

TOBIN

**Leitrim County Council
Dromahair Flood Relief Scheme
Archaeological Screening Report**



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BUILT ON KNOWLEDGE

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1. INTRODUCTION

TOBIN Consulting Engineers were appointed in September 2021 by Leitrim County Council to carry out a Feasibility Study of the flood risk to the Dromahair area. The study included the review of the CFRAM Hydraulic Modelling and all other relevant water level data in the town of Dromahair and the surrounding catchment, to quantify the risk of flooding to existing properties identified within the study area. The feasibility study was completed by TOBIN in September 2022.

The following properties have been identified as at risk of flooding from the River Bonet:

- Residential Property No. 1
- The ‘Mill’ Apartments, sewage pumping station (serving St. Phelim’s nursing home) and
- the Mill Master House Accommodation
- The Clubhouse Bar & Riverbank Restaurant
- Residential Property No. 2

Figure 1-1 shows the location of the properties and the River Bonet.

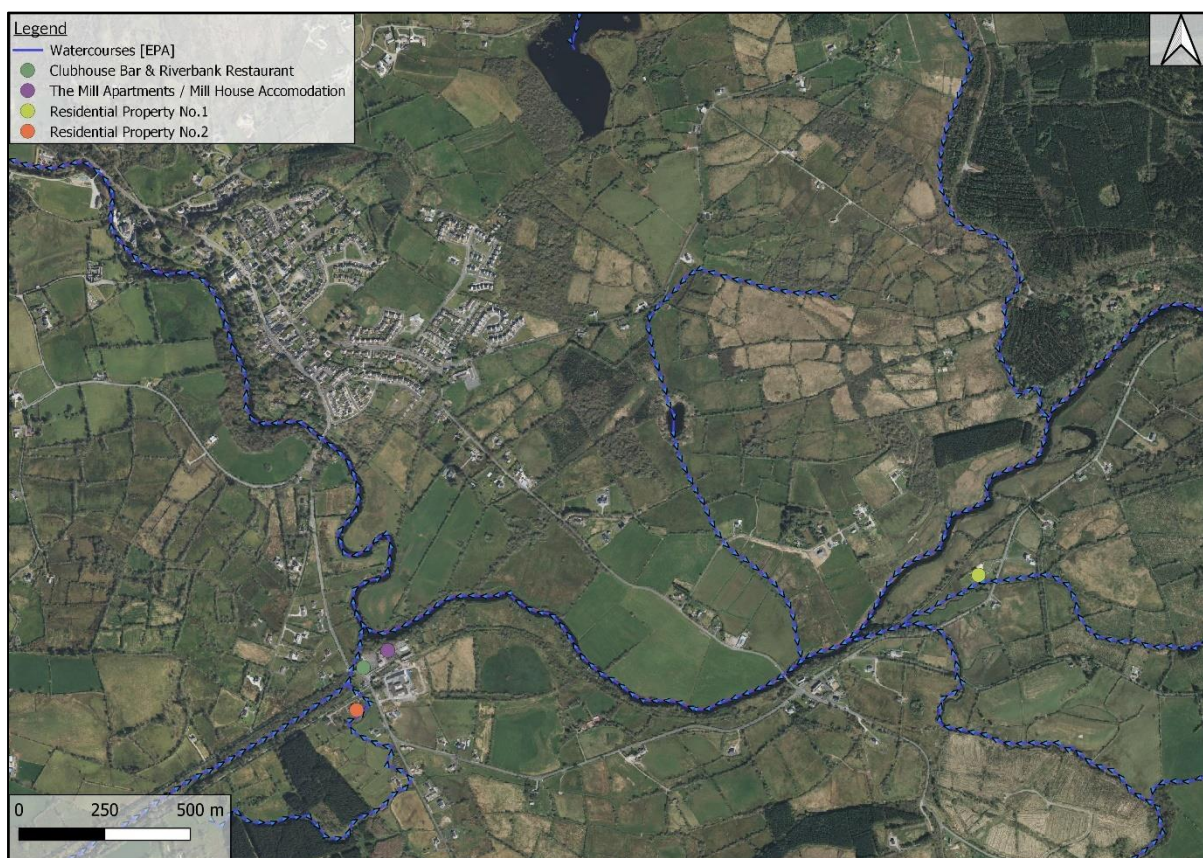


Figure 1-1: Location of Properties at Risk of Flooding

The Feasibility report then investigated a number of proposed mitigation measures that would be suitable to protect the effected properties.

The report concluded that the most feasible flood protection option was to construct flood defence structures at three locations in Dromahair Co. Leitrim. The design basis for the proposed flood defences at each property is to construct a flood protection structure with a top-

level set 300mm above the predicted 100-year MRFS maximum water level at the property boundary. The type of flood defence structure was chosen based on existing site conditions and aimed to minimise any impact on the existing sites functions.

