the demesne of Gormanstown Castle built by Sir Jenico Preston in 1786 on the site of a fourteenth century castle. A Dublin County Council engineering report of 15-7-81 recognised separation of arch extensions and some stones missing from south west spandrel wall. It noted some stones missing from south west spandrel wall and recommended pointing and vegetation removal on the west elevation. The north arch soffit had some loose stones along the extension joint and repair and pointing were recommended. Restored by Meath County Council in 1986 (according to National Monuments Archive notes). No steel tie rods visible in photographs of 14-12-88. Rebuilding of the approach wall, ivy growth removal and some pointing were recommended in the report of 30-6-95.
References (i.e. historical, bibliographical)	Broderick, D. (1996) An Early Toll Road: The Dublin-Dunleer Turnpike 1731-1855. pp. 11, 46. Gilbert, J.T. (1874) 4th Report of the Royal Commissioners on Historic Manuscripts. p.573 Moore (1987) Archaeological Inventory of County Meath. p. 132. O'Keeffe and Simmington (1991) Irish Stone Bridges: History and Heritage. pp. 145-147
Date of construction	13th century – inferred from masonry detail and historic evidence of importance of road and adjacent demesne of Lord Gormanstown.
Principal material	Rubble stone (limestone and sandstone)
Condition (structural)	Some transverse subsidence noted on road surface closer to east side. Five steel tie rods running through structure, reinforcing arches at extrados level; two on south arch, three on north arch.
Condition (parapet)	Good
Condition (matrix/mortar)	Generally good on parapets with some areas requiring pointing
Condition (soffit)	Generally good with little dampness or leaching observed on crown of arch soffit. Some water draining out through joints on lower portion of arch soffit.
Grouting or spray concrete?	No
Grouting or spray commentary	n/a

Accessibility	Accessible on both sides from southern river bank only. Northern bank obstructed with thick vegetation.
Built heritage photographs	FHBS-01-BH-01 ~ West upstream elevation FHBS-01-BH-02 ~ East downstream elevation FHBS-01-BH-03 ~ West parapet from road FHBS-01-BH-04 ~ East parapet from road FHBS-01-BH-05 ~ Tree rooted on stone cutwater FHBS-01-BH-06 ~ Arches in boundary wall on north bank to western side of bridge FHBS-01-BH-07 ~ Tree rooted underneath east elevation FHBS-01-BH-08 ~ Soffit of southern arch from east FHBS-01-BH-09 ~ View upstream to west FHBS-01-BH-10 ~ View downstream to east
Name of Built Heritage Field Surveyor	Eamonn Hunter
Date of inspection (Built Heritage)	22-10-2008
Built heritage commentary	This is a stone bridge of at least three major periods of development from its medieval origin. Its distinctive tall parapet, probably built so for defensive purposes, and its considerable antiquity gives it a particular significance among historic stone bridges in the area with historic, architectural and technical interest. The bridge and adjoining structures are evidently subject to ongoing maintenance and reinforcement as required and the visible subsidence of the road surface should be monitored and remedied. The use of cement to point small areas of the arch soffit noted on the east side of the south arch is to be discouraged as moisture permeable lime mortar is more appropriate. Vegetation, in particular ivy on parapet walls and trees growing both on the western breakwater and under the central, eastern pier should be removed to prevent structural damage by their roots. Previously surveyed 10-6-80 (report 15-7-81); 25-8-87; 14-12-88; 30-6-95.

FHBS-01-BH-01 ~ West upstream elevation

FHBS-01-BH-02 ~ East downstream elevation

FHBS-01-BH-03 ~ West parapet from road

FHBS-01-BH-04 ~ East parapet from road

FHBS-01-BH-05 ~ Tree rooted on stone cutwater

FHBS-01-BH-06 ~ Arches in boundary wall on north bank to western side of bridge

FHBS-01-BH-07 ~ Tree rooted underneath east elevation

FHBS-01-BH-08 ~ Soffit of southern arch from east

FHBS-01-BH-09 ~ View upstream to west

FHBS-01-BH-10 ~ View downstream to east

Ecology data and commentary

Plant species present	Sycamore Ivy Pellitory-of-the-wall Polypody fern *Conocephalum conicum* Dandelion Wall-rue
% Cover of Ivy?	5 %
Riparian habitat	Abundant nettles and bramble growing on the right hand bank. Discontinuous line of sycamore and alder trees along the left hand bank, both upstream and downstream of the bridge.
Adjacent habitats	Adjacent habitats are dominated by intensive agricultural practices such as tilled land (BC3) and Improved agricultural grassland (GA1)
Bat Roost features?	Crevices suitable for bat use on the bridge's underarch, particularly nearer the upstream side of the bridge.
Lighting?	No artificial lighting nearby
Otter signs? E.g. spraint	No otter activity recorded. Roots of trees fringing the river may provide suitable habitat as otter holts.
Riffle %	10
Pool %	15
Glide %	75
Other mammals present	None noted
Birds Evident?	Typical passerine birds- Long tailed tit, Wren, Robin and Blue Tit
Bird nesting opportunities?	Nearby sycamore, alder and ash trees on the left hand bank both upstream and downstream of the bridge could provide suitable bird nesting opportunities.
Amphibians, Fish, Inverts	None noted. This bridge is situated over the Delvin River which is a salmonid river.
Natural heritage photographs	FHBS-01-NH-01 ~ Bridge underarch with crevices – Bat roosting potential FHBS-01-NH-02 ~ Large trees within vicinity of the bridge – nesting potential FHBS-01-NH-03 ~ Plant species diversity on bridge parapet FHBS-01-NH-04 ~ Riparian habitat downstream of the bridge structure
Name of Ecology Field Surveyor	George Smith, Eamonn Delaney
Date of inspection (Ecology)	22/10/2008
Ecology commentary	Overall this bridge comprises good potential for bat activity. Coverage of ivy on the bridge itself is not very significant however the presence of nearby mature and semi mature trees on the river margins in addition to crevices within the bridge's underarch may provide suitable habitats for bats. A bat survey completed by Brian Keeley on a disused bridge at Gormanstown college, situated less than 1 kilometre to the northwest of this bridge, exhibited very high bat activity. This may indicate high bat activity within the general area. Floristically the bridge contains species commonly associated with stone walls in rural areas. No

	mammals/ mammal activity were identified during the field survey, however the presence of mammal species such as otter cannot be discounted.

FHBS-01-NH-01 ~ Bridge underarch with crevices – Bat roosting potential

FHBS-01-NH-02 ~ Large trees within vicinity of the bridge – nesting potential

FHBS-01-NH-03 ~ Plant species diversity on bridge parapet

FHBS-01-NH-04 ~ Riparian habitat downstream of the bridge structure

2. Old Mill Bridge

Key points

- *This is an engineer-designed, mid-nineteenth century bridge rated by the NIAH as of regional significance with architectural and technical interest. The site provides good potential for bird and/or bat activity. Sand banks within the river's substrate provide potential habitat for lampreys and the bridge is located on the salmonid Delvin River.*

- *Protected Structure (under the Local Government (Planning and Development) Act, 2000).*

- *Repair priorities: - removal of ivy rooted on masonry, retaining ivy cover as a habitat where no structural damage is being caused*
  - consolidation or replacement of parapet wall coping
  Continued bat potential on the structure depends on retention of the good commuter tree-lines upstream of the bridge and on a sympathetic approach to any pointing works proposed for the structure. Any works, particularly if scaffolding is required should avoid disturbance of the river-bed substrate especially any sandbanks with use of cantilevered scaffolding if necessary.

2. Old Mill Bridge

Locational/Reference Data

Study reference number	**FHBS02**
Fingal Bridge ID	525
Structure name	**Old Mill Bridge**
Townland 1	Coolfores
Townland 2	Tullog
Additional townlands (if more than two)	n/a
Street number	n/a
Street address	Old Mill Road
Associated water course	River Delvin
Grid co-ordinates (easting)	31445
Grid co-ordinates (northing)	26264
NIAH Reference No.	11303001
OS Map	2582
OS Map (Six-Inch Series)	DN004-03

Legal Designations

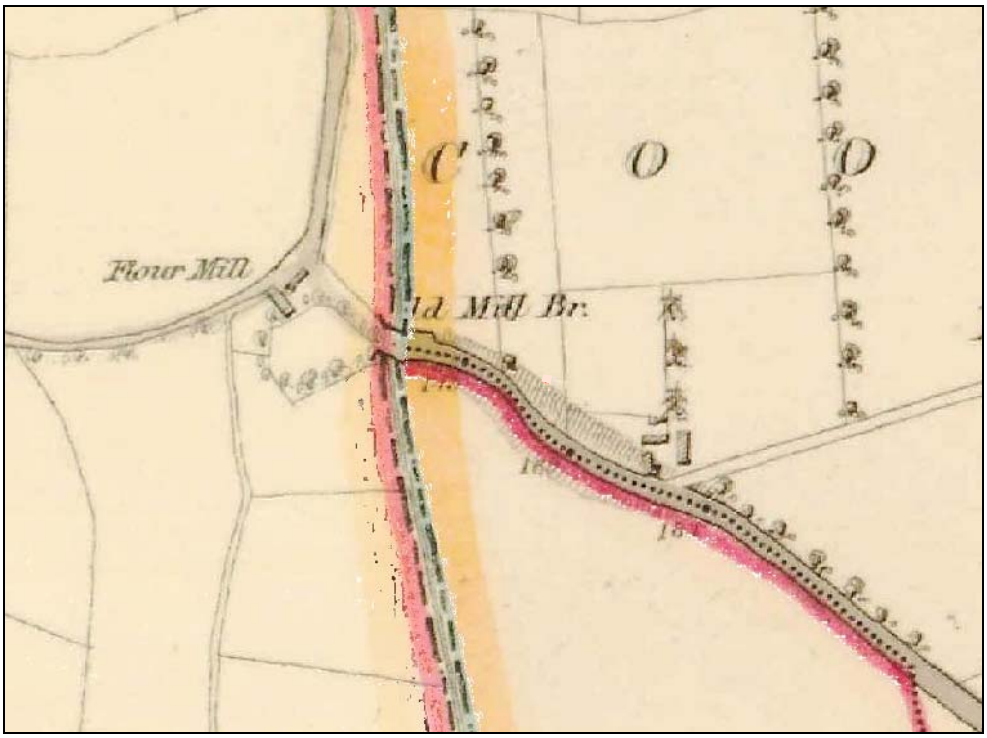
RPS ref.	34 (bridge) (not on Meath RPS)
RMP ref.	(Adjacent Old Mill – DU004-041 (?))
Natural Heritage Designation(s)	5km upstream of River Nanny and Estuary Shore SPA (site code 004158)
Owner	Fingal County Council / Meath County Council
Address Owner	

Bridge Form and Configuration

Description	Single segmental-arched, stone-built road bridge over Delvin river on Fingal/Meath border beside old mill building which has been converted to residential use. Punched ashlar limestone voussoirs with roughly coursed rubble stone spandrels and parapets with some remains of lime render to south east corner. Some corbel detail beneath vegetation on parapet at this corner which may have supported further parapet detail but close examination not possible. Dry stone-built south west bank abutting bridge. Coping either not extant or not visible due to excessive vegetation.
Bridge Type	Road over river
Number of permanent channel arches	1
Number of overflow arches	0
Number of dry arches	0
Approximate span (m)	4.9m
Distance between high-water mark and top of bridge arch	1.7m
Watercourse type (Tidal, canal etc)	Depositing Lowland River (FW2)
Drainage within bridge (comment)	Some internal seepage down through the underarch
Sewage, other outflows apparent?	No
Water width at bridge (m)	4.0m

Water course width (m)	4.0m
Water depth (m)	1.0m
Channel width (m)	4.0m
Bank height (m)	2.0m
Substrate - % sand	35
Substrate - % silt	0
Substrate - % gravel	60
Substrate - % cobble	5
Substrate - % boulder	5
Substrate - % concrete	0

Built heritage data and commentary

NIAH Description	Single-arch rubble stone road bridge, c.1850.
Cartographic representation	Bridge in this position visible on Rocque Map (1760) (see pg 7 on **FHBS01** record above); Ordnance Survey 1843 (extract below) and 1908. 
Historical background	7-7-95 survey report noted some slight distortion of the arch barrel and salt crystallisation on the soffit which was to be repointed. It was also stated that the parapet wall was broken requiring repair and that there was some overgrowth of ivy on the walls
References (i.e. historical, bibliographical)	(Adjacent Old Mill in Moore (1987) Archaeological Inventory of County Meath.)
Date of construction	c.1850
Principal material	Rubble limestone with ashlar dressings.
Condition (structural)	Good
Condition (parapet)	Parapet capping is extensively damaged by vegetation, particularly ivy. Stones are loose and mortar friable allowing water to enter parapet wall tops.
Condition (matrix/mortar)	Generally good with only selective pointing required for

	localised areas of spandrels and parapet.
Condition (soffit)	Generally good; no obvious major water penetration, some small scale crystallisation of minerals.
Grouting or spray concrete?	No
Grouting or spray commentary	n/a
Accessibility	Accessible from all but north east side which was on private land. Vegetation obscured views from west banks.
Built heritage photographs	FHBS-02-BH-01 ~ South upstream elevation FHBS-02-BH-02 ~ North downstream elevation FHBS-02-BH-03 ~ North parapet from road FHBS-02-BH-04 ~ Large Ash tree rooted on stone-built west bank just upstream of south elevation FHBS-02-BH-05 ~ Arch soffit from south FHBS-02-BH-06 ~ General view of bridge from southeast
Name of Built Heritage Field Surveyor	Eamonn Hunter
Date of inspection (Built Heritage)	22-10-08
Built heritage commentary	This well-constructed stone bridge appears early-mid nineteenth century in date based simply on its good condition (despite damaged parapet wall tops), although it may be earlier or be a replacement for a previous structure on the site as the mill here is older. Located on a very quiet road with relatively little traffic using it, it is a structure of local significance with historic interest. Previously surveyed 10-6-80; 7-7-95; 9-11-99

FHBS-02-BH-01 ~ South upstream elevation

FHBS-02-BH-02 ~ North downstream elevation

FHBS-02-BH-03 ~ North parapet from road

FHBS-02-BH-04 ~ Large Ash tree rooted on stone-built west bank just upstream of south elevation

FHBS-02-BH-05 ~ Arch soffit from south

FHBS-02-BH-06 ~ General view of bridge from southeast

Ecology data and commentary

Plant species present	Ivy Cleavers Nettle Bush vetch Hawthorn Dog rose Bramble
% Cover of Ivy?	60
Riparian habitat	There is a recently planted treeline of immature willow trees downstream of the bridge. Upstream is treeline (WL2) of alder and ash.
Adjacent habitats	Improved agricultural grassland (GA1) is situated both upstream and downstream of the bridge.
Bat Roost features?	Crevices present on the parapet walls of this bridge. Underarch of the bridge does not contain cervices suitable for bat roosts. Bat potential in the area may be enhanced by the presence of an alder/ ash treeline upstream of the bridge. In addition ivy cover on parapet walls may also have the potential to support bats.
Lighting?	None
Otter signs? E.g. spraint	None noted
Riffle %	0
Pool %	0
Glide %	100
Other mammals present	None noted
Birds Evident?	None noted
Bird nesting opportunities?	Ivy cover on the bridge parapet, and treelines nearby the river margins.
Amphibians, Fish, Inverts	None noted
Natural heritage photographs	FHBS-02-NH-01 ~ Ivy coverage on bridge parapet FHBS-02-NH-02 ~ Nearby riparian habitats conducive to bird and mammal activity FHBS-02-NH-03 ~ Sand/gravel substrate within the Delvin River FHBS-02-NH-04 ~ Treeline upstream of the bridge
Name of Ecology Field Surveyor	George Smith, Eamonn Delaney
Date of inspection (Ecology)	22/ 10/ 2008
Ecology commentary	Overall the bridge is situated in a rural area where the main landuse type is for agriculture practices. From a plant ecology viewpoint the bridge supports species commonly found throughout the Irish countryside. The high coverage of ivy may provide adequate habitat for both birds and/ or bats whilst the treelines in the vicinity of the bridge may also provide suitable roosting habitats. The sand banks within the river bed substrate, which are listed on Annex II of the EU Habitats Directive may provide suitable habitat for lamprey in the river.

FHBS-02-NH-01 ~ Ivy coverage on bridge parapet

FHBS-02-NH-02 ~ Nearby riparian habitats conducive to bird and mammal activity

FHBS-02-NH-03 ~ Sand/gravel substrate within the Delvin River

FHBS-02-NH-04 ~ Treeline upstream of the bridge

3. Garristown Bridge

Key points

- *Constructed as part of a drainage scheme for the Garristown River Basin, this is an example of late nineteenth century civil engineering as part of a wider flood management and bog improvement plan. It was rated by the NIAH as of regional significance. Bat potential is possible in suitable crevices on downstream parapet but limited due to scarcity of surrounding trees. The river substrate was heavily siltated but the bridge is situated within the Delvin River catchment which is salmonid.*

- *Protected Structure (under the Local Government (Planning and Development) Act, 2000)*

- *Repair priorities: - poorly tied face stones on parts of the elevations require consolidation with re-pointing*

3. Garristown/Hedge Bridge

Locational/Reference Data

Study reference number	**FHBS03**
Fingal Bridge ID	215
Structure name	**Garristown/Hedge Bridge**
Townland 1	Commons Upper
Townland 2	Commons Lower
Additional townlands (if more than two)	n/a
Street number	n/a
Street address	Ardcath/Hedge Road
Associated water course	River Delvin
Grid co-ordinates (easting)	30729
Grid co-ordinates (northing)	26046
NIAH Reference No.	11306002
OS Map	2647
OS Map (Six-Inch Series)	DN007-07+08

Legal Designations

RPS ref.	118
RMP ref.	n/a
Natural Heritage Designation(s)	14 km upstream of River Nanny and Shore SPA (site code 004158)
Owner	Fingal County Council
Address Owner	

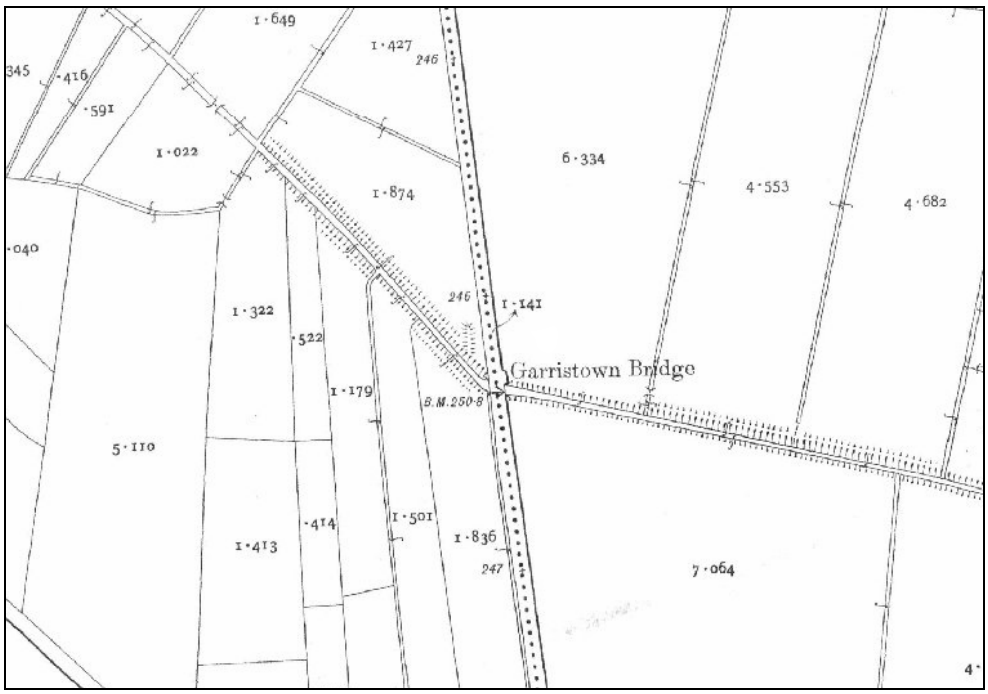
Bridge Form and Configuration

Description	Stone-built road bridge over Delvin river with single semi-circular arch in quarry-faced cut limestone voussoirs. Squared coursed limestone construction to spandrels and parapets which are capped with quarry-faced limestone blocks with a cast concrete repair to north west section of parapet coping. Arch is slightly skewed as river is not at right angle to road. Limestone plaque on road side of east parapet wall reads: 1880 GARRISTOWN RIVER DRAINAGE DISTRICT GARRISTOWN BRIDGE JAS DILLON ENGINEER
Bridge Type	Road over river
Number of permanent channel arches	1
Number of overflow arches	0
Number of dry arches	0
Approximate span (m)	4.0
Distance between high-water mark and top of bridge arch (m)	0.8m

Watercourse type (Tidal, canal etc)	Depositing lowland river (FW2)
Drainage within bridge (comment)	Internal drainage some draining through the bridge into the underarch
Sewage, other outflows apparent?	No
Water width (at bridge) (m)	4.0m
Watercourse width	2.0m
Water depth (m)	0.5m
Channel width (m)	4m
Bank height (m)	2.3m
Substrate - % sand	0
Substrate - % Silt	10
Substrate - % gravel	0
Substrate - % cobble	20
Substrate - % boulder	0
Substrate - % Mud	70
Substrate - % Concrete	0

Built heritage data and commentary

NIAH Description	Single-arch random coursed road bridge over Garristown (Delvin) River, built 1880, with rubble stone parapet walls, rock faced limestone cappings and limestone date plaque. J. A. Dillon, Engineer
Cartographic representation	Unnamed bridge marked on Ordnance Survey map of 1843 at same location. (Rocque map of 1760 describes surrounding area as "Part of the Bog and Common of Garristown." There may have been a bridge at this site then but it was replaced with the drainage and improvement of the area in the nineteenth century.) Named on Ordnance Survey map of 1909 (see map below).



