

PART E: 2026 European otter (*Lutra lutra*)
survey for the proposed Tyndall
development at Distillery Fields, North Mall
Campus, Cork, to inform a section 54
derogation application



Prepared by Triturus Environmental Ltd. for University College Cork.

May 2026

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1. Introduction

1.1 Background

Triturus Environmental Ltd. were commissioned by University College Cork to conduct a pre-construction European otter (*Lutra lutra*) survey of the tidal River Lee for expansion of the Tyndall National Institute at the Distillery Fields, North Mall Campus, situated on the north bank of the River Lee (**Figure 2.1**). The purpose of the survey was to establish the presence of the breeding and or resting places of otter to fulfil the post-consent planning conditions in accordance with the EIAR mitigation specific to otter (Cork City Council planning reference 21/40068; ABP reference ABP-313328M-22).

Historically, two surveys for otter were conducted by MWP on the 29th of September 2020 and 18th of August 2021, the second being carried out on bequest of a Cork City Council RFI (TP 21/40068). During the August 2021 survey a suspected otter holt was recorded on the south bank of the distillery millrace channel c. 110m northwest of the proposed car park area (Holt, H1 in the current report; **Figure 2.1**). At the time, a trail camera recorded one occurrence of otter entering the potential holt with activity mainly relating to fox (*Vulpes vulpes*). The level of usage by otter indicated that it was unlikely a natal holt despite some spraint (faecal disposition of otter) being recorded.

As otter presence and activity can change significantly over time, a follow-up pre-construction otter survey was conducted by Triturus Environmental Ltd. on the 21st April and the 10th May 2026 to ascertain if any changes in otter usage occurred in vicinity of the study area. Specifically the otter survey extended $\geq 200\text{m}$ beyond the development boundaries to detect the breeding and resting places of otter that are protected under legislation. In addition to holt H1 (previously recorded by MWP in 2021), a second new holt (potential breeding area) and 2 new active couch sites (resting areas) were identified during the April-May 2026 survey on the south bank of the River Lee (**Figure 2.1**).

In light of current proposals for construction commencement in June 2026, we are applying for a derogation covering the period 1st of June 2026 to the 31st December 2026. The repeat otter survey ensured the data validity was up to date in line with CIEEM best practice for mobile species such as otter. The updated 2026 otter survey therefore informs the current derogation application by providing current, site-specific evidence of otter presence, activity and habitat use.

The breeding and or resting areas of otter are protected under the Wildlife Acts 1976-2021 and are included in a system of strict protection pursuant to the requirements of Articles 12, 13 and 16 of the Habitats Directive (92/43/EEC) (NPWS, 2021). Therefore, given the location of the identified protected otter habitats in the vicinity of the proposed development (i.e. $<150\text{m}$) and given the potential for indirect effects only on otter via disturbance, a derogation licence is required under the European Communities (Birds and Natural Habitats) Regulations 2011-2021. This application is outlined in **section 5** of the report. As outlined, the current application is specific to the identified 2 no. couch sites (C1 & C2) and 2 no. holt sites (H1 & H2). Holt H2 was considered likely active given heavy faecal marking and contiguous nearby couch areas (section 3 results).

1.2 Otter legislative protection

The Eurasian otter is a species of conservation concern and high priority, having suffered major declines in its range and population throughout Europe since the 1950s. It is classified as 'near threatened' by the IUCN Red List with a decreasing population trend and, as such, is listed in Appendix I of CITES, Appendix II of the Bern Convention (Council of Europe, 1979) and Annexes II and IV of the EU Habitats Directive (92/43/EEC).

Otters, along with their breeding and resting places, are also protected under provisions of the Irish Wildlife Acts 1976-2021. Otters have additional protection because of their inclusion in Annex II and Annex IV of the Habitats Directive 92/43/EEC, which is transposed into Irish law by the European Union (Birds and Natural Habitats) Regulations 2011-2021.

The protection of otters is outlined in Article 51(1) and (2):

Protection of fauna referred to in the First Schedule;

51.(1) *The Minister shall take the requisite measures to establish a system of strict protection for the fauna consisting of the species referred to in Part 1 of the First Schedule.*

51.(2) *Notwithstanding any consent, statutory or otherwise, given to a person by a public authority or held by a person, except in accordance with a license granted by the Minister under Regulation 54, a person who in respect of the species referred to in Part 1 of the First Schedule (listed below). Items (b) and (d) may be considered most relevant to developments.*

- (a)** *deliberately captures or kills any specimen of these species in the wild,*
- (b)** *deliberately disturbs these species particularly during the period of breeding, rearing, hibernation and migration,*
- (c)** *deliberately takes or destroys eggs of those species from the wild,*
- (d)** *damages or destroys a breeding site or resting place of such an animal, or*
- (e)** *keeps, transports, sells, exchanges, offers for sale or offers for exchange any specimen of these species taken in the wild, other than those taken legally as referred to in Article 12(2) of the Habitats Directive, shall be guilty of an offence.*

In an Irish context, according to the most recent Article 17 reporting (NPWS, 2025), otters remain at 'Favourable' conservation status with a stable trend. Otters were considered to be previously 'Near Threatened' (Marnell, 2009) based on a 20-25% decline between 1980 and 2005 (Bailey & Rochford, 2006). However, the current conservation status in Ireland is now of 'Least Concern' (Marnell et al., 2019). This data was supported by the most recent Otter Survey of Ireland 2023-2024 covering 1,063 sites with otters present at 65% [95%CI 62 - 68%] of sites in ROI and 66% [58 - 74%] of sites in NI (Reid et al., 2025). The results were supportive of a ubiquitous otter distribution nationally, despite the report concluding that the occupancy had likely declined since the 1980s. Regardless of the positive national outlook overall, otters remain 'Near Threatened' at a global level according to the IUCN Red List (Loy et al., 2022).

1.3 Statement of authority

The author of this report, Ross Macklin PhD (candidate), B.Sc. (Hons) MCIEEM., MIFM, HDip GIS, PDip IPM is an aquatic, fisheries and mammalian ecologist with 21 years' professional experience in Ireland. He is director of Triturus Environmental Ltd. Ross has a B.Sc. in Applied Ecology and diplomas in integrated Pest Management and GIS. He is currently completing his Ph.D. in fisheries ecology. He has considerable experience in a wide range of ecological and environmental projects, including EIAR, EclA, CEMP and AA/NIS reporting, as well as biodiversity, water quality monitoring, invasive species, mammalian surveys and fisheries management. He also has expert identification skills in fisheries, macrophytes, freshwater invertebrates, protected species and habitats. His diverse project experience includes work on renewable energy developments, flood relief schemes, road schemes, waste management, blueways/greenways, biodiversity projects, non-volant mammal monitoring, fisheries management projects and catchment wide water quality management. He has worked extensively in Cork and Dublin on urban mammal monitoring projects and is considered an expert in his field nationally. He recently completed and was lead or co-author author of numerous catchment wide otter surveys including the Lower Lee FRS Otter Survey, Dublin City Otter Survey, Dún Laoghaire Rathdown Otter Survey, Tullamore Otter Survey, Fingal Otter Survey, River Boyne Otter Survey, Carlow Otter Survey and Monaghan Otter (in prep.) which are among the largest urban/ sub-urban otter surveys conducted in Ireland. He has also worked on several otter derogation projects that included holt closures, artificial holt construction and otter habitat restoration including management plans. Furthermore, he has worked on the first PFAS contamination studies of Irish riverine food chains including otter, fish and invertebrates using eDNA metabarcoding and PFAS testing at each trophic level. He has also worked on otter population genetic studies in Cork and Dublin, among the few urban otter population genetics studies carried out nationally.

