

MAWS FARM IS NOT A SUITABLE LOCATION FOR A "HIGHLY VULNERABLE DEVELOPMENT"

AN BORD PLEANÁLA
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ABP-
28 OCT 2022
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DART + WEST ELECTRIFIED RAILWAY ORDER 2022

Objection to the Proposed Siting of the EMU Depot at Maws Farm, Co.
Kildare associated Compulsory Purchase Order of Lands

Maws Farm, Maynooth West, Co. Kildare

AN BORD PLEANÁLA
LDG-
ABP-
28 OCT 2022
Fee: € 50.00 Type: cheque
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The Secretary
An Bord Pleanála
61-64 Marlborough Street
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D01 V902

Friday, 28 October 2022

[By Hand]

Dear Secretary

RE: SUBMISSION IN RELATION TO THE MAKING OF THE DART+ WEST DRAFT RAILWAY ORDER –

THE PROPOSED SITING OF THE DART + DEPOT ON LANDS OF MAWS FARM, CO.KILDARE¹

1.0 INTRODUCTION

1.1 Town Planning Opinion

Carlos Clarke Limited² has retained Tom Phillips + Associates³, in collaboration with Maxpro Consultants⁴ and Transport Insights⁵ to make a submission to An Bord Pleanála (ABP) regarding the choice of the siting of the proposed DART Depot and associated compulsory purchase order of lands located at Maws Farm, Co. Kildare contained within the *DART + West Electrified Railway Order 2022* for the siting of a DART Depot.

Please find enclosed with this submission, the prescribed €50 fee for the submission.

Our Submission focuses primarily on the:

1. *Draft Railway Order*, dated July 2022;
2. *Railway Order Book of Reference*, dated July 2022;
3. *Railway Order drawings*, dated July 2022;
4. *Environmental Impact Assessment Report*, dated July 2022;
5. *Appropriate Assessment*, dated July 2022;

¹ Identifiable as lands contained in the *DART West Book 2 Property Plans Part 2* document, Property Plan CH 28km – 31km.

² 74 Northumberland Road, Dublin 4, D04 XF75.

6. *Planning Report*, dated July 2022; and

7. *Site Specific Flood Risk Assessment*, dated July 2022.

Having regard to the EIAR requirement for a thorough examination of alternatives, for reasons elaborated upon in Sections 4, 5 and 6 of this Submission, **Carlos Clarke Limited has major concerns in relation to the selection process of the emerging preferred EMU Maintenance Depot location at Maynooth West, which we submit lacks the required level of transparency and robustness.**

Specifically, the selection of Maynooth West as the emerging preferred Depot location compared to an alternative location at Hazelhatch West does not appear to be sufficiently clearly justified.

Arising from the emerging preferred Depot's siting in the centre of its landholding, occupation of ca. 25 ha. of a total of ca. 85 ha. of lands, and removal of an existing rail/ Canal over-bridge, it would materially impact upon the functional integrity of our Client's valuable agricultural lands. Furthermore, the proximity of the Depot to 3 No. dwellings located on the landholding would materially impact upon the amenity value enjoyed by our Client.

In our professional town planning opinion, other potential Depot locations must be examined further, namely the equally-ranked potential Depot location of Hazelhatch West, as done so in the *Centre of Excellence DART Expansion Maintenance Depot Report* published in July 2019.

The table below depicts side-by-side ranking of the Maynooth West and Hazelhatch West potential Depot sites to show the suitability of the Hazelhatch site as a place for consideration in place of the Maynooth West site.

	Maynooth West	Hazelhatch West
Minimised empty running		
Maximise track access		
Complexity of access and egress		
Availability of suitable lands		
Adjacent Environment		
Road vehicle access		
Transport and Land Use Compliance		
Short term impact on DART Expansion Programme		

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Hazelhatch outperformed Maynooth West in two of the eight criteria, and likewise Maynooth West outperformed Hazelhatch in two of the eight criteria, with the two locations tied in four categories.

We argue that the two criteria that Maynooth West outperforms Hazelhatch West in are least relevant in the day-to-day running and overall long-term impact of the DART West scheme, these two criteria being;

1. Road vehicle access; and
2. Short term impact on DART expansion programme

The two criteria that Hazelhatch West outperforms Maynooth West are far more viable options, impactful upon the long-term viability, functionality and quality of the DART + expansion programme, these criteria being:

1. Minimised empty running; and
2. Availability of suitable lands

With this regard, we believe that the fundamental weaknesses of the site have been minimised and positive attributes overstressed in privileging Maynooth West over the other possible locations, namely the better suited Hazelhatch West location. Furthermore, we believe that the comparative advantages between these sites have been underestimated and undervalued.

We question the proposal's direction in the approach to mitigate impact upon the environment, with specific regard to the liability of flooding of the chosen proposed Depot site, the injuring of character of the Royal Canal Greenway, and the unjustified choosing of the Maynooth West site over the Hazelhatch West site for the siting of the Depot. Furthermore, we question the robustness of the examination of alternatives discussed in the EIAR and siting of the Depot.

For the above reasons, our Client therefore urges Irish Rail to pursue actively an alternative location for construction of the proposed new maintenance Depot, namely the equally-ranked potential Depot location of Hazelhatch West.

2.0 SUBJECT SITE PHYSICAL AND HISTORICAL CONTEXT

2.1 Current Use

The Maws Farm site (commonly referred to throughout this report as the proposed Depot Site), is located between the towns of Kilcock and Maynooth, along the Royal Canal Greenway and existing Maynooth/ Sligo rail line.

The Maws Farm lands consist of approximately 85 ha of valuable agricultural lands. The majority of the proposed Depot site lands are used for tillage purposes, with sustainable farming practices such as crop rotation applied. These lands generate relatively low volumes of traffic movements (typically light vehicles and tractors), with the exception of harvest time, when substantially elevated large vehicle movements comprising a combine harvester and tractor + trailer sets occurring over a multi-day period.

A c. 10 ha section of the overall landholding, located at its southern extremity, is currently planted as a broadleaf commercial forest. Such lands typically generate intermittent trips by a mixture of vehicle types and sizes, associated with their ongoing maintenance.

The preferred end-to-end option of the DART+ West Project includes the construction of a new DART EMU Depot on lands located along the Maynooth/ Sligo Line, between Maynooth and Kilcock. (Illustrated in Figure 2.1 below.)

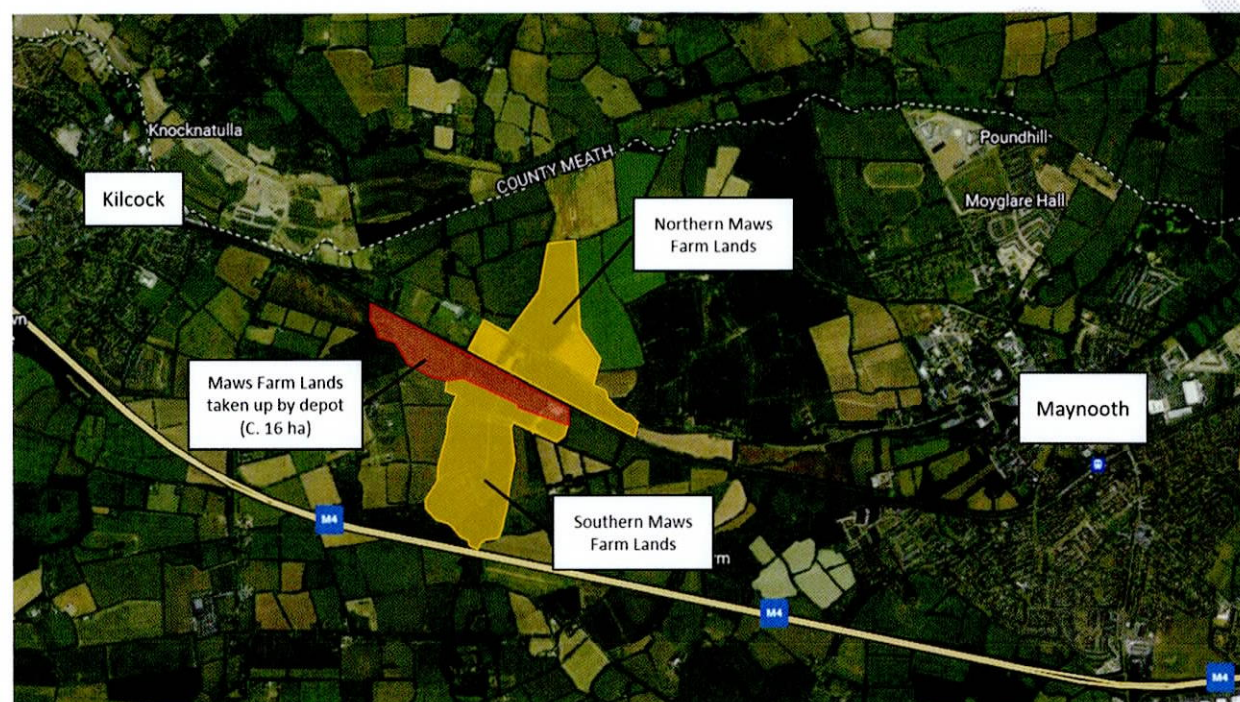


Figure 2.1: Overview of Maws Farm lands and proposed segment of lands to be used for the development of the DART EMU Depot. (Source: Google Maps, annotated by Tom Phillips + Associates, October 2022.)

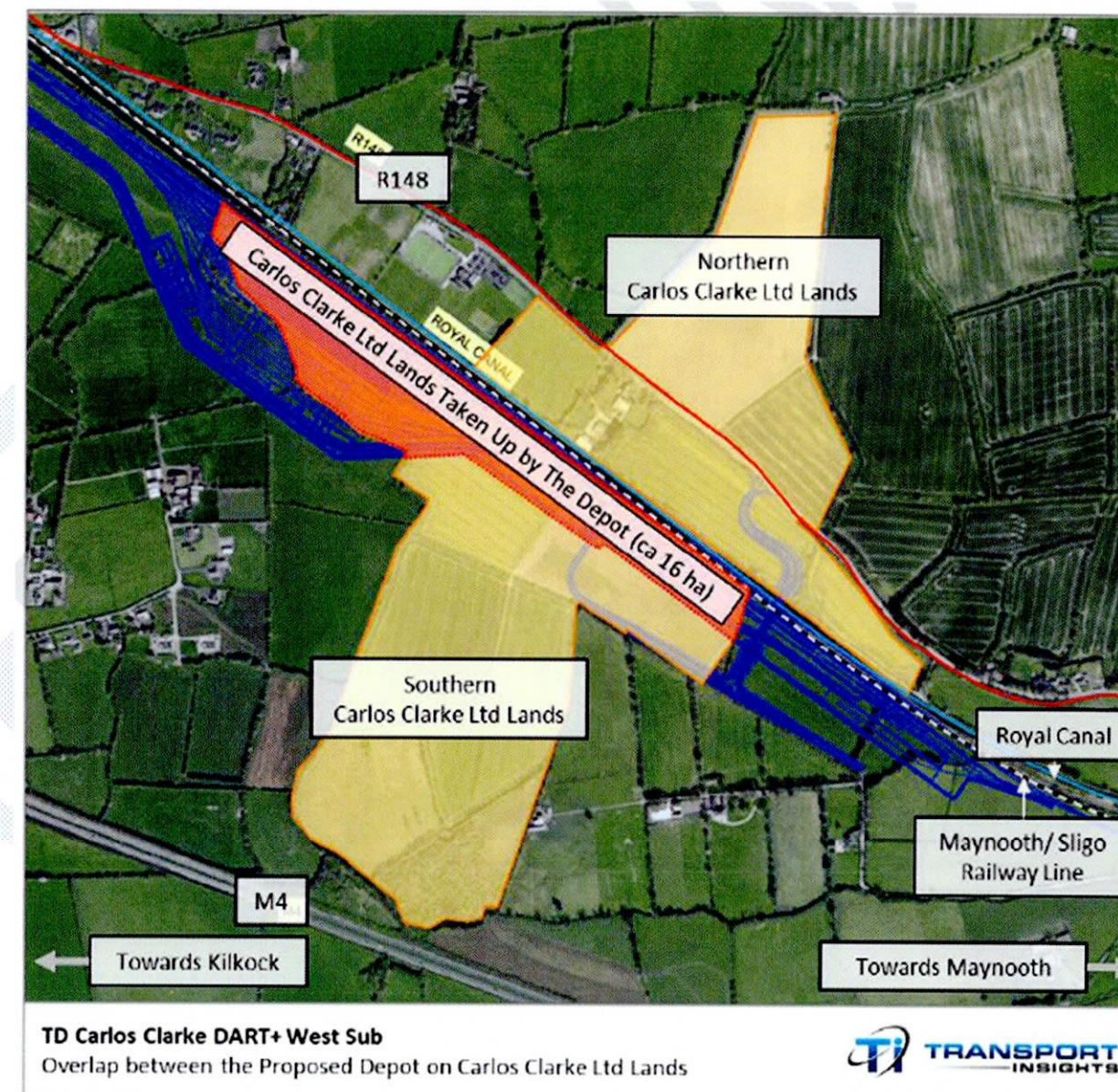


Figure 2.2: Overlap between the proposed Depot on Maws Farm lands. (Source: Transport Insights, October 2020.)

As illustrated in Figure 2.2, the Proposed Depot is partially located within the extent of Carlos Clarke Limited's lands, with ca. 50% of the proposed Depot's footprint (i.e., c. 16 ha) overlapping with its landholding, in addition to the proposed new access road from the R148 to the Depot and redundant lands created to its east taking up a further c. 9 ha. Overall, a land take of c. 25 ha from our client's landholding would be required to complete the construction of the proposed Depot (assuming no additional land being required for construction access), which amounts to:

- C. 29% of its entire landholding;
- C. 40% of its landholding to the south of the Canal; and
- C. 34% of its landholding currently in tillage uses.

This breakdown marks a significant and costly loss of valuable, fertile agricultural land, in addition to the severe impacts on the existing habitat, and wildlife degradation as a result of the development of the Depot, and would undermine the viability of our Client's farm and livelihood.

Furthermore, through the destruction of (Jackson's Bridge) and the dissection of the Depot through the lands of our client, it disjoins the lands, making the land impossible to traverse between both sides of the Canal.

In addition, the currently proposed Depot, being a heavy industrial site operating 24/7 is deemed likely to severely affect the amenity of the residents of our Client's farm by giving rise to noise pollution, air pollution, light pollution, and visual impact.

Not only would these impacts have direct negative effects on our Clients' quality of life and livelihoods but would also materially disturb the natural habitats and wildlife found along the rural agricultural greenbelt between Maynooth and Kilcock.

2.2 Maws Farm Lands – Stage 2 SFRA

As noted in the Stage 2 SFRA for the DART + West project:

10.6.2.3 Fluvial and Coastal Flooding

The site specific flood risk assessment carried out for the project has concluded that the vast majority of the proposed development is within flood zone C as per the OPW guidelines and at low risk of flooding. The notable exceptions are at Docklands / Newcomen and the lands between Maynooth and Kilcock. These areas are discussed below detailing the flood risk management measures inherent in their design.

It further goes on to discuss the lands of the proposed Depot, noting that;

"There are two distinct flooding locations between Maynooth and Kilcock. These are:

1. *Bailey's Bridge – Proposed Depot Site*
2. *Jackson Bridge – Rail Track"*

The following extracts found in Chapter 10 of the DART West EIAR elaborate on these two locations:

"Bailey's Bridge - Proposed Depot Site

The Ballycaghan Stream and the proposed Depot lands have been assessed. The proposed development will require a diversion of the existing stream and provisions of compensatory storage. Depot level will be a minimum of 300 mm above the 0.1% AEP flood level (+ climate change). Residual flood risk will be managed by the implementation of a flood emergency response plan which should form part of the facilities management plan. The Depot area and minor

watercourse were not covered by the CFRAMS study. Volumes of compensatory storage required at OBG23 are shown in Table 10-7 below. Due to existing topography constraints, there will be an overprovision of compensatory storage in the 0.1% AEP event. A minor bund is to be provided along the eastern and southern boundary of the compensatory storage area adjacent to the Depot with a height no greater than 1 m above existing ground levels.