Historical background	6-10-87 survey report stated that some voussoirs on the south west corner of the bridge had slipped slightly, opening up a crack in the soffit about 1.5m from the edge of the arch.
References (i.e. historical, bibliographical)	None found
Date of construction	1880
Principal material	Squared limestone
Condition (structural)	Good
Condition (parapet)	Generally good but with some repairs to parapet coping involving replacement of coping stones with cast concrete and re-use of coping stones from elsewhere.
Condition (matrix/mortar)	Generally good but pointing required to all exterior as surface mortar joints have generally weathered away with some face stones having already fallen out.
Condition (soffit)	Some areas of dampness in soffit but generally in good condition with lower joints requiring pointing and some crystallisation of minerals in mortar at arch crown.
Grouting or spray concrete?	No
Grouting or spray commentary	n/a
Accessibility	Accessible from all sides.
Built heritage photographs	FHBS-03-BH-01 ~ West upstream elevation FHBS-03-BH-02 ~ East downstream elevation FHBS-03-BH-03 ~ West parapet from road FHBS-03-BH-04 ~ East parapet from road FHBS-03-BH-05 ~ Repaired west parapet FHBS-03-BH-06 ~ Date plaque on west parapet FHBS-03-BH-07 ~ Soffit of arch from east FHBS-03-BH-08 ~ View downstream to east
Name of Built Heritage Field Surveyor	Eamonn Hunter
Date of inspection (Built Heritage)	22-10-08
Built heritage commentary	A simple but elegant bridge structure of a design replicated elsewhere in the local area as part of the late nineteenth century drainage improvement works. It is of local significance with historic and technical importance. Some inappropriate cement repairs have taken place on the parapet walls in recent years and vegetation is beginning to lodge in masonry joints as mortar is weathered away. Previously surveyed 16-6-80; 6-10-87; 17-11-99; Winter 2004

FHBS-03-BH-01 ~ West upstream elevation

FHBS-03-BH-02 ~ East downstream elevation

FHBS-03-BH-03 ~ West parapet from road

FHBS-03-BH-04 ~ East parapet from road

FHBS-03-BH-05 ~ Repaired west parapet

FHBS-03-BH-06 ~ Date plaque on west parapet

FHBS-03-BH-07 ~ Soffit of arch from east

FHBS-03-BH-08 ~ View downstream to east

Ecology data and commentary

Plant species present	Ivy Red fescue Herb Robert

	Wall-rue Pellitory-of-the-wall Smooth sow thistle Yorkshire fog
% Cover of Ivy?	25%
Riparian habitat	Improved agricultural grassland up to the riverbank which grades into dense growth of nettles. Discontinuous and derelict hedgerow of hawthorn and bramble on left hand bank upstream of the bridge.
Adjacent habitats	Improved agricultural grassland and a single discontinuous hedgerow situated upstream of the bridge.
Bat Roost features?	Crevices in the lower side of the arch wall. Possibly too low down however to be a viable roost as it may receive inundation at times of flood. Ivy coverage is not dense enough to support a bat roost. Holes and crevices present in parapet wall, particularly on the downstream side, may be utilised as bat roosts.
Lighting?	None present
Otter signs? E.g. spraint	None recorded during site visit
Riffle %	0
Pool %	10
Glide %	90
Other mammals present	None noted
Birds Evident?	None noted during field survey. Highly intensive farming practices were noted throughout with large fields with very little hedgerows or mature trees within the immediate vicinity.
Bird nesting opportunities?	Very few bird nesting opportunities within the immediate area of the bridge.
Amphibians, Fish, Inverts	None noted. This bridge is situated upon the River Delvin which is characterised as salmonid by the Eastern Regional Fisheries Board (ERFB)
Natural heritage photographs	FHBS-03-NH-01 ~ Crevices on bridge – bat roosting potential FHBS-03-NH-02 ~ Crevices in parapet wall FHBS-03-NH-03 ~ Scarcity of connectivity within bridge environs FHBS-03-NH-04 ~ Wall rue *Asplenium ruta muraria*
Name of Ecology Field Surveyor	Eamonn Delaney
Date of inspection (Ecology)	22-10-2008
Ecology commentary	This bridge is situated in an area characterised by intensive agricultural practices with a scarcity of mature trees and hedgerows. This may make movement to and from the bridge area by mammals and birds very difficult. The river at this stage has been both channelised and deepened. The river's substrate is also very muddy and heavily siltated. As a result habitats suitable for most aquatic invertebrates, fish spawning and feeding are particularly scarce within this section of the river.

FHBS-03-NH-01 ~ Crevices on bridge – bat roosting potential

FHBS-03-NH-02 ~ Crevices in parapet wall

FHBS-03-NH-03 ~ Scarcity of connectivity within bridge environs

FHBS-03-NH-04 ~ Wall rue Asplenium ruta muraria

4. Cockles Bridge

Key points

- *Another example of work supervised by engineer James Dillon on the 1880 Garristown River Drainage Scheme. Otter and mammal activity within the bridge's vicinity was confirmed by field survey and bat potential is good with suitable crevices and ivy coverage on the structure. The bridge is situated within the Delvin River catchment which is salmonid.*

- *Protected Structure (under the Local Government (Planning and Development) Act, 2000)*

- *Repair priorities: - removal of ivy rooted on masonry, retaining ivy cover as a habitat where no structural damage is being caused*
  - maintenance of the parapet coping

4. Cockles Bridge

Locational/Reference Data

Study reference number	**FHBS04**
Fingal Bridge ID	300
Structure name	**Cockles Bridge**
Townland 1	Glebe East
Townland 2	Tobeen
Additional townlands (if more than two)	Commons Lower
Street number	n/a
Street address	Clonalvy Road
Associated water course	River Delvin
Grid co-ordinates (easting)	30932
Grid co-ordinates (northing)	25959
NIAH Reference No.	n/a
OS Map	2648
OS Map (Six-Inch Series)	DN004-09

Legal Designations

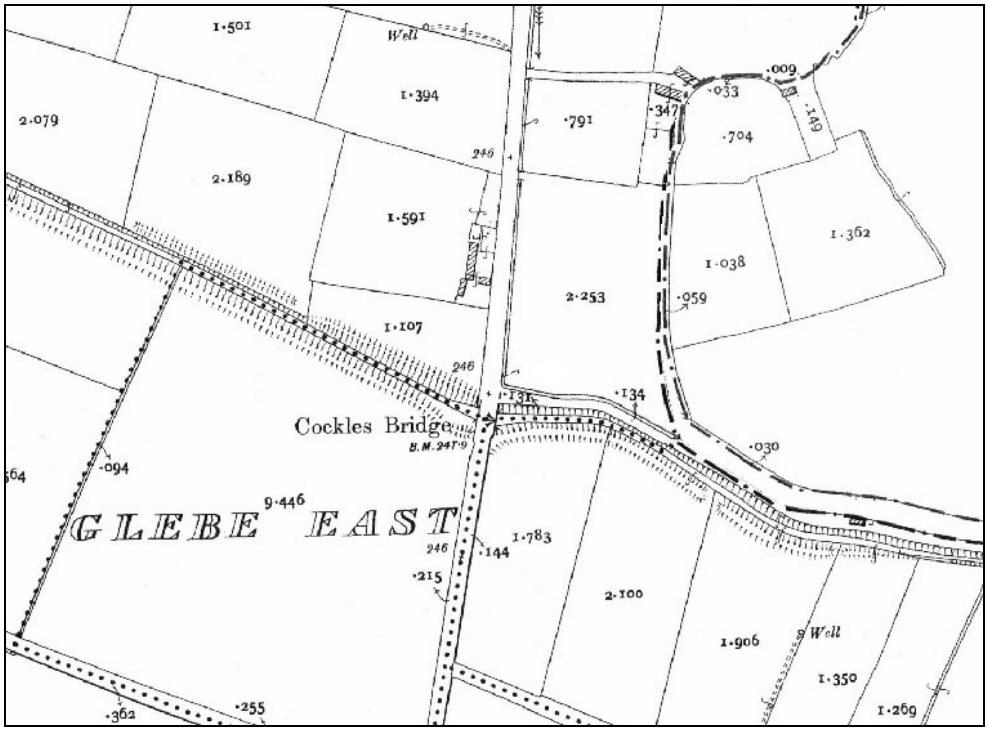
RPS ref.	117
RMP ref.	n/a
Natural Heritage Designation(s)	12 km upstream of River Nanny and Shore SPA (site code 004158)
Owner	Fingal County Council
Address Owner	

Bridge Form and Configuration

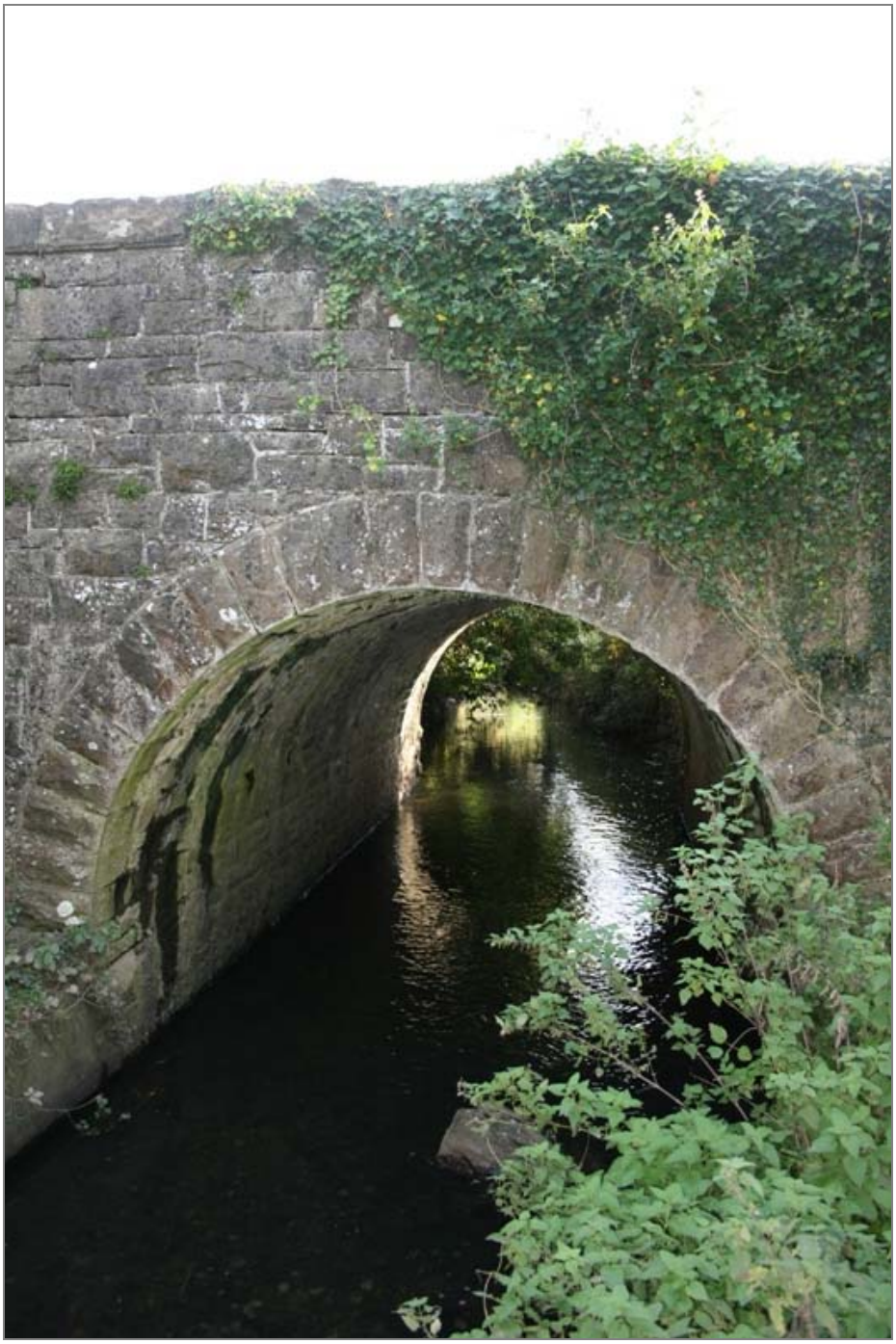
Description	Stone-built road bridge over Delvin river with single semi-circular arch in quarry-faced cut limestone voussoirs. Squared coursed limestone construction to spandrels and parapets which are capped with slightly overhanging, quarry-faced limestone blocks. Channelized river with smooth-rendered rubble stone walls on upstream approach. Limestone plaque on road side of west parapet wall reads: M 1880 GARRISTOWN RIVER DRAINAGE DISTRICT COCKLES BRIDGE JAS DILLON ENGINEER
Bridge Type	Road over river
Number of permanent channel arches	1
Number of overflow arches	0
Number of dry arches	0
Approximate span (m)	3.7m
Distance between high-water mark and top of bridge arch (m)	1.5m
Watercourse type (Tidal, canal etc)	Depositing lowland River (FW2)

Drainage within bridge (comment)	Internal seepage within the bridge structure
Sewage, other outflows apparent?	None apparent
Water width at bridge (m)	3.5m
Watercourse width (m)	2.5m
Water depth (m)	0.6m
Channel width (m)	3.5m
Bank height (m)	1.0m
Substrate - % sand	10
Substrate - % silt	0
Substrate - % gravel	35
Substrate - % cobble	35
Substrate - % boulder	20

Built heritage data and commentary

NIAH Description	n/a
Cartographic representation	Rocque map of 1760 describes surrounding area as "Part of the Bog and Common of Garristown." There is likely to have been a bridge at this site then but it was replaced with the drainage and improvement of the area in the nineteenth century. Named on Ordnance Survey map of 1843 although this was prior to bog drainage scheme and may not be on same site as present 1880 structure.  Named in present location on Ordnance Survey map of 1908 

Historical background	Not known
References (i.e. historical, bibliographical)	None found
Date of construction	1880
Principal material	Squared limestone
Condition (structural)	Good
Condition (parapet)	Generally good although several limestone coping blocks have been knocked off the south east parapet wall onto the weir and river channel below.
Condition (matrix/mortar)	Generally good and fine joints of relatively high quality masonry have restricted loss of jointing mortar but some pointing is necessary and a number of stones have fallen out of spandrel walls as bedding mortar has crumbled away.
Condition (soffit)	Generally good. Some dampness noted coming through masonry as well as limited crystallisation of minerals.
Grouting or spray concrete?	No
Grouting or spray commentary	n/a
Accessibility	Accessible on south bank of west side. South bank of east side is partially obscured by vegetation and access on northern bank of both sides is completely blocked by vegetation.
Built heritage photographs	FHBS-04-BH-01 ~ West upstream elevation FHBS-04-BH-02 ~ East downstream elevation FHBS-04-BH-03 ~ West parapet from road FHBS-04-BH-04 ~ East parapet from road FHBS-04-BH-05 ~ Date plaque on west parapet FHBS-04-BH-06 ~ Dislodged coping stone and stones missing from south abutment on west elevation. FHBS-04-BH-07 ~ Soffit of southern arch from east FHBS-04-BH-08 ~ View upstream to west
Name of Built Heritage Field Surveyor	Eamonn Hunter
Date of inspection (Built Heritage)	22-10-08
Built heritage commentary	A simple but elegant bridge structure of a design replicated elsewhere in the local area as part of the late nineteenth century drainage improvement works. It is of local significance with historic and technical importance. Some damage has occurred to the parapet walls in recent years on the south east corner and extensive vegetation including ivy is beginning to lodge in masonry joints on the north west of the structure in particular. Previously surveyed 17-11-99



FHBS-04-BH-01 ~ West upstream elevation

FHBS-04-BH-02 ~ East downstream elevation

FHBS-04-BH-03 ~ West parapet from road

FHBS-04-BH-04 ~ East parapet from road

FHBS-04-BH-05 ~ Date plaque on west parapet

FHBS-04-BH-06 ~ Dislodged coping stone and stones missing from south abutment on west elevation.

FHBS-04-BH-07 ~ Soffit of southern arch from east

FHBS-04-BH-08 ~ View upstream to west

Ecology data and commentary

Plant species present	Maidenhair spleenwort Elder Ivy Wall-rue Bramble
% Cover of Ivy?	40
Riparian habitat	Hedgerow dominated by hawthorn and ash on the left hand side of the riverbank.
Adjacent habitats	Improved agricultural grassland (GA1) and hedgerows (WL1) fringe the river.
Bat Roost features?	Some smaller crevices on the parapet and underarch and some larger gaps within the bridge's parapet, possibly formed from previous automobile collision, may provide suitable habitat for bat roosting.
Lighting?	None
Otter signs? E.g. spraint	Otter spraint observed on an instream rock situated immediately upstream of the bridge. Spraint contained crayfish remains.
Riffle %	0
Pool %	0
Glide %	100
Other mammals present	Nearby mammal activity probable. Small mammal path seen within GA1 field along hedgerow adjacent to the river.
Birds Evident?	Passerine birds noted included species associated with hedgerows such as blackbird.
Bird nesting opportunities?	Larger ash trees associated with the adjacent hedgerow may support bird species.
Amphibians, Fish, Inverts	Crayfish remains identified within otter spraint. This bridge is also situated over the Delvin River which is salmonid.
Natural heritage photographs	FHBS-04-NH-01 ~ Channelised stream flowing under bridge FHBS-04-NH-02 ~ Ivy coverage FHBS-04-NH-03 ~ Otter spraint. FHBS-04-NH-04 ~ Structural breakdown of parapet wall
Name of Ecology Field Surveyor	George Smith, Eamonn Delaney
Date of inspection (Ecology)	22-10-2008
Ecology commentary	Bridge and environs are likely to be used by a diversity of fauna, due to evidence of otter use and nearby hedgerow providing suitable habitat for passerine birds and bats. Otters are protected under Annex II of the EU Habitats Directive. The bridge structure contains crevices in addition to a sufficient coverage of ivy in order to support bats. Many of the plant species recorded upon the bridge structure are common wall/ stone structure plants. The river channel is channelised upstream of the bridge with concrete slabs forming the banks of the river.

FHBS-04-NH-01 ~ Channelised stream flowing under bridge

FHBS-04-NH-02 ~ Ivy coverage

FHBS-04-NH-03 ~ Otter spraint.

FHBS-04-NH-04 ~ Structural breakdown of parapet wall

5. Oldtown Bridge

Key points

- *Situated on a crossing point which has been in place for centuries, this stone culvert with steel arch soffit has been recognised as a regionally significant structure by the NIAH. Bat potential is low due to its mainly steel structure although large mature horse chestnut trees nearby provide potential bat and bird roosting sites. The bridge is situated within the Ballyboghill River catchment which is salmonid.*

- *Within an Architectural Conservation Area (designated under the Local Government (Planning and Development) Act, 2000)*

- *Repair priorities: - ongoing maintenance of the steel work in particular.*
  Invasive exotic species (Montbretia and Japanese knotweed) situated downstream of bridge. Future works undertaken on the bridge must ensure that these plants are not disturbed and spread further along the stream bank.