2. Methodology

2.1 Otter sign surveys

An otter survey of the study area was conducted on the 21st April and the 10th May 2026 using bank-based survey methods. The survey was completed along a c. 1km section of the River Lee in proximity to the proposed development between Mardyke Bridge and Griffith Bridge. The survey also included the distillery millrace channel, which extends from the north bank of the River Lee upstream of Mardyke Bridge through the northern section of the proposed development to the River Lee, west of Wyse's Distillery Bridge (approximately 530m) forming a loop connection (**Figure 2.1**).

The survey was completed during dry, mild, bright and settled conditions, which ensured that a good representation of habitat marked by otter could be recorded in the field, including territorial marking or marking of feeding areas. The survey also deliberately coincided with prolonged dry periods to minimise rain washout of otter signs (spraint, smears, etc.). Given the location of the survey area within the tidal reaches of the Lee (Cork) Estuary Upper, the survey was undertaken during low tide, when water levels were sufficiently low to facilitate access and enable a thorough inspection of all riverbanks for visible cues of otter activity, including breeding and resting areas. Water levels were also low (at base flows) during the survey period.

Each otter sign was logged by type, location (handheld GPS), condition and approximate age for later interpretation to distinguish differences in habitat use and activity. Spraints were subjectively assessed as either fresh (recent), mixed-age (recent and older spraints typically indicative of a regular sprainting site) or old (spraint degraded and not recently deposited). Furthermore, indicative counts of spraint (i.e. number of individual spraints) and the number of sprainting sites (often separate clusters in one area) were noted. This helped indicate the frequency of otter marking that would support preferential use of habitat temporally by otter and often demarcates important territory where marking frequency is high. This technique was first utilised in the Dublin City Otter Survey (Macklin et al. 2019) and has been applied in other large-scale otter surveys (e.g. Brazier & Macklin, 2020).

2.2 Total corridor otter survey (TCOS) methodology

The survey broadly followed the best practice 'standard survey' methodology for otter as recommended by Bailey & Rochford (2006), Chanin (2003) and Lenton et al. (1980) (all based on observations by Erlinge, 1967). However, methodology differed in that the entire waterline was surveyed rather than the standard 500-600m sections selected at regular (5-8km) intervals from accessible points (e.g. bridges). The novel survey technique, known as a total corridor otter survey (TCOS) (Macklin et al., 2019), involved a continuous, unbiased survey effort along both banks of the River Lee and the Distillery Race channel, encompassing the full extent of the channels and associated riparian zones.

Total corridor survey methodology typically involves the use of two (or more) surveyors working independently (in tandem) along each bank of an individual watercourse (where practical). This also facilitates one to work from a more elevated position (e.g. bank top) with one surveying (with appropriate PPE such as a dry suit or chest waders) from within the channel. This holistic approach,

whilst labour-intensive, greatly increases the likelihood of otter sign detection and facilitates a more accurate estimation of otter usage and activity at the river or catchment scale. This is especially true of more cryptic signs, such as holts and couches that are often located in poorly accessible areas, often not covered by a standard survey approach.

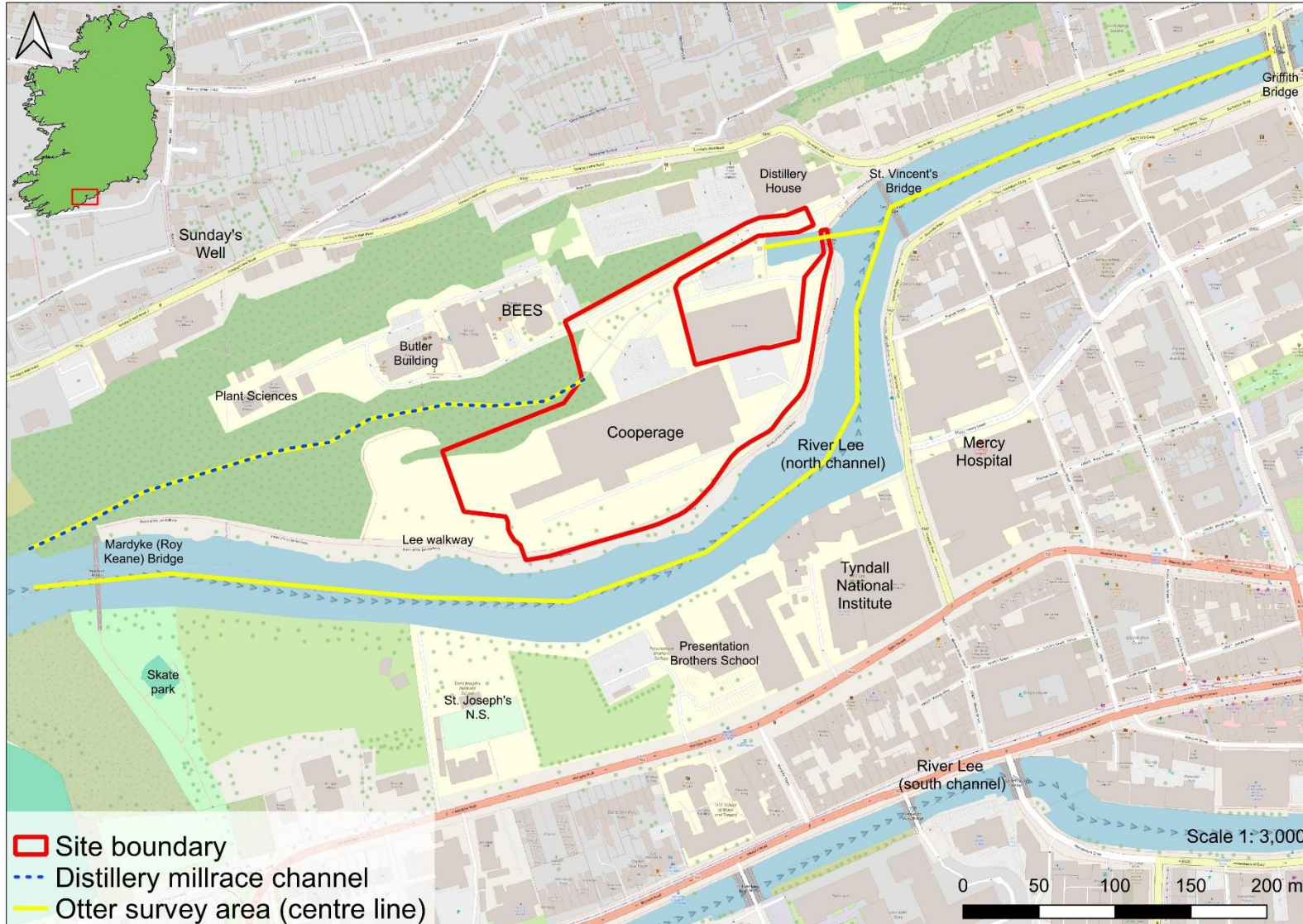


Figure 2.1 Otter survey area extent on the River Lee and distillery millrace channel at the proposed Tyndall development site

3. Results

3.1 Study area

The 1km survey area, extending from upstream of Mardyke (Roy Keane) Bridge to Griffith Bridge, comprised the tidal reaches of the River Lee within a highly urbanised section of Cork City (**Figure 3.1**). The survey area was characterised by steep boulder and concrete embankments interspersed with sections of semi-natural riparian habitat, including scrub, mature broadleaved trees and narrow vegetated fringes along the river margins. The southern bank contained predominantly areas of lower disturbance, with dense vegetation cover that were fenced off. The limited public access and seclusion provided favourable habitat conditions for otter, a species that does not favour high levels of human disturbance (Macklin et al. 2019). By contrast, the northern bank had higher levels of exposure to anthropogenic disturbance that were associated with the River Lee walkway, institutional land uses (UCC) and regular pedestrian activity, reducing its suitability for otter breeding or resting. This was also considered as the walkway is directly contiguous with the intertidal riparian habitat precluding a viable natural buffer.