The measures proposed between Maynooth and Kilcock will ensure that the proposed development is defended to the 0.1% AEP event. The post development model shows flood pathways are maintained by the provision of flood conveyance culverts while displaced volumes are accommodated in the compensatory storage areas. The overprovision of compensatory storage will cause a minor reduction in peak runoff from the Ballycaghan Stream. The development results in a minor increase in flood levels immediately adjacent to the proposed development though this is seen as negligible overall. The likely effects on flooding between Maynooth and Kilcock are negative, not significant to slight and permanent."

"OBG23 Jackson Bridge - Rail Track

The hydraulic modelling undertaken as part of this assessment has identified significant flooding in the vicinity of Jackson's Bridge. The track at this location cannot be raised due to potential conflicts with preserving heritage aspects of Jackson's Bridge. In order to provide a sufficient level of protection to the line, the development has been moved offline on a raised embankment over the floodplain. Proposed crossings have been sized as to maintain existing flood levels. Bridges soffits are to maintain a freeboard of >300 mm above the 1% AEP (+ climate change) flood level while the minimum rail level will maintain a freeboard of >500 mm above the 0.1% AEP (+ climate change) events. The proposed embankments at OBG23 will displace flood water and require compensation. Volumes of compensatory storage to be provided at OBH23 are shown in Table 10-6 below. The rail embankment bridge over the Lyreen has been sized to accommodate the immediate riparian zone and maximise conveyance. In addition, flood conveyance culverts are to be provided through the embankment to ensure that the embankments to ensure flow through the floodplain is maintained".

2.3 Bailey's Bridge – Proposed Depot Site

At Bailey's Bridge (the location of the Proposed Depot) OPW flood records (in the form of post flood aerial photography) indicate that this area is also liable to flood from a watercourse (Ballycaghan stream) that was not modelled as part of the CFRAMS.

Given the history of flooding and lack of information available for the area, the proposed Depot lands are considered to require a Stage 3 detailed flood risk assessment with respect to fluvial flooding.

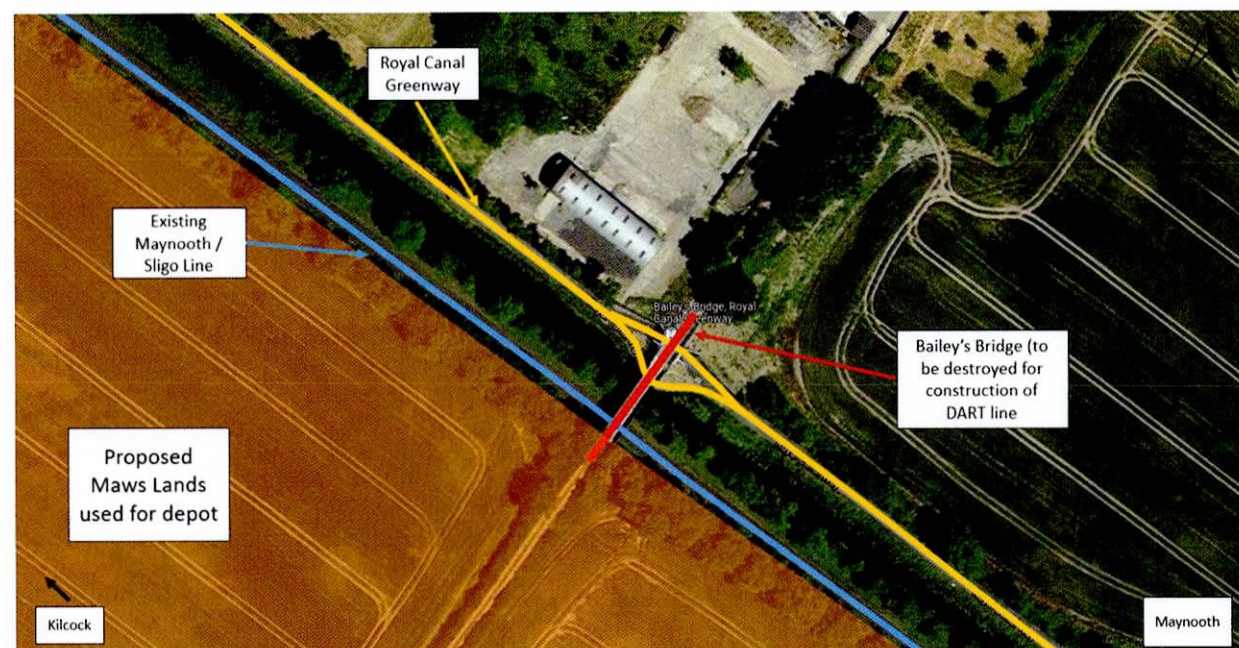


Figure 2.3: Overview of Maws Farm lands and proposed segment of lands to be used for the development of the DART EMU Depot and the location of Bailey's Bridge. (Source: Google Maps, annotated by Tom Phillips + Associates, October 2022.)



Figure 2.4: Bailey's Bridge. (Source: Google Maps, October 2022.)



Figure 4-1 Flooding south of Bailey's bridge November 2000

Figure 2.5: View of the site of the proposed DART + West Depot, indicated approx. by red line boundary. Note the extensive Turloughs occurring on the lands at the proposed site for development. The issues of biodiversity, water quality, and conservation intersect at this point and it may be worth considering and consulting European Law on these matters. Additionally, there is a recognised Aquifer underneath the lands within and without the shown red line boundary. This aquifer appears from hydrological mapping to have a relationship with the watercourses above the surface. (Source: *DART + West SFRA DOCUMENT*, page 16, annotated by Tom Phillips + Associates, October 2022.)

2.4 Jackson's Bridge – Impact on designated structure

Jackson's Bridge is a historical structure designated for protection. The three-arch cut-stone road bridge over Canal, railway line and stream, dated 1793, with ashlar voussoirs, cut-stone date stone plaque, and single-arch pedestrian bridge to north over stream is designated as a protected structure (Reg. No. 11900505).



Figure 2.6: Photo of Jacksons Bridge (Reg. No. 11900505). (Source: National Inventory of Architectural Heritage.)

The specific duality of the Canal arches was designed to incorporate a separate archway for the horses pulling the barges. No other such separate provision for horses exists along the entire course of the Canal. Rope burns scarring along the support wall of this arch reveals the function and intrinsic utility of the structure. It is a historically valuable structures, unique and significant. Detailed examination of the stonework of the bridge suggests that parts of an earlier structure are incorporated into the late eighteenth century construction.

The proposal is to remodel this historic structure by raising it and inserting precast concrete support walls and arch replacement. Widening will also be undertaken to incorporate pedestrian and cyclist access.

In totality it represents environmental degradation and historical obliteration.

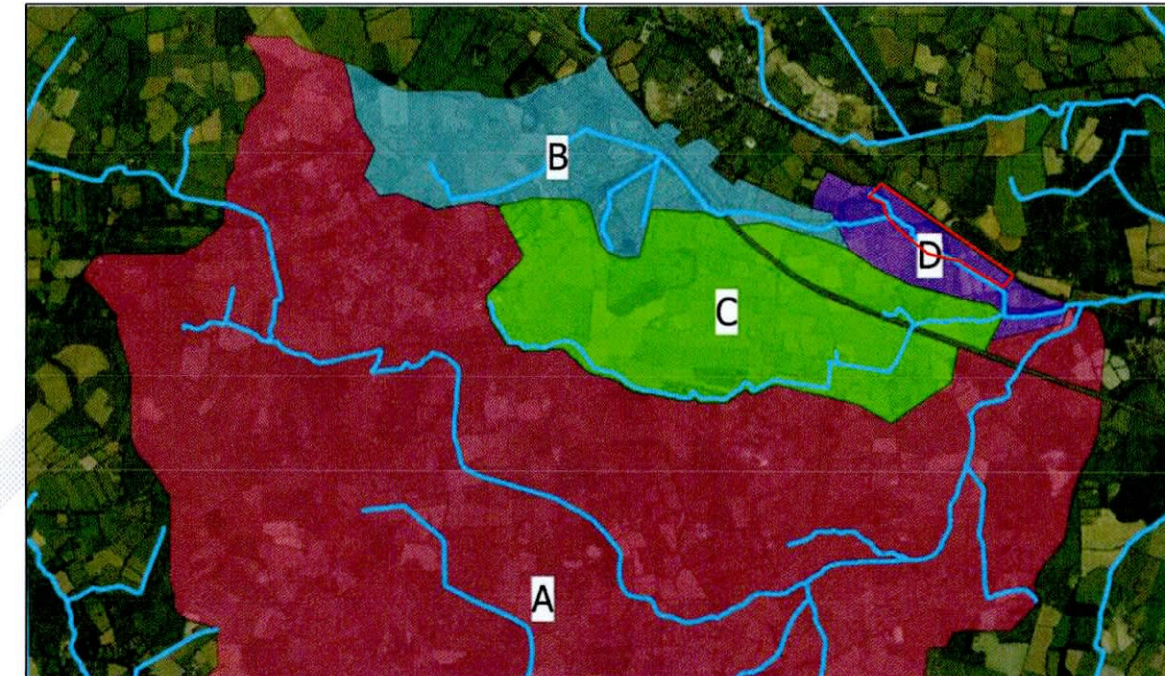


Figure 2.7: Overview of the sub-catchments for Hydrological Assessment at Depot/Jackson's Bridge. Each letter A, B, C and D refer to different Catchment Areas of the Lyreen River. (Source: DART + West SFRA Document, page 24, annotated by Tom Phillips + Associates, October 2022.)



Figure 2.8: Overview of the same lands shown in previous Figure 2.7. Note that in the satellite imagery, one can easily make out some of the lands that are seasonally covered by flood water. We have indicated these marks within the light blue line boundary. (Source: Google Maps, annotated by Tom Phillips + Associates, October 2022.)

4.4 Conclusion of Stage 2 SFRA

The available sources consulted above indicate that discreet sections of the development lands are liable to flood in extreme events. Existing available information is not sufficient to provide a quantitative appraisal of flood risk to the proposed development at these locations. As per the OPW Guidelines, a Stage 3 detailed flood risk assessment is required to be undertaken to confirm flood risk (water levels and flood extents) to the proposed development. Further assessment is required at:

- Barberstown (XG012) Level Crossing.
- Between Maynooth and Kilcock.

Extract 2.9: The Conclusion to the Stage 2 SFRA for the DART + West project found that Further Assessment would be required of the lands between Maynooth and Kilcock. (Source: DART + West SFRA, page 18.)

2.5 Unclassified Barrow - KD005-033----

The proposed Depot site sets to develop on the lands of an existing known Barrow. The Barrow is a small circular-shaped enclosure (approx. diam. 13m), visible in Figure 2.10 below. The Barrow is an artificial mound of earth or earth and stone, normally constructed to contain or conceal burials. In this case, it is not possible to identify the specific type. Barrows of this nature are associated with Bronze/Iron Age burial tradition (c. 2400 BC - AD 400).

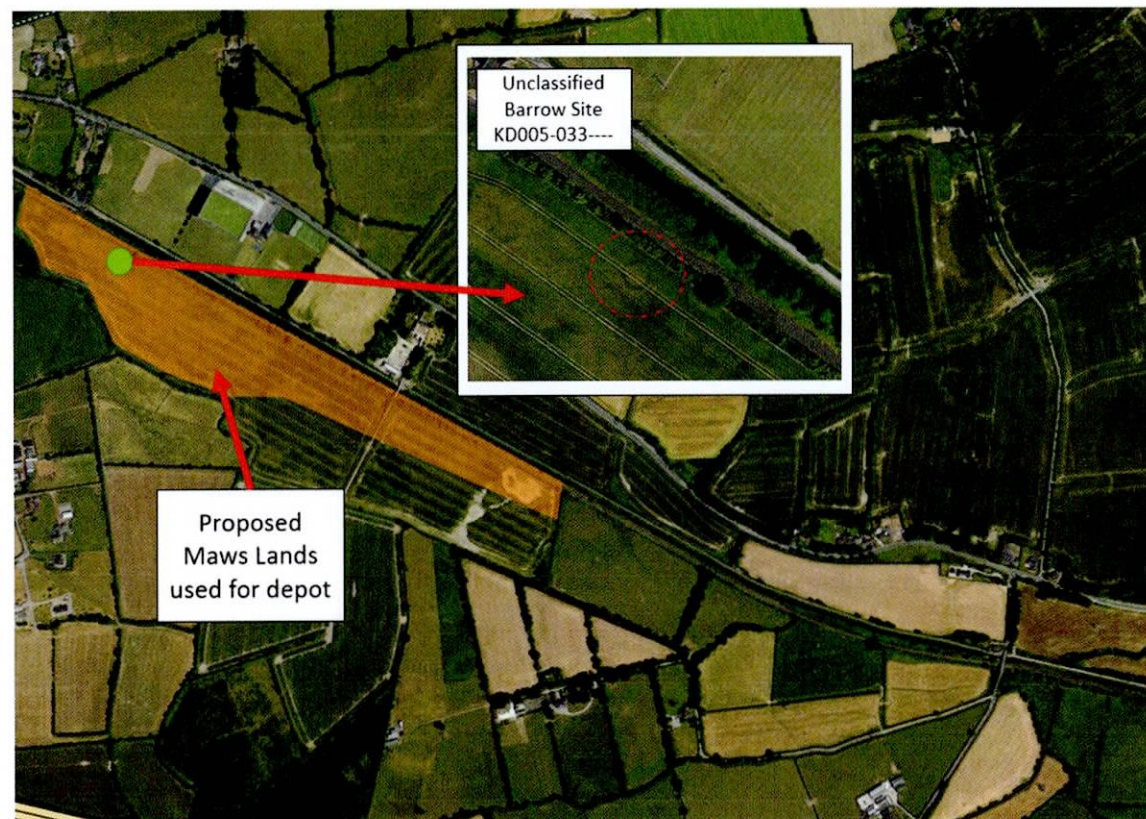


Figure 2.10: Location of Unclassified Barrow Site within Proposed Maws Depot Lands (Source: Google Maps, annotated by Tom Phillips + Associates, October 2022.)

⁶ National Inventory of Architectural Heritage (2002), Chambers Bridge, Maws Kildare

The barrow is not referenced at any point in the Railway Orders EIAR report, however, is mapped in Appendix 4 of the EIAR (Figure 2.11 below) with no further mention. This neglect and failure to mention it and the impacts of the Depot on this historical feature suggests improper analysis.