5. Oldtown Bridge

Locational/Reference Data

Study reference number	**FHBS05**
Fingal Bridge ID	397
Structure name	**Oldtown Bridge**
Townland 1	Oldtown
Townland 2	n/a
Additional townlands (if more than two)	n/a
Street number	n/a
Street address	Not known
Associated water course	Daws River
Grid co-ordinates (easting)	311764
Grid co-ordinates (northing)	253966
NIAH Reference No.	11320007
OS Map	Not known
OS Map (Six-Inch Series)	DN007-06

Legal Designations

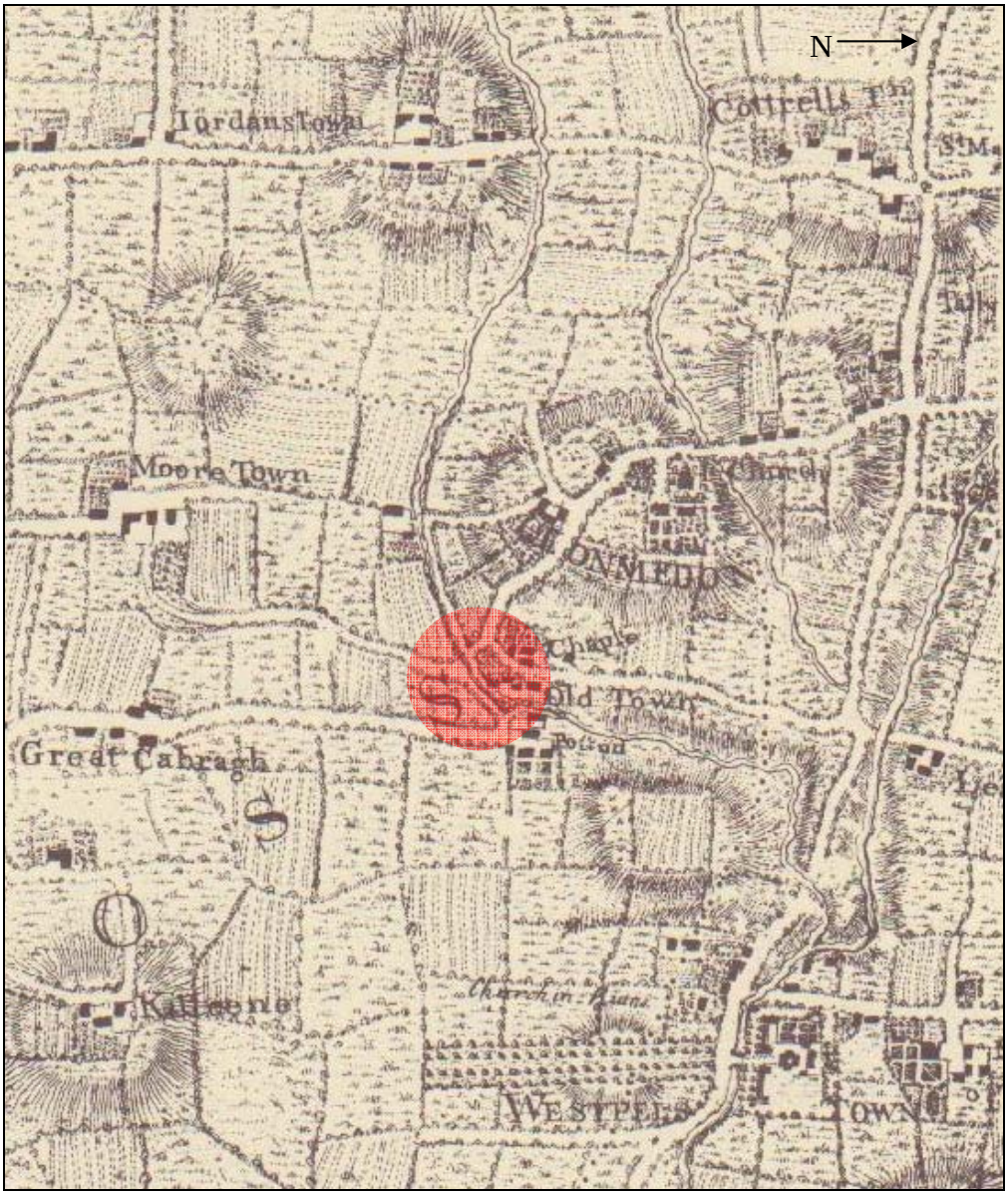
RPS ref.	(within ACA)
RMP ref.	n/a
Natural Heritage Designation(s)	10.5km upstream of Rogerstown Estuary pNHA/ cSAC (site code 000208); 13 km upstream of Rogerstown Estuary SPA (site code 004015).
Owner	Fingal County Council
Address Owner	

Bridge Form and Configuration

Description	A road bridge on the R122 with a roughly dressed, coursed stone structure having brick and punched stone dressings and a square headed single arch of bolted-together, profiled steel shuttering. Northern elevation follows curve of road junction and features rounded cast concrete coping to parapet. Southern parapet is finished in the same way but is much more overgrown with vegetation.
Bridge Type	road over river
Number of permanent channel arches	1
Number of overflow arches	0
Number of dry arches	0
Approximate span (m)	1.7m
Distance between high-water mark and top of bridge arch (m)	1.0m
Watercourse type (Tidal, canal etc)	Depositing lowland river (FW2)
Drainage within bridge (comment)	No drainage within the bridge
Sewage, other outflows apparent?	None

Water width (m)	1.5m
Watercourse width (m)	1.6m
Water depth (m)	0.3m
Channel width (m)	1.6m
Bank height (m)	0.8m
Substrate - % sand	0
Substrate - % silt	0
Substrate - % gravel	0
Substrate - % cobble	20
Substrate - % boulder	5
Substrate -% concrete	75

Built heritage data and commentary

NIAH Description	Single-span coursed rubble stone road bridge over river, c.1900, with lintel-headed opening and curved concrete capping to parapet. Plaque inscribed 'In remembrance of Mary Adrian and Comrades, late Old I.R.A. Fingal Bridge 1916 - 1921'.
Cartographic representation	A bridge at this location is visible within the red shaded area on the 1760 Rocque map below.  Bridge visible at this location on 1843 O.S. map and on 1908 O.S. map but not named.
Historical background	24-7-87 survey report stated that rusting steel arch girders required painting.
References (i.e. historical, bibliographical)	None found
Date of construction	Not known
Principal material	Limestone and steel
Condition (structural)	Good

Condition (parapet)	Generally good although ivy and other vegetation covering the south parapet obstructed its proper inspection.
Condition (matrix/mortar)	Generally good although pointing seems to be with cement-rich mortar. Several damp areas visible where water is seeping through elevations from spandrels.
Condition (soffit)	Generally good. Vertical stone sides support steel soffit which has extensive surface rust.
Grouting or spray concrete?	No
Grouting or spray commentary	n/a
Accessibility	Accessible at north side with vegetation obscuring view to south elevation.
Built heritage photographs	FHBS-05-BH-01 ~ South upstream elevation FHBS-05-BH-02 ~ North downstream elevation FHBS-05-BH-03 ~ South parapet from road FHBS-05-BH-04 ~ North parapet from road FHBS-05-BH-05 ~ Memorial plaque on north parapet FHBS-05-BH-06 ~ Soffit of arch from north
Name of Built Heritage Field Surveyor	Eamonn Hunter
Date of inspection (Built Heritage)	22-10-08
Built heritage commentary	A simple structure over a small watercourse but on a site which has been a focal point for centuries, notably in the early twentieth century which contributes to its historic interest and local significance. The present structure may have been converted from a stone arch bridge with possible stone springing points for a segmental arch visible on the northern elevation where the present steel beam forms a lintel. Overgrowth of ivy on the southern elevation prevents proper condition inspection of the structure and may be damaging masonry if rooted into mortar joints. Previously surveyed 24-7-87

FHBS-05-BH-01 ~ South upstream elevation

FHBS-05-BH-02 ~ North downstream elevation

FHBS-05-BH-03 ~ South parapet from road

FHBS-05-BH-04 ~ North parapet from road

FHBS-05-BH-05 ~ Memorial plaque on north parapet

FHBS-05-BH-06 ~ Soffit of arch from north

Ecology data and commentary

Plant species present	Hart's tongue fern Wall-rue Ivy-leaved toadflax Broadleaved willowherb

	Herb Robert Ivy Bramble
% Cover of Ivy?	40
Riparian habitat	Downstream of the bridge contains non-native, potentially invasive species such as Japanese knotweed, Montbretia and butterfly bush. Two large horse chestnuts are also situated less than 30m downstream. In addition the riverbank immediately downstream of the bridge has been recently reconstructed using rip-rap structure
Adjacent habitats	Artificial Buildings and surfaces (BL3) in the vicinity of Oldtown village. Rough Improved agricultural grassland (GA1) on the left hand bank upstream of the bridge.
Bat Roost features?	No crevices on parapet on either side of the bridge structure. The underarch is comprised of corrugated steel.
Lighting?	No lighting directly overhead of the bridge. However street lighting present some 20m south of bridge. This does not shine directly onto the bridge.
Otter signs? E.g. spraint	No otter signs recorded
Riffle %	30
Pool %	0
Glide %	70
Other mammals present	None noted
Birds Evident?	None noted
Bird nesting opportunities?	Two large horse chestnut trees situated downstream of the bridge may provide suitable bird nesting opportunities
Amphibians, Fish, Inverts	None noted. This bridge is situated on a river which is part of the Ballyboghilll River catchment which is classified as a salmonid waterbody by the ERFB.
Natural heritage photographs	FHBS-05-NH-01 ~ Bridge underarch unsuitable for bat activity FHBS-05-NH-02 ~ Horsechestnut tree upstream of bridge FHBS-05-NH-03 ~ Ivy on downstream parapet wall FHBS-05-NH-04 ~ Japanese knotweed downstream of bridge structure
Name of Ecology Field Surveyor	Eamonn Delaney
Date of inspection (Ecology)	22-10-2008
Ecology commentary	This bridge is situated within Oldtown village. It contains no crevices within the parapet. The underarch is also comprised of steel. A derelict hedgerow is situated just upstream of the bridge and may provide temporary cover/ refuge for small birds and mammals. There is also some localised dumping within the river immediately upstream of the bridge. Overall the bridge is located within an area of increasing anthropogenic activity and as such may not be suitable to support much wildlife.

FHBS-05-NH-01 ~ Bridge underarch unsuitable for bat activity

FHBS-05-NH-02 ~ Horsechestnut tree upstream of bridge

FHBS-05-NH-03 ~ Ivy on downstream parapet wall

FHBS-05-NH-04 ~ Japanese knotweed downstream of bridge structure

6. Ballyboghill Bridge

Key points

- *An interesting early twentieth century example of the use of reinforced concrete for bridges in the area, this locally significant structure has some artistic interest in its simple design. The existing 1925 construction is the most recent on the site which has featured a bridge since at least the mid seventeenth century. The site provides poor potential for bat activity and a previous survey confirmed that no bats are present here. It is highly likely that otters feed and commute along the salmonid Ballyboghill River as far as the Ballyboghill Bridge.*

- *The bridge does not have any protected status as a historic structure*

- *The present structure is subject to some corrosion of the steel reinforcement which has necessitated the present re-building of the east parapet.*

6. Ballyboghill Bridge

Locational/Reference Data

Study reference number	**FHBS06**
Fingal Bridge ID	585
Structure name	**Ballyboghill Bridge**
Townland 1	Ballyboghill
Townland 2	Grange
Additional townlands (if more than two)	n/a
Street number	n/a
Street address	Not known
Associated water course	Ballyboghill River
Grid co-ordinates (easting)	31500
Grid co-ordinates (northing)	25364
NIAH Reference No.	11321007
OS Map	Not known
OS Map (Six-Inch Series)	DN007-11

Legal Designations

RPS ref.	n/a
RMP ref.	n/a
Natural Heritage Designation(s)	6.5 km upstream of Rogerstown Estuary pNHA/ cSAC (site code 000208); 9 km upstream of Rogerstown Estuary (site code (004015)
Owner	Fingal County Council
Address Owner	

Bridge Form and Configuration

Description	Reinforced concrete road bridge carrying the R108 with two square-headed arches and pointed concrete breakwaters on both sides. Water main carried on rolled steel joists resting on western cutwaters. Reinforced concrete balusters on low plinth to parapets holding concrete handrail, punctuated by concrete panels with name plaques reading: REBUILT 1925 J. A. RYAN CO. SURVEYOR and: BALLYBOGHILL BRIDGE on the roadside of the western parapet. Eastern parapet presently being completely reconstructed above level of footpath.
Bridge Type	Road over river
Number of permanent channel arches	2
Number of overflow arches	0

Number of dry arches	0
Approximate span (m)	2 x 3.16m
Distance between high-water mark and top of bridge arch	1.0m
Watercourse type (Tidal, canal etc)	Depositing lowland river
Drainage within bridge (comment)	No drainage noted within bridge structure
Sewage, other outflows apparent?	No sewage outflow situated directly within the immediate vicinity of the river. However upstream of the bridge the water had a grey/ green colour indicating that the waterbody may receive sewage effluent further upstream.
Water width at bridge (m)	7.0m
Watercourse width (m)	3.0m
Water depth (m)	0.8m
Channel width (m)	3.0m
Bank height (m)	1m
Substrate - % sand	20
Substrate - % silt	0
Substrate - % gravel	35
Substrate - % cobble	35
Substrate - % boulder	10
Substrate - % concrete	0

Built heritage data and commentary

NIAH Description	Double-span concrete road bridge over river, built 1925, with concrete balustrade and limestone tablets.
Cartographic representation	Moll's map of 1714 below shows Ballyboghill on the Rogerstown River with a crossing structure prior to the present bridge (see extract below).  Bridge visible at this site on Rocque's 1760 map (see pg 77 below on record **FHBS07**). Bridge visible at this site on both 1843 and 1908 O.S. maps but not named specifically.
Historical background	This bridge is on the same site of previous structures which carried the old road from Dublin to Drogheda marked on Moll's map. The 16-6-80 survey report noted the same defects as on the later 7-10-87 report detailed below and it recommended regular inspection. 7-10-87 survey report detailed severe cracking to the eastern side where the badly corroded steel beam within the concrete was exposed to water seeping in. The arch edge beams on both sides were reported as cracked, flaking and swollen and the west spandrel wall was cracked in several places. A recommendation to at least repair severe cracks and treat steel was made.
References (i.e. historical, bibliographical)	None found
Date of construction	Rebuilt 1925
Principal material	Steel reinforced concrete
Condition (structural)	Generally good, some cracking to concrete arch lintels

	visible on west elevation.
Condition (parapet)	West parapet displays multiple cracks on plinth, balustrade and handrail. East parapet being reconstructed in steel-reinforced cast concrete.
Condition (matrix/mortar)	Fully cast concrete construction.
Condition (soffit)	Good
Grouting or spray concrete?	No
Grouting or spray commentary	n/a
Accessibility	Only south bank of west side accessible with excessive vegetation and marsh restricting access to north bank. East side accessible on north bank but blocked to southern bank by scaffolding and stream.
Built heritage photographs	FHBS-06-BH-01 ~ West upstream elevation FHBS-06-BH-02 ~ East downstream elevation FHBS-06-BH-03 ~ West parapet from upstream FHBS-06-BH-04 ~ East parapet from road FHBS-06-BH-05 ~ Name plaque on west parapet FHBS-06-BH-06 ~ Replacement, reinforced cast concrete balusters to east parapet. FHBS-06-BH-07 ~ Soffit of southern arch from west
Name of Built Heritage Field Surveyor	Eamonn Hunter
Date of inspection (Built Heritage)	22-10-08
Built heritage commentary	This interesting structure is of local significance with architectural interest in its relatively unusual and early use of steel-reinforced concrete for a small bridge structure. Replicating the original 1925 design in the reconstructed east parapet is the best way to preserve the historic detail of the present structure. Previously surveyed 16-6-80; 7-10-87;

FHBS-06-BH-01 ~ West upstream elevation

FHBS-06-BH-02 ~ East downstream elevation

FHBS-06-BH-03 ~ West parapet from upstream

FHBS-06-BH-04 ~ East parapet from road

FHBS-06-BH-05 ~ Name plaque on west parapet

FHBS-06-BH-06 ~ Replacement, reinforced cast concrete balusters to east parapet.

FHBS-06-BH-07 ~ Soffit of southern arch from west

Ecology data and commentary

Plant species present	*Conocephalum conicum*
% Cover of Ivy?	0
Riparian habitat	Planted trees associated with park area located upstream of the bridge including willows, birch and lime. Downstream of the bridge plant species such as reed canary grass, fool's water cress and nettles are located towards the margins of the river.
Adjacent habitats	Buildings and artificial surfaces (BL3) are situated downstream of the bridge structure. Improved agricultural grassland (GA1) and an amenity area (GA2) are located upstream of the bridge.
Bat Roost features?	No suitable crevices or plant cover on bridge to support bat species. A protected species survey carried out by Natura Consultants in May 2008 confirmed that 'no bats or signs of bat activity were recorded at the bridge. The underside of the bridge contains no cracks or crevices for bats to secrete themselves into and the cracks along the parapet walls are not wide enough for bats to use. The structure of the bridge is considered unsuitable for roosting bats'.
Lighting?	Street lighting situated 10-15 m downstream of the bridge. This does not shine directly onto the bridge structure.
Otter signs? E.g. spraint	None recorded. A protected species survey carried out by Natura Consultants in May 2008 highlighted that 'suitable locations for otter holts were checked along the river banks in the vicinity of the bridge. No holts were recorded and no otter spraints were observed on stones beneath the bridge or on the banks of the river. However, otters have been recorded in the Rogerstown Estuary and along the tidal river which flows into the estuary (Fingal County Council, 2006). The Ballyboghill River feeds into the tidal river and out into the estuary. It is highly likely that otters feed and commute along the Ballyboghill River up to, and as far as the Ballyboghil Bridge'. Otters are protected under Annex II of the EU Habitats Directive.
Riffle %	0
Pool %	0
Glide %	100
Other mammals present	None noted
Birds Evident?	None noted
Bird nesting opportunities?	None noted
Amphibians, Fish, Inverts	None noted. Bridge situated over the Ballboughal River catchment which is classified as salmonid by the ERFB
Natural heritage photographs	FHBS-06-NH-01 ~ Bridge underarch of cased concrete FHBS-06-NH-02 ~ Gabion structures on downstream bank FHBS-06-NH-03 ~ Nutrient enriched/ eutrophic river water FHBS-06-NH-04 ~ Ongoing construction on downstream parapet
Name of Ecology Field Surveyor	Eamonn Delaney

Date of inspection (Ecology)	22-10-2008
Ecology commentary	The downstream side of this bridge is currently undergoing repairs and reconstruction. Plant life is virtually non-existent upon the bridge structure. Downstream of the bridge the river banks have been reconstructed using gabion structures. Water within the watercourse at this area appears to be highly eutrophic. There is little or no potential for this bridge to support bird or bat roosting sites due mainly to the lack of suitable crevices in addition to the absence of plant cover. Nonetheless the Ballyboghill River and habitats surrounding the bridge may provide suitable foraging habitat for bats

FHBS-06-NH-01 ~ Bridge underarch of cased concrete

FHBS-06-NH-02 ~ Gabion structures on downstream bank

FHBS-06-NH-03 ~ Nutrient enriched/ eutrophic river water

FHBS-06-NH-04 ~ Ongoing construction on downstream parapet

7. Lispopple Bridge

Key points

- *This historic bridge structure has probably been in place since at least the mid eighteenth century and is recognised by the NIAH as being of regional significance. The curtain walling of the lower sections of the structure and paving of the river bed beneath the bridge detract from its visual appearance but were deemed necessary when installed most likely in 1950s improvements. Otter activity within the bridge's vicinity was confirmed along this stretch of the Broadmeadow River and potential for bird and bat nesting / roosting is good with ivy coverage on the downstream parapet of the structure and suitable crevices on the parapet and on the lower arch soffit for bats. The bridge is situated within the Broadmeadow River catchment which is salmonid.*

- *Protected Structure (under the Local Government (Planning and Development) Act, 2000)*

- *Repair priorities: - monitoring of the structural stability of abutments*
  - appropriate repairs required should be in lime mortar
  - removal of ivy rooted on masonry, retaining ivy cover as a habitat where no structural damage is being caused

7. Lispopple Bridge

Locational/Reference Data

Study reference number	**FHBS07**
Fingal Bridge ID	495
Structure name	**Lispopple Bridge**
Townland 1	Lispopple
Townland 2	n/a
Additional townlands (if more than two)	n/a
Street number	n/a
Street address	Nurse's Road
Associated water course	River Broadmeadow
Grid co-ordinates (easting)	313877
Grid co-ordinates (northing)	250431
NIAH Reference No.	11327002
OS Map	2856
OS Map (Six-Inch Series)	DN011-02+03

Legal Designations

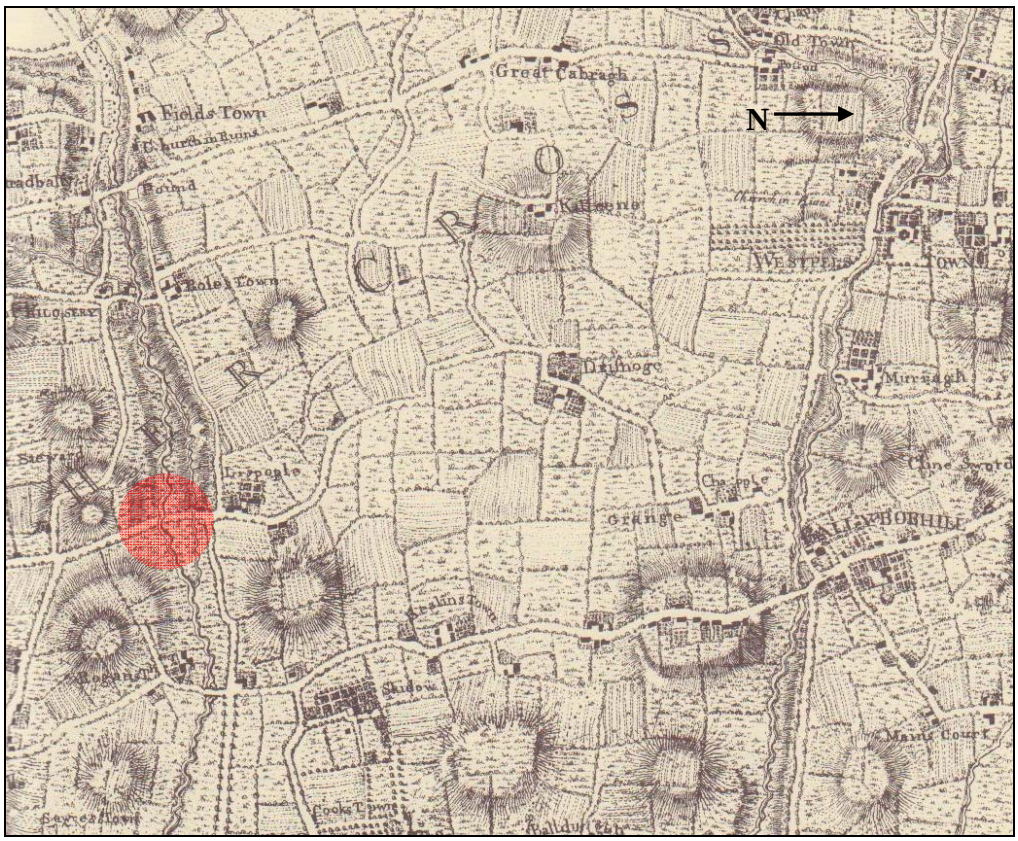
RPS ref.	336
RMP ref.	n/a
Natural Heritage Designation(s)	6 km upstream of Malahide Estuary pNHA/ cSAC (site code 000205) and the Broadmeadow swords Estuary SPA (004025)
Owner	Fingal County Council
Address Owner	

Bridge Form and Configuration

Description	A double, segmental stone-arched road bridge over the Broad Meadow River. It is constructed of uncoursed rubble limestone with course voussoirs and a low, pointed cutwater on both sides. The base of each arch and the central stone cutwaters have been cased in concrete with the channel also having been floored in concrete. The stone-built parapet walls have round concrete copings. The river course has been straightened during the twentieth century both upstream and downstream of Lispopple Bridge.
Bridge Type	Road over river
Number of permanent channel arches	2
Number of overflow arches	None
Number of dry arches	None
Approximate span (m)	4.24m (north) and 4.2m (south)
Distance between high-water mark and top of bridge arch (m)	1.5m
Watercourse type (Tidal, canal etc)	Depositing lowland river (FW2)

Drainage within bridge (comment)	No drainage within this bridge
Sewage, other outflows apparent?	No sewage outflows present within the vicinity of the bridge
Water width at bridge (m)	8.0m
Watercourse width (m)	8.0m
Water depth (m)	0.3m
Channel width (m)	7.0m
Bank height (m)	0.3cm
Substrate - % sand	0
Substrate - % silt	0
Substrate - % gravel	10
Substrate - % cobble	90
Substrate - % boulder	0
Substrate -% concrete	100