The 530m distillery millrace channel comprised an artificial side channel of the River Lee associated with the historic Distillery Fields industrial area. The channel was characterised by vertical masonry walls, locally reinforced embankments and muddy tidal banks with sections of overhanging vegetation. This included scrub (WS1), invasive scrub (WS3) and mature treeline (WL2). Although highly modified in nature, the millrace channel provided a relatively secluded corridor with lower levels of disturbance compared to the north bank of the River Lee given it was largely fenced off or poorly accessible to patrons of UCC.

3.2 Otter records

A total of n=11 otter signs were recorded during the otter survey carried out on the 21st April and the 10th May 2026, which equated to a density of 11 signs per linear kilometre (i.e. 11 signs in 1km survey area; **Figure 2.1**). The signs recorded in the current April-May 2026 survey included 6 no. spraint sites, 2 no. couch sites and 2 no. holts (**Table 3.1; Figures 3.1-3.2**).

The historical holt site (H1) was located on the south bank of the distillery millrace channel in an open scrubby area adjacent to mixed broadleaved woodland (WD1) approximately 88m from the development boundary (**Figures 3.1-3.2**). This holt was previously identified during the EclA carried out by MWP in 2021. No evidence of recent otter activity was recorded during the current survey, with dead leaves and cobwebs present at the entrance, indicating that the holt was no longer actively used. This was also supported by trail camera monitoring carried out between the 21st of April 2026 and 19th of May 2026, in which no mammal activity was recorded.

The second and newly identified holt site (H2) was identified on the southern banks of the River Lee approximately 131m from the site boundary on the 10th May 2026. The holt was situated within an exposed root system of a mature sycamore immediately above the high tide mark in an area of low anthropogenic disturbance (**Figures 3.1, 3.2**). Holt H2 was considered active given proximity to two regularly used couch sites (C1 & C2) which contained numerous mixed aged spraints and otter prints (**Figures 3.1, 3.2**). Couch sites C1 and C2 were 60m and 120m southwest of the development boundary

respectively and therefore outside the zone of influence as defined by TII (i.e. 20m buffer from active couches).

A photographic audit of the survey area, inclusive of the identified holt and couch areas, is presented in **Plates 3.1-3.7** below.

Table 3.1 Summary of the otter signs recorded, April 2026

Otter sign	Total no.
Spraint site	6
Holt	2
Couch (with spraint)	2
Prints	1
Total (1.53km linear survey area)	11
Density of signs per linear km	7.2



Plate 3.1 Inactive otter holt (H1) on the southern bank of the distillery race channel, April 2026, first discovered by MWP in 2021 as part of the EclA



Plate 3.2 Otter holt (H2) in roots of sycamore on the southern bank of the River Lee, newly discovered in May 2026 with mobile trail camera monitoring activity (no current activity but likely active)



Plate 3.3 Otter couch C1 under sycamore below old weir southern bank of the River Lee, with numerous old spraints on flat rock at tunnel entrance, May 2026



Plate 3.4 Otter couch (C2) on rubble mound under mature sycamore and holly with numerous spraints and high seclusion, May 2026



Plate 3.5 Old spraint on sycamore trunk at the north bank of River Lee, April 2026



Plate 3.6 The River Lee at Mardyke (Roy Keane) Bridge during low tide (facing downstream), May 2026



Plate 3.7 The distillery millrace channel at holt location H1, May 2026

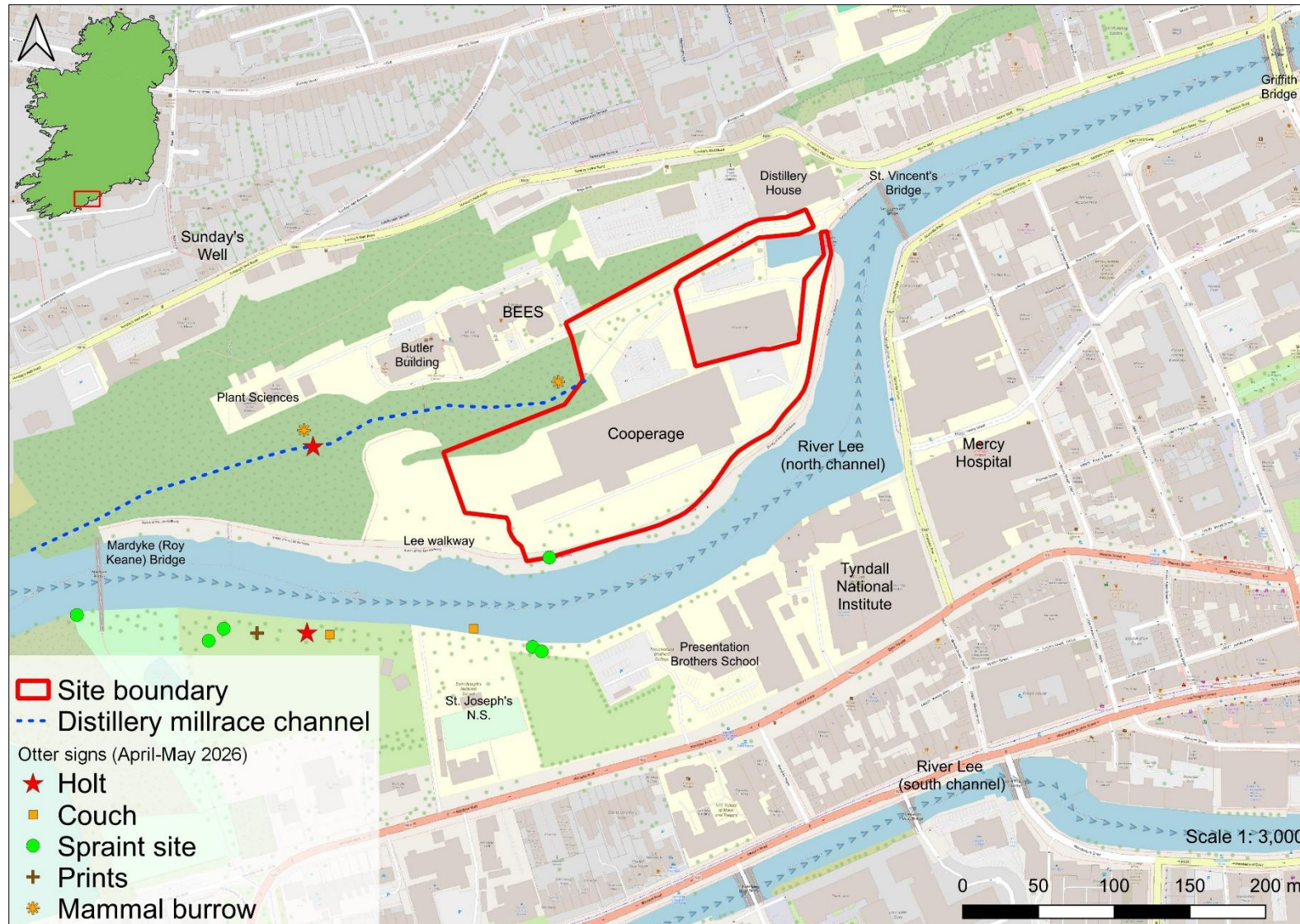


Figure 3.1 Otter sign distribution map showing otter signs inclusive of couch and holt sites in the study area, April 2026