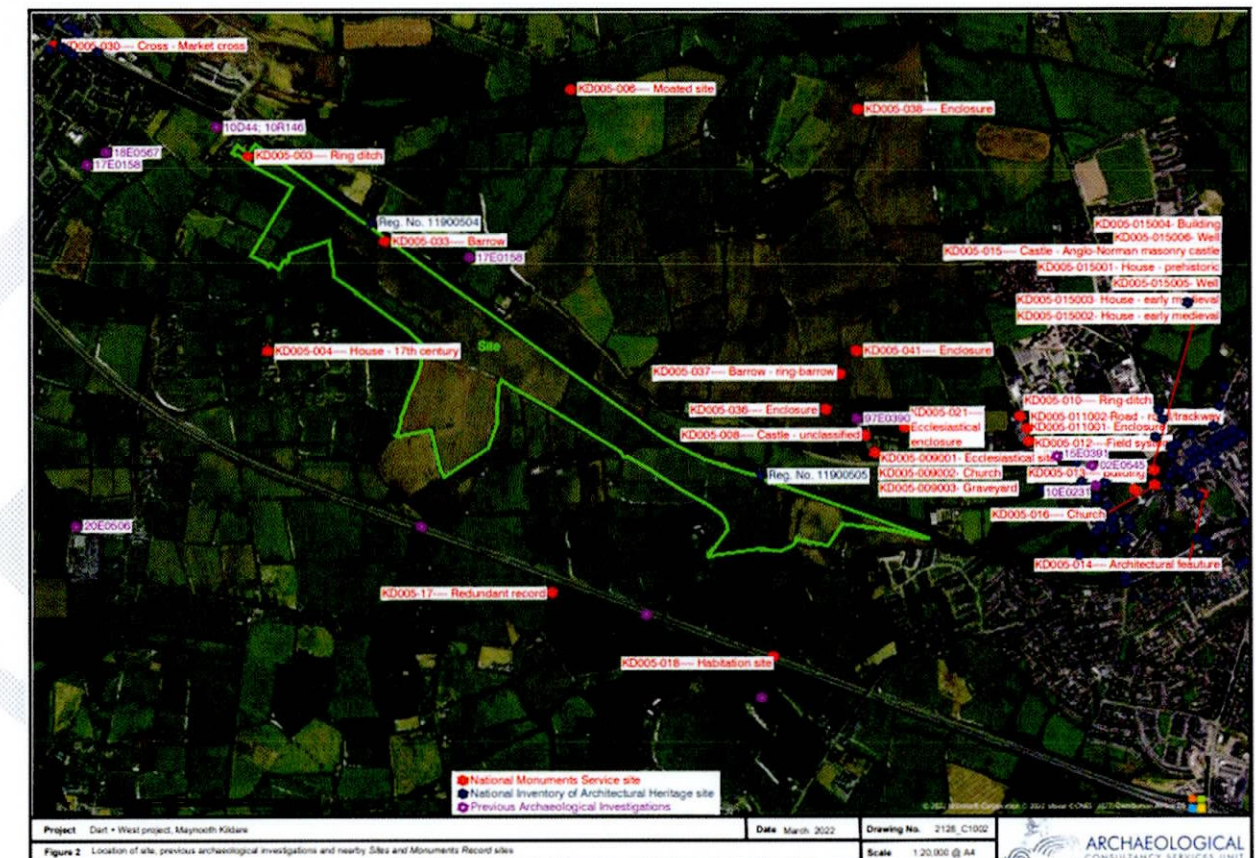


Figure 2.11: Extract from DART + West EIAR Vol 4 App A20.4 Geophysical Survey Report (Source: EIAR Vol 4 App A20.4 Geophysical Survey Report, March 2022.)

2.6 Chamber's Bridge - Reg. No. 11900504

Chamber's Bridge is another adjacent bridge to the proposed Depot site which would be impacted upon through the development of the Depot at this location and from any of the associated railway electrification infrastructure, with the character and integrity of its surroundings will be impacted upon as a result. Chambers Bridge is located further west of Bailey's Bridge and is estimated to have been constructed c.1795. Chambers Bridge is a fine rubble stone bridge that forms and imposing feature on the Royal Canal and is one of a number of bridges on the section of that Canal that passes through County Kildare – as such it is of considerable social and historic significance, representing the Canal network development in Ireland in the late eighteenth century that encouraged the commercialisation and/or industrialisation of the country⁶.



Figure 2.12: Photo of Chamber's Bridge (Reg. No. 11900504). (Source: National Inventory of Architectural Heritage.)

2.7 Royal Canal Greenbelt

The *Kildare County Development Plan, 2017-23*, recognises the importance of the linear landscapes provided by Canals and rivers in the county and notes:

"The smooth terrain, generally gentle landform and low Canal bank grassland that characterise the Canal corridors allow vistas over long distances without disruption, where the Canal flows in a straight-line direction. Consequently, development can have a disproportionate visual impact along the water corridor and it can prove difficult for the existing topography to visually absorb development".

It is the stated policy of Kildare County Council to:

"Curtail any further development along the Canal and river banks that could cumulatively affect the quality of a designated view". (p.11.)

Significantly, three scenic viewpoints are identified in the area designated for the Depot, including the view of, and from, Jackson's Bridge. Proposing to locate a 2.6 km industrial-type Depot within less than one hundred metres of the Royal Canal will interrupt, in a material way, the integrity of this linear landscape feature and is in direct contravention of the *County Development Plan*.

A development by Kildare County Council under Part 8 of the *Planning and Development Act 2000* (as amended) has been approved to provide a long-distance walking route along the Royal Canal between Maynooth and Moyvalley.

This restoration of the towpath along the Royal Canal is part also of a national policy to preserve, enhance and develop walkway and cycling amenities. It has been a success and none more so than along the Maynooth – Kilcock axis. Hundreds of pedestrians and cyclists use this greenway daily and it has emerged as an important and, indeed, vital part of community life. It is more than a mere transportation corridor. It is a greenway of high natural beauty, offering peace and tranquillity and an opportunity to appreciate the rich ecological resource of diverse local flora and fauna. This stretch of the towpath currently represents the very best in greenway amenity provision.

Dart + proposes to affect this resource and its supporting national policy with a 2.6 km stretch of machine sheds, maintenance facilities, washing facilities and office accommodation catering to 40% of the national fleet – 240 No. trains.

The siting of the a DART Depot along the Kilcock/Maynooth segment of the Royal Canal Greenway would detract from the aesthetics and function of the Greenway, in turn disrupting a significant section of the over 130km long Royal Canal Greenway.



3.0 TOWN PLANNING CONTEXT

3.1 National Level Planning Context

At the national level, there are a number of policy documents that are relevant to the subject site. Some of these are overarching and concern broad planning and development matters, while some deal with some specific aspects such as building heights or flooding.

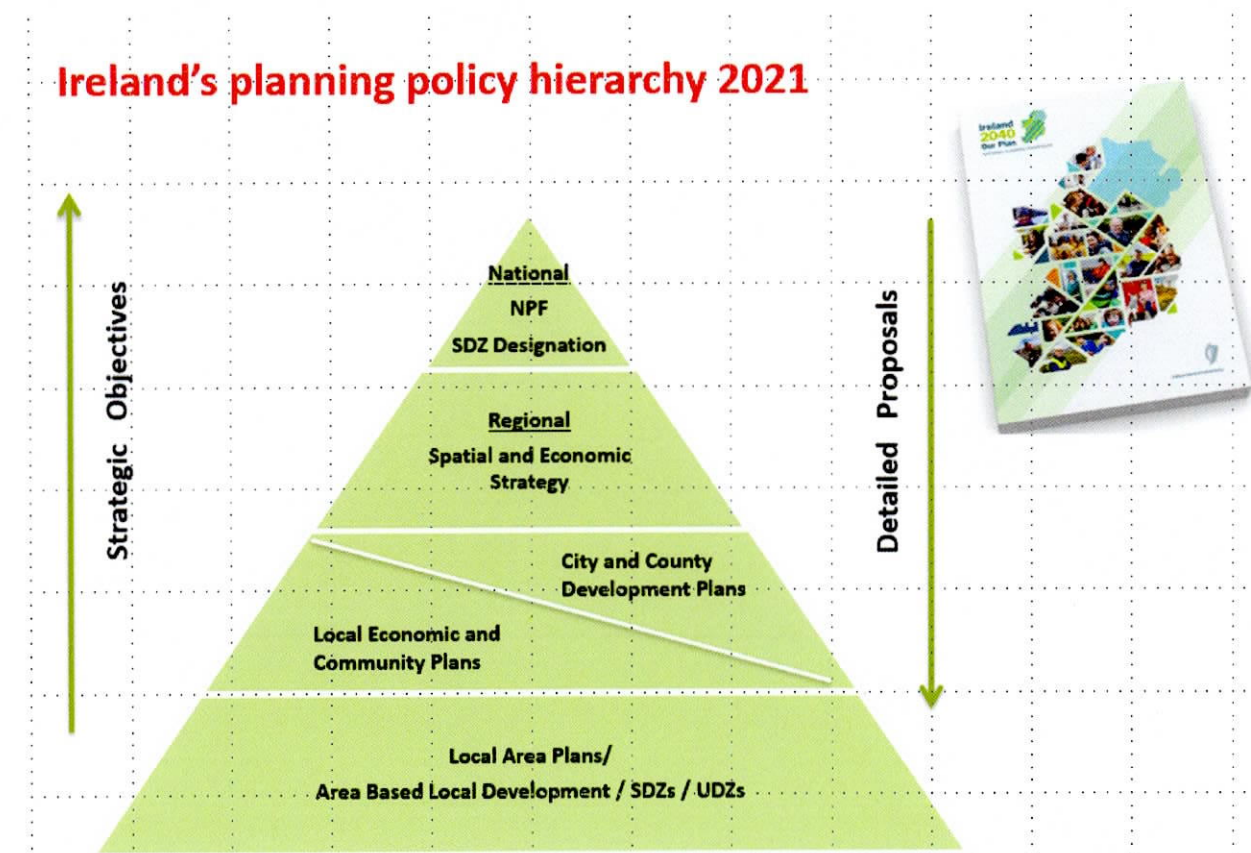
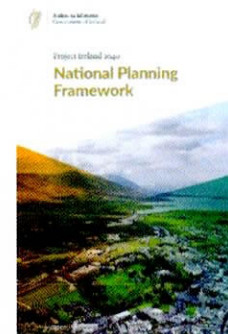


Figure 3.1: Outline of the Irish Planning Policy Hierarchy Framework. (Source: *Project Ireland 2040*, annotated by Tom Phillips + Associates.)

3.1.1 National Planning Framework 2040 (*Project Ireland 2040*)

The *National Planning Framework 2040* (NPF) is the overarching document that determines the direction of development in the Republic of Ireland up until the year 2040. The NPF accounts for projected growth of the population within the State and outlines how to develop specific spatial planning infrastructure planning, social and economic planning documents to manage this projected growth accordingly.



There are ten National Strategy Outcomes of the NPF of which in our opinion, the centrally important ones to the subject site are as follows:

1. NSO 1 -Compact Growth
2. NSO 2 -Enhanced Regional Accessibility
3. NSO 4 - Sustainable Mobility
4. NSO 8 - Transition to Low Carbon and Climate Resilient Society

Thereafter there are 75 No. National Policy Objectives (NPOs) within the NPF, some of the centrally important ones relating to the subject site are as follows:

NPO 7: Apply a tailored approach to urban development, that will be linked to the Rural and Urban Regeneration and Development Fund, with a particular focus on:-

- Dublin;
- the four Cities of Cork, Limerick, Galway and Waterford;
- Strengthening Ireland's overall urban structure, particularly in the Northern and Western and Midland Regions, to include the regional centres of Sligo and Letterkenny in the North-West, Athlone in the Midlands and cross-border networks focused on the Letterkenny-Derry North-West Gateway Initiative and Drogheda-Dundalk-Newry on the Dublin-Belfast corridor;
- Encouraging population growth in strong employment and service centres of all sizes, supported by employment growth;
- Reversing the stagnation or decline of many smaller urban centres, by identifying and establishing new roles and functions and enhancement of local infrastructure and amenities;
- Addressing the legacy of rapid unplanned growth, by facilitating amenities and services catch-up, jobs and/or improved sustainable transport links to the cities, together with a slower rate of population growth in recently expanded commuter settlements of all sizes;
- In more self-contained settlements of all sizes, supporting a continuation of balanced population and employment growth.

NPO 14: Protect and promote the sense of place and culture and the quality, character and distinctiveness of the Irish rural landscape that make Ireland's rural areas authentic and attractive as places to live, work and visit. The Action Plan for Rural Development will support this objective up to 2020; thereafter a review of the Action Plan will be undertaken to ensure continued alignment and consistency with the National Policy Objectives of this Framework.

NPO 23: Facilitate the development of the rural economy through supporting a sustainable and economically efficient agricultural and food sector, together with forestry, fishing and aquaculture, energy and extractive industries, the bio-economy and diversification into alternative on-farm and off-farm activities, while at the same time noting the importance of maintaining and protecting the natural landscape and built heritage which are vital to rural tourism.

NPO 59: Enhance the conservation status and improve the management of protected areas and protected species by:

- Implementing relevant EU Directives to protect Ireland's environment and wildlife;
- Integrating policies and objectives for the protection and restoration of biodiversity in statutory development plans;
- Developing and utilising licensing and consent systems to facilitate sustainable activities within Natura 2000 sites;
- Continued research, survey programmes and monitoring of habitats and species.

NPO 60: Conserve and enhance the rich qualities of natural and cultural heritage of Ireland in a manner appropriate to their significance.

NPO 61: Facilitate landscape protection, management and change through the preparation of a National Landscape Character Map and development of guidance on local landscape character assessments, (including historic landscape characterisation) to ensure a consistent approach to landscape character assessment, particularly across planning and administrative boundaries.

NPO 62: Identify and strengthen the value of greenbelts and green spaces at a regional and city scale, to enable enhanced connectivity to wider strategic networks, prevent coalescence of settlements and to allow for the long-term strategic expansion of urban areas.

NPO 63: Statutory arrangements between spatial and transport planning in the Greater Dublin Area will be extended to other cities.

NPO 69: Statutory arrangements between spatial and transport planning in the Greater Dublin Area will be extended to other cities.

However, we believe that the siting of the Depot at the lands West of Maynooth contravenes many of these aforementioned NPOs. In particular, the siting of the Depot at Maws Farm is incompatible with NPOs 60, 61 and 62, which are all directly contradicted by the potential construction of the Depot at this site.

3.1.2 National Development Plan 2021-2030 (Project Ireland 2040)

The revised *National Development Plan 2021-2030* (NDP) provides the national investment strategy for the NPF and these 2 No. Policy documents come together to form *Project Ireland 2040* – which aims to improve the quality of life within the Irish Republic unto the year 2040.

The NDP outlines 10 No. of National Strategic Outcomes (NSOs) from which sectoral strategies are set out to guide investment in strategic projects that will ensure the targets of *Project Ireland 2040* are reached.

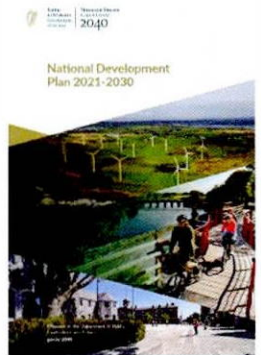
NSO 2 Enhanced Regional Accessibility seeks to enhance intra-regional accessibility by improving the public transport links between key urban centres of population and their respective regions.

NSO 4 Sustainable Mobility states that:

"Aligning strategic land use planning with transport-led development can support the delivery of large-scale housing development at key strategic locations."

NSO 8 Transition to a Climate Neutral and Resilient Society is an NSO which is central to all elements of spatial policy behind *Project Ireland 2040* and Transport is identified as 1 No. of the Strategic Investment Priorities to achieving the targets of NSO 8. With regard to public transport the NDP aims to create a:

"Comprehensive integrated public transport network for Ireland's cities connecting more people to more places."



3.2 Regional Level Planning Context

At the regional level, the proposed Depot site of Maws Farm site between Kilcock and Maynooth falls within the administrative area of the Eastern and Midland Regional Assembly.

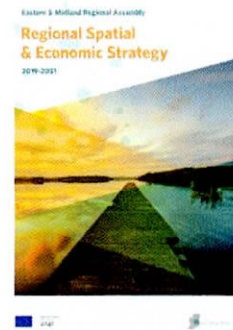
The primary policy document for planning and development at this level pertaining to the subject site is the *Regional Spatial and Economic Strategy for the Eastern and Midland Region* (RSES).

3.2.1 Regional Spatial and Economic Strategy for the Eastern and Midland Region (RSES)

The RSES primarily aims to support the delivery of the programme for change set out in the NPF and the NDP. One of the main aims of the RSES is to ensure a coherency of policy and action with regard to planning and development policy between the various city and county councils of the region.

The policies of the RSES are structured into 2 No. Categories, namely, Regional Policy Objectives (RPOs) and Metropolitan Area Strategic Plan Policy (MASP) Objectives.

We believe that in principle, the DART West initiative will enhance the growth of the region and supports many of the Regional Planning Objectives (RPOs), however we believe that by delivering the DART Depot on the proposed lands between Maynooth and Kilcock, it directly contravenes many of the proposed RPOs.



RPO 5.8: Support the promotion and development of greenway infrastructure and facilities in the Dublin metropolitan area and to support the expansion and connections between key strategic cycle routes and greenways as set out in the NTA Greater Dublin Area Cycle Network Plan.