Built heritage data and commentary

NIAH Description	Double-arch rubble stone road bridge over river, c.1820, having rubble stone parapet wall with concrete coping.
Cartographic representation	Bridge visible on John Rocque map (1760) (extract below)  Bridge is also visible on William Duncan map (1821) (see pg 89 below on record **FHBS08**); Named on 1843 and 1908 O.S. maps.
Historical background	Survey report for 1-7-80 remarked that the abutments on one span (?) were in poor condition, the existing curtain

	walling should be raised to the springing point on both sides and that the other span (?) required minor pointing of the arch and abutments. 5-7-95 survey report noted ivy and other vegetation growing on spandrel and wing walls as well as on the west side of the northern arch soffit. There were stones missing from the north and south sides of the north arch and a longtitudnal (parallel with the roadway centre) crack was noted on the west side of the south arch soffit. The bridge had been underpinned/curtain-walled (concrete cast around the masonry where it stands in water)
References (i.e. historical, bibliographical)	O'Keeffe and Simmington (1991) p. 188
Date of construction	After 1760
Principal material	Rubble limestone
Condition (structural)	Generally good although the south east stone abutment bulges somewhat where a cast concrete repair has been carried out some decades ago.
Condition (parapet)	Generally good although the eastern parapet coping has cracked and split quite substantially so it no longer prevents ingress of water into the top of the parapet wall.
Condition (matrix/mortar)	Extensive cement pointing has been carried out on the elevations of the bridge although it seems not to be causing damage at present. Extensive ivy and vegetation covers west elevation, particularly on the north side of the bridge including both sides of the parapet wall.
Condition (soffit)	Generally good on both arches with substantial remains of rough-cast lime render to soffits and little evidence of moisture draining from road or spandrels. Ivy growth particularly evident on northern arch.
Grouting or spray concrete?	No
Grouting or spray commentary	n/a
Accessibility	South bank accessible on both sides, north bank inaccessible due to security fencing on west side and dense vegetation on east.
Built heritage photographs	FHBS-07-BH-01 ~ West upstream elevation FHBS-07-BH-02 ~ East downstream elevation FHBS-07-BH-03 ~ West parapet from road FHBS-07-BH-04 ~ East parapet from road FHBS-07-BH-05 ~ Cast concrete repair on bulging section of southern abutment on eastern side of bridge FHBS-07-BH-06 ~ Northern archway from west FHBS-07-BH-07 ~ Southern archway from east FHBS-07-BH-08 ~ View upstream to west
Name of Built Heritage Field Surveyor	Eamonn Hunter
Date of inspection (Built Heritage)	29-10-08
Built heritage commentary	This is a substantial historic structure of regional significance with special architectural, technical and historic interest. While the river course in this area has been much altered in the twentieth century due to the tendency of serious floods, this structure has stood the test of several such floods and continues to function well. Removal of vegetation especially ivy rooted on the

	structure should be a maintenance priority as should be the clearance of tree-trunks and debris spanning the southern upstream archway. While the curtain-walling of the parts of the structure standing in water does have a negative impact on its appearance, such additions must have been deemed necessary for continued survival of the bridge. The bulging of the south east abutment should be monitored to make sure it is not increasing and appropriate steps to tie the structure together at this point may be necessary. Previously surveyed 1-7-80; 5-7-95; 2-2-07

FHBS-07-BH-01 ~ West upstream elevation

FHBS-07-BH-02 ~ East downstream elevation

FHBS-07-BH-03 ~ West parapet from road

FHBS-07-BH-04 ~ East parapet from road

FHBS-07-BH-05 ~ Cast concrete repair on bulging section of southern abutment on eastern side of bridge

FHBS-07-BH-06 ~ Northern archway from west

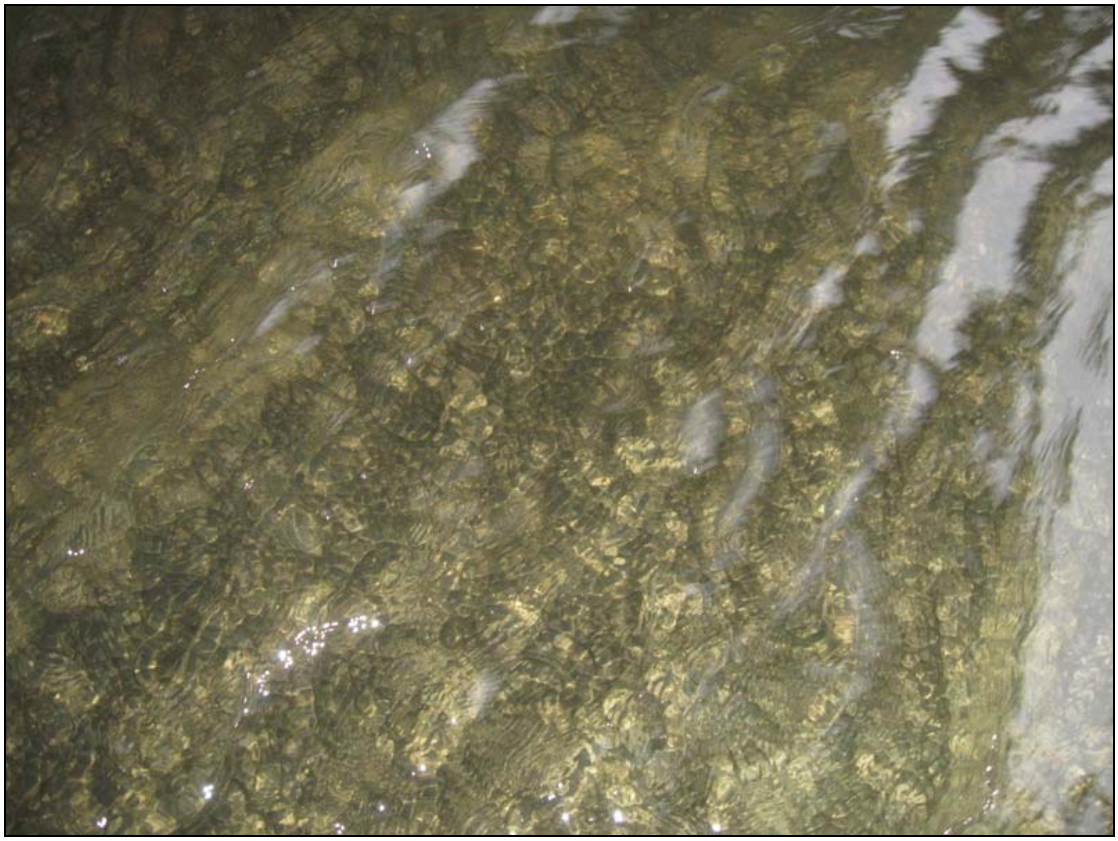
FHBS-07-BH-07 ~ Southern archway from east

FHBS-07-BH-08 ~ View upstream to west

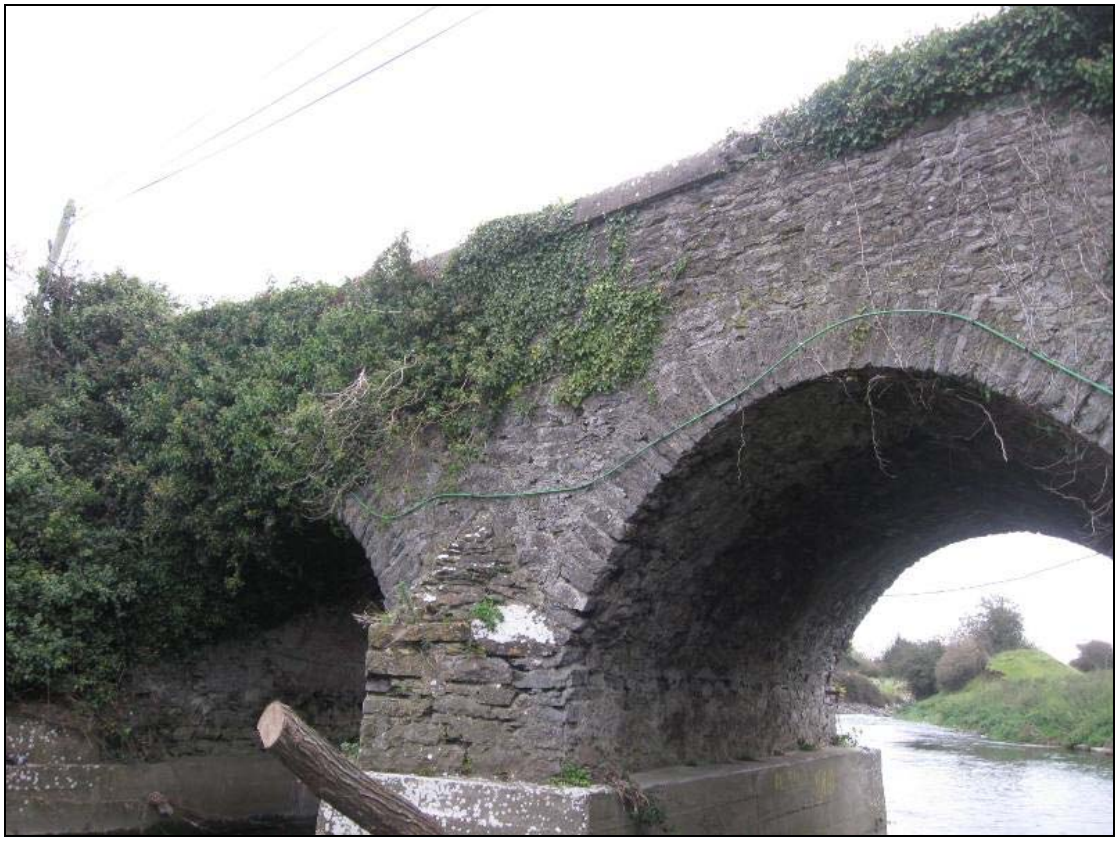
Ecology data and commentary

Plant species present	Hart's-tongue Wall rue Cocksfoot Red fescue Dandelion Ivy Nettle
% Cover of Ivy?	50
Riparian habitat	Intermittent and discontinuous hawthorn and gorse bushes and bramble amongst rank grass species.
Adjacent habitats	The bridge is flanked by Improved agricultural grassland (GA1) with some bare ground (ED2) on the upstream left hand bank associated with the recent construction of an electricity generation plant.
Bat Roost features?	Good cover of ivy on the downstream side of the bridge parapet. There are also some crevices appearing within the parapet walls and on lower areas of the underarch which may also be suitable as bat roosts.
Lighting?	None
Otter signs? E.g. spraint	None noted. However presence of otters within the environs of this bridge has been confirmed (Niall Harmey pers. comm. local conservation ranger with the National Parks and Wildlife Service (NPWS)).
Riffle %	70
Pool %	0
Glide %	30
Other mammals present	None noted
Birds Evident?	Little Egret
Bird nesting opportunities?	Dense ivy cover on the bridge parapet may provide suitable bird nesting habitat
Amphibians, Fish, Inverts	None recorded. This bridge is situated on the Broadmeadow River which is classified as a salmonid river by the ERFB.
Natural heritage photographs	FHBS-07-NH-01 ~ Broadmeadow River FHBS-07-NH-02 ~Concrete substrate underneath bridge arch FHBS-07-NH-03 ~ Ivy cover on downstream side of the bridge FHBS-07-NH-04 ~ Underarch of bridge
Name of Ecology Field Surveyor	Eamonn Delaney
Date of inspection (Ecology)	29-10-08
Ecology commentary	This bridge has been regularly maintained in recent years as evidenced by pointing of the parapet and underarch with concrete. The northern arch contains some large crevices, some of which may be too large to support bat roosts. Nonetheless the cover of ivy and the presence of 2-3 remaining crevices on the underarch and parapet walls may be suitable as bat roosts. The river substrate within the immediate vicinity of the bridge structure is composed entirely of concrete. Percentages of cobble and gravel are values taken from both upstream and downstream areas of the bridge.

FHBS-07-NH-01 ~ Broadmeadow River



FHBS-07-NH-02 ~Concrete substrate underneath bridge arch



FHBS-07-NH-03 ~ Ivy cover on downstream side of the bridge

FHBS-07-NH-04 ~ Underarch of bridge

8. Roganstown Bridge

Key points

- *This historic stone bridge has been in place at this point over the Broad Meadow River since at least the early eighteenth century. It is generally well maintained in spite of the visually obtrusive concrete curtain walling to the base of the structure. Otter activity within the bridge's vicinity was confirmed along this stretch of the Broadmeadow River but potential for bat activity is poor with few suitable crevices on the structure for roosting. The bridge is situated within the Broadmeadow River catchment which is salmonid.*

- *Protected Structure (under the Local Government (Planning and Development) Act, 2000)*
  Recorded Monument (under the National Monuments Code)
  (In the ownership of the adjoining landowners)

- *Following best practice conservation standards, only appropriate lime mortar and not cement should be used in repairs to the spandrels, arch soffits and parapets*

8. Roganstown Bridge

Locational/Reference Data

Study reference number	**FHBS08**
Fingal Bridge ID	575
Structure name	**Roganstown Bridge**
Townland 1	Roganstown
Townland 2	Skidoo
Additional townlands (if more than two)	n/a
Street number	n/a
Street address	Naul Road
Associated water course	Broad Meadow River
Grid co-ordinates (easting)	314859
Grid co-ordinates (northing)	250052
NIAH Reference No.	11327003
OS Map	2856
OS Map (Six-Inch Series)	DU011-03

Legal Designations

RPS ref.	791 (added 12-9-2006)
RMP ref.	DU011-082
Natural Heritage Designation(s)	5 km upstream of Malahide Estuary pNHA/ cSAC (site code 000205) and the Broadmeadow swords Estuary SPA (004025)
Owner	Two private landowners: the lands to the southwest, south, and south east & north west of the bridge are owned by Roganstown Golf Club (Ian Mc Guinness) Land to N.E of the bridge is owned by Mrs Foley.
Address Owner	Roganstown Golf & Country Club, Swords, Co. Dublin. Tel. 01 8433118

Bridge Form and Configuration

Description	A rubble stone-built road bridge over a channelized section of the Broad Meadow river on the R108. The bridge has 4 segmental arches with an additional smaller arch to the south which historically carried an adjacent stream but now serves a footpath on the Roganstown Golf course. The bed of the river channel beneath the bridge has been paved with concrete and the lower portions of the bridge piers which stand in the water were cased in concrete probably during the 1950s under the Local Authority (works) Act. The pointed cutwaters in punch-finished cut stone on the upstream west side of the bridge appear to have been a later addition to the structure and would have originally been conically topped but were heavily altered to support a water main. The parapets

	are capped with heavy limestone blocks and are wet-dashed on the side next to the road.
Bridge Type	Road over river
Number of permanent channel arches	4
Number of overflow arches	2
Number of dry arches	0
Approximate span (m)	2.93m (south), 1.55m cutwater, 3.03m, 1.47m cutwater, 3.2m, 1.44m cutwater, 3.12m (north)
Distance between high-water mark and top of bridge arch	1.8m
Watercourse type (Tidal, canal etc)	Depositing Lowland River (FW2)
Drainage within bridge (comment)	Some internal seepage exhibited by stalactites forming on the bridge's underarch
Sewage, other outflows apparent?	Culverted stream flows into the river immediately upstream of the bridge.
Water width at bridge	8.5m
Watercourse width	18.5m
Water depth	0.45m
Channel width	23m
Bank height	0.90m
Substrate - % sand	0
Substrate - % silt	0
Substrate - % gravel	0
Substrate - % cobble	20
Substrate - % boulder	10
Substrate -% concrete	70

Built heritage data and commentary

NIAH Description	Four-arch rubble stone road bridge over river, c.1820.
Cartographic representation	Crossing visible on Down Survey map of late 16th century (see map on pg 6 above under record **FHBS01**). Bridge visible on Moll's map (1714) and marked on Rocque Map (1760). Visible but not named on Taylor and Skinner map of 1778 as well as Duncan map (1821) (extract shown below).  Named on 1843 and 1908 O.S. maps.
Historical background	This bridge carried the old road from Dublin to Drogheda marked on Moll's map. The report for the survey of 1-7-80 stated that while there were no visible cracks in the arch structures, an extension joint was visible. 8-10-87 survey report stated slight deformation of arch barrels.
References (i.e. historical, bibliographical)	O'Keeffe and Simmington (1991) p. 199, 200
Date of construction	16th or 17th century
Principal material	Rubble limestone (whinstone)
Condition (structural)	Good
Condition (parapet)	Good
Condition (matrix/mortar)	Generally good although a large amount of cement-rich pointing has been carried out over both external

	elevations and to a lesser extent under the arches. This can restrict the natural drainage of the bridge and is to be avoided.
Condition (soffit)	Good
Grouting or spray concrete?	No
Grouting or spray commentary	n/a
Accessibility	Accessible from all sides
Built heritage photographs	FHBS-08-BH-01 ~ West upstream elevation FHBS-08-BH-02 ~ East downstream elevation FHBS-08-BH-03 ~ West parapet from road FHBS-08-BH-04 ~ East parapet from road FHBS-08-BH-05 ~ Re-built stone cap of western cutwater FHBS-08-BH-06 ~ Central opening of 5 arch bridge looking upstream FHBS-08-BH-07 ~ Dry arch on southern bank from eastern side FHBS-08-BH-08 ~ View upstream to west
Name of Built Heritage Field Surveyor	Eamonn Hunter
Date of inspection (Built Heritage)	22-10-08
Built heritage commentary	This well constructed bridge has been in place on this site for at least 300 years and still retains much of its original appearance. It is of regional significance with archaeological, architectural and technical interest. The use of cement to repair pointing mortar is to be discouraged as an irreversible technique using a material that prevents the natural drainage of the bridge structure through joints rather than individual stones. The absence of grass verges on the bridge tops and the present good drainage of the road surface prevents excessive moisture entering the structure but appropriate lime mortar for pointing is still the best way to ensure this bridge's long term survival. Previously surveyed 1-7-80; 8-10-87

FHBS-08-BH-01 ~ West upstream elevation

FHBS-08-BH-02 ~ East downstream elevation

FHBS-08-BH-03 ~ West parapet from road

FHBS-08-BH-04 ~ East parapet from road

FHBS-08-BH-05 ~ Re-built stone cap of western cutwater

FHBS-08-BH-06 ~ Central opening of 5-arch bridge looking upstream

FHBS-08-BH-07 ~ Dry arch on southern bank from eastern side

FHBS-08-BH-08 ~ View upstream to west

Ecology data and commentary

Plant species present	Ivy Ragwort Greater plantain Broad-leaved willowherb Red fescue
% Cover of Ivy?	5
Riparian habitat	Riparian habitat of rank grasses, nettles and occasional shrubs and small trees such as willows and hawthorn.
Adjacent habitats	A golf course is situated on the right hand bank both upstream and downstream of the bridge and the left hand bank upstream of the bridge. Arable crop farming is the dominant habitat downstream of the bridge on the left hand bank.
Bat Roost features?	Ivy cover on the bridge walls is not dense enough to support bat roosts. Few crevices are present upon the parapet walls and are mainly concentrated nearby the most southerly overflow arch. The bridge has been recently pointed covering many of the crevices within both the parapet and the underarch.
Lighting?	None
Otter signs? E.g. spraint	None noted. However presence of otter previously confirmed along this stretch of the river (Niall Harmey pers comm. Local conservation ranger NPWS). Otters are protected under Annex II of the EU Habitats Directive.
Riffle %	60
Pool %	0
Glide %	40
Other mammals present	None noted
Birds Evident?	Grey wagtail, Moorhen
Bird nesting opportunities?	No nesting opportunities within the bridge. The surrounding landscape contains very few treelines, hedgerows with large mature trees thereby limiting bird nesting in the immediate locality.
Amphibians, Fish, Inverts	None noted. This bridge is situated over the Broadmeadow River which is classified as a salmonid river by the ERFB
Natural heritage photographs	FHBS-08-NH-01 ~ Circular opening in bridge underarch FHBS-08-NH-02 ~ Habitats adjacent to the Broadmeadow River FHBS-08-NH-03 ~ Repointed bridge underarch FHBS-08-NH-04 ~ Repointed parapet wall FHBS-08-NH-05 ~ Broadmeadow River upstream of the bridge
Name of Ecology Field Surveyor	Eamonn Delaney
Date of inspection (Ecology)	22/10/2008
Ecology commentary	This is a very large bridge structure. It is however very poorly vegetated. The bridge is fringed by highly intense habitats such as a golf course (GA2) and horticultural land (BC2). There are very few crevices within the bridge structure suitable to support bat roosts due principally to recent pointing of the bridge. Overall, the bridge is of limited ecological value.