The following flood defences are proposed at each property:

- Residential Property No. 1 – earthen embankment
- The ‘Mill’ Apartments – concrete flood defence wall
- The Mill Master House Accommodation – concrete flood defence wall
- The Clubhouse Bar & Riverbank Restaurant – concrete flood defence wall
- Residential Property No. 2 – earthen embankment

1.1 PURPOSE OF REPORT

This Archaeological Screening Report was completed with the findings of a desktop Archaeological Screening Assessment which took account of best practice in this area in consultation with the National Monuments Service. The aim of the assessment is to determine the potential impact of the proposed works on the archaeological heritage of the area.



2. PROJECT DESCRIPTION

2.1 SITE LOCATION

The sites which have been identified as at risk of flooding from the River Bonet are all located in, or close to the town of Dromahair, as previously shown in Figure 1-1.

2.2 NEED FOR THE DEVELOPMENT

In 2015, the OPW produced flood maps as part of the Catchment Flood Risk Assessment and Management (CFRAM) Study. The flood extents in these maps are based on detailed modelling of Areas for Further Assessment identified in the National Preliminary Flood Risk Assessment.

The CFRAM study identifies all of the properties as being liable to fluvial flooding, see Figure 2-1 below.



Figure 2-1: CFRAM Mapping of Dromahair

2.3 PROPOSED WORKS

TOBIN were appointed by Leitrim County Council to carry out a review of the CFRAM Hydraulic Modelling and all other relevant water level data in the town of Dromahair and the surrounding catchment, to quantify the risk of flooding to existing properties identified within the study area. There was a feasibility study developed to carry out an assessment on the risk of flooding within the study area and consider options to mitigate against this risk where properties are identified as being at risk of flooding. The properties at risk were previously shown in Figure 1-1.



The design basis for the proposed flood defences at each property is set out in the Feasibility Report. At each property an earthen embankment or a concrete flood defence wall is proposed with a top-level set 300mm above the predicted 100-year MRFS maximum water level at the property boundary.

The following flood defences are proposed at each property:

- Residential Property No.1 – earthen embankment
- The ‘Mill’ Apartments – concrete flood defence wall
- The Mill Master House Accommodation – concrete flood defence wall
- The Clubhouse Bar & Riverbank Restaurant – concrete flood defence wall
- Residential Property No. 2 – earthen embankment

2.3.1 Construction Activities

The following is the sequence of activities that will be undertaken during the Construction Phase of the of the proposed development:

2.3.1.1 Construction Schedule

It is anticipated that the proposed construction works will take approximately 16 weeks to complete. Normal works hours during the construction phase are expected to be Monday to Friday 08:00 to 17:00 hours. The total number of construction staff on-site will vary during the construction phase but is expected to range from three to five staff. No construction lighting will be used during construction.

2.3.1.2 Traffic

All four sites are located adjacent to the R287 regional road. This road will provide the main access route to the sites. Construction material will be transported onto site using the existing access roads. The main construction machinery on site will be an excavator, compaction rollers, crane, transport lorries, cement lorries and tractor and trailers.

Artic lorries will be used to delivery pre-cast retaining walls and rebar reinforcement for the cast in-situ wall and will be lifted into place via a crane. Concrete for the walls will be delivered using concrete lorries. Dump trucks/tipper lorries will be used to deliver embankment fill.

2.3.1.3 Site Clearance

The proposed construction works requires the removal and disturbance of earth, riverbanks and trees within the site in order to accommodate the access tracks, the instalment of walls and embankments, and facilitate the works.

Approximately five mature trees, located to the west of the Riverbank restaurant at the Mill will be removed by a competent contractor once the initial site clearance has been completed.

The existing stone wall located at the Mill along the alignment of the proposed flood defence wall, will be demolished. The stone from this wall will used as part of the construction of the flood defence wall for cladding, as per the Conservation Architects recommendations. This demolition will be carried out by a digger.

It is not envisaged that works will generate significant construction waste, such as hardcore stone, and gravel. Although every effort will be made to recycle and re-use of materials on site,



some waste will require to be disposed off-site. Cement wash will occur outside the proposed sites. Any disturbed areas will be fully reinstated following the completion of the works. Excavated soil will be stored at temporary storage areas within the proposed development site.

2.3.1.4 Earthworks

Excavation works will be carried out at all four sites for the construction of embankments and retaining walls. A total of 2,789m³ will be excavated from all the sites. Topsoil will be stripped and stockpiled at designated locations within each site.

Soil will be excavated to the required formation levels. Excavated soil will be stored at temporary soil storage areas within each site of the proposed development.