Assuming the “Dublin metropolitan area” includes the proposed Depot site as depicted (orange) in the extract from the RSES below, it would in fact contradict RPO 5.8 which aims to enhance and support the expansion of greenway infrastructure.

The Depot would be sited along the Kilcock – Maynooth section of the Royal Canal Greenway. The Royal Canal Greenway is 130km of level towpath, where it follows the 200-year-old Canal through friendly Enfield and lively Mullingar to charming Cloondara in Longford, with cafés, picnic spots and attractions along the way. Rustic and industrial landscapes combine, with rolling fields, waterside villages, working locks and historic landmarks. The siting of the Depot on this land would seriously detract and destroy the beauty and nature of the existing greenway.

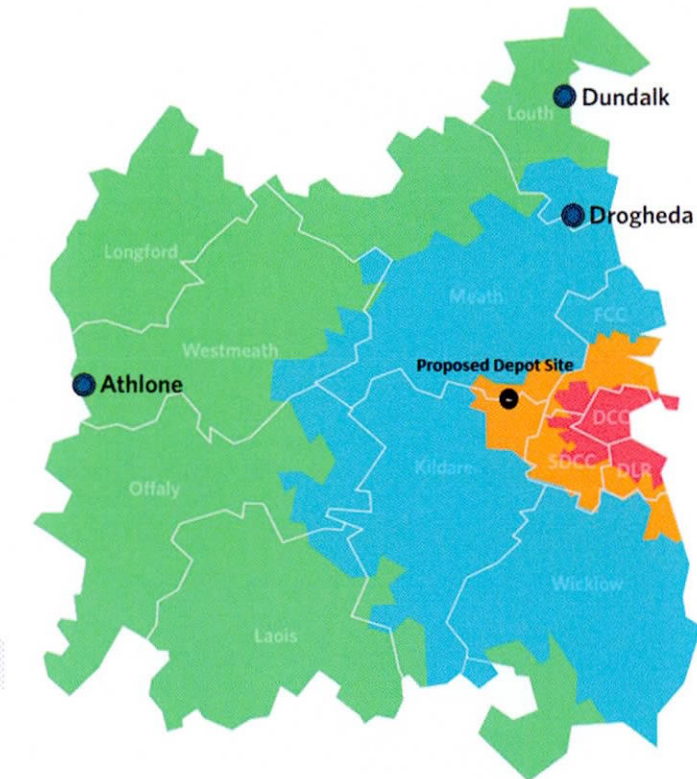


Figure 3.2: RSES EMRA area extents. (Source: RSES EMRA, 2019.)



Figure 3.3: Dublin Metropolitan Area Cycle Network (Source: NTA Cycle Network for the Greater Dublin).

RPO 7.8: Local authorities shall incorporate the objectives of the EU Environmental Noise Directive in the preparation of strategic noise maps and action plans that support proactive measures to avoid, mitigate, and minimise noise, in cases where it is likely to have harmful effects.

The proposed Depot location is currently a peaceful section of rural agricultural land located along the royal Canal greenway and Kilcock – Maynooth Greenbelt. The siting of a Depot on these lands would significantly change the dynamics and character of these lands throughout all stages of the project. During the construction phase of the Depot, a detrimental impact, resultant from use of heavy machinery for the excavation and development of the site, would be experienced.

This similar experience would be seen with light pollution and air pollution respectively, which contradict RPO 7.7 and RPO 7.9, as listed below:

RPO 7.7: To reduce harmful emissions and achieve and maintain good air quality for all urban and rural areas in the Region and to work with local authorities and the relevant agencies to support local data collection in the development of air quality monitoring and to inform a regional air quality and greenhouse gas emissions inventory

RPO 7.9: Local authorities shall consider measures to minimise the harmful effects of light pollution in the future provision of outdoor lighting, including improving their approach to street lighting and ensuring that new developments are lit appropriately and to ensure that environmentally sensitive areas are protected.

RPO 7.10: Support the implementation of the Water Framework Directive in achieving and maintaining at least good environmental status for all water bodies in the Region and to ensure alignment between the core objectives of the Water Framework Directive and other relevant Directives, River Basin Management plans and local authority land use plans.

RPO 7.11: For water bodies with 'high ecological status' objectives in the Region, local authorities shall incorporate measures for both their continued protection and to restore those water bodies that have fallen below high ecological status and areas 'At Risk' into the development of local planning policy and decision making any measures for the continued protection of areas with high ecological status in the Region and for mitigation of threats to waterbodies identified as 'At Risk' as part of a catchment based approach in consultation with the relevant agencies. This shall include recognition of the need to deliver efficient wastewater facilities with sufficient capacity and thus contribute to improved water quality in the Region.

RPO 7.16: Support the implementation of the Habitats Directives in achieving an improvement in the conservation status of protected species and habitats in the Region and to ensure alignment between the core objectives of the EU Birds and Habitats Directives and local authority development plans.

The proposed development of the Depot sets to disrupt existing waterways, contrary to RPO 7.10, 7.11 and 7.16. This would be done by virtue of proposing to reroute parts of the Gragadder stream. Furthermore, the plans stipulate the introduction of water attenuation tanks which would significantly

alter the existing water flows in the immediate environment and further downstream. This is particularly damaging and relevant due the Rye Water Valley / Carton SAC being located in the vicinity downstream which is a protected area of conservation. With regards to the petrifying springs found in the SAC, the document notes that "water flow should not be altered anthropogenically", something that the construction of the Depot proposes to do, therefore contradicting the protection of a European protected conservation area. Any change in water flows would impact upon the protected species in the downstream SAC and would be detrimental to the viability of these habitats.

RPO 8.8: The RSES supports delivery of the rail projects set out in Table 8.2, subject to the outcome of appropriate environmental assessment and the planning process.

We believe that whilst an appropriate assessment was carried out in the preparation of this Railway Order DART + programme plan, we believe that the findings of the proposed Depot development site do not reflect the true and potential environmental implications of the site. We believe that the impacts and potential of flooding at the site were under provisioned. Similarly, With the Hazelhatch West site having scored equally in the Depot site analysis, we believe that little conclusive consideration was given to the Hazelhatch location. We believe that the findings of the EIAR and Flood Risk Management reports are not reflective, and a true comprehensive finding would have shown the unsuitability of the Maws Farm Lands as a Depot location.

3.3 Local Level Planning Context

At a local level, the proposed Depot site of Maws Farm site between Kilcock and Maynooth falls within the administrative area of the Kildare County Council.

The primary policy document for planning and development at this level pertaining to the subject site is the *Kildare County Development Plan 2017-2023*.

3.3.1 Kildare County Development Plan 2017-2023

The *Kildare County Development Plan 2017-2023* provides the overarching planning framework for development in County Kildare until 2023.

The following themes relevant to the DART Depot construction are relate to themes found in the *Kildare County Development Plan 2017-2023*.



3.3.1.1 Land Use Zoning

The zoning of land in the vicinity of the proposed Depot facility is set out in the *Kilcock Local Area Plan 2015 – 2021* and the *Kildare County Development Plan 2017-2023* for lands to the west and the *Maynooth Local Area Plan 2013 – 2019* for lands to the east.

As can be seen from Figure 3.4, the lands between the Local Area Plan boundaries of Kilcock and Maynooth, into which the proposed Depot site falls, are zoned for agricultural uses, and not for any future development purposes.

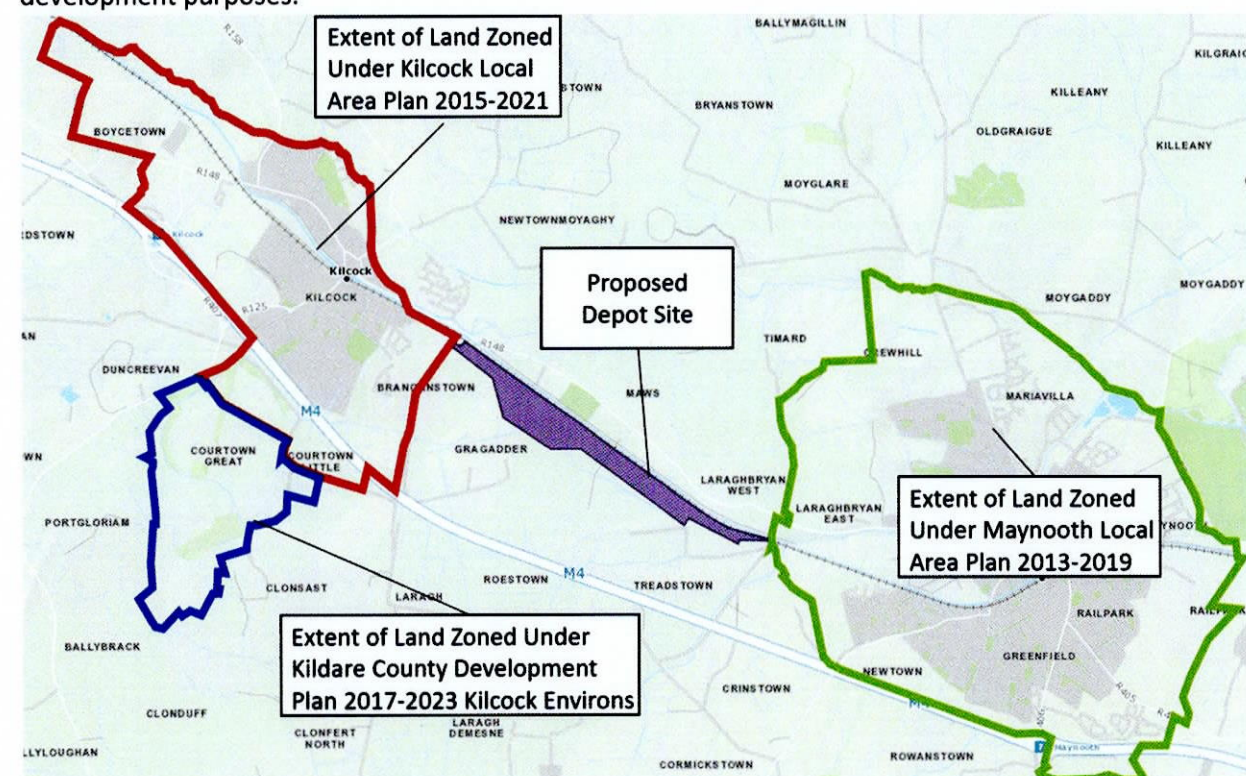


Figure 3.4: Location of proposed Depot and surrounding Local Area Plan jurisdictions. (Source: MyPlan, annotated by Tom Phillips + Associates, October 2022)

3.5.1.4 Regional Roads

Section 6.6 of the *Development Plan* outlines that Council's strategy in relation to the road and street network of County Kildare. Section 6.6.3 addresses regional roads with Regional Roads Objective (RRO) 2 identifying a number of regional roads for improvement. The R148, which runs between the Carlos Clarke Limited's landholding is one such road identified for improvement between the county boundary at Leixlip in the east to the county boundary at Cloncurry in the west via Maynooth and Kilcock.

3.5.1.2 Movement and Transport

The *County Development Plan* recognises Kildare's location on the national transport network with national transport links such as motorways and railways running through the county between Dublin and the rest of the country, and makes specific reference to railway passenger services on the Sligo, Cork/Limerick, Galway and Waterford lines and the suburban services linking Maynooth to Connolly Station.

The *Plan* states that the Council commits to supporting sustainable forms of transport such as public transport, walking and cycling.

3.5.1.3 Public Transport

Section 6.4 of the *County Development Plan* outlines the Council's policies and objectives as they relate specifically to public transport. The *Plan* notes that "levels of public transport use vary significantly across the county" and that "the use of public transport is particularly low in areas where it is difficult to reach services by foot and where services are infrequent or removed from employment areas".

4.0 OVERVIEW OF THE PROPOSED DART+ WEST PROJECT

This section of the Submission provides an overview of the overarching DART+ Programme, and details of the proposed DART+ West Project and EMU maintenance Depot at Maynooth West. The contents of this section of the Submission has been informed by a review of key documentation published by Irish Rail as part of the DART+ West public consultation process, namely:

- *Centre of Excellence DART Expansion Maintenance Depot Site Location Assessment Report* (11 July 2019)
- *DART+ Maynooth Line Depot Options Selection Report* (22 June 2020)
- *DART+ West Planning Report* (July 2022)

4.1 DART+

DART+ Programme is a transformative programme of projects that aims to modernise and improve existing rail services in the Greater Dublin Area (GDA). It will see the DART network grow from its current 50km in length to over 150km. The DART+ Programme involves development of and enhancements to the existing rail network that radiates from Dublin City Centre. This will include interventions, electrification and re-signalling across the four main routes primarily over existing alignments to extend the DART system.

The DART+ Programme's primary objective is:

"to support urban compact growth and contribute to reducing transport congestion and emissions in the Dublin region by enhancing the heavy rail network between Dublin City Centre and the areas of Drogheda, Maynooth, Dunboyne, Celbridge and Greystones. It will provide a sustainable, electrified, reliable and more frequent rail service, improving capacity along these corridors".

A schematic drawing of the current and future proposed DART network layout is presented in Figure 4.1.

As can be seen from this figure, the DART+ Programme will involve a BEMU Charging Infrastructure project as well as the introduction/ extension of DART services on the following new corridors:

DART+ West (Maynooth and M3 Parkway to the City Centre)

DART+ South West (Hazelhatch & Celbridge to the City Centre)

DART+ Coastal North (Drogheda to the City Centre)

DART+ Coastal South (Greystones to the City Centre)

In order to facilitate and support this expansion, the DART + Fleet project has been introduced to oversee and to meet the infrastructural capacity increases delivered by the DART+ Programme. In order to do so, Iarnród Éireann, supported by the National Transport Authority (NTA) and in partnership with railcar

provider Alstom, have provision to commission up to 750 electric/battery electric powered vehicles over a 10-year timescale.

The construction of the EMU maintenance Depot is proposed as part of the overarching DART+ Programme, with specific regard to the DART + Fleet initiative as the need for a Depot of the additional 750 No. carriages is needed.



Figure 4.1: Schematic drawing of the current and future proposed DART network layout. (Source: DART West Planning Report, July 2022.)

4.2 DART+ WEST

The DART+ West project seeks to increase rail capacity significantly on the Maynooth and M3 Parkway lines. This increase in capacity is planned to be achieved through the transition from diesel powered trains to electrified, high-capacity DART trains and increasing the frequency of trains from 6 to 12 trains per hour per direction. Passenger capacity will also see an increase from 5,000 (2019) to 13,200 (2025).

The project will involve the electrification of approximately 40 km of permanent way (railway line) from the Dublin City centre to west of Maynooth and to M3 Parkway Station and all associated supporting infrastructure.

The electrification of the rail line is located predominantly within the existing railway corridor within Iarnród Éireann/ Córas Iompair Éireann owned lands however some works will involve the acquisition of private lands to facilitate the project, as is the instance for the siting of the proposed Depot in Maynooth West.

As per the *DART+ West Environmental Impact Assessment Report (EIAR) Volume 1: Non-Technical Summary (2022)*, the associated proposed components include;

- Electrification and re-signalling of the Maynooth and M3 Parkway lines (approximately 40km in length).
- Capacity enhancements at Connolly Station (to include modifications to junctions and the station) to facilitate increased train and passenger numbers.
- Provision of a new Spencer Dock Station, which will better serve the north Docklands area and improve interchange with the Luas.
- Closure of level crossings and provision of replacement bridges where required.
- Construction of a new DART Depot facility west of Maynooth to facilitate the maintenance and parking (stabling) of trains.
- Interventions at existing bridges over the rail line where there are insufficient clearances for the overhead electrification equipment.
- Substations, electrical buildings and all other civil and ancillary works as necessary to accommodate the project.