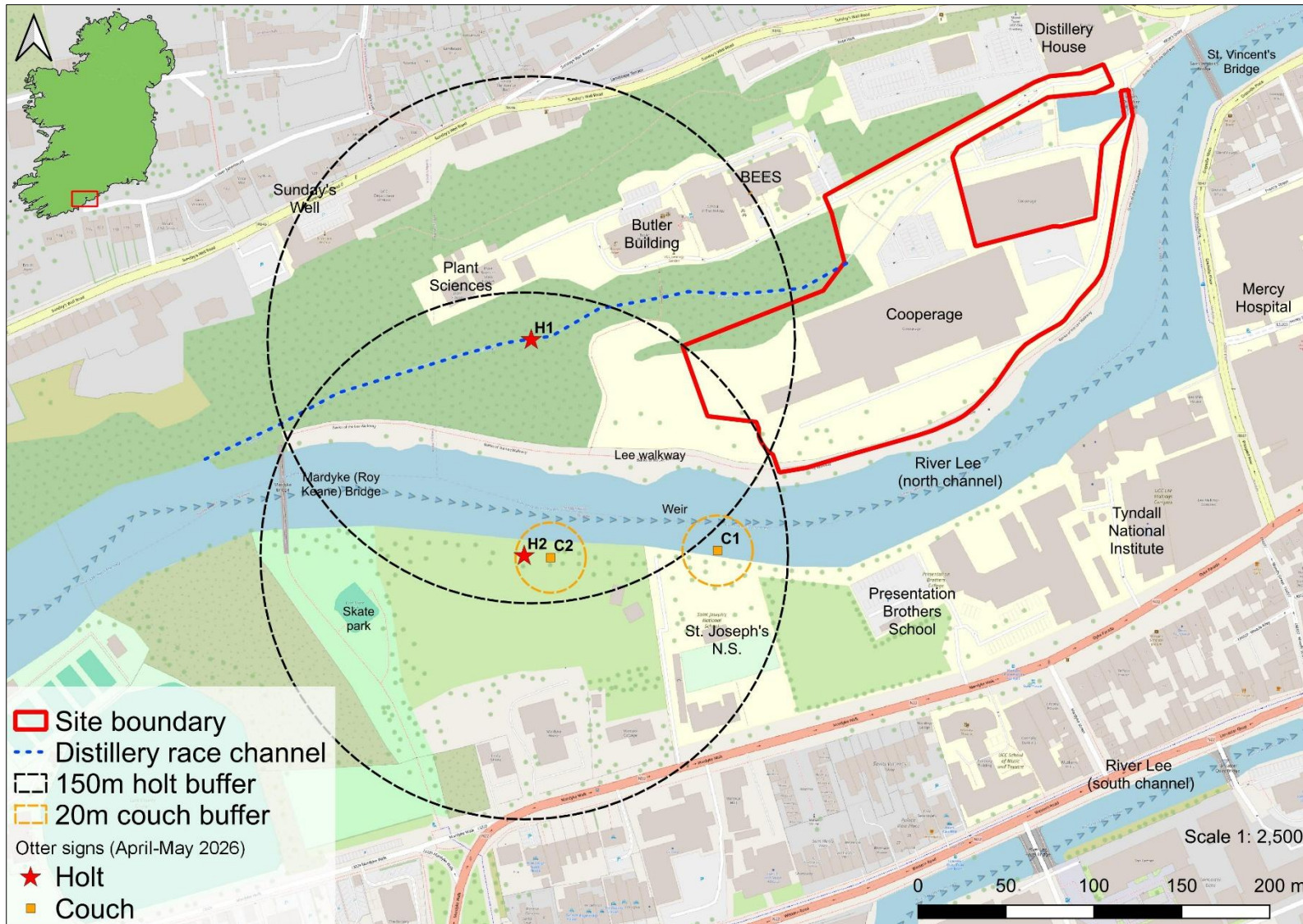


Figure 3.2 Otter sign distribution map showing 20m & 150m buffers for couch and holt sites, respectively

4. Discussion

The April-May 2026 survey recorded a total of $n=11$ otter signs, the majority of which were associated with otter faecal deposits (i.e. spraint sites). Important depositional spraint areas were associated with foraging and or nearby potential breeding and resting habitat (i.e. H2, C1 & C2). The River Lee at Distillery Fields, comprises a tidal, urban river channel flowing in an easterly direction through the city centre towards Cork Harbour. The River Lee in the survey area is heavily modified, reflecting its urban setting and history of flood management inclusive of urbanisation pressures. Channel modifications such as reinforced tidal embankments, vertical masonry walls, boulder revetments, historic weirs and the distillery millrace channel, are characteristic of the tidal lower River Lee. Despite its urbanised setting, the River Lee retains ecological value as an important aquatic and riparian corridor through Cork City (including for otter), linking nearby upstream freshwater habitats with the tidal river.

The southern bank contained predominantly areas of lower disturbance, with dense vegetation cover that were mostly fenced off. The limited public access and seclusion provided favourable habitat conditions for otter, a species that does not favour high levels of human disturbance (Macklin et al. 2019). By contrast, the northern bank bounding the Tyndall development had higher levels of exposure to anthropogenic disturbance that were associated with the River Lee walkway, university campus and associated regular pedestrian activity. This reduced its suitability for otter breeding or resting. This was also considered as the Lee walkway (active travel route) was directly contiguous with a narrow intertidal riparian buffer zone.

Legally protected potential breeding (two holts H1 & H2) and resting areas (two couches C1 & C2) were recorded in the study area (**Figures 3.1-3.2; Plates 3.2, 3.3 & 3.4**). Holt H1 was recorded during the previous EclA surveys during August 2021, while the holt H2 and couches (C1 & C2) were newly identified during April and May 2026 (current survey report).

As summarised in the results section holt no. H1 was located on the distillery race channel in an open scrubby area, subject to low levels of human disturbance (**Figures 3.1-3.2**). No evidence of recent activity was recorded during the survey and the holt was considered inactive following site inspections and trail camera surveys (ongoing). However, given its secluded location above the high tide mark, the holt is considered suitable for use by otter for breeding and resting purposes and could theoretically become active in the future. The newly identified holt (H2) was situated on the southern bank of the River Lee immediately above the high tide mark, meaning otter could avail of a safe resting and or breeding area. It was in close proximity to two couch sites C1 and C2 that had high otter activity (spraints and prints). Couch site, no. C1 was located on the south bank below the old weir, with couch site no. C2 situated in an area of high seclusion on a high embankment of the southern bank of the River Lee above the old weir (**Figures 3.1-3.2**).

In accordance with Transport Infrastructure Ireland (TII) buffer thresholds for otter, 20m and 150m buffers around couch and holt areas respectively are shown relative to the development boundary (TII, 2008; **Figure 3.2**). Otter breeding areas (holts) are especially sensitive to direct human disturbance (Mason & Macdonald, 2009), with otter reproductive success known to be higher in less disturbed habitat, hence their preferential fidelity for low disturbance areas of habitat (Brazier & Macklin, 2020; Macklin et al., 2019; Scorpio et al., 2016; Ruiz-Olmo et al., 2011; Loy et al., 2009; Kruuk, 2006).

Provided that the mitigation measures outlined in this report are fully implemented, inclusive of the relevant actions detailed in the Construction and Environmental Management Plan (CEMP) and subject to the granting of a derogation licence for indirect disturbance to otter, it is anticipated that no significant adverse effects on otters will result from the proposed development.

5. Derogation licence application

As outlined above, the April-May 2026 otter survey undertaken by Triturus Environmental Ltd. identified a single otter holt (H1) (potential breeding area) on the distillery millrace channel. It also identified an otter holt (H2) (potential breeding area) and two couch sites (C1 & C2) (resting areas) along the River Lee along the south bank of the River Lee within 150m of the proposed development (**Figure 3.2**). The identified holts (H1 & H2) were located 88m and 131m respectively from the proposed development. The two couch sites (C1 & C2) are also located on the opposite bank of the River Lee, but are situated beyond the 20m buffer from the proposed works area (60m and 120m respectively). Therefore, the current derogation licence application relates to the potential indirect disturbance of holt sites H1 and H2 only.

Otters, along with their breeding and resting places, are protected under provisions of the Irish Wildlife Acts 1976-2021 and also pursuant to the requirements of Articles 12, 13 and 16 of the Habitats Directive (92/43/EEC) as an Annex IV species and indirect disturbance is possible.