All excavated topsoil material will be reused within the site, where possible, for embankments. All remaining topsoil and all other excavation material will be disposed of offsite, in accordance with Waste Legislation (Waste Management Act 1996 – 2001).

Soil and other fill material arriving to site will be delivered near existing access roads and used imminently. The delivery locations will not be located near watercourses.

Embankment fill material will be added to the site excavations and compacted until a firm foundation is achieved. Embankment fill material will consist of fine-grained cohesive soil (with between 20% and 40% clay particles, and 13% to 21% moisture content for compaction) is specified for the proposed embankment. No rocks greater than 75mm in size shall be permitted in the soil.

This material will also be used as fill material to form the formation levels of the defences. The material delivered to site will be used once it arrives on site and will not require stockpiling. The excavation and fill works will be carried out with an excavator.

Invasive plant species will be removed from site and disposed of offsite in accordance with Waste Legislation (Waste Management Act 1996 – 2001). and the Invasive Species Management Plan (Appendix A) carried out for the proposed development.

2.3.1.5 Fencing

A total of 361m of fencing will be removed from Site 1 and Site 4. There will be pre-cast post and wire fencing installed at all four sites. The fencing will be installed at the base of the embankments located along site boundaries. The fence is proposed to be constructed to a height of 1.2m, using concrete posts with high tensile horizontal wire to BS EN 10244. The horizontal lines will also comprise of 2.5mm wire at approximately 150mm centres. A gap measuring a minimum of 150mm will be placed at the bottom of the fence to allow for the continued movement of mammals through the site.

2.3.1.6 Flood Defence Construction

2.3.1.6.1 Embankments

Topsoil will be removed at each site and the soil will be excavated to the proposed formation levels using an excavator. The excavation site will then be filled with embankment material to the foundation and the embankment will be constructed on top of it. This will be compacted in layers using an excavator and roller until the design height is achieved. Once the level is reached, the earthen embankments will be topped off with topsoil in order to allow them to be planted with grass seed.



2.3.1.6.2 Pre-cast Retaining Walls

Pre-cast retaining walls will be delivered to site and lifted into position by a crane. The base of the retaining walls will be backfilled with suitable material to insure stability.

2.3.1.6.3 RC Retaining Walls

Formwork will be constructed at the formation levels to allow for the concrete to be poured. Once the formwork is in place, steel reinforcement will be added. The RC wall will then be poured in position using concrete lorries. The base of the retaining walls will be backfilled to the original ground levels with suitable material to insure stability.

2.3.1.6.4 Surface Water Drainage

The existing surface water and foul water drainage systems on all the sites will remain operational during the construction phase of the project. It is proposed to construct new stormwater outfalls at all the sites to prevent ponding inside the flood defences. These outfall pipes will be constructed on the existing stormwater network lines. The outlet of the pipes will have a headwall constructed around them and they will be fitted with a non-return valve. In addition, at Residential Property No. 2 there are two drainage pipes proposed to supplement the capacity of the existing drainage infrastructure. The proposed works involves installing headwalls for the stormwater outfalls on the banks of the river at each site at various locations. These will connect into the existing surface water networks. The headwalls will be precast concrete slab (1.5m X 1.6m). A 300mm flap valve drain is incorporated into the concrete slab.

2.3.2 Operational Activities

The operation phase of the proposed development is expected to be characterised by the movement of the river below the embankments and reduced flooding. Any local maintenance activities on the flood defences are not expected to differ from the baseline/present conditions. The maintenance of the proposed flood alleviation scheme will be the responsibility of the Local Authority, although in terms of emergency repairs, the Local Authority would revert to the OPW. The following general measures will be required as part of the routine monitoring and maintenance. They include:

- Flood walls – Annual inspection and sealant replacement (every 5 years);
- Flap Valves (if any) – Inspection once every 5 years and replacement (every 25 years);
- Bank protection – Inspection once every 5 years and maintenance (as required);
- Tree Management – Annual inspection and maintenance (as required); and
- Debris Traps – Bi-annual inspections and maintenance (as required)

3. REQUIREMENTS FOR ARCHAEOLOGICAL SCREENING

3.1 DATA SOURCES

The following data sources were consulted to inform this archaeological screening report:

- Record of Monuments and Places (previously known as Sites and Monuments Records).
- Record of Protected Structures.
- Register of Historic Monuments.
- Aerial photographs.

The *Record of Monuments and Places* is a list of archaeological sites known to the National Monuments Section, which are afforded legal protection under Section 12 of the 1994 National Monuments Act.

The *Register of Protected Structures* is a list of structures that a local authority considers to be of special architectural, historical, archaeological, artistic, cultural, scientific, social or technical interest. Protection is given to these structures under Part IV of the [Planning and Development Act 2000](#).