FHBS-08-NH-01 ~ Circular opening in bridge underarch

FHBS-08-NH-02 ~ Habitats adjacent to the Broadmeadow River

FHBS-08-NH-03 ~ Repointed bridge underarch

FHBS-08-NH-04 ~ Repointed parapet wall

FHBS-08-NH-05 ~ Broadmeadow River upstream of the bridge

9. Mack's Bridge

Key points

- *Situated in a public park, this bridge probably dates from the early eighteenth century and has been recognised by the NIAH as a regionally significant structure. It has been maintained in excellent condition and is not under any undue loading as it is mainly in use as a pedestrian bridge. Bird and bat potential on the bridge is limited due to lack of crevices but plant cover and mature trees fringing the river's southern bank provide suitable opportunities for bird nesting, bat roosting and foraging and commuting by these species.*

- *Within an Architectural Conservation Area (designated under the Local Government (Planning and Development) Act, 2000)*
  Within the curtilage of a Recorded Monument (under the National Monuments Code (Newbridge House)

- *The issue of trees rooted within or adjacent to the structure should be monitored for any interference that these may be having with the structure. They may need to be removed before damage to the bridge occurs.*

9. Mack's Bridge

Locational/Reference Data

Study reference number	**FHBS09**
Fingal Bridge ID	Not known
Structure name	**Mack's Bridge**
Townland 1	Newbridge Demesne
Townland 2	n/a
Additional townlands (if more than two)	n/a
Street number	n/a
Street address	Not known
Associated water course	Not known
Grid co-ordinates (easting)	322038
Grid co-ordinates (northing)	249413
NIAH Reference No.	11336004
OS Map	Not known
OS Map (Six-Inch Series)	DN012-02

Legal Designations

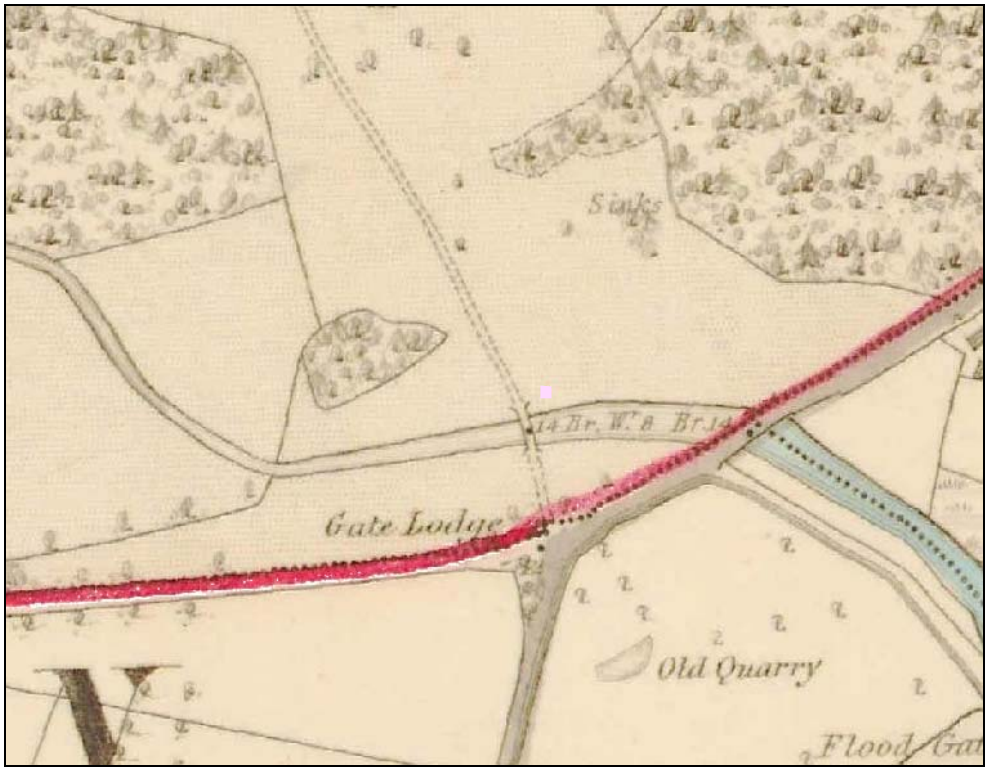
RPS ref.	Within ACA
RMP ref.	(within curtilage of DU012-004 Newbridge House)
Natural Heritage Designation(s)	1.5 km upstream of Malahide Estuary pNHA/ cSAC (site code 000205) and the Broadmeadow swords Estuary SPA (004025)
Owner	Fingal County Council
Address Owner	

Bridge Form and Configuration

Description	Single arched bridge carrying internal road on Newbridge Demesne over small water course near the park's south eastern entrance. The bridge has coursed rubble limestone construction with ashlar sandstone piers to the parapet holding wrought iron railings between the stone built abutment parapets which have cut stone coping. The elevations are smooth rendered with moulded limestone impost moulding, archivolt and keystone to both sides.
Bridge Type	Road over river
Number of permanent channel arches	1
Number of overflow arches	0
Number of dry arches	0
Approximate span (m)	4.0m
Distance between high-water mark and top of bridge arch (m)	High water mark 1.5m
Watercourse type (Tidal, canal etc)	Depositing lowland stream (FW2)
Drainage within bridge (comment)	Some internal seepage within bridge

	structure with wetting in the bridges underarch
Sewage, other outflows apparent?	None apparent
Water width at bridge (m)	4.0m
Watercourse width	4.0m
Water depth (m)	0.4m
Channel width (m)	4.0m
Bank height (m)	0.7m
Substrate - % sand	0
Substrate - % silt	90
Substrate - % gravel	0
Substrate - % cobble	5
Substrate - % boulder	5
Substrate - % concrete	0

Built heritage data and commentary

NIAH Description	Single-arch humpback road bridge c.1780, with carved limestone archivolt and keystones. Random rubble stone parapet walls with wrought-iron railings and ashlar piers.
Cartographic representation	Bridge visible on the site of Mack's Bridge on John Rocque's 1760 map (see pg 114 on record **FHBS10** below). Present but not named on both the 1843 (extract below) and 1908 O.S. maps. 
Historical background	Not known
References (i.e. historical, bibliographical)	None found

Date of construction	Probably dates to construction of Newbridge House in 1737 for Dr Charles Cobbe, later Archbishop of Dublin.
Principal material	Sandstone
Condition (structural)	Good
Condition (parapet)	Good with some light surface rust to iron railings.
Condition (matrix/mortar)	Good
Condition (soffit)	Good
Grouting or spray concrete?	No
Grouting or spray commentary	n/a
Accessibilty	Accessible on all sides but north bank of west side is obstructed by thick vegetation
Built heritage photographs	FHBS-09-BH-01 ~ West downstream elevation FHBS-09-BH-02 ~ East upstream elevation FHBS-09-BH-03 ~ West parapet from path FHBS-09-BH-04 ~ East parapet from path FHBS-09-BH-05 ~ Tree rooted on stone abutment on north bank of west side FHBS-09-BH-06 ~ Carved limestone archivolt and keystone on west elevation FHBS-09-BH-07 ~ Soffit of arch from west FHBS-09-BH-08 ~ View over bridge from north
Name of Built Heritage Field Surveyor	Eamonn Hunter
Date of inspection (Built Heritage)	29-10-08
Built heritage commentary	A charming structure rated by the NIAH as being of regional significance with architectural and technical importance, this bridge is a well-maintained example of fine workmanship and detail on an estate building.

FHBS-09-BH-01 ~ West downstream elevation

FHBS-09-BH-02 ~ East upstream elevation

FHBS-09-BH-03 ~ West parapet from path

FHBS-09-BH-04 ~ East parapet from path

FHBS-09-BH-05 ~ Tree rooted on stone abutment on north bank of west side

FHBS-09-BH-06 ~ Carved limestone archivolt and keystone on west elevation

FHBS-09-BH-07 ~ Soffit of arch from west

FHBS-09-BH-08 ~ View over bridge from north

Ecology data and commentary

Plant species present	Ivy Hart's tongue Ash
% Cover of Ivy?	35
Riparian habitat	The river is fringed to the north by a habitat dominated by the non native ornamental shrub species red osier dogwood. This commonly grades into a habitat dominated by reed canary grass and nettles at the river's margin.
Adjacent habitats	Adjacent habitats included amenity grassland (GA2), scattered trees and parkland (WD5) and mixed broadleaved woodland (WD1).
Bat Roost features?	Bat roost features on the bridge are limited due mainly to lack of crevices and plant cover.
Lighting?	None
Otter signs? E.g. spraint	None noted
Riffle %	0
Pool %	0
Glide %	100
Other mammals present	None noted
Birds Evident?	Long tailed tit
Bird nesting opportunities?	Mature trees associated with the mixed broadleaved woodland fringing the river's southern bank provides suitable bird nesting opportunities. In addition the presence of many individual mature trees throughout the nearby estate lands also supply suitable bird nesting habitat.
Amphibians, Fish, Inverts	None noted. This stream is classified as a non salmonid stream by the ERFB
Natural heritage photographs	FHBS-09-NH-01 ~ Bridge and fringing woodland vegetation FHBS-09-NH-02 ~ Bridge underarch - lack of crevices FHBS-09-NH-03 ~ Parapet bridge walls FHBS-09-NH-04 ~ Stream and fringing habitats FHBS-09-NH-05 ~ Stream substrate - build up of silt and detritus
Name of Ecology Field Surveyor	Eamonn Delaney
Date of inspection (Ecology)	29/10/2008
Ecology commentary	This is a small stone rendered and plastered bridge structure. The bridge has very little plant cover. The most notable feature being the roots of a semi mature ash tree growing underneath the western arch on the upstream side of the bridge. The water quality within the river habitat is very poor and appears eutrophic. It is heavily silted and contains a lot of detritus and woody material from the nearby woodland. A spring fed stream also flows into the river approximately 20 metres upstream of the bridge. The bridge structure itself appears unsuitable to support bat roosts or bird nests. However the mature trees fringing and within the vicinity of the bridge may support bat roosts and bird nests in addition to providing foraging areas for bats.

FHBS-09-NH-01 ~ Bridge and fringing woodland vegetation

FHBS-09-NH-02 ~ Bridge underarch - lack of crevices

FHBS-09-NH-03 ~ Parapet bridge walls

FHBS-09-NH-04 ~ Stream and fringing habitats

FHBS-09-NH-05 ~ Stream substrate - build up of silt and detritus

10. Ballymadrough Bridge

Key points

- *This historic stone bridge has been recognised by the NIAH as being of regional significance. It is not currently in use other than by its private owners as a pedestrian crossing. Dense covering of ivy on the bridge's parapet walls has potential for suitable bat and bird roosting/nesting habitat but potential for bat roosting within the bridge structure is low due to recent pointing. The bridge exhibited a good variety of vascular and bryophyte plant species that are typically associated with bridges and other stone wall structures and it is situated less than 100m upstream from the Broadmeadow/ Swords Estuary SPA and the Malahide Estuary pNHA/ cSAC. A mosaic of saltmarsh habitats are situated adjacent to stream in the vicinity of the bridge.*

- *Protected Structure (under the Local Government (Planning and Development) Act, 2000)*
  Within the curtilage of a Recorded Monument (under the National Monuments Code) (Newport tidal mill site)
  (In the ownership of the adjoining landowner)

- *While it is not in use other than by its private owners as a pedestrian crossing, its weathered but otherwise sound condition should be maintained by ensuring the trees rooted on the structure are controlled to prevent structural damage from their roots.*

10. Ballymadrough Bridge

Locational/Reference Data

Study reference number	**FHBS10**
Fingal Bridge ID	n/a
Structure name	Bridge near Newport House
Townland 1	**Ballymadrough**
Townland 2	Seapoint
Additional townlands (if more than two)	n/a
Street number	n/a
Street address	n/a
Associated water course	Not known
Grid co-ordinates (easting)	320415
Grid co-ordinates (northing)	247807
NIAH Reference No.	11336007
OS Map	2926
OS Map (Six-Inch Series)	DN012-05

Legal Designations

RPS ref.	481
RMP ref.	(adjoins Tidal Mill site DU012-042)
Natural Heritage Designation(s)	> 100m upstream of Malahide Estuary pNHA/ cSAC (Site code 000205) and the Broadmeadow swords Estuary SPA (004025)
Owner	Private ownership - John Hely Hutchinson (1974 Land Registry records, folio no. 3174)
Address Owner	Newport, Donabate, Co. Dublin

Bridge Form and Configuration

Description	This is a disused double stone arched bridge with segmental stone arches having course stone voussoirs. It provided access across a tidal stream which powered an adjacent mill but now serves as private access to farmland. The rubble limestone structure has extensive remains of rough-cast lime render particularly on the northern elevation, an open road surface of grass, low random rubble parapet walls and no cutwaters on either side.
Bridge Type	Road over river
Number of permanent channel arches	2
Number of overflow arches	0
Number of dry arches	0
Approximate span (m)	2 x4.0m
Distance between high-water mark and top of bridge arch (m)	At high tide 1.2m
Watercourse type (Tidal, canal etc)	Tidal River (CW2)

Drainage within bridge (comment)	No drainage within the bridge structure
Sewage, other outflows apparent?	Septic tank/ seepage area situated on the right hand bank downstream of the bridge.
Water width at bridge	6.0m
Watercourse width	4.0m
Water depth	0.8m
Channel width	4.0m
Bank height	1.2m
Substrate - % sand	0
Substrate - % silt	100
Substrate - % gravel	0
Substrate - % cobble	0
Substrate - % boulder	0
Substrate - % concrete	0

Built heritage data and commentary

NIAH Description	Double-arch random rubble stone bridge over river, c.1750, now disused.
Cartographic representation	Bridge visible on John Rocque's 1760 map (in shaded area on map below)  Bridge visible on this site on both 1843 and 1908 O.S. maps but not named.
Historical background	Not known
References (i.e. historical, bibliographical)	None found
Date of construction	c.1750
Principal material	Rubble limestone
Condition (structural)	Generally good although not undergoing heavy use.
Condition (parapet)	Extensively overgrown with ivy with several collapsed sections. Structure of low parapet walls appears sound with some effort having been made historically to consolidate the top with a sloped surface to deflect

	rainwater.
Condition (matrix/mortar)	Generally good but with selective pointing required in areas, notably at base of central pier which stands in water.
Condition (soffit)	Good
Grouting or spray concrete?	No
Grouting or spray commentary	n/a
Accessibility	Accessible from all sides
Built heritage photographs	FHBS-10-BH-01 ~ South upstream elevation FHBS-10-BH-02 ~ North downstream elevation FHBS-10-BH-03 ~ South parapet from top of bridge FHBS-10-BH-04 ~ North parapet from top of bridge FHBS-10-BH-05 ~ Detail of stone and jointing mortar on exterior of south parapet FHBS-10-BH-06 ~ Soffit of eastern arch from south FHBS-10-BH-07 ~ View downstream to north from west abutment FHBS-10-BH-08 ~ View west over bridge
Name of Built Heritage Field Surveyor	Eamonn Hunter
Date of inspection (Built Heritage)	29-10-08
Built heritage commentary	This structure appears to be in very good condition with little alteration since its construction. While its disuse has resulted in a lack of structural maintenance, it has also resulted in very little structural pressure being exerted on the bridge and also a lack of over-zealous, inappropriate repairs which have compromised many bridges which have remained in heavy use. It is rightly considered as of regional importance with architectural and technical interest but removal of trees and ivy (deep-rooting species) from the top surface and walls of the bridge here should be a priority for its conservation.

FHBS-10-BH-01 ~ South upstream elevation

FHBS-10-BH-02 ~ North downstream elevation

FHBS-10-BH-03 ~ South parapet from top of bridge

FHBS-10-BH-04 ~ North parapet from top of bridge

FHBS-10-BH-05 ~ Detail of stone and jointing mortar on exterior of south parapet

FHBS-10-BH-06 ~ Soffit of eastern arch from south

FHBS-10-BH-07 ~ View downstream to north from west abutment

FHBS-10-BH-08 ~ View west over bridge

Ecology data and commentary

Plant species present	Ivy Hawthorn Bramble Dandelion
% Cover of Ivy?	30
Riparian habitat	The main riparian habitat surrounding the bridge structure is rough improved agricultural grassland (GA1). The margins of the river contain halophytic plant species constituting areas of both lower and upper salt marsh habitats along the river margins. These mosaics of saltmarsh habitats are listed on Annex I of the habitats directive.
Adjacent habitats	Improved agricultural grassland (GA1), amenity grassland (GA2) and saltmarsh (CM1/2).
Bat Roost features?	Dense patches of ivy toward the sides of the bridge. There are no mature trees or hedgerows within the immediate vicinity of the bridge.
Lighting?	None
Otter signs? E.g. spraint	None noted
Riffle %	0
Pool %	30
Glide %	70
Other mammals present	None noted
Birds Evident?	None noted within the bridge environs. Proximity to the nearby Broadmeadow estuary would suggest that wider area may support wintering waterfowl and waders.
Bird nesting opportunities?	Dense patches of ivy situated near the sides of the

	bridge.
Amphibians, Fish, Inverts	None noted. This waterbody is considered to be non-salmonid by the ERFB.
Natural heritage photographs	FHBS-10-NH-01 ~ Adjacent habitats upstream of the bridge structure FHBS-10-NH-02 ~ Bridge Parapet - restricted bat potential FHBS-10-NH-03 ~ Bridge underarch - restricted bat potential FHBS-10-NH-04 ~ Broadmeadow Swords Estuary & Malahide Estuary FHBS-10-NH-05 ~ Dense ivy on bridge sidewalls FHBS -10-NH-06 ~ Stream eutrophication from nearby septic tank/ seepage area
Name of Ecology Field Surveyor	Eamonn Delaney
Date of inspection (Ecology)	29/10/2008
Ecology commentary	This bridge is no longer used for vehicular traffic. It is more than likely used to transport livestock to and from either side of the bridge. The bridge has also been recently pointed and maintained, covering many potential crevices. The dense patches of ivy at the sides of the bridge provide the most suitable bat and bird nesting habitats. The associated river is tidal receiving inundation from the adjacent Broadmeadow estuary. This leads to the river margin being dominated by halophytic vegetation. The water quality in the vicinity of the bridge appears to be quite poor due mainly to the location of a nearby seepage/ septic area associated with nearby housing. The river substrate is heavily silted throughout, limiting its value for salmonids and certain other fish species and invertebrates.

FHBS-10-NH-01 ~ Adjacent habitats upstream of the bridge structure

FHBS-10-NH-02 ~ Bridge Parapet - restricted bat potential

FHBS-10-NH-03 ~ Bridge underarch - restricted bat potential

FHBS-10-NH-04 ~ Broadmeadow Swords Estuary & Malahide Estuary

FHBS-10-NH-05 ~ Dense ivy on bridge sidewalls

FHBS -10-NH-06 ~ Stream eutrophication from nearby septic tank/ seepage area

11. Knocksedan Bridge

Key points

- *Knocksedan is a large structure crossing a relatively small river channel in a deep valley. It has been largely unaltered since its construction despite its considerable loading being on a busy stretch of road. An area of broadleaved woodland which is situated immediately to the north of the bridge may provide suitable bird nesting and bat roosting opportunities within the environs of the bridge structure. Dense coverage of ivy on the bridges buttresses may also support bat roosts. Previous bat surveys found that this bridge structure has very good bat potential with 2-3 suitable crevices noted. Species such as Common pipistrelle, Soprano pipistrelle and Daubenton's were confirmed within the vicinity of Knocksedan Bridge. The structure is situated on the Ward River which is salmonid.*

- *Protected Structure (under the Local Government (Planning and Development) Act, 2000)*
  Recorded Monument (under the National Monuments Code)

- *Repair priorities: - redesign and maintenance of road drainage to prevent contaminated water from washing over the masonry structure*
  - removal of vegetation rooted on the buttresses
  - removal of ivy rooted on masonry, retaining ivy cover as a habitat where no structural damage is being caused

Locational/Reference Data

Study reference number	**FHBS11**
Fingal Bridge ID	590
Structure name	**Knocksedan Bridge**
Townland 1	Brackenstown
Townland 2	Brazil
Additional townlands (if more than two)	n/a
Street number	n/a
Street address	Naul Road
Associated water course	Ward River
Grid co-ordinates (easting)	315171
Grid co-ordinates (northing)	246632
NIAH Reference No.	11342001
OS Map	2993
OS Map (Six-Inch Series)	DN011-11

Legal Designations

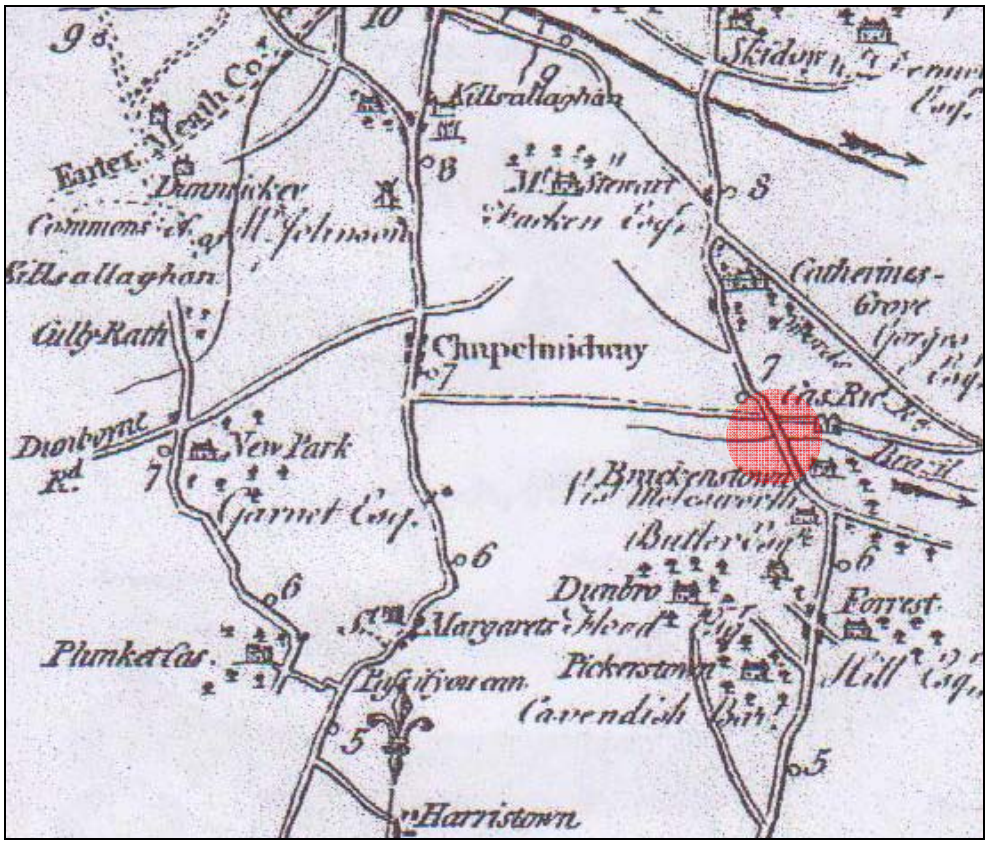
RPS ref.	367
RMP ref.	DU011-028
Natural Heritage Designation(s)	5.5 km upstream of Malahide Estuary pNHA/ cSAC (site code 000205) and the Broadmeadow swords Estuary SPA (004025)
Owner	Fingal County Council
Address Owner	

Bridge Form and Configuration

Description	This is a large, single semicircular arched stone road bridge over the Ward river on the R108. It is constructed of coursed rubble limestone with large, roughly squared voussoirs and projecting keystone with simple hood moulding. There are large buttresses supporting abutments on all four corners of the bridge and the parapet walls are capped with a round concrete coping. The river channel is narrower than the span of the arch with tow-paths on each side of the stone walled channel.
Bridge Type	Road over river
Number of permanent channel arches	1
Number of overflow arches	-
Number of dry arches	-
Approximate span (m)	12m
Distance between high-water mark and top of bridge arch (m)	High water -17m
Watercourse type (Tidal, canal etc)	Depositing Lowland River (FW2)
Drainage within bridge (comment)	There are six drains within this bridge draining excess water and run-off from the R108 regional road. Two of these drains are situated in the centre of the parapet walls with four more drains near the sides of the bridge draining onto the bridge's buttresses.