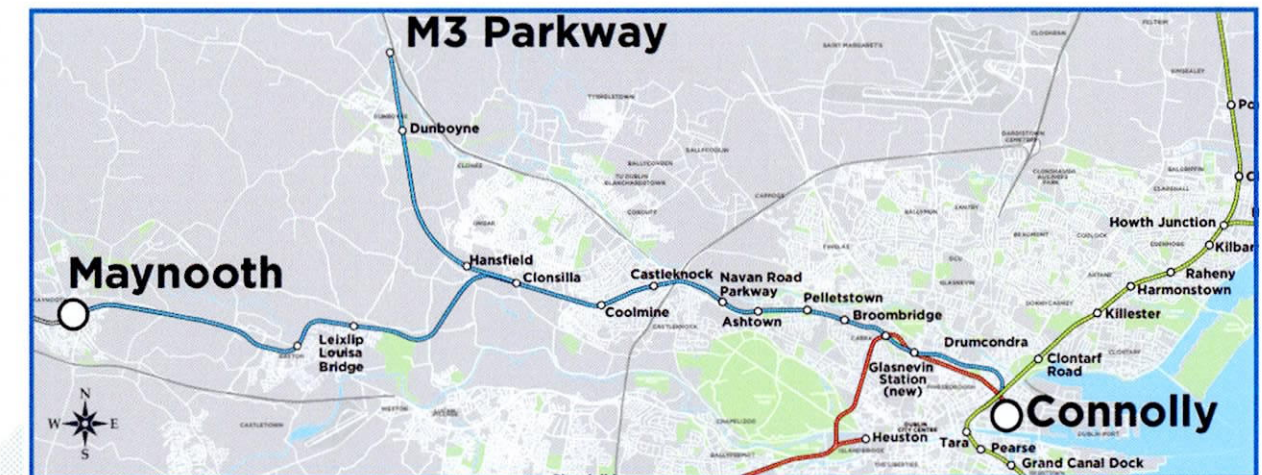


Figure 4.2: DART + West Route Layout. (Source: DART + Programme Brochure.)

4.3 DART+ West Depot Siting

The emerging preferred end-to-end option of the DART+ West Project includes the construction of a new DART EMU Depot on lands located along the Maynooth/ Sligo Line, between Maynooth and Kilcock.

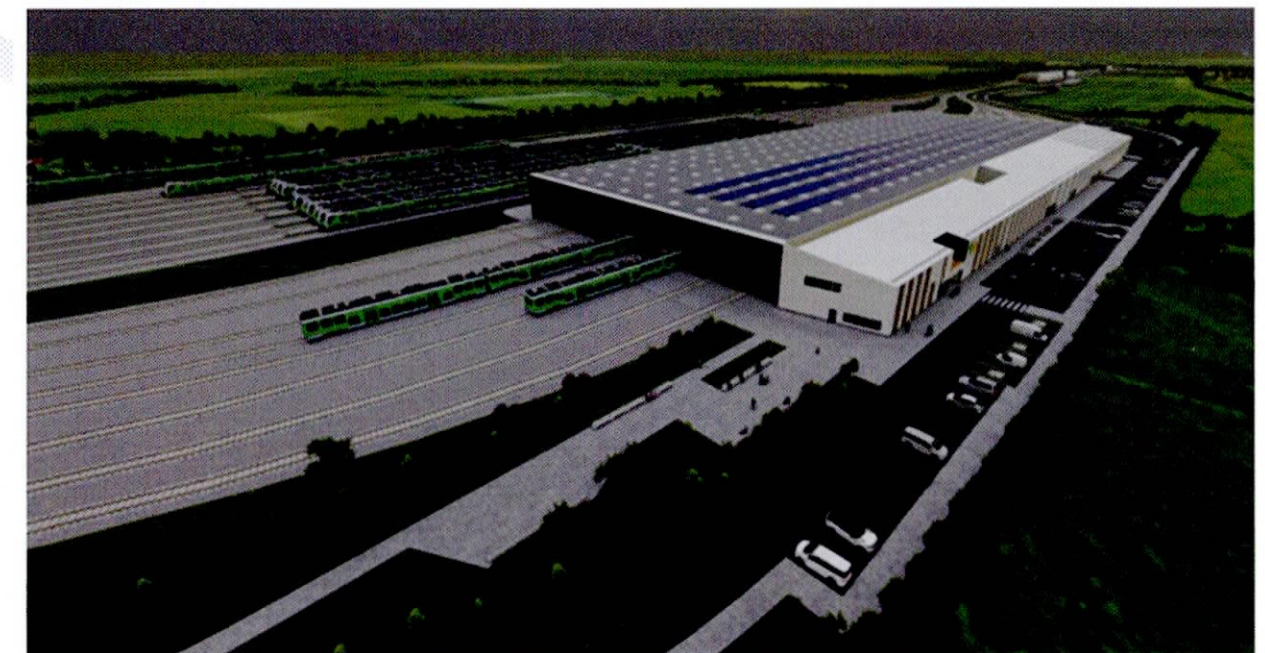


Figure 4.3: CGI of proposed Depot building and site.

The emerging preferred Depot's location is presented in Figure 4.4, and would be located ca. 3 kilometres to the west of Maynooth and c. 2.5 kilometres to the east of Kilcock, within the administrative area of Co. Kildare. The identified site is currently in agricultural use, and is bounded by the Dublin-Sligo Railway Line and the Royal Canal to the north and agricultural lands to south, east, and west.

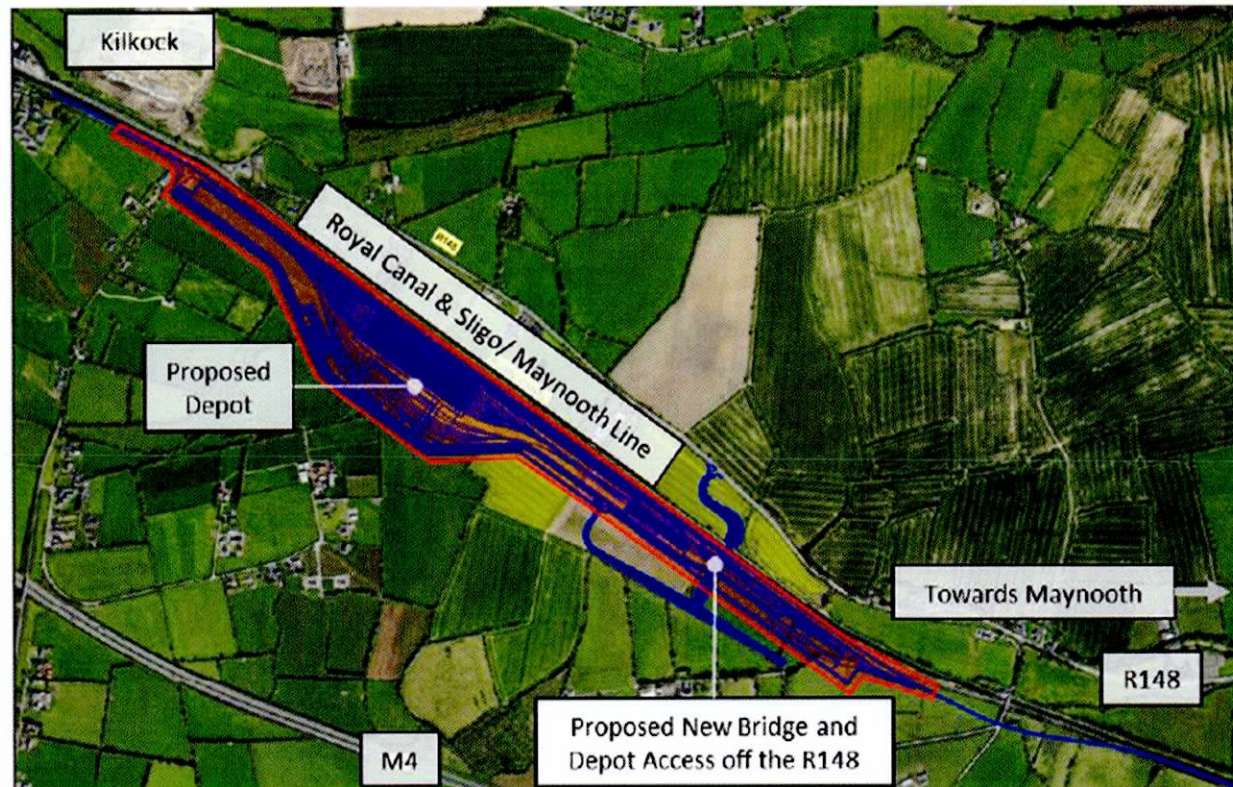


Figure 4.4: Proposed DART Depot location. (Source: Transport Insights, October 2020.)

As per the *Depot Site Location Assessment Report*, the proposed Depot will serve as a “Centre of Excellence” to “examine, maintain, and overhaul the EMU rolling stock.” The concept of a single large Depot was chosen over multiple smaller Depots on the grounds of superior economic and operational performance.

As stated in the above-mentioned Report, “multiple Depots would unnecessarily duplicate plant and equipment and management functions, dilute maintenance expertise, require higher stocking levels, and increase overall costs.”

With a single Depot to serve the entire DART network, a design requirement has been formulated to “accommodate 240 EMU DART carriages at any given time and provide all maintenance functions to maintain a fleet of up to 600 EMU DART carriages”, and the site was selected and internal layout designed to satisfy this requirement.

The proposed Depot site includes stabling with two-ended tracks and a main building adjacent in the central area resulting a length along the main line of around 2.58 km. The configuration of the Depot is a through type, with several two-ended tracks in the maintenance shed. All movements are enabled using shunting tracks when necessary. The access to the workshop and the stabling yard are direct from the main line.

However, since the stabling yard is parallel to the maintenance shed, shunting movements will be necessary between both facilities. The following facilities are located at the eastern side of the site:

- Depot Facilities
- Service Slab
- Automatic Washing Plant (AWP)
- Automatic Vehicle Inspection (AVI)
- Stabling Area
- Main Depot Building, including:
 - Maintenance shed
 - Office and Administrative Building
 - Storage
 - Deep cleaning
 - Tandem underfloor wheel lathe
 - Drivers and cleaners’ management area
- Test Track
- Access Control Building
- Electrical Substation
- Permanent way maintenance area

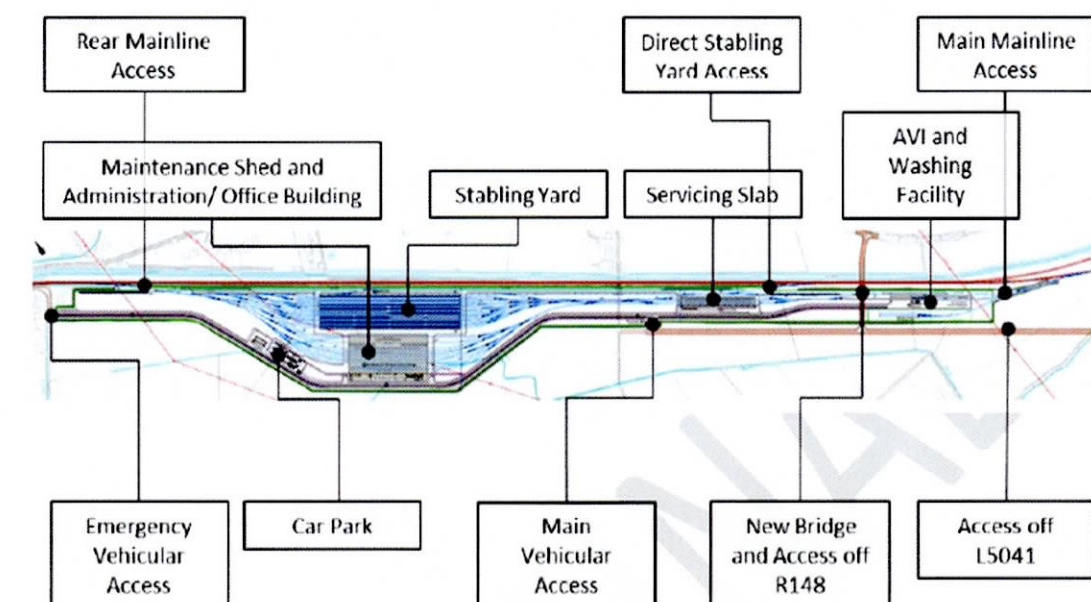


Figure 4.5: Proposed Depot orientation and layout of site. (Source: Transport Insights, October 2020.)

The siting of a Depot at the proposed location will irrevocably fracture the green belt that separates the towns of Kilcock and Maynooth and will inevitably lead to further requests for material contraventions of the County Development Plan. The functioning of the Depot will produce very significant noise, air and light pollution. Much of the activity will take place during late afternoon, evening and night hours. In addition the demands of the plant for copious and guaranteed water supply and for foul sewage disposal may well be in excess of the capacity of existing and planned sewage facilities in the district.

It is the stated policy of the *Kildare County Development Plan* to:

"Protect groundwater in the county from risk of pollution and ensure the implementation of the Kildare Groundwater Protection Scheme and such other relevant documents and legislation as may be introduced. (WS11)"

During construction of the Depot and probably throughout its operation the in situ aquifer will be damaged with ongoing implications for water supply to local agricultural enterprises and also to local households dependent upon wells for supply.

Environmental degradation on this scale is unwarranted, irrevocable and unnecessary.

4.4 Depot Siting Requirements

The *Depot Site Location Assessment Report* provides a description of analytical activities leading to the selection of the most suitable location of the proposed DART Depot. While the Report has been drafted in relation to the DART+ Programme currently being advanced, the Report notes the assessment builds upon "data collated since 2007, when consideration of a new DART Depot was first assessed".

In defining the Depot siting requirements to be applied in the location evaluation process, the Report summarises the recommendations included in the "Guidance Note for the Development and Design Considerations for Passenger Rolling Stock Depots" published by the Railway Safety and Standards Board (RSSB) in September 2018.

While the complete list of such recommendations is included within the Report, the key points relevant to this Submission are as follows:

- "The location of the Depot should consider the efficiency of the overall system to facilitate trains to be slotted into and out of the Working Timetable and to minimise "Empty Train Movements";
- "Land availability and land development policies close to the railway corridor should be considered";
- "The general environmental setting of the land outside the railway corridor should be considered, to ensure an efficient and streamlined process flow can be maintained"; and
- "The servicing of a Maintenance Depot will require additional road traffic, including access/ egress of Heavy Goods Vehicles. This availability and adequacy of the road network should be considered at an early juncture".

The "Strategic Location Nodes" to be considered in the site selection process are set out in Section 6 of the Report. In addition to "Maynooth Station & immediate environs" within which the emerging preferred Depot location is located, 12 No. other Strategic Location Nodes were also identified. An analysis of these sites will be given in Section 6.

4.5 Access to Depot

The preferred access route to the Depot is via Exit 7 from the M4 traversing via the centre of Maynooth to the R 148 from which a road and new bridge will be constructed to serve the Depot on the southern side of the existing railway tracks. HGVs and other vehicles are specifically identified as benefiting from this route.



Figure 4.6: Road Access Route to proposed Depot location (Source: Depot Options Selection Report, June 2020.)

It is questionable why a more holistic approach to planning was not adopted? It is clear that the preferred option fails to recognise that HGVs are currently banned from the town centre of Maynooth, the best example of a planned eighteenth-century town on this island and one currently defined as the only university town in the country. It is also a town identified for architectural conservation in the *County Development Plan*.

An opportunity to conserve the historical ambiance of Maynooth further and develop its function as a University Town is being ignored in favour of providing HGV access to the Depot location. Augmenting the university town status of Maynooth by identifying its neighbourhood as the preferred site for heavy

industrial usage in a Depot that will cater to 40% of the national EMU fleet requiring train ingress every ten minutes represents neither integrated regional planning nor observance of policies designed to protect a unique urban heritage.

In summary, the emerging preferred options for the Dart+ Maynooth Line Depot represent encased linear analysis, much of it qualitative, that ignores the impact of the wider environment, and which is in contravention of both the spirit and content of the *Kildare County Development Plan*. Its impact in general will be negative and, in particular instances it will be wholly destructive. Its logical underpinning is scarce and poorly supported. It is devoid of merit and unjustifiable.