A monument is any historic monument entered in the *Register of Historic Monuments* under Section 5 of the [National Monuments \(Amendment\) Act, 1987](#). Historic monuments include prehistoric monuments, and any monument associated with the commercial, cultural, economic, industrial, military, religious or social history of the place where it is situated, including all monuments in existence before 1700 A.D. or such later date as the Minister may appoint by regulations.

The current Leitrim County Development Plan (2023-2029) was consulted as they contain a record of all Architectural heritage sites within the study area.



4. ASSESSMENT

4.1 RECORD OF MONUMENTS AND PLACES (RMP)

Archaeological monuments are protected under the National Monuments Acts 1930–2004. Section 12(1) of the National Monuments (Amendment) Act 1994 (“the 1994 Act”) provides that the Minister believes there are monuments, such record to be comprised of a list of monuments and relevant places and a map or maps showing each monument and relevant place in respect of each county in the State. This is referred to as the Record of Monuments and Places and monuments are entered into it are referred to as Recorded Monuments. Section 12(3) of the 1994 Act provides that where the owner or occupier (other than the Minister) of a monument or place included in the Record, or any other person proposes, to carry out, or to cause or permit the carrying out of, any work at or in relation to such monument or place, he or she shall give notice in writing to the Minister of the proposal to carry out work and shall not, except in the case of urgent necessity and with the consent of the Minister commence the work until two months after the giving of notice. This time will allow the National Monuments Service to consider the proposed works and how best to proceed to further the protection of the monument. The primary source of information for archaeology is the Record of Monuments and Places (RMP) maintained by the Department of Housing, Local Government and Heritage (DHLGH). The RMP documents known upstanding archaeological monuments, their original location (in cases of destroyed monuments) and the position of possible sites in rural areas identified as cropmarks on vertical aerial photographs dating to before 1700 AD (with some later ones also being included). It is based on a comprehensive range of published and publicly available documentary and cartographic sources.

RMPs in the vicinity of the existing sites are shown in Figure 4-1 below. There are no RMP sites within a 100m radius of the subject sites. There is an RMP located approximately 145m east of the Mill Apartments. This RMP is a ringfort.