Potential impacts are limited to temporary and indirect disturbance of the identified holt sites, should they be active at the time of construction works, due to their proximity to the proposed development. As such, a derogation licence will be required in advance of any works in these areas as per Article 16 of the Habitats Directive and Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations, 2011-2021.

A mitigation-by-design approach has been integrated into the development's plan to minimise the footprint to limit incursion on the natural riparian corridor of the River Lee and millrace channel. In addition to a pre-construction survey (as outlined above) and construction best practice (e.g. water quality protection), numerous mitigation measures will be applied to reduce disturbance and impacts to otter. These are outlined in **section 5.1** below.

Given likely unavoidable disturbance to the breeding and or resting places of otter in areas adjoining the proposed development, a derogation licence is requested for the proposed works, with the following details:

Applicant: University College Cork

Supervised by: Ross Macklin of Triturus Environmental Ltd, Unit 5 Anchor Business Park, Little Island, Co. Cork, T45 XN59.

Species: European otter (*Lutra lutra*)

Activity: Tyndal National Institute development

Timeline: 1st June 2026 – 31st December 2026 (covering the annual period of a permitted derogation consent)

5.1 Test 1 - Justification for Derogation

5.1.1 Explanation as to why the derogation licence sought is the only available option for works and no suitable alternative exists as per Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations.

The derogation is sought under **Article 16(1)(c)** of Regulation 54(2) given that the proposed works are;

- ***(c) In the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment.***

The derogation is required given the location of the identified otter breeding and resting area (i.e. two holts H1 & H2) that are in close proximity to the proposed Tyndall expansion project. There is no alternative option but to proceed with the development in the vicinity of the identified potential breeding and resting areas. Although any holt closure has been avoided through the design process, indirect disturbance during the works will be unavoidable. As outlined in section 5.2 below, no suitable alternative designs or locations for the development exist.

Avoidance and mitigation measures are summarised below in section 5.3.3. The disturbance impacts of the works on the identified otter breeding areas cannot be fully avoided or mitigated, considering the proximity to and nature of the proposed works. Justification for the project in the interests of public health, public safety, including social, economic and beneficial consequences of primary importance for the environment, is summarised below.

Social & Economic Public Interest

National Development Plan

The Tyndall expansion is based on the express requirement of Government to upgrade and expand the Institute's world-leading capabilities and expertise in cutting edge, state-of-the-art research. This has been explicitly referenced in the Governments Project 2040, National Development Plan 2018-2027 as well as within the subsequent DBEI document Investing in Business, Enterprise and Innovation 2018-2027. This investment will position Tyndall as an international leader of scale in translational research, allowing it to play a key role in the further development of ICT innovation and impact in Ireland. The proposed new facility will allow Tyndall to cater for up to 250 post-graduate students (currently at circa 125) and 750 staff (currently circa 325) as reflected in the Government's National Development Plan.

Therefore, this new facility will bring a wide range of social and economic benefits as follows:

- Improved Education Opportunities
- Advancement of Knowledge
- Job Creation
- Community Development
- Better Healthcare and Quality of Life
- Attracting Talent

Furthermore, see link to recent announcement confirmation of approval to expand this major research Institute <https://www.ucc.ie/en/news/2026/university-college-cork-ucc-welcomes-government-announcement-approving-major-expansion-of-the-tyndall-national-institute.html> As noted, this will:

- Strengthen Ireland’s national research infrastructure in semiconductors and related technologies
- Support balanced regional growth by expanding research capacity and capability
- Increase research impact, enterprise engagement and international competitiveness
- Underpin industrial development in key enabling technologies that drive advances in computing, artificial intelligence, and communications - linchpins of the knowledge economy

Qualitative Economic and Social benefits associated with providing a new building

Improved Academic image of UCC and Tyndall

- The provision of state of the art research facilities will assist in attracting a high calibre of student to UCC at both an undergraduate level and postgraduate level.
- This reflects positively on the University’s image and is a key tool in boosting UCC and Tyndall’s rankings as being a top university and institute for research-and innovation internationally.

Improved academic performance

Increasing Tyndall’s capacity to accommodate additional postgraduate students on the UCC campus will assist in enticing students who are interested in pursuing a career in the high-tech sector to study at the college at an undergraduate level.

The improved facilities and additional postgraduate spaces on campus will also play a key role in encouraging UCC students who are currently studying undergraduate courses in this sector to continue to postgraduate level. Students striving for places in postgraduate courses will require high marks in exams, which will in turn have a positive impact on the overall academic performance of the college.

Benefits for the wider economy

- The Tyndall expansion would generate construction activity in the local economy to the value of circa €100million.
- They will also contribute a significant amount to the exchequer in direct and indirect taxes.
- Tyndall is home to a large percentage of postgraduate students from abroad. This increased spend from international students will have a positive impact on local businesses and the rental market in Cork. In addition, the extra students and staff will result in increased revenues for UCC through tuition fees and general spend on campus.
- Tyndall has built a strong reputation to date of producing ‘world firsts’ from its industry focused research. The Tyndall expansion will increase Tyndall’s research capacity.
- The development of world firsts in research will have a positive effect on the Irish economy, while finding innovative solutions to technological issues worldwide.

- One of the key considerations of the National Planning Framework is to ensure that the second tier cities are the drivers of the regional economies. The significant investment into Cork will provide a greater counterbalance to the economic activity generated in Dublin and its surrounding area.
- Tyndall currently hosts up to 100 IDA visits per year. The Tyndall expansion will enhance the quality of the facilities at the Institute and will represent a key lever in the IDA toolbox when attracting foreign direct investment and international businesses to Ireland.
- The investment in Tyndall will significantly increase the of highly skilled people available to industry and academia, with each new job expected to have a substantial multiplier effect (i.e. 3 / 4 times) across the economy.
- The expansion in Tyndall will lead to a higher number of European Research Council (“ERC”) funded researchers and new Multi-National Corporation (‘MNC’) production and development in Ireland.

Industry Impact

- Ireland has built a strong reputation as a global leader in technology and innovation in recent years. The digital intensive sector in Ireland accounts for a significant portion of Irish exports - approximately 26%. A key issue for the sustainable growth of the sector in Ireland is the attraction and retention of high-skilled labour.
- The investment in the new state of the art facility at Tyndall will show Ireland’s visible commitment to supporting research and development in the technology sector, and help to fulfil Ireland’s goal of becoming the technology capital of Europe and a high-tech skills hub.
- The new building will increase the capacity of the Institute to accommodate more high-tech spin-off companies and start-ups, which will allow for knowledge transfer within the Institute, while enhancing Ireland’s competitiveness internationally and creating a diverse range of highly skilled and high value jobs.

5.2 Test 2 - Assessment of Alternatives

The European Commission guidance requires demonstration that no satisfactory alternatives exist that meet the project's objectives with less impact on the species concerned. Alternatives were assessed as follows:

A. Alternative Studies

Prior to undertaking option studies for the design of the new facility, Tyndall undertook an appraisal of strategic options on how best to expand its existing activities. This was in the context of Tyndall's need to accommodate a doubling in size of over the next ten years, as reflected in the Government's National Development Plan.

1. Current Location Options

The first scenario considered was a 'do-nothing' scenario, whereby Tyndall remains in the current facility at the existing location with limited refurbishment and little room for expansion (Counter factual).

- If the "Do Nothing" option is chosen, it would effectively result in Tyndall becoming less relevant, losing out on the opportunity to further expand its capabilities and to be competitive on a world stage. The do nothing option would be detrimental as it would mean Tyndall would not have the necessary state-of-the-art research infrastructure to compete on an international scale.
- Tyndall would likely lose out on the ability to attract the necessary talent required to generate economic impact through excellence in research. Top research talent is necessary for grant funding applications and in the generation of new research income.
- Without the requisite tools and staff, it is likely that Tyndall will become less attractive as a partner of choice for Horizon 2020 and other international collaborative projects and FDI.
- This option would result in Tyndall not being able to fulfil the requirements explicitly referenced in the Governments Project 2040, National Development Plan 2018-2027 as well as within the subsequent DBEI document Investing in Business, Enterprise and Innovation 2018-2027

In addition to the "counter factual" option of maintaining the existing facilities with limited upgrade, Tyndall National Institute (TNI) defined two other potential options for evaluation.