The following figure shows the proposed changes of the existing road network to facilitate entry and access to the Depot.

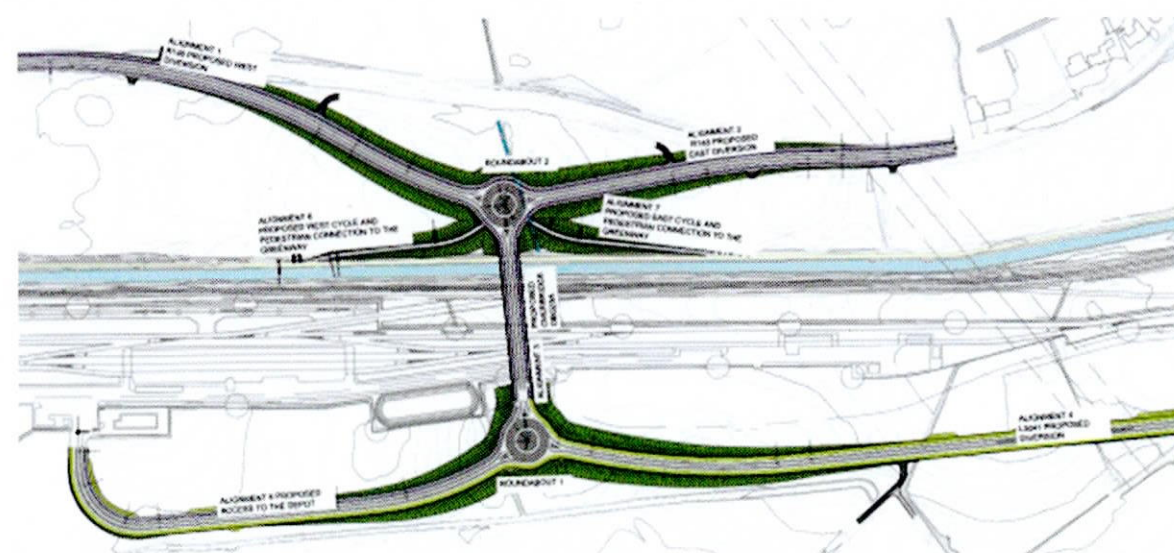


Figure 4.7: Road Alignment sections for the OBG23A road network (Source: Depot Options Selection Report, June 2020.)

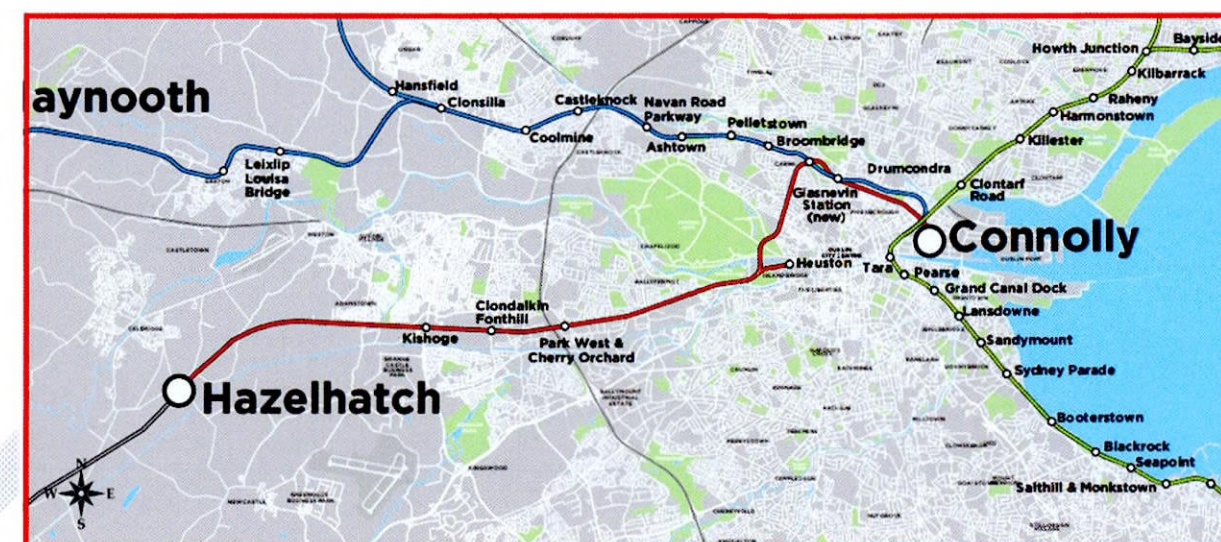


Figure 4.8: DART + South West Route Layout. (Source: DART + Programme Brochure)

4.6 DART + South West

The DART South West line will see a similar transformative process as the DART West scheme, seeing the electrification of the Kildare Line from Dublin Heuston to Hazelhatch-Celbridge. Consideration for an alternative siting of the Depot at Hazelhatch on the Dart + South West line was undertaken, a location in which we believe and refer to as a preferred siting location for the development of a new Depot, which will be further discussed in Section 6.

5.0 FLOOD RISK AT THE DEPOT SITE AND PREMATURE DEVELOPMENT

5.1 Hydrological Implications of Depot Siting

The Lyreen River and its tributaries flood between Maynooth and Kilcock directly south of the rail line. The indicative fluvial flood maps were finalised in December 2020. The mapping presents flood extents for river reaches that were not previously modelled as part of the CFRAMS and have catchments larger than 5 sq km.

As per the OPW the use of these maps is to “provide an indication of areas that may be prone to flooding. They are not necessarily locally accurate and should not be used as the sole basis for defining the Flood Zones nor for making decisions on planning applications.” The mapping indicates flooding in the vicinity of Maynooth and Kilcock, the proposed site of the Depot.

The proposed Depot site is located in an area of moderate aquifer vulnerability, with an area of high, extreme, and rock at or near surface or karst in close proximity to the site.

The proposed site is on a regionally important aquifer and is on average 1.5 m below the railway line so it will require 390 thousand cubic metres of fill. The land is liable to flooding and at present drains through culverts under the railway line into the Canal. Any extensive earth works on this site is liable to discharge silt to the Canal and cause severe damage and impose negatively upon fluvial species causing potential death of species. There are already problems caused by development in Kilcock on this flood plain, which have caused severe flooding.

The site is situated on a regionally important limestone aquifer, which at one time supplied Kilcock. A section of the land, running for over 1 km along the railway line, drains into the Royal Canal through 3 No. culverts running under the Railway tracks. These may date from the 1840s when the railway was constructed. There is a good steady dry weather flow through these culverts indicating a possible groundwater flow.

The remaining lands to the south drain through the Gragadder. There is an unnamed stream running from the east initially along the boundary of the property and then parallel to the railway line flowing on into the Gragadder, a tributary of the Lyreen.

The Gragadder enters the property through a culvert under the M4.

The Gragadder has a good dry weather flow also. Crossing under L504I it flows into the Lyreen just upstream of an inverted siphon or aqueduct which carries the water under both the railway and the Royal Canal. The Lyreen is a tributary of the Rye.

The proposed Depot will have at least 40,000 sq m of impervious surface area. Because there is a risk that the Canal and other receiving waters will be polluted due to oil, wash water, and spills from the Depot, the existing discharge to the Canal may have to be diverted to the Gragadder-Lyreen through oil interceptors and some form of treatment. The impervious area and the possible diversion of the flow from the Canal will increase the peak flow considerably. A large attenuation pond or treatment wetland, for

which no provision is made, and for which the proposed site is too small, would be required to reduce the risk of pollution and further widespread flooding. At present no such interceptor drain, treatment or attenuation are proposed.



Figure 5.1: Flooding Locations on Maws Farm Lands and points of interest. (Source: Google Maps, annotated by Tom Phillips + Associates, October 2022.)



Figure 5.2: Location 1: Flooding looking West from Maws Farm access ramp (Proposed Depot Location). (Source Carlos Clarke Limited.)



Figure 5.3: Location 1: Flooding looking West from Maws Farm access ramp (Proposed Depot Location). (Source Carlos Clarke Limited.)



Figure 5.4: Location 2: Flooding along Railway looking West towards Kilcock. (Source Carlos Clarke Limited.)

3



Figure 5.5: Location 3: Bridge over unnamed stream looking East. (Source Carlos Clarke Limited.)

4



Figure 5.6: Location 4: Unnamed stream looking West. (Source Carlos Clarke Limited.)

5.2 Flooding of the Depot Site

CIE in their Depot Site Appraisal state that:

"The potential site west of Maynooth is set to agricultural use. There are no significant watercourses crossing the potential sites. There are pockets of 100 year pluvial flood zones adjacent to the railway corridor on the sites adjacent to the railway."

This statement is incomplete as the flooding is extensive, frequent and prolonged. Furthermore, there are problems with previous catchment area flood management studies on which this judgment may have been based.

The issues of concern are:

1. In storm conditions the proposed site has been flooded to the level of the proposed top of rail +63.50 O. D. several times in the last 25 years. Some, but not all, of these floods were noted, June 1993, November 2000, Dec 2015, November 2017.
2. An initial flood risk assessment to confirm the sources of flooding that may affect the proposed development site was not carried out. This study should have appraised the adequacy of existing information and to determine what surveys and modelling approach was appropriate to match the spatial resolution required and complexity of the flood risk issues. The site is on the flood plain of the Lyreen and its tributary the Gragaddar⁷.
3. There were three previous Catchment Flood Risk Assessments carried out which focused on the flooding in Maynooth and on the M4 and other roads in the catchment area. The most recent of which is OPW CFRAM IBE0600Rp0027_HA09 Hydraulics Report. The flooding of farmland was mentioned in the report but not mapped. The catchment boundary, in the vicinity of Kilcock, used in these studies needs to be revaluated as the catchment maps used for the Lyreen Catchment area are incorrect.³ The catchment area maps show lands which drain to the Gragaddar as being in the Rye catchment and not the Lyreen catchment as should be the case. The fact that the aerial photographs in HA-09 show the flooding and mentions the striking difference between the simulated values derived from the and those derived from the catchment descriptor-based FSU approach should have alerted them to an issue.

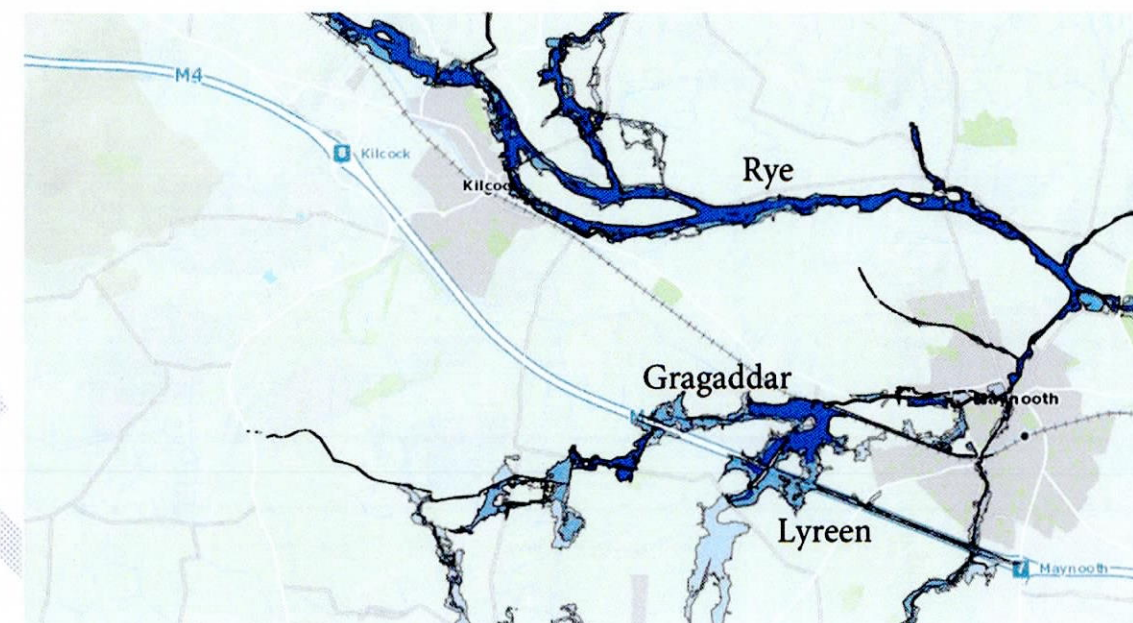


Figure 5.7: Catchment Flood Risk Area Predicted Flooding

4. The site is level and with an underlying karst limestone aquifer and the contribution of the groundwater flow, to the surface water streams, has not been taken into account in any of the various catchment models and flood calculations.
5. The Gragaddar enters the Maws farm through a culvert under the motorway and flows North-East and under Jackson's Bridge (L5041) south of the railway before joining the Lyreen. There is an unnamed tributary of the Gragaddar flowing through the Maws farm from Kilcock direction and joining the Gragaddar before its junction with the Lyreen. This stream was not gauged and was not taken into account in the various catchment models or the flood level calculations.
6. There is a drain flowing east from Kilcock along the railway embankment which discharges through a culvert into the Royal Canal, which has also not been taken into account in the various catchment models and flood calculations.
7. In storm conditions the flow of both the Lyreen and the Gragaddar are restricted by the culverts under the M4. In conjunction with the flow restriction of the inverted siphon, which limits the peak flow to the downstream section of the Lyreen, which would in turn act as flood barrier for Maynooth this would cause flooding of the M4 and of the land on both sides of the motorway. Any increase in the peak flow resulting from the proposed development will increase the flooding risk of the M4.

⁷ Referred to as Ballybrack/ Roestown in OPW CFRAM IBE0600Rp0027_HA09 Hydraulics Report.

5.2 Rye Water Valley/Carton Special Area of Conservation

The Rye Water Valley/Carton Special Area of Conservation (SAC) is located approximately 3.8 kilometres east of the Maws Farm lands, with the Gragadder stream and traversing the proposed Depot site, before joining the Royal Canal shortly after.

The Rye Water Valley/Carton SAC is located between Leixlip and Maynooth, in Counties Meath and Kildare, and extends along the Rye Water, a tributary of the River Liffey. The site is a Special Area of Conservation selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive:

[7220⁸] Petrifying Springs^{*9}

[1014] Narrow-mouthed Whorl Snail (*Vertigo angustior*)

[1016] Desmoulin's Whorl Snail (*Vertigo moulinsiana*)

The Rye Water Valley/Carton SAC is a dynamic habitat and is noted to be a site which is likely to be significantly impacted by any reduction in water supply. Due to the close proximity of the proposed Depot site directly upstream from this SAC, coupled with the proposed waterway redirection of streams on site and the overall changing of the natural watercourse dynamics for the construction, we believe that proposed works upstream will have a direct effect on this SAC.

Furthermore, the National Parks and Wildlife Service (NPWS) Department of Housing, Local Government and Heritage in 2021 published a document titled "*Conservation Objectives: Rye Water Valley/Carton SAC 001398*", which sets out site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at the Rye Water Valley/Carton SAC.

With regards to the petrifying springs found in the SAC, the document notes that "*water flow should not be altered anthropogenically*", something that the construction of the Depot proposes to do, therefore contradicting the protection of a European protected conservation area.

Two species of *Vertigo* snail listed on Annex II of the Habitats Directive (*Vertigo angustior* and *Vertigo moulinsiana*) have been reported in the SAC, each with different habitat requirements. It is believed that any changes in the watercourse flow or impacts upstream may be detrimental to their habitat.

We believe that the development of a Depot at this location would not only impact on the flow rate of the streams and in turn Rye Water Valley/ Carton SAC, however particularly during the construction phase of the Depot, additional soil may find its way into the waterways, effecting the composition of the water. Furthermore, due to the increased intensification of heavy machinery at the construction phase, there is a risk of contamination from the machineries oil or petrol which would never usually be a risk at that location. The Depot also proposes the development of an automatic train washer which we again believe may potentially be a risk of pollution and contamination from the soapy water and runoff.

⁸ Numbers in brackets relate to Natura 2000 codes.