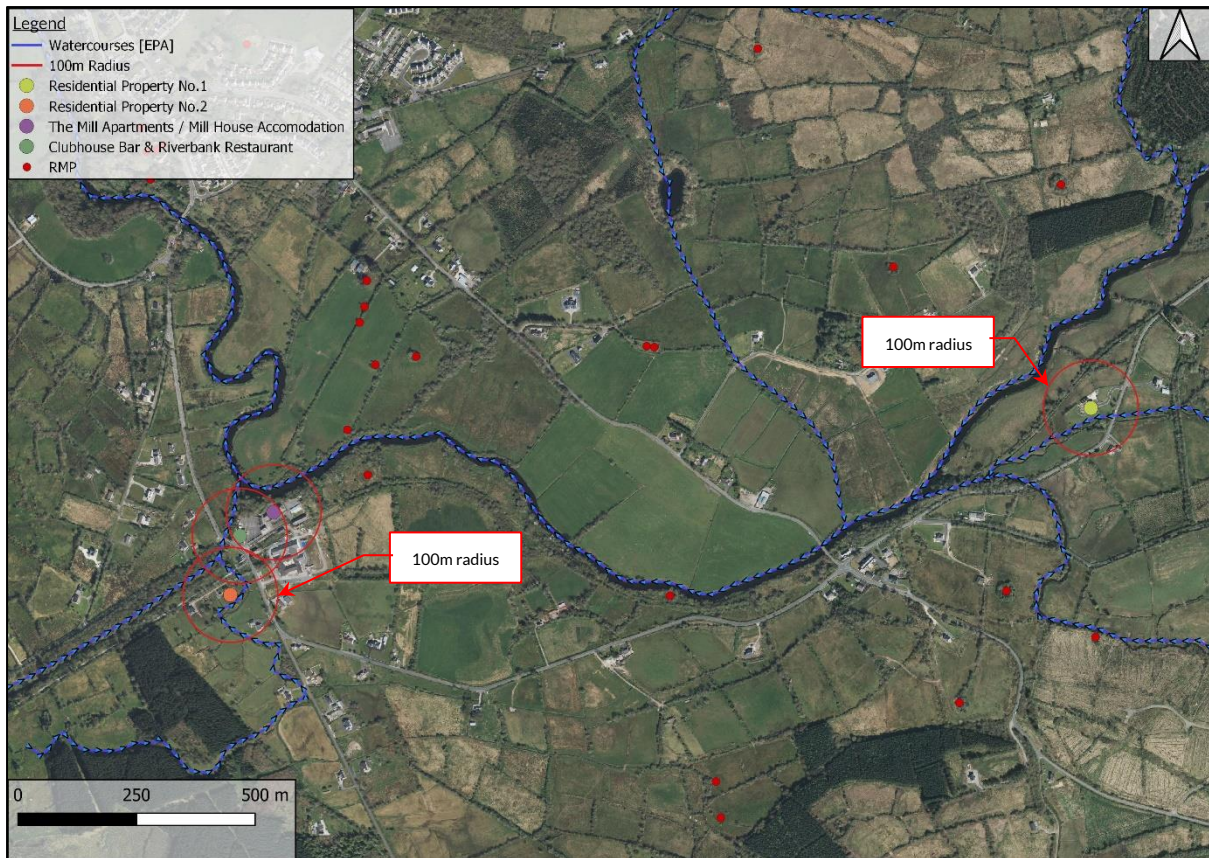


Figure 4-1: RMPs in the vicinity of the Subject Sites

4.2 ZONES OF ARCHAEOLOGICAL NOTIFICATION (ZAN)

Zones of archaeological notification (ZAN) can be defined as areas within the urban and rural landscape that possess the potential to contain archaeological remains due to the settlement history of a place and or to the presence of topographical features such as rivers, lakes and high, defensible ground.

The closest ZAN to the proposed development is located 80m east of the planning boundary at the Mill apartments. The ZAN is associated with a ringfort.