Sewage, other outflows apparent?	No sewage outflows apparent
Water width at bridge (m)	6.0m
Watercourse width (m)	6.0m
Water depth (m)	1.2m
Channel width (m)	6.0m
Bank height (m)	1.3m
Substrate - % sand	0
Substrate - % silt	20
Substrate - % gravel	10
Substrate - % cobble	30
Substrate - % boulder	40
Substrate - % concrete	100 – at the underarch

Built heritage data and commentary

NIAH Description	Single-arch stone road bridge over river, c.1800, with tapered abutments and plaque. Plaque inscribed 'Erected to commemorate/point of assembly/for Fingal Volunteers/prior to/battle of Ashbourne/East week 1916'. WALLS: Coursed rubble stone, concrete coping to parapet wall; stone tapered abutments; coursed rubble soffit; inscribed stone plaque. OPENINGS: Round arch; cut stone voussoirs and key stone.
Cartographic representation	Visible but not named on Rocque map of 1760. Also visible but no named on Taylor and Skinner road map (1778) in shaded area of map below.  Visible on Duncan map of 1821 (see pg 89 above on record **FHBS08**). Named on both 1843 and 1908 O.S. maps.
Historical background	This route, (presently the R108) has always been the shortest road (although historically narrow and hilly) north from Dublin to Drogheda and was tolled as far north as Knocksedan Bridge around the end of the eighteenth century. The bridge was the meeting point for a group of local volunteers who took part in the Battle of Ashbourne in 1916 and a plaque on the west parapet commemorates this. A Council engineering report of 3-11-87 detailed that joints had been repointed, the crown area had been plastered and water was dripping from the intrados in places.
References (i.e. historical, bibliographical)	Historic photograph reference LROY7920 in National Library Photographic Archive.

	Broderick, D. (1996) An Early Toll Road: The Dublin-Dunleer Turnpike 1731-1855. pp. 49, 50
Date of construction	c.1800
Principal material	Rubble limestone
Condition (structural)	Generally good but extensive vegetation growth including trees on corner buttresses will compromise their stability in the medium to long term. Drainage of road surface onto corner buttresses and anywhere that water runs over the face of masonry results in mortar being washed out and a gradual build-up of grease from oil and other run-off from road surface.
Condition (parapet)	Good
Condition (matrix/mortar)	Generally good although much of the pointing has been carried out in inappropriate cement.
Condition (soffit)	Generally good with remains of rough cast lime render but several areas of damp observed on arch soffit during heavy rain.
Grouting or spray concrete?	No
Grouting or spray commentary	n/a
Accessibility	Accessible from north east side off valley park footpath. Other points of access blocked by thick vegetation, private land or steep terrain. Remains of towpath beneath arch allowed access to west side.
Built heritage photographs	FHBS-11-BH-01 ~ East downstream elevation FHBS-11-BH-02 ~ East parapet from east showing road drainage pipe and keystones FHBS-11-BH-03 ~ View to north along east parapet FHBS-11-BH-04 ~ North east buttress with road drainage washing over and vegetation rooted in masonry FHBS-11-BH-05 ~ West parapet from road FHBS-11-BH-06 ~ Detail of west parapet masonry and road drainage duct FHBS-11-BH-07 ~ Detail of road drainage beside footpath on west parapet FHBS-11-BH-08 ~ Granite plaque on west parapet FHBS-11-BH-09 ~ Road drainage through west parapet FHBS-11-BH-10 ~ South west buttress with tree and extensive vegetation rooted in masonry FHBS-11-BH-11 ~ South east corner of bridge with iron pedestrian gate FHBS-11-BH-12 ~ Soffit of arch at western side FHBS-11-BH-13 ~ View upstream through arch FHBS-11-BH-14 ~ View downstream over east parapet wall FHBS-11-BH-15 ~ Historic (1880-1900) photo ref. LROY7920
Name of Built Heritage Field Surveyor	Eamonn Hunter
Date of inspection (Built Heritage)	8-10-08 and 29-10-08
Built heritage commentary	This large bridge structure is a striking piece of civil architecture and its association with local rebel activity during the early twentieth century warrants its special historic interest as well as the architectural and technical interest of this regionally significant structure. Removal

	of all deep-rooted vegetation from the structure and in particular from the corner buttress tops will probably require the masonry on top of the buttresses to be lifted and re-laid using a cement or eminently hydraulic lime mortar to reduce the ingress of water into these parts of the structure. The drainage of the road should also be looked at to ensure that it is directed clear of the historic bridge structure and preferably to a settlement pond or suitable treatment considering the foul nature of the water draining off this busy road. Previously surveyed 1-2-80; 3-11-87; 12-11-88

FHBS-11-BH-01 ~ East downstream elevation

FHBS-11-BH-02 ~ East parapet from east showing road drainage pipe and keystones

FHBS-11-BH-03 ~ View to north along east parapet

FHBS-11-BH-04 ~ North east buttress with road drainage washing over and vegetation rooted in masonry

FHBS-11-BH-05 ~ West parapet from road

FHBS-11-BH-06 ~ Detail of west parapet masonry and road drainage duct

FHBS-11-BH-07 ~ Detail of road drainage beside footpath on west parapet

FHBS-11-BH-08 ~ Granite plaque on west parapet

FHBS-11-BH-09 ~ Road drainage through west parapet

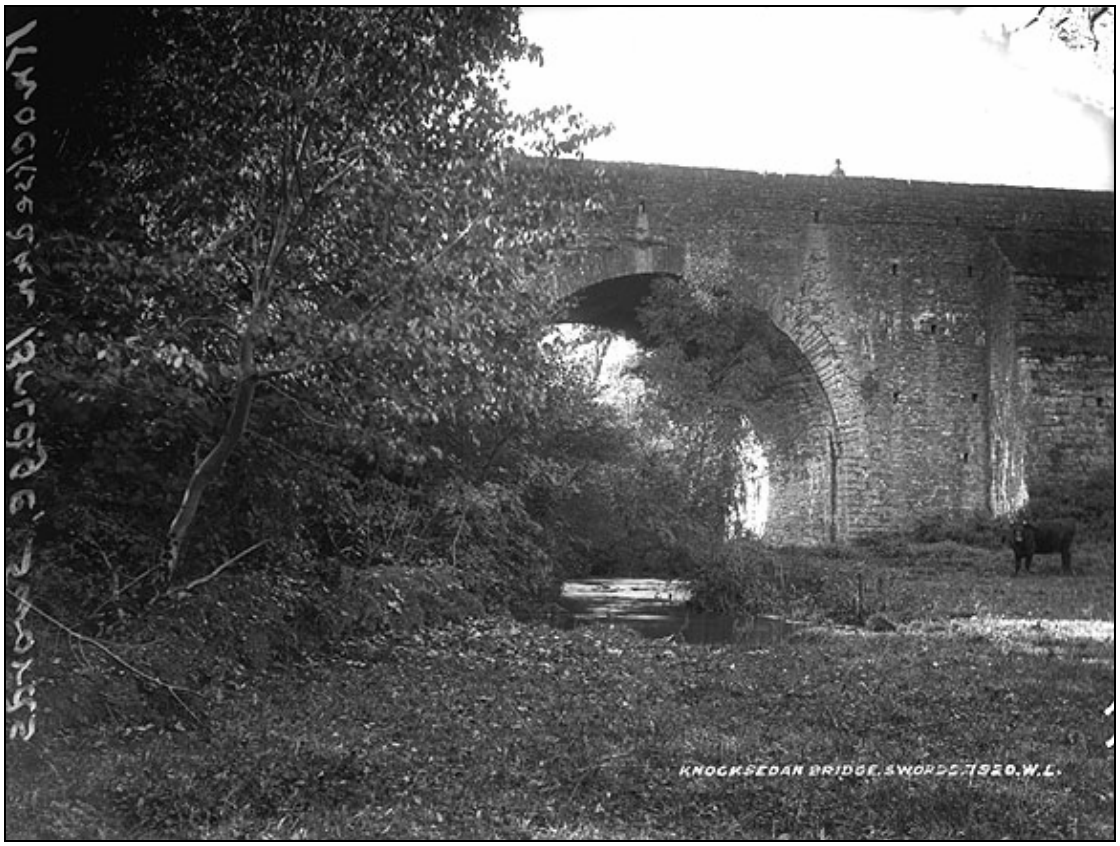
FHBS-11-BH-10 ~ South west buttress with tree and extensive vegetation rooted in masonry

FHBS-11-BH-11 ~ South east corner of bridge with iron pedestrian gate

FHBS-11-BH-12 ~ Soffit of arch at western side

FHBS-11-BH-13 ~ View upstream through arch

FHBS-11-BH-14 ~ View downstream over east parapet wall



FHBS-11-BH-15 ~ Historic (1880-1900) photo ref. LROY7920

Ecology data and commentary

Plant species present	Broadleaved willowherb Ivy Ragwort Sycamore Ribwort plantain Greater plantain
% Cover of Ivy?	40
Riparian habitat	This bridge is fringed by scrub and rough grassland mosaic to the south. The northern area is fringed by an area of mixed broadleaved woodland.
Adjacent habitats	Adjacent habitats include scrub, rough grassland, derelict hedgerows and a large area of mixed broadleaved woodland.
Bat Roost features?	The bridge has been pointed and maintained in recent years. However 2 crevices in the bridge's underarch may be suitable as bat roosts. Dense coverage of ivy on the bridges buttresses may also support bat roots. Finally the nearby woodland contains many mature trees species suitable to support bat roosts. Previous bat surveys on this Bridge outlined very good bat potential with 2-3 suitable crevices noted. Species such as Common pipistrelle, Soprano pipistrelle and Daubenton's were confirmed within the vicinity of this bridge.
Lighting?	None
Otter signs? E.g. spraint	None noted. However otters are known to be present along the Ward River – (Hans Visser pers. comm. - Heritage officer Fingal County Council). Otters are protected under Annex II of the EU Habitats Directive.
Riffle %	10
Pool %	0
Glide %	90
Other mammals present	None noted
Birds Evident?	None noted
Bird nesting opportunities?	The nearby woodland with many mature deciduous trees provides suitable bird nesting opportunities within the environs of the bridge structure.
Amphibians, Fish, Inverts	No amphibians or invertebrates identified. Fish (not identifiable) noted during survey at the underarch. The ward river is considered as a Salmonid River by the ERFB.
Natural heritage photographs	FHBS-11-NH-01 ~ Bridge drainage on upstream parapet wall FHBS-11-NH-02 ~ Bridge underarch FHBS-11-NH-03 ~ Dense ivy growth on bridge buttress FHBS-11-NH-04 ~ Habitats upstream of bridge FHBS-11-NH-05 ~ Knocksedan bridge downstream parapet walls FHBS -11-NH-06 ~ Riparian habitats downstream of the bridge
Name of Ecology Field Surveyor	Eamonn Delaney
Date of inspection (Ecology)	29/10/2008
Ecology commentary	This is a large bridge structure with an underarch height

	of approximately 25m. The proximity of the mixed broadleaved woodland ensures that this area supports high mammal and bird activity which are likely to utilise the bridge to some extent. The presence of dense ivy coverage on the bridges buttresses in addition to crevices on the underarch may also support bird/ bat roosting sites.

FHBS-11-NH-01 ~ Bridge drainage on upstream parapet wall

FHBS-11-NH-02 ~ Bridge underarch

FHBS-11-NH-03 ~ Dense ivy growth on bridge buttress

FHBS-11-NH-04 ~ Habitats upstream of bridge

FHBS-11-NH-05 ~ Knocksedan bridge downstream parapet walls

FHBS -11-NH-06 ~ Riparian habitats downstream of the bridge

12. Chapelmidway Bridge

Key points

- *Rated as regionally significant by the NIAH, this bridge probably has late medieval origins to the western side. Some serious structural defects were noted in engineer inspections of the 1980s but these appear to have been rectified since then. Crevices nearer the northern side of the arch soffit have potential as bat roosts. These occur in between jagged vertical rocks. Adjacent mature deciduous trees both upstream and downstream of the bridge may also support bat roosts. The structure exhibited a good variety of vascular and bryophyte plant species that are typically associated with bridges and other stone wall structures and it is situated on the Ward River which is salmonid.*

- *The bridge does not have any protected status as a historic structure*

- *Repair priorities: - control of vegetation rooted in and causing damage to the approach walls*
  - ongoing monitoring of the structure
  - maintenance of the verge and road drainage over the crossing

12. Chapelmidway Bridge

Locational/Reference Data

Study reference number	**FHBS12**
Fingal Bridge ID	n/a
Structure name	**Chapelmidway Bridge**
Townland 1	Laurestown
Townland 2	Corrstown
Additional townlands (if more than two)	Skephubble
Street number	n/a
Street address	Fieldstown-Skephubble Road
Associated water course	Ward River
Grid co-ordinates (easting)	312337
Grid co-ordinates (northing)	246196
NIAH Reference No.	11342007
OS Map	Not known
OS Map (Six-Inch Series)	DN011-10

Legal Designations

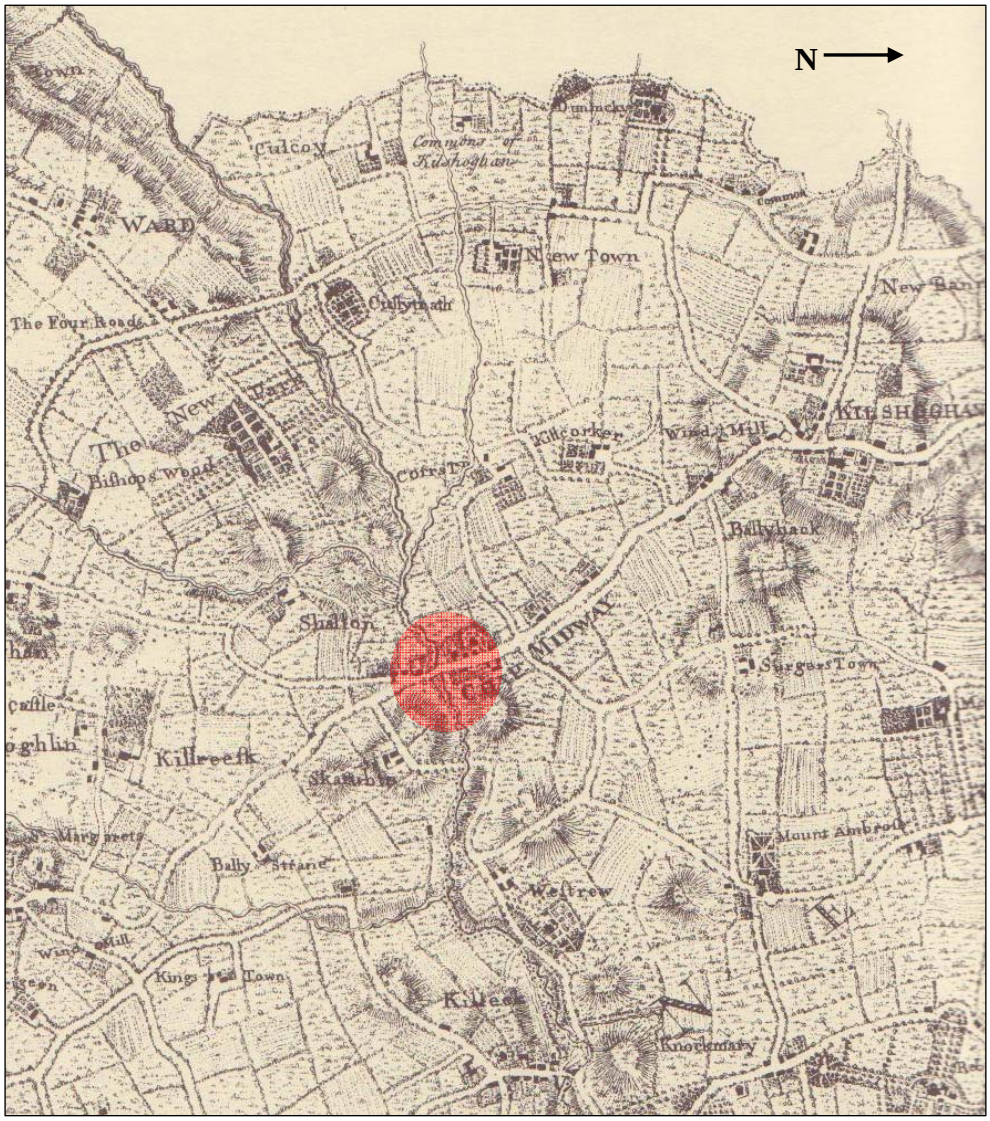
RPS ref.	n/a
RMP ref.	n/a
Natural Heritage Designation(s)	8.5km upstream of Malahide Estuary pNHA/ cSAC (site code 000205) and the Broadmeadow swords Estuary SPA (004025)
Owner	Fingal County Council
Address Owner	

Bridge Form and Configuration

Description	A three, segmental-arched stone road bridge on the R122 with two historic extensions toward the east visible, the central section in rubble stone and the latest eastern section in cast reinforced concrete. The original western section features an uncoursed rubble limestone elevation with roughly cut circular stone cutwaters, possibly added or extended since the original construction. Cutwater piers are conically topped with concrete and base of three arches and piers are cased in concrete. Eastern elevation is of cast concrete with only the parapet in uncoursed rubble stone. Both parapet walls have heavy limestone copings, those blocks on the west being larger.
Bridge Type	Road over river
Number of permanent channel arches	3
Number of overflow arches	0
Number of dry arches	0
Approximate span (m)	3 x 3.1m (cutwaters are 2m wide)
Distance between high-water mark and top of bridge arch (m)	1.0m at high water 1.5m at time of field sampling

Watercourse type (Tidal, canal etc)	Depositing lowland river (FW2)
Drainage within bridge (comment)	None
Sewage, other outflows apparent?	None within the vicinity of the bridge how
Water width at bridge (m)	8.0 m
Watercourse width	7.0m
Water depth (m)	1.1m
Channel width (m)	4.0m
Bank height (m)	1.5m
Substrate - % sand*	0
Substrate - % silt	0
Substrate - % gravel*	0
Substrate - % cobble*	0
Substrate - % boulder*	0
Substrate - % concrete*	0

Built heritage data and commentary

NIAH Description	Triple-arch rubble stone road bridge over river, c.1820, with curved cut waters.
Cartographic representation	Visible on John Rocque's map of 1760 in shaded area of map below.  Visible on Duncan map of 1821 (see pg 89 above on record **FHBS08**). Named on both 1843 and 1908 O.S. maps.
Historical background	Survey report of 25-1-80 remarked that arch extensions comprised 2m of masonry and 3m of reinforced concrete. This report also recommended annual inspection of deformed arches on upstream side. Survey report of 14-10-87 inspection noted that deterioration didn't appear to have occurred since the bridge's first survey in 1976. This report also noted severe sagging on the western section of all three spans which also have some flaking of voussoirs and friable mortar. The bridge had been extended twice with the eastern sections of mass concrete and the middle sections having been repointed.
References (i.e. historical,	Weston St. John Joyce (third and enlarged edition 1920)

bibliographical)	The Neighbourhood of Dublin. Available at www.chaptersofdublin.com/books/neighbourhood/contents.html
Date of construction	c. 1820 (?)
Principal material	Limestone and cast concrete
Condition (structural)	Generally good although significant defects were noted in previous council engineering reports and although there does not seem to be a major traffic route passing over the bridge, further investigation of its structural condition may be beneficial.
Condition (parapet)	Good, although some vegetation growing in wall tops, causing particularly notable damage on south west approach wall.
Condition (matrix/mortar)	Good
Condition (soffit)	Arch soffit surface is quite uneven but apparently sound. Lower parts of arch soffit have considerable damp patches where water is draining out of bridge structure (probably entering through grass verges on top of bridge).
Grouting or spray concrete?	No
Grouting or spray commentary	n/a
Accessibility	Accessible from south west corner. East side is heavily obscured by thick vegetation.
Built heritage photographs	FHBS-12-BH-01 ~ West upstream elevation FHBS-12-BH-02 ~ East downstream elevation FHBS-12-BH-03 ~ West parapet from road FHBS-12-BH-04 ~ East parapet from road FHBS-12-BH-05 ~ Tree rooted on west parapet and dislodging stones FHBS-12-BH-06 ~ Soffit of southern arch from west FHBS-12-BH-07 ~ Round cutwater between southern and central arch from west FHBS-12-BH-08 ~ Northern arch from west FHBS-12-BH-09 ~ View upstream to west FHBS-12-BH-10 ~ View to south along R122
Name of Built Heritage Field Surveyor	Eamonn Hunter
Date of inspection (Built Heritage)	8-10-08 and 29-10-08
Built heritage commentary	This bridge has an interesting history of development with no less than three separate sections including the oldest west section. There has been a crossing at this point for many centuries given its location on an inland route north to Drogheda from Dublin and the present structure more than likely dates to the seventeenth century with later extensions. It has been rated by the NIAH as being of regional significance with technical and architectural interest. Previously surveyed 25-1-80; 14-10-87