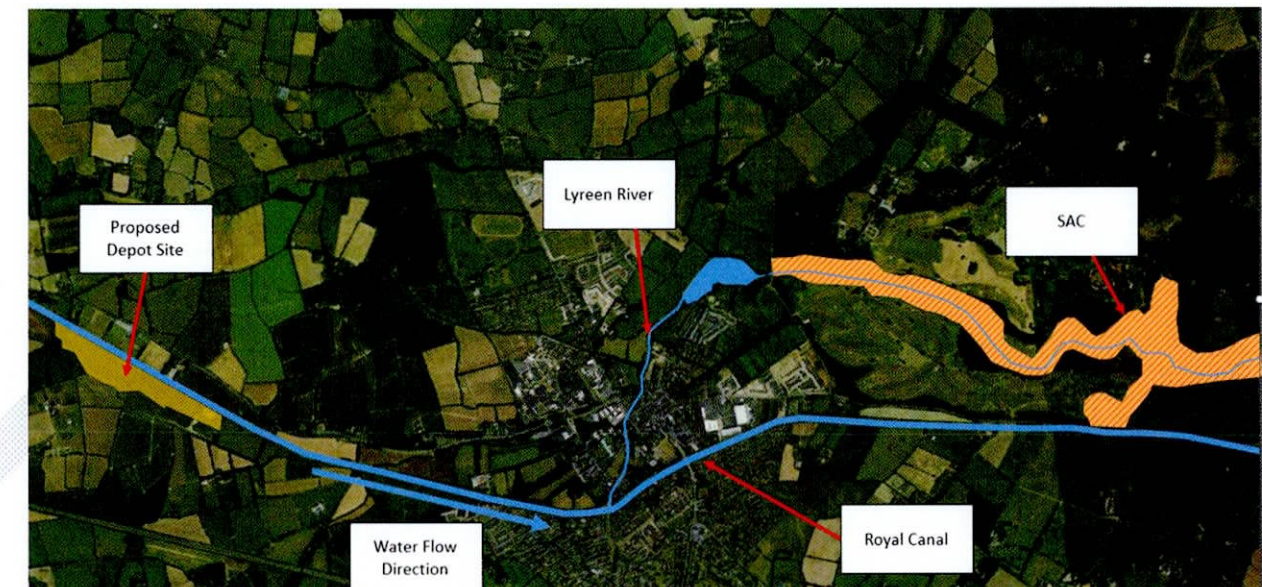


Figure 5.8: Location of proposed Depot relative to Rye Water Valley/Carton SAC. (Source: Google Maps, annotated by Tom Phillips + Associates, October 2022.)

5.3 Brief Overview of DART + West Railway Order SFRA Report

The *Site Specific Flood Risk Assessment* (SFRA) dated July 2022 that accompanies the *DART + West Railway Order* details the findings, assessment and consequential proposals arising from the detailed flood risk assessment of the lands proposed for the development of DART + West.

The Report follows the staged approach as set out in the *Guidelines*.

The 3 Stage approach is defined below:

1. **Stage 1- Flood Risk Identification:** to identify whether there may be any flooding or surface water management issues.
2. **Stage 2 – Flood Risk Assessment:** to confirm sources of flooding that may affect an area or proposed development, to appraise the adequacy of existing information and to scope the extent of the risk of flooding which may involve preparing indicative flood zone maps.
3. **Stage 3 – Detailed Flood Risk Assessment:** to assess flood risk issues in sufficient detail and to provide a quantitative appraisal of potential flood risk to proposed or existing development or land to be zoned, of its potential impact on flood risk elsewhere and of the effectiveness of any proposed mitigation measures.

The Report discusses the area of land to be developed for the DART + West Depot in some detail throughout the Report.

⁹ * = priority

The Report states that the proposed DART + West Depot is to be developed on lands considered to be Flood Zone A.

This is deeply problematic from the outset as the OPW Guidelines state that the development such as the proposed DART + West are classified as “*highly vulnerable*” development as it comprises of essential transport infrastructure.

The Guidelines stipulate that typically highly vulnerable developments are only appropriate in Flood Zone C.

SFRA Stage 1 – Flood Risk Identification

The SFRA Stage 1 – Flood Risk Identification – identified several locations of flood risk on lands proposed for the development of DART + West. “*Between Maynooth and Kilcock*” is one of the identified areas of flood risk.

Lands between Maynooth and Kilcock are listed in the DART + West SFRA as being at risk of Fluvial Flooding. However, the lands between Maynooth and Kilcock are not referred to as being at risk of flooding from other types of flooding such as coastal, fluvial, surface water flooding, and/or groundwater flooding.

The photographic evidence of historic flooding and the presence of an Aquifer close to the surface in immediate proximity to the proposed site of the DART + West Depot may be a concern, while the SFRA states:

“No indication of historic or predicted groundwater flooding was identified within the study area. Therefore, the risk of groundwater flooding is classified as low and no further assessment is required.”¹⁰

SFRA Stage 2 – Flood Risk Assessment

The SFRA details the Stage 2 analysis of the lands identified as being at risk from fluvial flooding. Section 4.2.4 *Between Maynooth and Kilcock* in the SFRA Report details 3 No. distinct locations of fluvial flooding risk along the approx. 5 km between the 2 No. towns.

The 3 No. identified sites of fluvial flood risk are:

- Maynooth Trains Station
- Jackson’s Bridge – Rail Track

- Bailey’s Bridge – Proposed Depot Site

Regarding the Bailey’s Bridge – Proposed Depot Site, the SFRA states:

“Further north-west of Jackson’s bridge at Bailey’s Bridge the location of the proposed Depot) OPW flood records (in the form of post flood aerial photography) indicate that this area is also liable to flood from a minor watercourse (Ballycaghan stream) that was not modelled as part of the CFRAMS”.

The SFRA contends that the “*lack of information*” on flooding that is available for the area – requires a Stage 3 Detailed Flood Risk Assessment – “*with respect to fluvial flooding.*”

SFRA Stage 3 – Detailed Flood Risk Assessment

As part of the Stage 3 Detailed Flood Risk Assessment, ROD/IDOM conducted a site visit, during which it is stated that they found there to be “*significant features within the channels and in the floodplains.*”

The Report identifies the inverted syphon masonry arch culvert under the Canal (UBG22) to be a significant restriction to flow even during minor flood events.

The masonry arch (UBG22) is a historic element of the infrastructure of the Royal Canal and should be recognised as a piece of engineering and cultural heritage.

ROD/IDOM have constructed hydraulic modelling scenarios of the area for the proposed Depot which include an ‘Existing Environment’ and ‘Post Development’ models for OGB23 Jackson’s Bridge and the Depot.

The analysis of the OGB23 Jackson’s Bridge states:

“In the current climate scenario, the lands directly upstream of UDG22 flood first with flood waters spreading upstream. The culvert under the M4 also exhibits out of bank flooding that builds up south of the M4 before overtopping the road and flowing both north towards the railway and east along the motorway.”

Crucially, the SFRA Report states:

*“The model indicates that large portion of the subject area including **lands within the footprint of the proposed road and rail embankments are within Flood Zone A.**”¹¹*

[Our emphasis.]

The section in the SFRA Report titled: “*Scenario 1 – OBG23 Model – Post Development*” states:

¹⁰ See page 11 of the DART + West SFRA Report.

¹¹ See Section 5.5.2 on page 28 of the SFRA Report.

"The development results in a minor increase in flood levels south of the proposed embankments."

The "Scenario 2 – Depot Model – Post Development" describes the construction of a 'bund' along the eastern and southern boundary of the proposed "compensatory storage area."

The Compensatory Storage Areas will act as water attenuation features to relieve the effects of flooding.

The placement of these Compensatory Storage Areas is n effect at either end of the proposed Depot.

The placement of a Compensatory Storage Area at the eastern part of the Depot will result in the construction of a water attenuation feature directly above an aquifer which the Geological Survey of Ireland has defined as being "rock at or near the surface or karst".

Furthermore, the Geological Survey of Ireland states that parts of the aquifer beneath the proposed Compensatory Storage Areas has a vulnerability rating of: "High" and "Extreme".

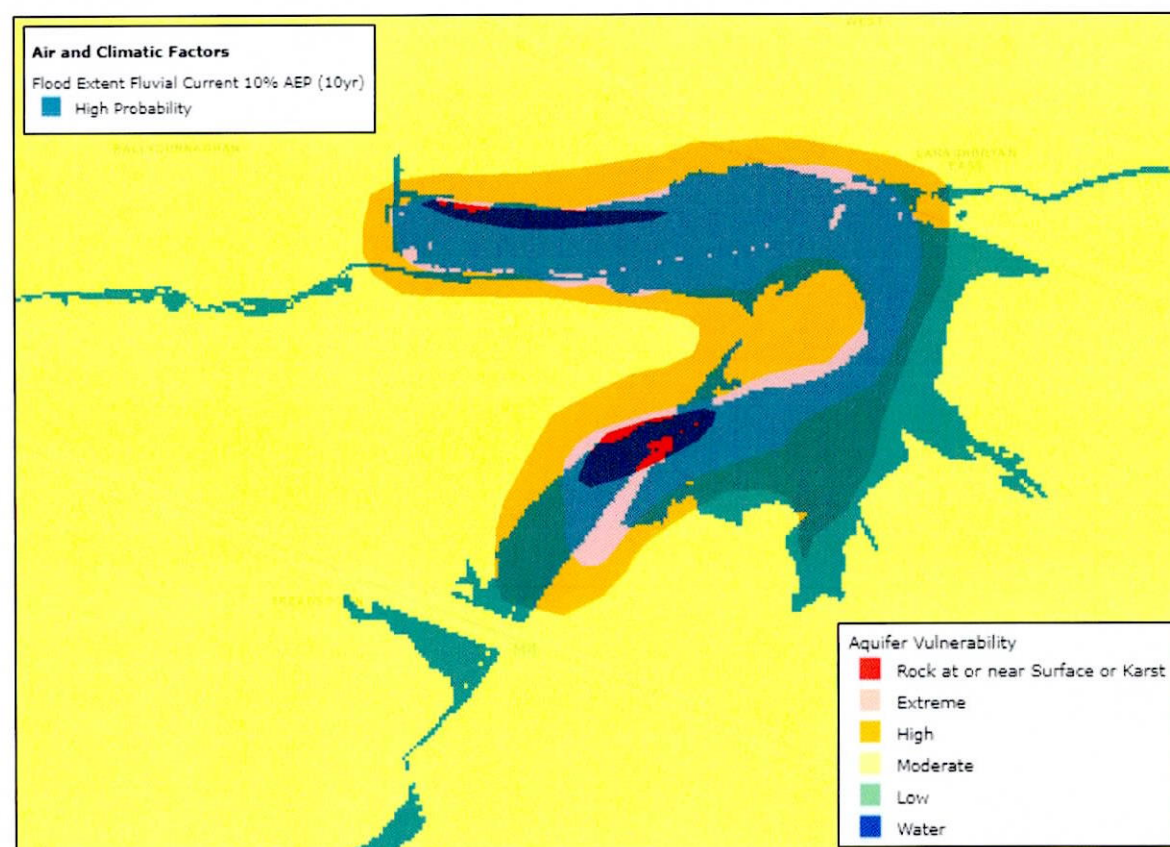


Figure: 5.9: Overview of the aquifer and Flood extent fluvial current 10% AEP (or 10-year flood events). Note that the streams represented by this fluvial flooding are identified as being "At Risk" according to the European Level Law by the Water Framework Directive. (Source: ESM Webtool, Geological Survey of Ireland, annotated by Tom Phillips + Associates, October 2022.)

Yet, we note that the word aquifer appears 1 No. time(s) in the DART + West SFRA. This is during a description of groundwater flooding – which continues to states: "no indication of historic or predicted groundwater flooding was identified within the study area."

The Stage 3 Detailed Flood Risk Assessment of the lands for the proposed Depot concludes with a summary of the hydraulic modelling, it states:

"Extreme fluvial events result in considerable flooding in lands south of the Canal and subsequent inundation of the rail line. The model indicates that a large portion of the subject area including lands within the footprint of the proposed rail embankments and access road are within Flood Zone A."

It continues:

*"Although great care and modern widely-accepted methods have been used in the preparation and interpretation of the hydraulic model, **there is inevitably a range of inherent uncertainties and assumptions made during the estimation of design flows and the construction of flood models.** The inherent uncertainty necessitates a precautionary approach when interpreting the flood extent and flood depth mapping."*

[Our emphasis.]

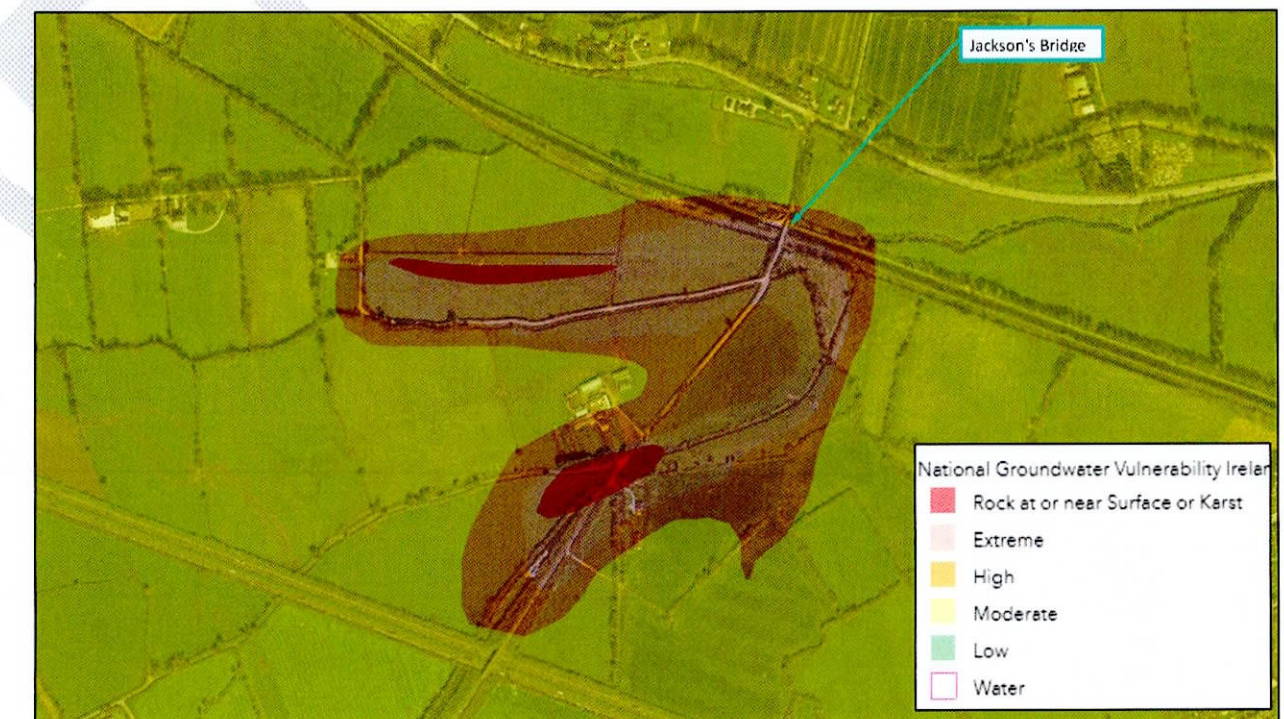


Figure 5.10: Overview of OGB23 Jackson's Bridge and the proximity of the bridge to the elements of the local aquifer which are close to the surface and considered to be classified as vulnerability: high and vulnerability: extreme. (Source: Geohive, Geological Survey of Ireland, annotated by Tom Phillips + Associates, October 2022.)

Furthermore, the SFRA continues to downplay the role of groundwater flooding of the area:

3.7.5 Groundwater Flooding

Ground water flooding is a result of upwelling in occurrences where the water table or confined **aquifer**s rises above the ground surface. This tends to occur after long periods of sustained rainfall and/or very high tides. High volumes of rainfall and subsequent infiltration to ground will result in a rising of the water table. Groundwater flooding tends to occur in low-lying areas, where with additional groundwater flowing towards these areas, the water table can rise to the surface causing groundwater flooding. No indication of historic or predicted groundwater flooding was identified within the study area. Therefore, the risk of groundwater flooding is classified as low and no further assessment is required.