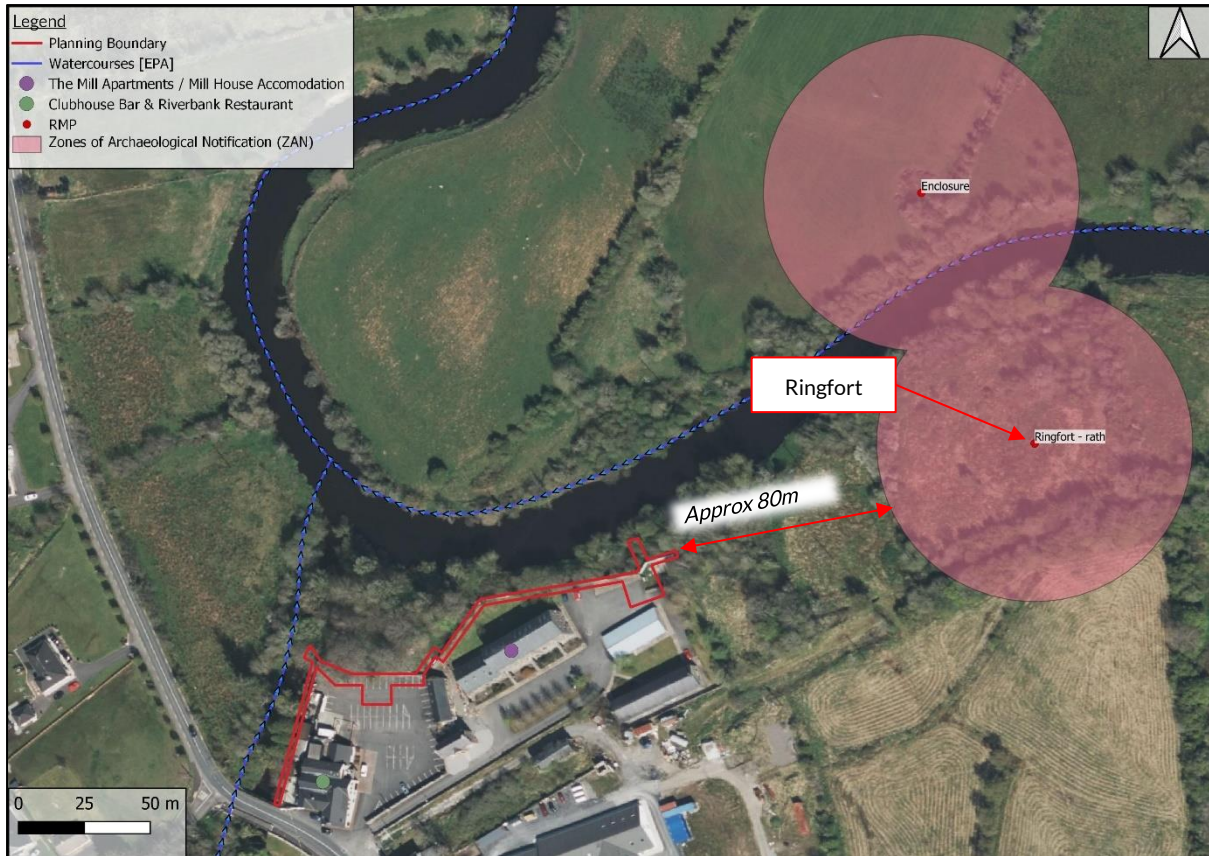


Figure 4-2: ZAN in the vicinity of the Mill Apartments

4.3 NATIONAL INVENTORY OF ARCHITECTURAL HERITAGE

The National Inventory of Architectural Heritage (NIAH) is a state initiative under the administration of the Department of Housing, Local Government and Heritage and established on a statutory basis under the provisions of the Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act 1999. The purpose of the NIAH is to identify, record, and evaluate the post-1700 architectural heritage of Ireland, uniformly and consistently as an aid in the protection and conservation of the built heritage. NIAH surveys provide the basis for the recommendations of the Minister for Housing, Local Government and Heritage to the planning authorities for the inclusion of particular structures in their Record of Protected Structures (RPS).

Figure 4-3 outlines the NIAH sites in the vicinity of the subject sites. There are five architectural heritage sites recorded within a 100m radius of the identified work areas.



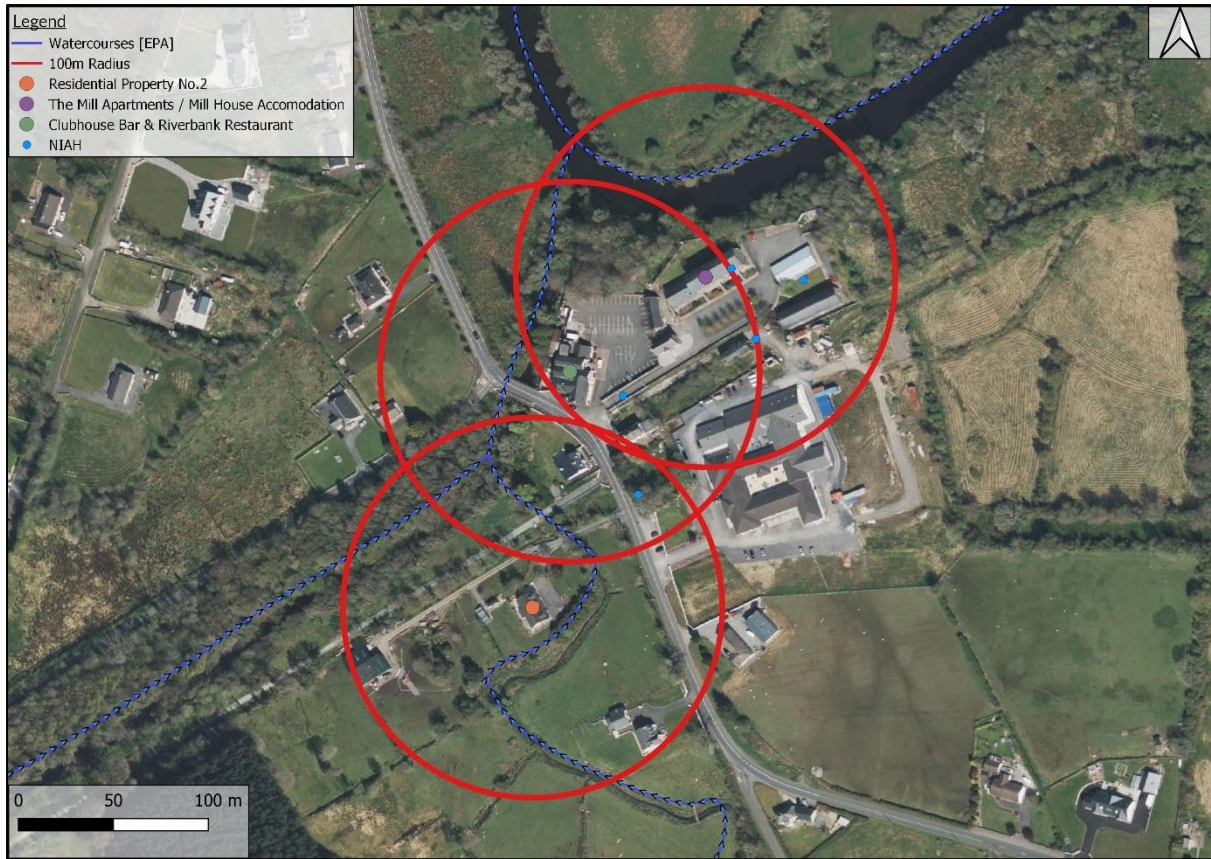


Figure 4-3: NIAH in the vicinity of Residential Property No. 2, The Mill Apartments, and Clubhouse Bar