Option 1

This involves a large-scale redevelopment and extension of Tyndall's existing facilities, which are approaching full capacity, with limited growth / development potential.

- UCC / Tyndall have looked at this in detail and have undertaken some recent refurbishment to help alleviate current capacity constraints.
- Due to the protected nature of the existing buildings on the Lee Maltings site, the potential for refurbishment and expansion is severely restricted. This option would pose significant planning and logistical issues, as well as causing considerable disruption to existing operations during construction.

- This option would also have considerable planning and fire safety issues.
- It is anticipated that the disruptive nature of this build, in particular the need to create areas of ultra-low vibration (heavy ground bearing structure) would be met with significant objections due to the listed nature of the existing structures.
- The proposed development under Option 1 would predominantly be situated on the Mercy Hospital side of the existing Tyndall site. Any construction in this area would be faced with significant logistical issues as access to the hospital cannot be restricted.

Option 2

This option follows the Department of Public Expenditure and Reform's Public Spending Code ("the Guidelines") and looks at building a new facility. The new building is an express requirement of the Government's Project Ireland 2040 National Development Plan and the Department of Business and Enterprise and Innovation's Investing in Business, Enterprise and Innovation 2018-2027 plan.

Not undertaking Option 2 would result in a failure to meet the strategic objectives of these plans.

Encouraging growth in the regional cities is a top priority of Government, and with investment ongoing in innovation and research centres in the greater Dublin area, it is important to show balanced investment across the country.

UCC has identified several additional qualitative factors for consideration as part of this analysis. The below factors highlight some of the qualitative benefits associated with both the redevelopment/expansion option 1 and the new build option 2.

2. Qualitative Benefits associated with Options 1 & 2

As noted under Test 1 the benefits associated with Options 1 & 2 include:

- Improved Academic image of UCC and Tyndall:
- Improved academic performance
- Benefits for the wider economy:
- Industry Impact

Conclusion

Based on the above analysis, Option 2 was chosen as the clearly preferred and only viable option and the one that would provide most benefits to Tyndall/ UCC and the wider community. It would also meet the expressed requirements of both local and national development plans and meet the needs of the Government's Project Ireland 2040 National Development Plan and the Department of Business, Enterprise and Innovation's Investing in Business, Enterprise and Innovation 2018-2027 plan.

3. Alternative Locations

3.1 Remote Location

An option was initially identified, to move Tyndall to a new greenfield location outside of the city. This option would require either a dual-campus Tyndall or the rebuilding of the entire Tyndall campus outside of the city. This would result in a potential loss of Tyndall's proximity to the University campus

and city centre and the loss of ease of access for students and academics, the majority of whom utilise public transport. It would also require the rebuilding of the Cleanroom fab and other research centres that were heavily invested in (circa €50m) in 2008. In environmental terms the relocation of these facilities would result in a waste of natural resources, given the level of works required to replicate the facilities elsewhere. This option would also go against the City Council's Cork City Development Plan 2015-2022, in particular Planning Application EIAR Chapter 13 CITY CENTRE AND DOCKLANDS – sub section 13.8 – Core Principles: Maintaining the City Centre as the vibrant 'healthy heart' of the region. Vacating the Lee Maltings site would represent a significant negative impact on this part of the city centre, in particular as Tyndall have ensured the continuing occupation and upkeep of the historic Lee Malting Complex in a way that alternative modern developments would find difficult. The existing facility could not easily be re purposed given its specialist design. This option has been considered by UCC / Tyndall as the least practical option for strategic reasons, and therefore has not been evaluated further

[3.2 Nearby Location](#)

Once the decision was made to build a new facility close to the existing Tyndall Campus at Lee Maltings, a location across the river on the North Mall was identified as one that would provide a suitable site for the new facility. The North Mall was purchased by UCC & MUH to accommodate the strategic development of new University, Research and Healthcare facilities for both organisations. This development is supported by the Cork City Development Plan 2015-2021 where development on the site is acceptable in principle but is restricted by designations which prioritise landscape preservation and include specific objectives related to amenity.

Section 14.46 of the 2015 CDP states that:

The City Council will encourage and support in principle, future expansion plans including intensification of the existing campus and/ or new development at the North Mall Distillery lands (as part of a joint development with Mercy University Hospital for educational and healthcare purposes - that respects the landscape character, built and natural heritage of such sites and the amenities of adjoining uses, taking account of the site specific objectives in Chapter 10. Objective 5.11c and Objective 10.5 makes provision for a pedestrian / cycle bridge to access the North Mall Distillery Site.

[3.3 Adjacent Location](#)

A critical factor to the success of Option 2 - New Building Option is proximity to the existing Tyndall Campus. The Tyndall Community will share facilities across the campus to avoid unnecessary duplication of very specific science and research activities and environments. The creation of a holistic 'One Tyndall' environment is seen as a key driver to successful collaboration Tyndall's various activities and the integration of their numerous industry partners. The proposed new bridge connection plays a critical role in achieving 'One Tyndall' by connecting the existing Tyndall Campus directly to its new facility. It will also accommodate future public links between Grenville Place (Mercy University Hospital) and the future Masterplan development of the North Mall Campus. The siting of the proposed bridge is governed by the location of the new facility.

Potential Adjacent Locations:

A number of locations were assessed for suitability on the North Mall; these are noted as Alternative Adjacent

Locations (AAL) 1,2 & 3 on Figure 3.54.

Table 3.4 Option 1 - Greenfield location to the West of the site	
Pros	Cons
Makes use of the most open part of the North Mall site	Too far removed from the existing Tyndall Campus, which will negate a One Tyndall development and negate ease of travel between Tyndall Facilities.
Good linkages to the central road	Travel to and from the existing Tyndall Campus will have to be around the existing and derelict Bottling Plant
Set back from the site boundary allowing for the potential of greater height.	This location will put more emphasis on arriving by car and increase traffic on the site

Table 3.5 Option 2 - North of the Cooperage Building	
Pros	Cons
Near to the entrance of the North Mall Site	Too far removed from the existing Tyndall Campus, which will negate a One Tyndall development and negate ease of travel between Tyndall Facilities.
Good linkages to the central road	Travel to and from the existing Tyndall Campus will have to be around the existing and derelict Bottling Plant and the Cooperage Building
Continues a line of existing buildings	This location will put more emphasis on arriving by car and increase traffic on the site
	The site is restricted by the embankment to the rear and the neighbouring developments.

Table 3.6 Option 3 - South of the Cooperage Building	
Pros	Cons
Directly opposite the existing Tyndall Campus facilitating ease of travel to and from and the creation of a viable One Tyndall Campus.	The design of the building will have an impact on the existing Bottling Plant Building.
Ease of access to the existing Tyndall Campus will facilitate walking and cycling to and from the new facility with less dependency of cars.	The new building will be in close proximity to the mature riparian river bank.
Placing the new building at this Eastern edge will also establish an extension of the city fabric onto the North Mall site, avoiding a visual and physical gap in development.	