FHBS-12-BH-01 ~ West upstream elevation

FHBS-12-BH-02 ~ East downstream elevation

FHBS-12-BH-03 ~ West parapet from road

FHBS-12-BH-04 ~ East parapet from road

FHBS-12-BH-05 ~ Tree rooted on west parapet and dislodging stones

FHBS-12-BH-06 ~ Soffit of southern arch from west

FHBS-12-BH-07 ~ Round cutwater between southern and central arch from west

FHBS-12-BH-08 ~ Northern arch from west

FHBS-12-BH-09 ~ View upstream to west

FHBS-12-BH-10 ~ View to south along R122

Ecology data and commentary

Plant species present	Elder Hawthorn Bramble Ivy Annual meadow grass False oat grass Dandelion Nettle Red fescue Wall rue
% Cover of Ivy?	10
Riparian habitat	The riparian habitat is characterized by a mosaic of dry grassy verge grassland (GS2) and bramble dominated scrub (WS1). A hedgerow (WL1) is situated on the left hand bank downstream of the bridge.
Adjacent habitats	The bridge area is flanked by habitats associated with intensive agriculture. These include tilled land (BC1) and improved agricultural grassland (GA1).
Bat Roost features?	Some crevices nearer the northern side of the underarch may be suitable bat roosts. These occur in between jagged vertical rocks. Ivy coverage on the bridge is too sparse. Some mature deciduous trees both upstream and downstream of the bridge may also support bat roosts.
Lighting?	None
Otter signs? E.g. spraint	None noted. However otters are known to be present along the Ward River – (Hans Visser pers comm – Heritage officer Fingal Co. Co). Otters are protected

	under Annex II of the EU Habitats Directive.
Riffle %	0
Pool %	0
Glide %	100
Other mammals present	None noted
Birds Evident?	Song Thrush, Grey Heron, Wood Pigeon, Pheasant recorded
Bird nesting opportunities?	A large mature willow trees situated downstream of the river.
Amphibians, Fish, Inverts	None noted. The ward river is considered as a Salmonid River by the ERFB.
Natural heritage photographs	FHBS-12-NH-01 ~ Bridge underarch - northerly underarch FHBS-12-NH-02 ~ Bryophyte growth on bridge wall FHBS-12-NH-03 ~ Elder growing on downstream parapet wall FHBS-12-NH-04 ~ Riparian habitat upstream of the bridge FHBS-12-NH-05 ~ Stream channel immediately downstream of bridge
Name of Ecology Field Surveyor	Eamonn Delaney
Date of inspection (Ecology)	29/10/2008
Ecology commentary	Overall this bridge is situated within an area characterised by intensive agricultural practices. A small stream joins the river immediately below the bridge. At the time of field surveying the river flowed mainly through the central arch leaving a stagnant/ very slow flow of water through the other two arches. Two small island areas situated immediately below the bridge are comprised of sediment accretion and are vegetated by reed canary grass. *The river was in flood at the time of survey, and therefore surface and substrate characteristics could not be evaluated. The bridge supports some suitable crevices for bat roosts and the fringing semi natural habitats such as dry grassy verge grassland, scrub and hedgerow may provide much needed ecological corridors within an area characterised by intense agricultural practices

FHBS-12-NH-01 ~ Bridge underarch - northerly underarch

FHBS-12-NH-02 ~ Bryophyte growth on bridge wall

FHBS-12-NH-03 ~ Elder growing on downstream parapet wall

FHBS-12-NH-04 ~ Riparian habitat upstream of the bridge

FHBS-12-NH-05 ~ Stream channel immediately downstream of bridge

13. Kirkpatrick Bridge

Key points

- *The use of high quality ashlar on this canal bridge of 1795 adds to its regional significance. Bat potential of this bridge is high due to ivy coverage and extensive treelines adjacent to canal. Bat activity along this section of Royal Canal was confirmed by previous surveys and in particular, a 2004 report confirmed the presence of Daubenton's bat, Leisler's bat and common and soprano pipistrelles. Extensive treeline situated along the margins of the canal in addition to ivy coverage on bridge provides suitable bird nesting opportunities. The structure is situated on the Royal Canal which is a cyprinid watercourse.*

- *Protected Structure (under the Local Government (Planning and Development) Act, 2000)*

- *Extensive ivy growth on the eastern elevation and the lack of access to the west elevation due to extensive tree growth should be addressed by ongoing maintenance programmes retaining ivy cover as a habitat where no structural damage is being caused.*

13. Kirkpatrick Bridge

Locational/Reference Data

Study reference number	**FHBS13**
Fingal Bridge ID	195
Structure name	**Kirkpatrick Bridge**
Townland 1	Carpenterstown
Townland 2	Sheepmoor
Additional townlands (if more than two)	n/a
Street number	n/a
Street address	Carpenterstown/Coolmine Road
Associated water course	Royal Canal
Grid co-ordinates (easting)	30704
Grid co-ordinates (northing)	23756
NIAH Reference No.	11361032
OS Map	3195
OS Map (Six-Inch Series)	DN013-16

Legal Designations

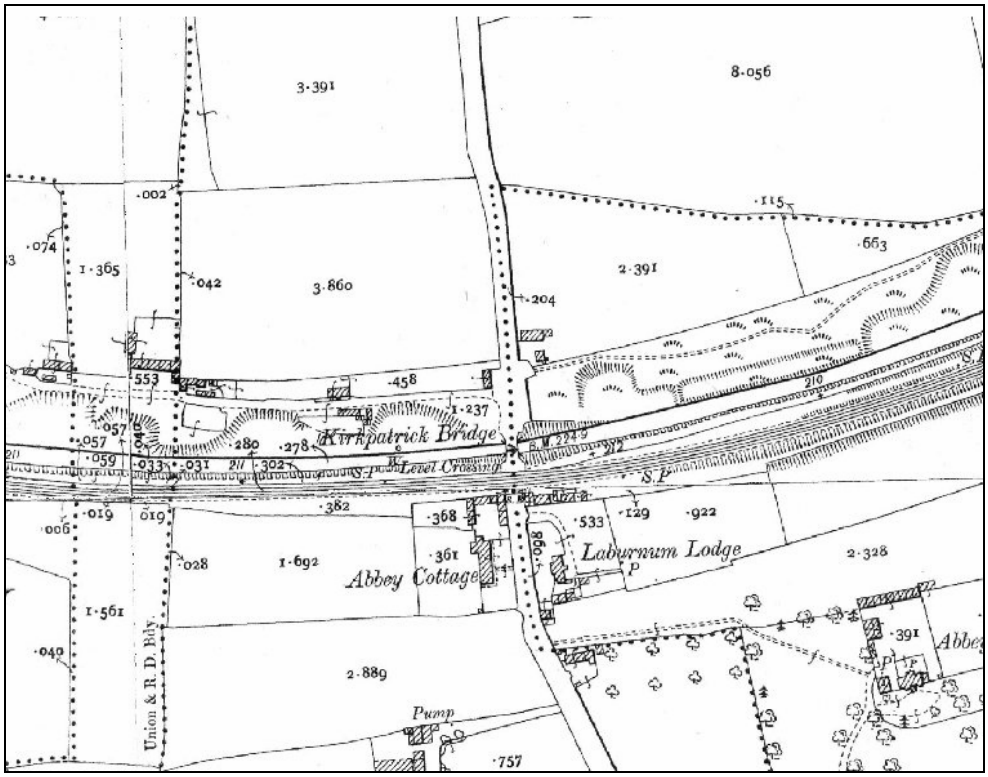
RPS ref.	697
RMP ref.	n/a
Natural Heritage Designation(s)	Royal Canal pNHA (Site code 002103)
Owner	Waterways Ireland
Address Owner	2 Sligo Road Enniskillen Co Fermanagh BT74 7JY

Bridge Form and Configuration

Description	A single, segmental-arched stone road bridge over the Royal Canal and tow-path at Carpenterstown. Constructed like several others along this stretch of the Canal, it has rusticated ashlar voussoirs with a pronounced keystone on both elevations. The roughly squared, coursed rubble limestone construction to spandrels and parapet is divided by a projecting ashlar string course and the parapets are capped with limestone blocks. The abutments are curved as the road narrows to cross the bridge and ashlar piers terminating these approach parapets remain on the south side; those on the north side appear to have been removed for construction of the modern pedestrian footbridge just east of the bridge. The name and date plaques in carved limestone adorn both sides of the two parapets but have been partially buried by the road surface on the roadsides.
Bridge Type	Road over canal
Number of permanent channel arches	1
Number of overflow arches	-
Number of dry arches	-
Approximate span (m)	8.6m
Distance between high-water mark and top of bridge arch (m)	8.5m

Watercourse type (Tidal, canal etc)	Canal (FW3)
Drainage within bridge (comment)	Some internal drainage through the side arch.
Sewage, other outflows apparent?	None noted
Water width at bridge (m)	4.5m
Watercourse width	5.0m
Water depth (m)	2.0m
Channel width (m)	6.0m
Bank height (m)	2.8m
Substrate - % sand	0
Substrate - % silt	100
Substrate - % gravel	0
Substrate - % cobble	0
Substrate - % boulder	0
Substrate - % concrete	0

Built heritage data and commentary

NIAH Description	Single-arch stone road bridge over river, built 1795, with ashlar parapet walls, cut stone keystones and voussoirs, having stone date and name plaques.
Cartographic representation	Named on both the 1843 and 1909 (extract below) O.S. maps. 
Historical background	The bridge is named after Alexander Kirkpatrick, one of the original directors of the Royal Canal Company. July 1981 survey report noted evidence of dampness on

	the intrados and the possibility that voussoirs were slightly displaced. It also recommended pointing of voussoirs especially on the upstream side, repointing of about 10% of joints and removal of vegetation from downstream spandrel wall. Report of 9-10-87 survey noted separation of arch ring from spandrel wall especially on west side and extensive seepage of water through arch and fill material. Also it noted a hole near the centre of the span of the east wall and extensive ivy and trees which were recommended for removal. Drawings for adjacent foot bridge to east of road bridge dated June 2006.
References (i.e. historical, bibliographical)	None found
Date of construction	1795
Principal material	Roughly squared rubble limestone with ashlar dressings
Condition (structural)	Good
Condition (parapet)	Good although road-side parapet is partially buried beneath road surface. Also noted was considerable vegetation growth (mainly ivy) particularly on the east elevation.
Condition (matrix/mortar)	Generally good
Condition (soffit)	Not accessible
Grouting or spray concrete?	No
Grouting or spray commentary	n/a
Accessibility	Access and views obstructed by trees along canal banks even from tow-path
Built heritage photographs	FHBS-13-BH-01 ~ East elevation from southern end of adjacent footbridge FHBS-13-BH-02 ~ West elevation from northern side FHBS-13-BH-03 ~ East parapet from road looking north east FHBS-13-BH-04 ~ West parapet from road looking north west FHBS-13-BH-05 ~ Detail of ashlar voussoirs and keystone on west elevation FHBS-13-BH-06 ~ Name plaque on road side of west parapet FHBS-13-BH-07 ~ View south over Kirkpatrick bridge and adjacent railway level crossing
Name of Built Heritage Field Surveyor	Eamonn Hunter
Date of inspection (Built Heritage)	8-10-08
Built heritage commentary	This is a refined piece of canal architecture of regional significance with added technical interest. The use of high quality ashlar work and striking carved name plaques sets this and other late eighteenth century canal bridges apart from other functionally designed bridges of this time in terms of the aesthetic quality of the structure. Some attention has been drawn in previous engineering reports to possible defects relating the separation of the arch ring from the soffit of the bridge and such deterioration due in all likelihood to the increase in volume of traffic over the bridge in recent decades should be monitored. The lack of accessibility to fully survey the bridge is the

	result of extensive tree growth beside the structure which should be assessed and cut back to prevent any structural damage to the bridge. Previously surveyed July 1981; 9-10-87; 9-12-99

FHBS-13-BH-01 ~ East elevation from southern end of adjacent footbridge

FHBS-13-BH-02 ~ West elevation from northern side

FHBS-13-BH-03 ~ East parapet from road looking north east

FHBS-13-BH-04 ~ West parapet from road looking north west

FHBS-13-BH-05 ~ Detail of ashlar voussoirs and keystone on west elevation

FHBS-13-BH-06 ~ Name plaque on road side of west parapet

FHBS-13-BH-07 ~ View south over Kirkpatrick bridge and adjacent railway level crossing

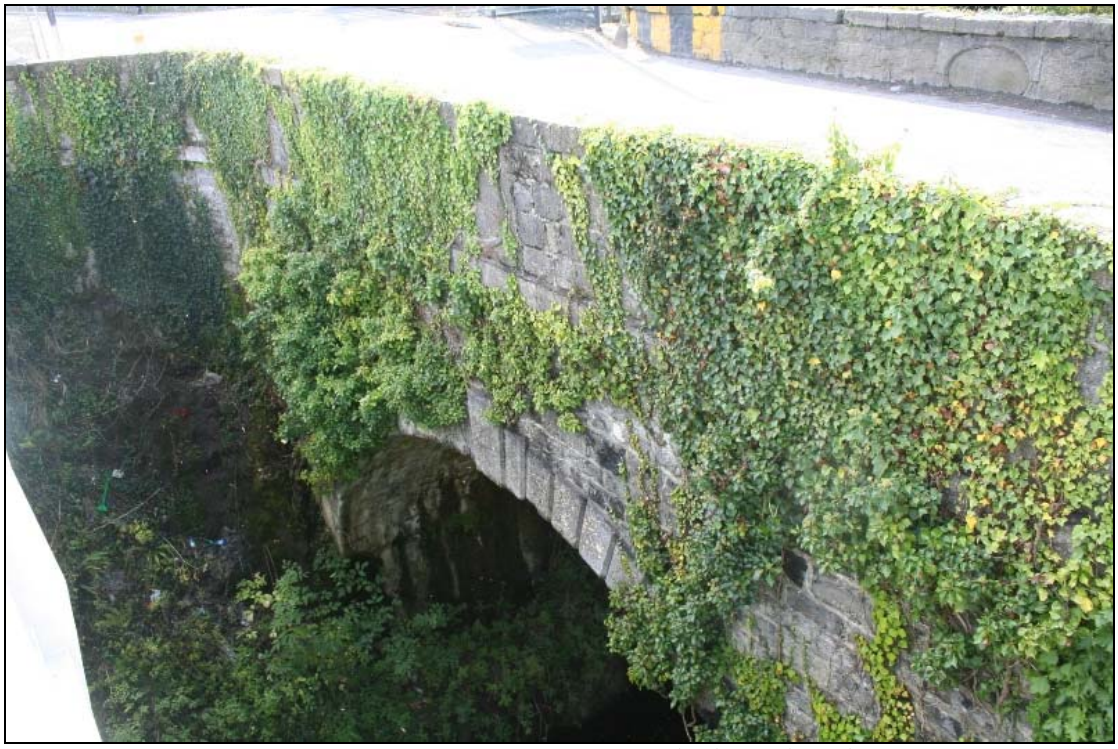
Ecology data and commentary

Plant species present	Ivy Pellitory of the wall Herb Robert
% Cover of Ivy?	45
Riparian habitat	Treelines situated on steeply sloping banks of the canal. These treelines are comprised of ash, alder and sycamore with shrubs such as elder also occurring.
Adjacent habitats	The bridge is situated within Carpenterstown, an area of intense human activity. Therefore the main habitat surrounding the bridge is buildings and artificial surfaces (BL3).
Bat Roost features?	Crevices with bat roost potential are situated on the downstream side of the bridge, on the underarch and on the parapet walls. Good cover of ivy on both parapet walls on the bridges side walls.
Lighting?	Street lighting situated nearby does not shine directly onto the bridge.
Otter signs? E.g. spraint	None noted
Riffle %	0
Pool %	0
Glide %	100
Other mammals present	None noted
Birds Evident?	None noted

Bird nesting opportunities?	Extensive treeline situated along the margins of the canal in addition to ivy coverage on bridge provides some suitable bird nesting opportunities.
Amphibians, Fish, Inverts	None noted. The royal canal is classified as a cyprinid water body by the ERFB (G. Hannigan, pers comm.).
Natural heritage photographs	FHBS-13-NH-01 ~ Bridge underarch - lack of crevices FHBS-13-NH-02 ~ Bridge walls - nearby railway crossing FHBS-13-NH-03 ~ Ivy coverage near bridge underarch FHBS-13-NH-04 ~ Ivy on downstream parapet wall FHBS-13-NH-05 ~ Treelines fringing the margins of the Royal Canal
Name of Ecology Field Surveyor	Eamonn Delaney
Date of inspection (Ecology)	13/11/2008
Ecology commentary	*Substrate of the canal was difficult to ascertain due to dark water colour and depth. Substrate given a value of 100% silt due to it being a slow moving and artificial water body. Littering associated with unsociable drinking present within the immediate environs of the bridge. The presence of crevices within the bridge structure in addition to ivy coverage on the bridge and treelines along the margins of the canal would all be conducive for bird and mammal activity within the surrounds of the bridge. Additionally Brian Keeley confirmed that a mammal survey completed along the Royal Canal in 2004 confirmed that there was bat activity along this stretch of the Royal Canal. The report confirmed the presence of Daubenton's, Leisler's, common and soprano pipistrelle in this area of the Royal Canal.

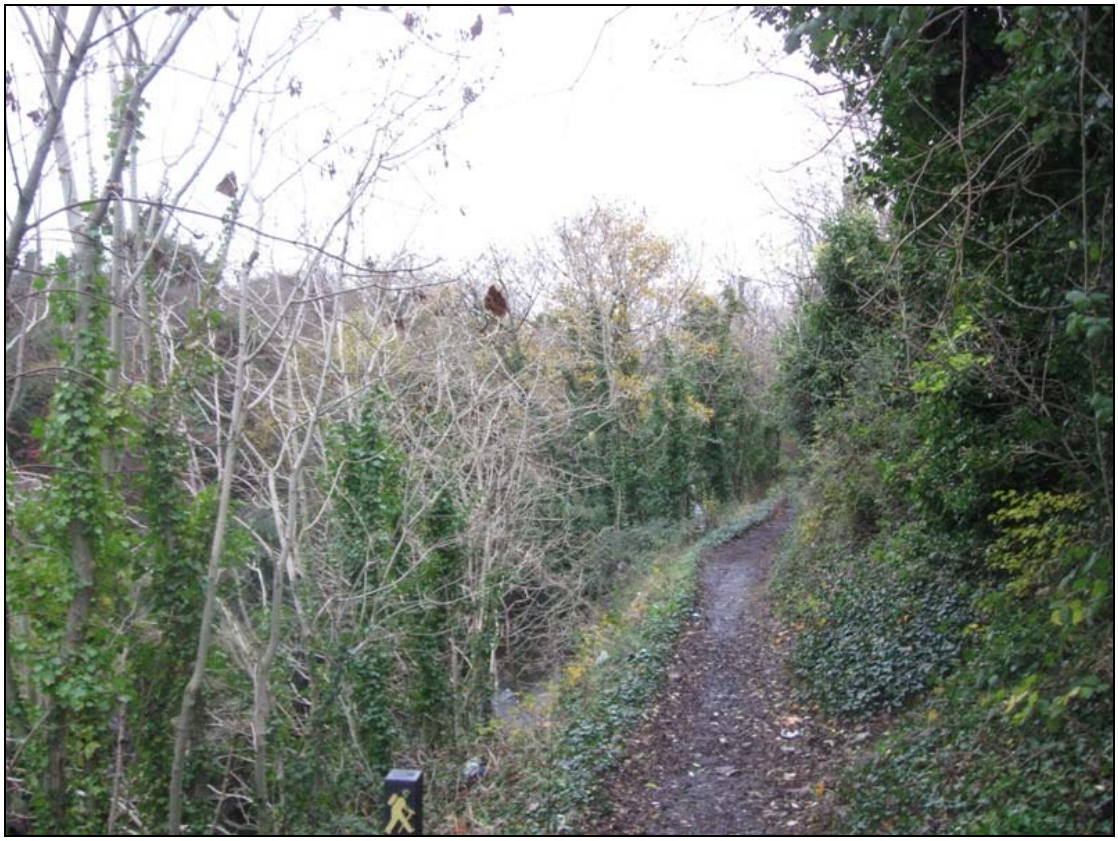
FHBS-13-NH-01 ~ Bridge underarch - lack of crevices

FHBS-13-NH-02 ~ Bridge walls - nearby railway crossing



FHBS-13-NH-03 ~ Ivy coverage near bridge underarch

FHBS-13-NH-04 ~ Ivy on downstream parapet wall



FHBS-13-NH-05 ~ Treelines fringing the margins of the Royal Canal

14. Callaghan Bridge

Key points

- *There has been considerable damage to the parapets of this Canal bridge which is the result of piecemeal repairs necessary following road traffic collisions on the extremely busy crossing. Ivy coverage on the bridge's parapet and side walls and the treelines fringing the canal provide suitable bat roosting potential foraging areas. Crevices within the underarch provide suitable bat roosting potential and bat activity along this section of Royal Canal has been confirmed by previous surveys with the presence of Daubenton's bat, Leisler's bat and common and soprano pipistrelles confirmed. The structure is situated on the Royal Canal which is a cyprinid watercourse.*

- *Protected Structure (under the Local Government (Planning and Development) Act, 2000)*

- *Repair priorities: - removal of ivy rooted on masonry, retaining ivy cover as a habitat where no structural damage is being caused*
  A coordinated management plan should be put in place to consolidate the present structure and ensure that repairs necessary in the future are effected with greater regard for the architectural significance of this protected structure.