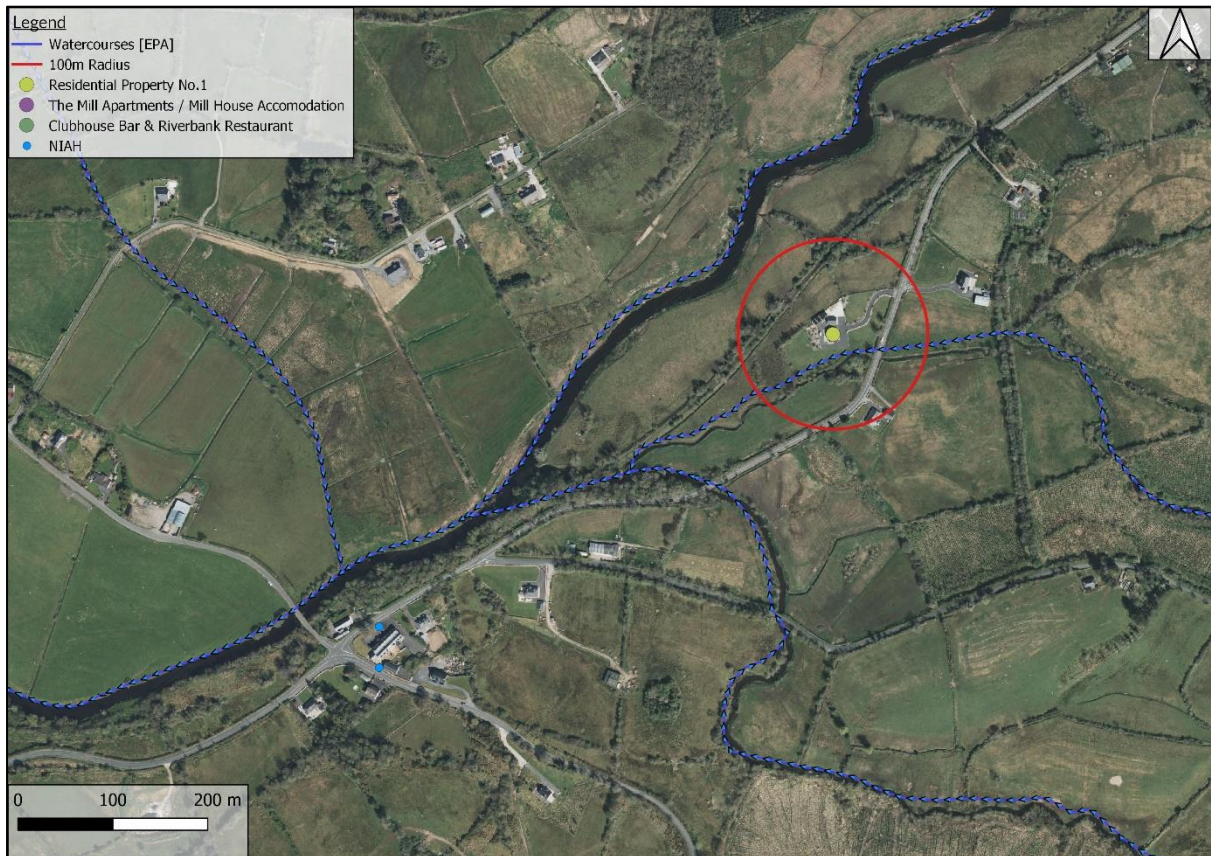


Figure 4-4: NIAH in the vicinity of Residential Property No.1



The appraisal notes and description for the five architectural heritage sites and the proposed works site which they are closest to are stated below:

The new Mill Apartments/ Mill House Accommodation

Dromahair Railway Station Outbuilding (30806021)

Appraisal - "This large warehouse structure, built as part of Dromahair Railway Station is a fine example of railway architecture. The use of red brick and stone creates a textural variation in the building and adds an artistic element to it. Socially, the railway line was important to small towns as it provided a network of travel of both people and produce"

Description - "Detached six-bay three-storey former railway warehouse, built c.1880 as part of the Sligo, Leitrim and Northern Counties Railway. Four-bay single-storey extension abutting west gable. Pitched slate roof. Roughly dressed random coursed limestone walls with tooled quoins. Square-headed and segmental-headed brick arched openings. Window openings with large stone lintels and sills. Replacement timber casement windows with block-and-start brick surrounds. Roughly dressed random coursed outbuilding to south with brick dressings and corrugated-iron roof."

51m east of The Mill Apartments/ Mill House Accommodation

Dromahair Railway Station Outbuilding (30806020)

Appraisal - "This building part of a railway complex, situated a short distance from Dromahair, is a fine example of late nineteenth-century railway architecture. Though a functional structure, artistic detailing such as the slate canopies over the entrances and decorative stonework give this structure architectural merit. Socially, the railway was important to the small towns in Ireland as it provided a network of travel for both people and produce."