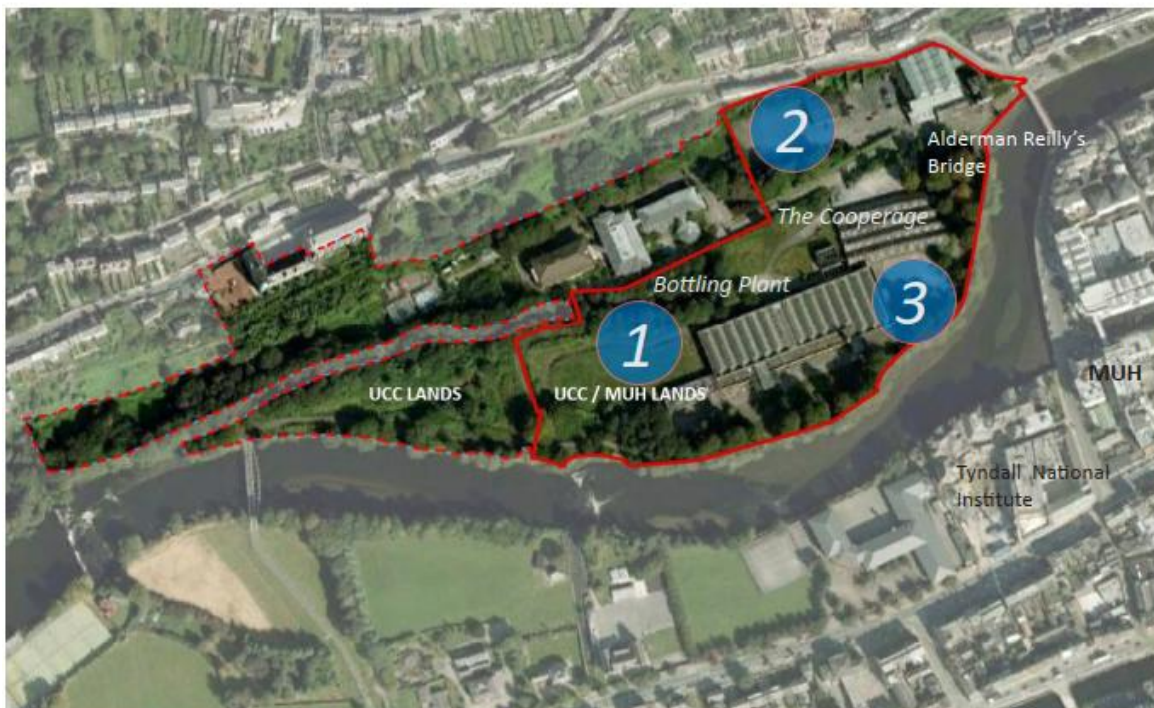


Figure 3.54: North Mall Site with proposed adjacent location



Figure 3.55: Aerial view of North Mall Site

3.4 Conclusion:

Based on the analysis of Options 1,2 & 3 and considering that the fundamental reason for choosing an adjacent site is to be close to the existing Tyndall Campus - Option 3 is the only option that allows for such proximity and the creation of a viable One Tyndall development. Option 3, as the only viable option, has a number of key characteristics that must be addressed in the design of a new building in that location. These include:

1) Protected View

A key feature of the is the protected view from Gurranebraher Road to the North of the site to St Finbarr's Cathedral to the south of the site, viewing location SFC5 from the Cork City Development Plan 2015-2021 (Figure 3.56 and Figure 3.57). Study Plans Figure 3.60, Figure 3.62 and Figure 3.65 illustrate the view lines which run across the Eastern corner of the North Mall Site.

2) Landscape

The mature riparian planting and trees along the river's edge are a significant feature of the site.

3) Existing Buildings

The site on the North Mall, formerly known as the 'Distillery Fields', contains several important buildings and structures as identified in Chapter 2 Project Description and Chapter 12 Cultural Heritage.

Two of these buildings are in close proximity to the proposed adjacent site and have the potential to be impacted by the new building, these are:

The Cooperage Building - This building is recorded in The National Inventory of Architectural Heritage (NIAH Ref 20500775). It is currently occupied by UCC for Research purposes and has been significantly refurbished in recent years. It is therefore a living working building

Irish Distilleries, Bottling Plant - the proposed site is located within the former grounds of the Irish Distillers Company, the former bottling plant associated with this company remains extant and occupies a large portion of the site. Built in c.1964, designed by Cork Architect Frank Murphy, the building has no formal protection but is referenced as an example of 20th Century Industrial architecture in the NIAH's publication 'An Introduction to the Architectural Heritage of Cork City'.

B. Alternative Layout Designs

1. Alternative Layout Designs

Once the decision to proceed with a new building on the North Mall site and in a location adjacent to the existing Tyndall Campus was made, there were three possible options identified. Due to the recent investment made in the Cooperage Building and the fact that it is a 'live' working research facility for UCC, a decision was made to retain this facility and this is reflected in each of the options below.

Option A - Infill option – Create a new building that leaves the existing structures intact.

Option B - Partial demolition – Create a new building that retains or incorporates part of the existing buildings

Option C - Full demolition – Create a new building and demolish the entire Bottling Plant.

These three options are explored in detail in the following pages.



Figure 3.58: Site adjacent to the existing Tyndall National Institute

Option A (Infill option) – Create a new building that leaves the existing structures intact.

Infill option – Create a new building that leaves the existing structures intact.

An Infill building was tested on the site, located in the proposed adjacent site in the Eastern corner between the Bottling Plant and the Cooperage. Retaining the Cooperage Building and the Bottling Plant limits the area of ground that can be built upon and therefore requires a tall building approach.

A basement level was considered, however following the initial flood risk analysis and the requirement for perimeter sheet piling and a 600mm thick pressure slab to form the basement this was omitted to mitigate the risk of water ingress. This risk was heightened by the fact that the expensive tools and microscopes requiring ultra low vibration need to be located on the bottom most, ground bearing slab.

Pros	Cons
Maintains the existing structures on site protecting a significant piece of heritage	Creates a tall building with a large and negative impact on the protected view
Creates a city landmark	Creates a mismatch in scale with the neighbouring Cooperage.
	Significant impact on a recognised Area of High Landscape Value
	Creates difficulties in accommodating a science & research environment where collaboration, connectivity and flexibility are key drivers. The small floor plate and number of floors are not conducive to creating this type of environment.
	Access & Maintenance and the installation of future large equipment is more challenging.
	Low vibration criteria is harder to achieve. This is required for Tyndall research activities.
	Due to the small floorplate, M&E plantrooms will need to be located on the roof or basement with long travel distances to floors.

Option B (Partial demolition) – Create a new building that retains or incorporates part of the Bottling Plant.

Partial demolition – Create a new building that retains and incorporates part of the existing buildings

The former bottling plant is a significant ground scraping structure, stretching 160m along the riverbank. Its footprint therefore takes up a large portion of the site in the East West direction.

The building is a concrete structure with accommodation and canopied entrances to the river side. This section of the building has been embellished through architectural form and material (yellow glazed brick). Behind this façade the main bulk of the building is a typical industrial large span volume with a series of industrial roof lights.

Pros	Cons
Maintains the architecturally significant elements of the Bottling Plant.	Will require substantial investment in upgrading the existing fabric which is significantly deteriorated. The exposed concrete has spalled in numerous locations, the window sills and glazing will have to be replaced, the roof also.
Re-uses existing fabric, reducing demolition and carbon footprint.	The retention of the Bottling Plant reduces the site area available to the new development, the new design will need to make use of expensive basement construction to permit the same volume of usable space and avoid increasing the height of the building, potentially interfering with the protected view.
Integrates new with old, maintaining the proud Tyndall tradition stemming from the Lee Maltings site.	The architectural form of the Bottling Plant with its heavily horizontal characteristics will dictate a new architectural form for the Tyndall Building.
Increases the Public Realm and Biodiversity potential by allowing the existing vehicle access areas for trucks etc to the loading bays to become an amenity space.	The “blank” nature of the Bottling Plant north wall will preclude daylight from penetrating a large area of the ground floor plan of the new building and create a barrier to the cross river relationship between the two Tyndall sites.

Option C (Full demolition) – Create a new building and demolish the entire Bottling Plant.