14. Callaghan Bridge

Locational/Reference Data

Study reference number	**FHBS14**
Fingal Bridge ID	145
Structure name	**Callaghan Bridge**
Townland 1	Clonsilla
Townland 2	Kellystown
Additional townlands (if more than two)	n/a
Street number	n/a
Street address	Clonsilla Road, Blakestown
Associated water course	Royal Canal
Grid co-ordinates (easting)	304998
Grid co-ordinates (northing)	238111
NIAH Reference No.	11353003
OS Map	3129
OS Map (Six-Inch Series)	DN013-15

Legal Designations

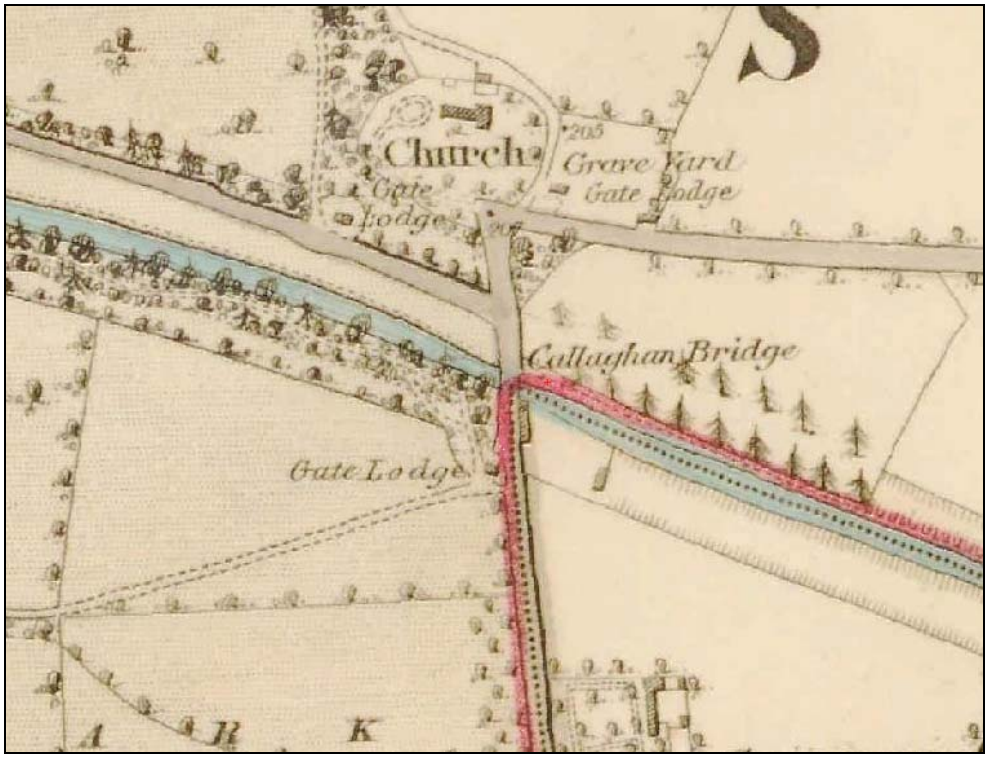
RPS ref.	706
RMP ref.	n/a
Natural Heritage Designation(s)	Royal Canal pNHA (Site code 002103)
Owner	Waterways Ireland
Address Owner	2 Sligo Road Enniskillen Co Fermanagh BT74 7JY

Bridge Form and Configuration

Description	Humpbacked road bridge carrying R121 over Royal Canal. Single three-centred arched stone structure with ashlar limestone rusticated voussoirs, pronounced keystone, and rubble limestone spandrels and parapets; the western parapet having undergone extensive repairs in a variety of inappropriate materials following successive traffic collisions. Corners beneath arch are rounded with carved stops at the base originally to protect horses towing canal vessels. Abutments to each side are curved as road narrows to cross bridge. North east abutment continues on downward slope to form embankment to ramp leading to tow-path. Some original punched limestone coping stones remain on the eastern parapet but elsewhere have been replaced by cast concrete or sawn limestone. A water main is held on the east elevation on angle-profiled steel brackets.
Bridge Type	Road over canal
Number of permanent channel arches	1
Number of overflow arches	0
Number of dry arches	0
Approximate span (m)	7.1m

Distance between high-water mark and top of bridge arch	3.5m
Watercourse type (Tidal, canal etc)	Canal (FW3)
Drainage within bridge (comment)	Some internal bridge seepage
Sewage, other outflows apparent?	None apparent
Water width (at bridge)	5.5m
Water course width	6.0
Water depth	1.8m
Channel width	7.0m
Bank height	2.5m
Substrate - % sand	0
Substrate - % silt	100
Substrate - % gravel	0
Substrate - % cobble	0
Substrate - % boulder	0
Substrate - % concrete	0

Built heritage data and commentary

NIAH Description	Single-arch limestone humpback road bridge over Royal Canal, c.1820.
Cartographic representation	Taylor (1816) (Carhampton Bridge). Named on both 1843 (see below) and 1909 O.S. maps. 
Historical background	The survey of 23-1-80 noted the unsatisfactory condition of mortar joints in a few areas. Survey report of 24-9-87 stated that some small

	voussoirs were missing from intrados which was damp and also mortar was missing from the arch rings and spandrel walls particularly on the east side. It also noted that cap stones were missing from the east parapet wall and that there was heavy vegetation on both elevations. Some signs of distress in the road surface near the abutments were recorded. The report of 24-11-89 noted that Callaghan Bridge was formerly known as Carhampton Bridge (after the Earl of Carhampton, one of the principal original undertakers of the Royal Canal Company in the late 1780s) on the 1816 Taylor map. Subject to a planning application to install the present adjacent footbridge with drawings dated June 2006.
References (i.e. historical, bibliographical)	Clarke, P. (1992) The Royal Canal: The Complete Story. p. 23
Date of construction	c. 1820
Principal material	Roughly squared rubble limestone
Condition (structural)	Generally good
Condition (parapet)	Poor, especially on the west side which appears to suffer the brunt of road traffic collisions and ad-hoc repairs. The eastern parapet is extensively covered in ivy which made assessment of its condition difficult but its removal would be recommended regardless of the masonry condition. The road side of this eastern parapet contains a steel electricity supply cabinet inserted in the stonework.
Condition (matrix/mortar)	Good although it was noted especially on the wall of the south eastern abutment that a number of stones appear to be of an inferior weathering quality and are crumbling. This is more likely due to poor quality stone rather than inappropriate pointing mortar.
Condition (soffit)	Generally good although some areas towards the crown of the arch would benefit from renewed pointing in lime mortar.
Grouting or spray concrete?	No
Grouting or spray commentary	n/a
Accessibility	Accessible from north bank on towpath
Built heritage photographs	FHBS-14-BH-01 ~ West elevation FHBS-14-BH-02 ~ East elevation FHBS-14-BH-03 ~ West parapet from road FHBS-14-BH-04 ~ East parapet from road FHBS-14-BH-05 ~ Apex of west elevation showing variety of repair materials FHBS-14-BH-06 ~ Rounded arris to masonry beside towpath. FHBS-14-BH-07 ~ South side of arch soffit FHBS-14-BH-08 ~ View over road and foot-bridge parapets to west FHBS-14-BH-09 ~ View from bridge to east
Name of Built Heritage Field Surveyor	Eamonn hunter
Date of inspection (Built Heritage)	8-10-08 and 29-10-08
Built heritage commentary	This bridge makes use of the elliptical or three-centred arch to maximise the clearance given to the canal at this point where it was not possible to raise the abutments

	on each side to allow for a segmental arched bridge such as those elsewhere on this stretch of the Canal. It is however in a poor state of repair due to its situation on a bend on a busy part of the road, with congestion here compounded by the adjacent railway level crossing and Clonsilla Railway station. The heavy volumes of traffic using the bridge have resulted in numerous collisions and re-built sections of the parapet walls. This structure should be considered for survey specifically by a structural engineer to ascertain how it should be managed to better care for the built heritage of the structure. It is considered to be of regional significance with architectural and technical interest. Previously surveyed 23-1-80; 24-9-87; 24-11-89

FHBS-14-BH-01 ~ West elevation

FHBS-14-BH-02 ~ East elevation

FHBS-14-BH-03 ~ West parapet from road

FHBS-14-BH-04 ~ East parapet from road

FHBS-14-BH-05 ~ Apex of west elevation showing variety of repair materials

FHBS-14-BH-06 ~ Rounded arris to masonry beside towpath.

FHBS-14-BH-07 ~ South side of arch soffit

FHBS-14-BH-08 ~ View over road and foot-bridge parapets to west

FHBS-14-BH-09 ~ View from bridge to east

Ecology data and commentary

Plant species present	Ivy Butterfly bush Ragwort Dandelion Red Valerian
% Cover of Ivy?	45
Riparian habitat	Treeline (WL2) of alder, ash and sycamore trees Recreational/ amenity walkway (BL3)
Adjacent habitats	This canal is situated beside Clonsilla Railway station. It is surrounded by buildings and artificial surfaces (BL3).
Bat Roost features?	Ivy coverage on the bridge's parapet and side walls could provide suitable bat roosting potential. The treelines fringing the canal may also provide suitable foraging areas.
Lighting?	Street lighting situated to the east of the bridge. However it does not shine directly onto the bridge.
Otter signs? E.g. spraint	None noted
Riffle %	0
Pool %	0
Glide %	100
Other mammals present	None noted
Birds Evident?	Blackbird, Magpie
Bird nesting opportunities?	Dense ivy on the bridges parapet in addition to the treelines situated along the margins of the canal.
Amphibians, Fish, Inverts	None noted. The royal canal is considered as a cyprinid waterbody by the ERFB.
Natural heritage photographs	FHBS-14-NH-01 ~ Bridge underarch FHBS-14-NH-02 ~ Ivy coverage on bridge parapet wall FHBS-14-NH-03 ~ Treelines on Canal bank margins
Name of Ecology Field Surveyor	Eamonn Delaney
Date of inspection (Ecology)	29/10/1008
Ecology commentary	This bridge is situated within an area of intense anthropogenic activity. Nonetheless the tree-lined margins of the canal may provide sufficient wildlife corridors thereby enabling mammals and birds to easily access the bridge. Crevices within this bridges underarch in addition to ivy on side walls may also prove sufficient as bat roosts. Brian Keeley confirmed that a mammal survey completed along the Royal Canal in 2004 confirmed that there was bat activity along this stretch of the Royal canal. The report states that along this stretch of the canal the presence of Daubenton's, Leisler's and common and soprano pipistrellus. Water quality within the canal is appears to be poor with a heavily build up of silt and detritus.

FHBS-14-NH-01 ~ Bridge underarch

FHBS-14-NH-02 ~ Ivy coverage on bridge parapet wall

FHBS-14-NH-03 ~ Treelines on Canal bank margins

15. Collins Bridge

Key points

- *This bridge structure dates from 1794 and has been maintained relatively well. Large trees associated with a treeline situated upstream of the bridge provide bird nesting opportunities and trees associated with private dwellings situated to the north of the bridge provide suitable wildlife corridors for mammals and birds. A previous mammal survey of the Royal Canal confirmed bat activity along this stretch. In particular, the report confirmed the presence of Daubenton's bat, Leisler's bat and common and soprano pipistrelles. The structure is situated on the Royal Canal which is a cyprinid watercourse.*

- *Protected Structure (under the Local Government (Planning and Development) Act, 2000)*

- *Concrete has been cast to replace damaged coping south west abutment wall and while this is profiled to match the scale of the existing stone coping, matching materials would be more appropriate to use when carrying out repairs to such a historic structure.*

15. Collins Bridge

Locational/Reference Data

Study reference number	**FHBS15**
Fingal Bridge ID	35 (adjoining railway bridge – 25)
Structure name	**Collins Bridge**
Townland 1	Coldblow
Townland 2	Westmanstown
Additional townlands (if more than two)	n/a
Street number	n/a
Street address	Barnhill Road, Mullhuddart
Associated water course	Royal Canal
Grid co-ordinates (easting)	302750
Grid co-ordinates (northing)	236783
NIAH Reference No.	11360002
OS Map	3194
OS Map (Six-Inch Series)	DN017-02

Legal Designations

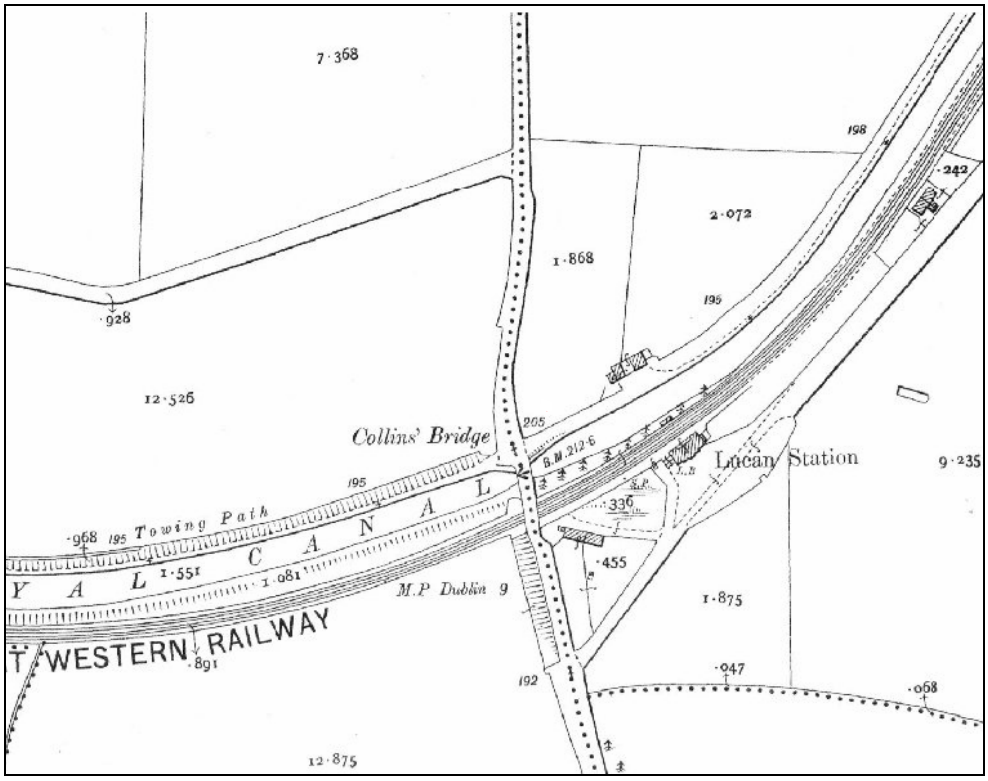
RPS ref.	713
RMP ref.	n/a
Natural Heritage Designation(s)	Royal Canal pNHA (Site code 002103)
Owner	Waterways Ireland
Address Owner	2 Sligo Road Enniskillen Co Fermanagh BT74 7JY

Bridge Form and Configuration

Description	A three-centred, single arched road bridge over the Royal Canal adjoining a later rail bridge over the Dublin-Galway line. Built of coursed, squared limestone with partial remains of rough-cast lime render particularly visible on the north eastern abutment which is curved as are the other abutments. The arch ring is of punch-finished, rusticated ashlar limestone with a pronounced key stone beneath the name and date plaque on each external side of the bridge. This plaque also includes the name of the engineer, R^{bt} Evans. Parapets are capped with limestone blocks except to the sloped south west abutment which has a replacement cast concrete coping following a collision which also resulted in the re-building in a different stone of this south western corner of the road-side parapet wall. A water-main passes through the eastern abutments and is held on the steel supports coming from the spandrels of the bridge.
Bridge Type	Road over canal
Number of permanent channel arches	1
Number of overflow arches	-
Number of dry arches	-

Approximate span (m)	7.1m
Distance between high-water mark and top of bridge arch (m)	2.3m
Watercourse type (Tidal, canal etc)	Canal (FW3)
Drainage within bridge (comment)	Some internal seepage
Sewage, other outflows apparent?	None apparent
Water width at bridge (m)	3.5 m
Water width (m)	3.5m
Water depth (m)	2.0 m
Channel width (m)	13.0m
Bank height (m)	2.5m
Substrate - % sand	0
Substrate - % silt	100
Substrate - % gravel	0
Substrate - % cobble	0
Substrate - % boulder	0

Built heritage data and commentary

NIAH Description	Single-arch limestone road bridge over canal, built 1904 (*incorrect date*), with oval limestone name and date plaque above arch.
Cartographic representation	Named on both 1843 and 1910 O.S. maps. Extract below is from 1910 O.S. map. 
Historical background	The bridge is named after John Collins, one of the original directors of the Royal Canal Company.

	The survey report of 14-7-80 stated that pointing the arch ring would increase the bridge capacity. 16-9-87 survey report noted bulging on the east spandrel with longitudinal cracking between the spandrel walls here and the arch ring, most evident at the centre of the span. There was general dampness noted on the intrados, leaching of mortar in the arch crown and particular dampness apparent between the spandrel wall and arch on the west side possibly caused by a pot hole on the road surface above. The report stated that there was heavy vegetation over all the bridge, that the east spandrel wall was poorly pointed, that the damaged north east parapet was o.k. and that there had been a repair on the south west side.
References (i.e. historical, bibliographical)	None found
Date of construction	1794
Principal material	Limestone
Condition (structural)	Good
Condition (parapet)	Good; rebuilt on the south western corner. Some gaps, notably just north of the keystone on the eastern elevation where stones have completely fallen out or have broken and partially fallen out.
Condition (matrix/mortar)	Generally good with some selective repointing required to limited areas over the entire structure.
Condition (soffit)	Generally good with some crystallisation of minerals near arch rings on both sides and graffiti on wall beside tow-path.
Grouting or spray concrete?	No
Grouting or spray commentary	n/a
Accessibility	Accessible from all but south east side of canal bridge. (Rail bridge accessible from rail track only.)
Built heritage photographs	FHBS-15-BH-01 ~ West elevation of canal bridge FHBS-15-BH-02 ~ East elevation of canal bridge FHBS-15-BH-03 ~ West parapet of canal bridge from road FHBS-15-BH-04 ~ Detail of east parapet of canal bridge from road FHBS-15-BH-05 ~ Detail of name plaque and keystone on west elevation of canal bridge FHBS-15-BH-06 ~ Remains of lime render on north abutment of east side of canal bridge FHBS-15-BH-07 ~ South side of canal bridge arch soffit FHBS-15-BH-08 ~ View south over canal bridge FHBS-15-BH-09 ~ View west from canal bridge FHBS-15-BH-10 ~ View east from canal bridge (FHBS-15-BH-11 ~ West elevation of rail bridge FHBS-15-BH-12 ~ East elevation of rail bridge FHBS-15-BH-13 ~ Detail of north east corner of rail bridge FHBS-15-BH-14 ~ South side of rail bridge's skewed arch soffit FHBS-15-BH-15 ~ View north over rail bridge)
Name of Built Heritage Field Surveyor	Eamonn Hunter
Date of inspection (Built Heritage)	8-10-08

Built heritage commentary	This original Royal Canal over-bridge is in relatively good condition with no major alterations or additions to its regionally significant structure since its construction except the re-built section of the parapet and the water main installed on the east elevation. It has architectural and technical interest and is part of a larger adjoining structure over the adjacent rail line. Previously surveyed 14-7-80; 16-9-87; 8-12-99

FHBS-15-BH-01 ~ West elevation of canal bridge

FHBS-15-BH-02 ~ East elevation of canal bridge

FHBS-15-BH-03 ~ West parapet of canal bridge from road

FHBS-15-BH-04 ~ Detail of east parapet of canal bridge from road

FHBS-15-BH-05 ~ Detail of name plaque and keystone on west elevation of canal bridge

FHBS-15-BH-06 ~ Remains of lime render on north abutment of east side of canal bridge

FHBS-15-BH-07 ~ South side of canal bridge arch soffit

FHBS-15-BH-08 ~ View south over canal bridge

FHBS-15-BH-09 ~ View west from canal bridge

FHBS-15-BH-10 ~ View east from canal bridge

FHBS-15-BH-11 ~ West elevation of rail bridge

FHBS-15-BH-12 ~ East elevation of rail bridge

FHBS-15-BH-13 ~ Detail of north east corner of rail bridge

FHBS-15-BH-14 ~ South side of rail bridge's skewed arch soffit

FHBS-15-BH-15 ~ View north over rail bridge)

Ecology data and commentary

Plant species present	Ivy leaved toadflax Ivy Hart's tongue Nettle Pellitory of the wall
% Cover of Ivy?	15
Riparian habitat	Amenity grassland (GA2), recreational walkway (BL3) and discontinuous hedgerow (WL1).
Adjacent habitats	Improved agricultural grassland (GA1), Tilled land (BC3), Treeline (WL2), Drainage ditch (FW4) and Buildings and artificial surfaces.
Bat Roost features?	The underarch of the bridge exhibited no crevices suitable for bat roosts. The treeline situated upstream of the bridge contains some mature and semi mature trees, some of which may be suitable as bat roosts. Brian Keeley confirmed that a mammal survey completed along the Royal canal in 2004 confirmed that there was bat activity along this stretch of the Royal canal.
Lighting?	No artificial lighting near the bridge
Otter signs? E.g. spraint	None recorded during site visit
Riffle %	0
Pool %	0
Glide %	100
Other mammals present	None recorded during the field survey
Birds Evident?	General passerine birds
Bird nesting opportunities?	Some large trees associated with a treeline situated upstream of the bridge may have the potential to provide bird nesting opportunities.
Amphibians, Fish, Inverts	No evidence of activity during the field survey. The Royal Canal is considered as a cyprinid waterbody by the ERFB.
Natural heritage photographs	FHBS-15-NH-01 ~ Bridge underarch FHBS-15-NH-02 ~ Treeline downstream of the bridge FHBS-15-NH-03 ~ Treeline situated on the margins of the bridge structure FHBS-15-NH-04 ~ Upstream side of bridge structure
Name of Ecology Field Surveyor	Eamonn Delaney
Date of inspection (Ecology)	13/11/2008
Ecology commentary	The landscape surrounding the bridge is characterised by intensive farming practices. Hedgerows associated with the surrounding fields are intensively managed and frequently trimmed. Treelines associated with private dwellings situated to the north of the bridge, in addition to a nearby treeline located upstream of the bridge, may provide suitable wildlife corridors for mammals and birds within the nearby area. The substrate of the canal was difficult to ascertain due to dark water colour and depth. Substrate given a value of 100% silt due to it being a slow moving and artificial water body.

FHBS-15-NH-01 ~ Bridge underarch

FHBS-15-NH-02 ~ Treeline downstream of the bridge

FHBS-15-NH-03 ~ Treeline situated on the margins of the bridge structure

FHBS-15-NH-04 ~ Upstream side of bridge structure