Description - "Six-bay two-storey outbuilding, built c.1880 as part of the Sligo, Leitrim and Northern Counties Railway. Pitched slate roof with cut stone chimneystacks and slate canopies over entrances with decorative bargeboards. Roughly dressed random coursed limestone walls. Segmental and square-headed openings, windows having stone sills and guard rails."

42m southeast of The Mill Apartments/ Mill House Accommodation

Dromahair Railway Station Locomotive Shed (30806019)

Appraisal - "This building, part of a railway complex, situated a short distance from Dromahair, is a fine example of late nineteenth-century railway architecture. Cut limestone elevations are embellished by a slate canopy to the entrance and decorative barge boards. As it was part of a network of travel for both people and produce, the railway and its structures are of social importance."

Description - "Three-bay single-storey former goods shed, built c.1880 as part of the Sligo, Leitrim, and Northern Counties Railway. Pitched slate roof, decorative timber bargeboards with projecting slate canopies over entrances. Cast-iron rainwater goods. Random coursed limestone walling with raised rock-faced quoins. Segmental-headed arches to east and west walls with sandstone block-and-start surrounds. Square-headed window openings with stone lintels and block-and-start surrounds and stone sills. Station platform and coursed random stone water tower with rock-faced quoins, cast-iron rain water goods and segmental-headed windows to west."



31m east of Clubhouse Bar & Riverbank Restaurant

Dromahair Railway Station – Station Master’s House (30914002)

Appraisal - “This railway building is a part of a late nineteenth-century railway complex. The building, although modest in its design, is enhanced by the creative and artistic use of materials such as limestone, red brick and terracotta.”

Description - “Detached three-bay two-storey former railway building, built in 1909 as part of the Sligo, Leitrim and Northern Counties Railway, with gabled breakfront to centre and lean-to extension to rear. Pitched slate roof with terracotta ridge cresting and finial. Brick chimneystacks with terracotta pots. Snecked rock-faced limestone with red brick string course, dressings and quoins. Date plaque in breakfront. Flat-headed single and paired timber sash windows with stone sills. Timber door with overlight and triangular-headed window in breakfront. Detached four-bay single-storey outbuilding to rear with corrugated-iron pitched roof and over-sailing eaves and random coursed limestone walls with brick dressings.”

74m south of Clubhouse Bar & Riverbank Restaurant

Dromahair Railway Station – Workers House (30914003)

Appraisal - “This attractive station building is a fine example of nineteenth-century railway architecture. Although no longer in its original use, it is an important element of the surviving railway buildings in the complex. Its design is enlivened by contrasting stone and render, which make it a valuable contribution to the architectural heritage of the area.”

Description - “Detached three-bay two-storey former railway worker’s house, built c.1880 as part of the Sligo, Leitrim and Northern Counties Railway, with lean-to extension to east. Now in use as a private dwelling. Pitched tiled roof with oversailing eaves and ruled-and-lined render to chimneystacks. Rock-faced limestone and rendered walls with stone and stucco dressings. Timber sash and replacement window. Original door opening has been moved.”

The above architectural heritage sites in the area will not be affected, in any way, by the proposed development due to the geographical distance between the monuments and the proposed development.

4.4 RECORD OF PROTECTED STRUCTURES

Volume IV of the Leitrim County Development Plan records a list of Protected Structures. A list of National Monuments which are in state care is available on the archaeology website. To be noted that the information on the website is considered a work in progress and changes may be implemented from time to time. On review of these records, it is clear that there are no protected structures within the relevant redline boundary of each sites proposed works. Therefore, these protected structures shall not be impacted by the proposed works. The closest is the Mill Apartments/ Mill house accommodation, which is proposed to be defended by the proposed works.

4.5 ARCHITECTURE HERITAGE IMPACT ASSESSMENT REPORT

An Architecture Heritage Impact Assessment Report was completed by ACP Architectural Conservation Professionals. The report concluded that the proposed flood relief scheme will have an overall positive impact on the historic character of the site as a whole and will ensure better flood protection while maintaining as much of the historic fabric as possible.



5. CONCLUSION

It is concluded that none of the proposed works in Dromahair have the potential to significantly affect sites of archaeological importance. This view is based on a review of the following data sources:

- Record of Monuments and Places.
- Record of Protected Structures.
- Aerial photographs.

The closest RMP to the proposed works is a Ringfort that is located approximately 145m east of the Mill Apartments. There is approximately 80m between the planning boundary at the Mill Apartments and the ZAN for the ringfort. In addition to this, the proposed works are to be carried out in areas where there is existing development. There is no deep excavation proposed as part of the works.



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