Full demolition – Create a new building and demolish the entire Bottling Plant.

Demolition the Bottling Plant allows for a new building of lesser height. In this instance a building is proposed that steps up from four floors at the eastern edge adjacent to the Cooperage to seven floors at the western edge.

The location of the building allows for direct connection to the existing Tyndall Campus, via the bridge and extends the fabric of the city into the North Mall site in a continuous and appropriate manner.

Pros	Cons
Allows greater design freedom to create a bespoke facility to serve the needs of the Tyndall Institute.	Requires the demolition of the Bottling Plant with negative Architectural Heritage implications.
Allows greater freedom for daylight to penetrate the ground floor of the new building.	
Allows greater access to views and a closer visual relationship between the new Tyndall Building and the Lee Maltings complex.	
Permits a greater ground level footprint and avoids the need for basement construction.	

Conclusion:

It is acknowledged that the demolition of the Bottling Plant will have a negative impact on Cork’s legacy of twentieth-century modernist architecture (**Figure 4.1**) and therefore Option B has been selected as the optimum outcome, where the architecturally significant elements of the Bottling

plant are retained and integrated with the new Tyndall Building (**Figure 4.2**). The pros and cons of all options, as listed clearly identify Option B as the most appropriate and viable option for development of Tyndall National Institute's New Facility.

C. Location of building relative to otter holt buffer zone

To mitigate the risk to the otter holts, the proposed building has been located outside the 150m buffer zone. The works that will be within the otter holt zone include the demolition of an existing building and the construction of a surface car park which are approx. 100m away from both detected otter holts (**Figure 4.2**).

5.3 Test 3 – Impact of a Derogation on Conservation Status

The following summary information provides responses to four key issues which will be considered during the derogation licence decision making process;

5.3.1 *Evidence that actions permitted by a derogation will not be detrimental to the maintenance of the populations of the species to which the Habitats Directive relates at a favourable conservation status in their natural range as is required under Section 54(2) of the European Communities (Birds and Natural Habitats) Regulations.*

No otter breeding (holt) or resting (couch) areas will be directly disturbed as a result of the proposed Tyndall development works. Holt H1, located along the distillery race channel and holt H2, located along the south bank of the River Lee, are situated outside the direct footprint of the proposed works. Holt H2 is located on the opposite bank of the River Lee from the proposed development area, further reducing the potential for direct impacts. Given the presence of an existing busy walkway, very mature riparian treeline and the tidal River Lee between the proposed development and Holt H1, indirect disturbance impacts are likely more limited. However, all short-term, indirect disturbance to otter breeding and resting areas during the construction phase cannot likely be avoided. Mitigation measures, including mitigation by design, focusing on the minimisation of disturbance to otter (see below), will be implemented.

These measures are designed to ensure that the permitted actions will not be detrimental to the maintenance of otter populations, thereby supporting the species' favourable conservation status within their natural range in compliance with Section 54(2) of the European Communities (Birds and Natural Habitats) Regulations.

5.3.2 *Details of any mitigation measures planned for the species affected by the derogation at the location, along with evidence that such mitigation has been successful elsewhere.*

No otter breeding (holt) areas will be directly disturbed as a result of the proposed Tyndall development works. Otter breeding and resting areas recorded along the south bank of the River Lee (i.e. holts H1 and H2) are located outside the direct footprint of the proposed works. Holt H1, located along the distillery race channel on the north bank, was determined to be inactive during the most recent survey (approximately 88m from the proposed development) and secluded by an existing treeline. Otter holt no. H2 is located approximately 131m respectively from the proposed development. The two couch sites (C1 & C2) are also located on the south bank of the River Lee, but are situated beyond the 20m buffer from the proposed works area (60m and 120m respectively).

While direct impacts are not anticipated, short-term indirect disturbance to otter breeding and resting areas during the construction phase cannot be entirely ruled out. Measures will be implemented to minimise disturbance to otter, their habitat and prey resources during both the construction and operation phases of the development. Measures align with best practice guidance for otter (e.g. NPWS, 2021; TII, 2009) with evidence of successful implementation in previous infrastructure projects across Ireland and elsewhere as summarised below.

The main viable mitigation measures are as follows to protect otter from indirect disturbance related impacts:

- Ecological Clerk of Works (ECoW) supervision during the construction phase to ensure buffers are maintained minimising any encroachment by plant.
- Ecologically sensitive areas associated with otter activity will be clearly demarcated on the Tyndall development side using ecological sensitivity signage prior to the commencement of works.
- A trail camera monitoring program¹ will be continue to be implemented by the Project Ecologist/ ECoW to observe otter activity and detect any disturbance-related impacts. Monitoring will continue throughout the construction period to ensure mitigation measures are effective and to allow for real-time adjustments as needed.
- All construction personnel will receive a site-specific briefing from the Project Ecologist/ECoW prior to works commencing. This briefing will identify the locations of nearby otter holts, including the inactive holt on the north bank and outline all required mitigation measures.
- The activity status of holt H1 has currently been determined as inactive given no signs of activity were noted during the current survey inclusive of trail camera monitoring. Additionally, dead leaves and cobwebs were identified at the holt entrance, which is indicative of prolonged disuse. Historically only a single otter trigger was identified during the 2021 monitoring of the holt by MWP. Should the holt become active during the construction phase, additional mitigation shall be implemented. These will include the installation of temporary acoustic screening/barriers in areas closest to the holt, to minimise disturbance arising from construction-related noise and vibration.
- Monitoring results and ecological updates will be provided regularly to the client and construction team by the ECoW throughout the construction period, ensuring that mitigation measures remain effective and responsive to site conditions.

5.3.3 As much information as possible to allow a decision to be made on this application.

Robust information pertaining to otters, inclusive of detailed mitigation proposals, has been provided in the current report to best inform the decision process.

¹ Please note that pre-construction trail camera monitoring of the holt sites will be completed under a Section 9 & 23 licence, once received from the NPWS.

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7. Appendix A – otter signs database

Table 7.1 Summary of the $n=11$ otter signs recorded in the survey area during April-May 2026 (**breeding and resting areas marked in bold**)

Unique Sign ID	Sign	No. spraint sites (no. spraints)	Sign age	Notes	ITM x	ITM y
2026_H1	Holt	n/a	No signs of recent activity	Otter holt on embankment in open scrubby area adjacent to Broadleaved woodland. No sign of recent activity with dead leaves and cobwebs at entrance.	566360	571972
2026_01	Spraint site	1(2)	Old	Old spraint on sycamore trunk east of stage gauge on north bank of the River Lee	566516	571899
2026_C1	Couch	2(8)	Mixed aged	Couch in tunnel on south bank of River Lee under sycamore below old weir. Tunnel just above high water mark but too shallow for holt (c.1m). Numerous old spraints on flat rock at entrance to tunnel	566466	571852
2026_02	Spraint site	1 (5)	Mixed aged	Regular spraint site on roots of crack willow on rocks immediately upstream of Roy Keane Bridge	566204	571861
2026_03	Spraint site	2 (2)	Old	Old spraint site on rocks under holly	566291	571844
2026_04	Spraint site	2 (3)	Old	Old spraint site on root systems of lime and sycamore	566301	571852
2026_05	Prints	n/a	Recent and old	Numerous otter prints on mud recent and old	566323	571849
2026_H2	Holt	n/a		Holt in roots of sycamore immediately above high tide mark. Entrance 0.3m x 0.25m at high tide mark	566356	571849
2026_C2	Couch	3 (11)	Mixed aged	Couch site on rubble mound under mature sycamore and holly with numerous spraints and high seclusion	566371	571848
2025_06	Spraint site	1 (2)	Mixed aged	Spraint site on boulders above high tide mark	566505	571840
2025_07	Spraint site	1 (8)	Mixed aged	Regular spraint site on rock on recolonising bare ground bank with slide to river	566511	571837



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