Figure 5.11: Extract from DART West SFRA section 3.7.5 discussing Groundwater Flooding of the proposed Depot site. (Source: DART + West SFRA Document.)



Figure 5.12: Map taken from DART + West SFRA Document showing the proposed *Compensatory Storage Areas* located south of Jackson's Bridge and directly above a vulnerable aquifer. (Source: DART + West SFRA Document, page 33, annotated by Tom Phillips + Associates, October 2022.)

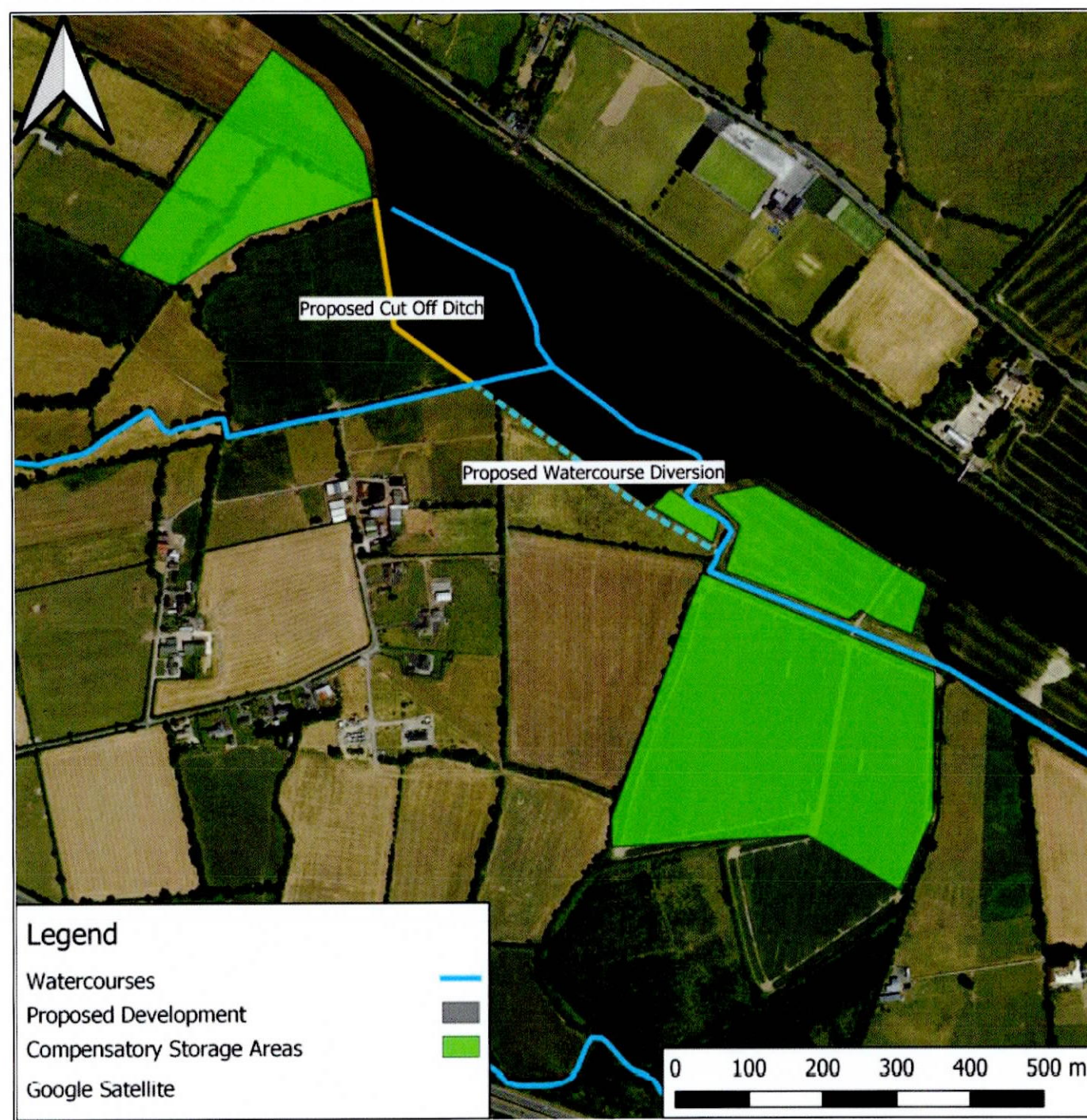
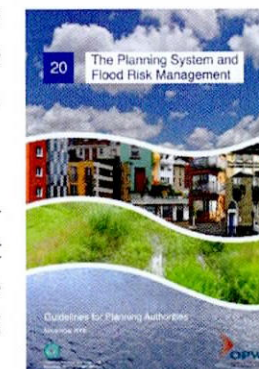


Figure 5.13: Overview of the proposed water attenuation storage areas located at the north-western portion of the Depot site. (Source: SART + West SFRA Document, page 34.)

5.4 The Planning System and Flood Risk Management – Guidelines for Planning Authorities (2009)

These *Guidelines* are set out to direct planning authorities on comprehensive mechanisms for flood risk identification, assessment and management within the Irish planning system. They aim to coordinate action across national, regional, local and site-specific levels.

At the national level, the Office of Public Works (OPW) is the lead agency for flood-risk management. At the regional level, in the case of the subject site, the relevant authority is the Eastern and Midlands Region who must take into account these *Guidelines* and also, the OPW must coordinate with the *EU Water Directive* and the *EU Floods Directive*.



There are 3 No. Flood Zones defined for the purpose of these *Guidelines*, they are defined in Table 5.14 below.

Flood Zone Category	Definition
Flood Zone A	The probability of flooding from rivers and the sea is highest (greater than 1% or 1 in 100 for river flooding or 0.5% or 1 in 200 for coastal flooding)
Flood Zone B	the probability of flooding from rivers and the sea is moderate (between 0.1% or 1 in 1000 and 1% or 1 in 100 for river flooding and between 0.1% or 1 in 1000 year and 0.5% or 1 in 200 for coastal flooding)
Flood Zone C	the probability of flooding from rivers and the sea is low (less than 0.1% or 1 in 1000 for both river and coastal flooding). Flood Zone C covers all areas of the plan which are not in zones A or B

Table 5.14: Definitions of Flood Zones by *The Planning System and Flood Risk Management – Guidelines for Planning Authorities* (2009). (Source: OPW.)

These *Guidelines* state that development must be avoided in areas at risk of flooding but exceptions to the restriction of development are provided through the use of a Justification Test, which judges the planning need and whether or not a sustainable management of flood risk to an acceptable level must be demonstrated.

The proper application of the *Guidelines on the Planning System and Flood Risk Management* by the planning authorities is essential to avoid inappropriate development in flood prone areas, and hence avoid unnecessary increases in flood risk into the future. The existing flood mapping as related to the proposed Depot site is incomplete.

Proposed residential development on either Flood Zone A or Flood Zone B must be subjected to a Justification Test before development can proceed.

Flood Zone A indicates a high probability of flooding, and most forms of development are not considered appropriate in these zones. Following a 'successful' Justification Test - development in this zone is only considered appropriate when in a town or city centre and in the case of essential infrastructure that cannot be located elsewhere.

Flood Zone B indicates a moderate probability of flooding, and many forms of development are considered inappropriate for lands in this zone, unless the proposed development can pass the Justification Test.

There are 2 No. processes to the Justification Test, these are as follows:

1. The **Plan-making Justification Test** – this is used at the plan preparation and adoption stage where there is intention to develop land which is categorised as Flood Zone A or Flood Zone B.
2. The **Development Management Justification Test** – used at the planning application stage when uses are proposed which are generally considered inappropriate for the land according to the land's categorisation as either Flood Zone A or Flood Zone B.

When it comes to the development of lands susceptible to flooding, the *Planning System and Flood Risk Management. Guidelines for Planning Authorities* published by the (then) Department of Environment, Heritage, and Local Government (DEHLG) and OPW in 2009, list the following guidelines:

1. Flood hazard and potential flood risk from all sources should be identified and considered at the earliest stage in the planning process and as part of an overall hierarchy of national responses coupled to regional appraisal and local and site-specific assessments of flood risk.
2. Development should preferentially be located in areas with little or no flood hazard thereby avoiding or minimising the risk. Development in the context of these Guidelines includes all construction, such as transport and utility infrastructure as well as residential and other buildings.
3. Development should only be permitted in areas at risk of flooding when there is no alternative, reasonable sites available in areas at lower risk that also meet the objectives of proper planning and sustainable development.
4. Flood risk to, and arising from, new development should be managed through location, layout and design incorporating Sustainable Drainage Systems and compensation for any loss of floodplain as a precautionary response to the potential incremental impacts in the catchment.

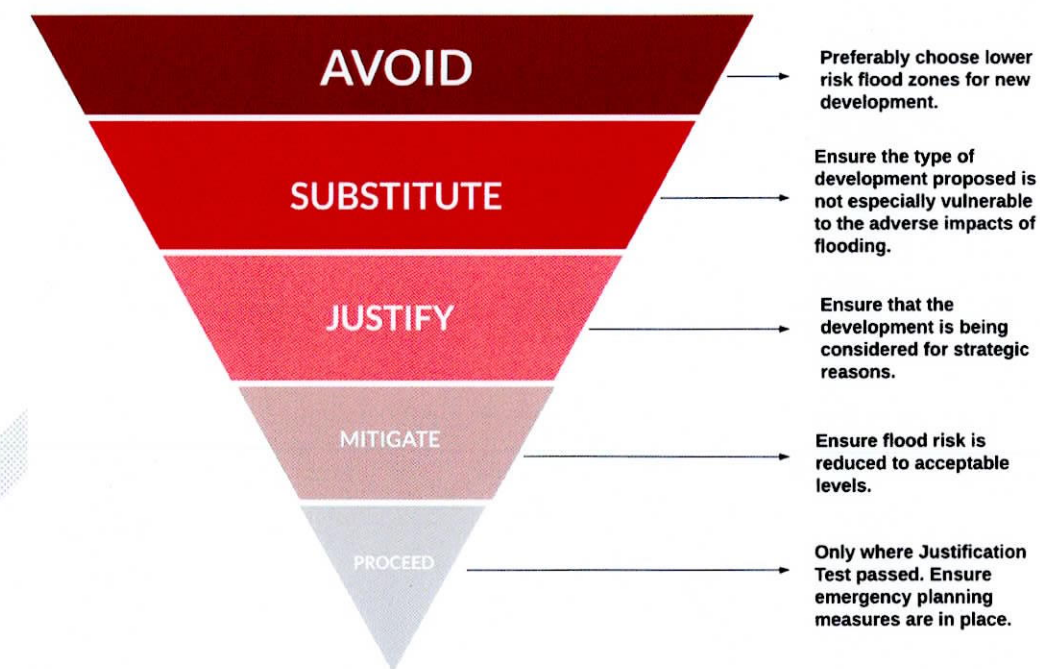


Figure 5.15: Sequential approach principles in flood risk management. (Source: *Planning System and Flood Risk Management. Guidelines for Planning Authorities* (DEHLG, 2009).

Prior to advancing the proposed site for final selection Irish Rail failed to carry out a flood risk identification process which would have identified the flooding or surface water management issues related the proposed development. Having identified the risk Irish Rail should, in accordance with the guidelines have designed a systematic and transparent framework for the consideration of flood risk in which:

- A sequential approach should be adopted to planning and development based on avoidance, reduction and mitigation of flood risk.
- A flood risk assessment should be undertaken that should inform the process of decision-making within the planning and development management processes at an early stage.
- Development should be avoided in floodplains unless there are demonstrable, wider sustainability and proper planning objectives that justify appropriate development and where the flood risk to such development can be reduced and managed to an acceptable level without increasing flood risk elsewhere. Any justification should have been evaluated through a Justification Test.

In accordance with planning guidelines Flood Risk Assessments (FRA) must be carried out in all areas where flood risk have been identified. These assessments should identify the:

- Sources of flood risk,
- Effects of climate change,
- Impact of the development,

- Effectiveness of flood mitigation and management measures,
- Residual risks that remain after those measures are put in place.
- Assessments, will need to describe with sufficient certainty that the core flood risk elements of the Justification Test are passed, namely that residual risks can be successfully managed and there are no unacceptable impacts on adjacent lands.

In order to carry out this assessment it would be necessary to correct the errors in the catchment area boundaries, to measure and log the flows in the unnamed stream and in the culvert discharging to the Canal and at the same time logging rainfall and ground water level. The measurements should be taken for a long enough time establish a relationship between ground water flow, surface water flow and rainfall. The previous models should then be amended taking this data into account and new simulations run to establish the flood risk.

5.6 The Water Framework Directive and The European Courts

The *EU Water Framework Directive* requires all Member States to protect and at the same time improve water quality in all waters so that to achieve good ecological status by 2015 or, at the latest, by 2027. It was given legal effect in Ireland by the *European Communities (Water Policy) Regulations 2003*. The Lyreen and its tributaries are at risk due to Poor ecological status and therefore should be protected and improved. The status of the Royal Canal at this point is unknown.

Because there is a risk that the Canal and other receiving waters will be polluted due to oil, wash water, and spills from the Depot, the stormwater together with the existing discharge to the Canal may have to be diverted to the Gragadder-Lyreen through oil interceptors and some form of treatment. A discharge licence will be required for the discharge of any contaminated surface water.

No such proposals are contained in the plans submitted for public consultation.

As the Lyreen flows into the Rye upstream of a SAC any further deterioration of the condition of the Lyreen could adversely affect the Rye SAC.

Article 11 – Programme of Measures, Section 3(j) in the Water Framework Directive states:

Section 3:

“Basic measures’ are the minimum requirements to be complied with and shall consist of:

(j):

“a prohibition of direct discharges of pollutants into groundwater subject to the following provisions:

Member states may authorise the reinjection into the same aquifer of water used for geothermal purposes.

They may also authorise, specifying the conditions for:

- 1. The injection of water containing substances from the operations for exploration and extraction of hydrocarbons or mining activities, and injection of water for technical reasons, into geological formations from which hydrocarbons or other substances have been extracted or into geological formations which for natural reasons are permanently unsuitable for other purposes. Such injections shall not contain substances other than those resulting from the above operations,*
- 2. reinjection of pumped groundwater from mines and quarries or associated with the construction or maintenance of civil engineering works,*
- 3. injection of natural gas or liquefied petroleum gas (LPG) for storage purposes into geological formations which for natural reasons are permanently unsuitable for other purposes,*
- 4. injection of natural gas or liquefied petroleum gas (LPG) for storage purposes into other geological formations where there is an overriding need for security of gas supply, and where the injection is such as to prevent any present or future danger of deterioration in the quality of any receiving groundwater,*
- 5. construction, civil engineering and building works and similar activities on, or in the ground which come into contact with groundwater. For these purposes, Member States may determine that such activities are to be treated as having been authorised provided that they are conducted in accordance with general binding rules developed by the Member State in respect of such activities,*
- 6. discharges of small quantities of substances for scientific purposes for characterisation, protection or remediation of water bodies limited to the amount strictly necessary for the purposes concerned, provided such discharges do not compromise the achievement of the environmental objectives established for that body of groundwater.*

It is of interest to this submission that the DART + West SFRA has conducted an analysis of the hydrology of the lands and local area for the proposed Depot and not mentioned the aquifer which occurs close to the surface, on Flood Zone A lands, and directly beneath the proposed *Compensatory Storage Areas*.

Section 4.2.4.3 – *Bailey’s Bridge – Proposed Depot Site* in the DART + West SFRA mentions that Ballycaghan stream was not modelled as part of the CFRAMS.

According to the maps provided in the SFRA Report, there appears to be a source of the Ballycaghan stream located on the north-west area of the proposed Depot. The SFRA does not discuss what or where is the source of this stream.

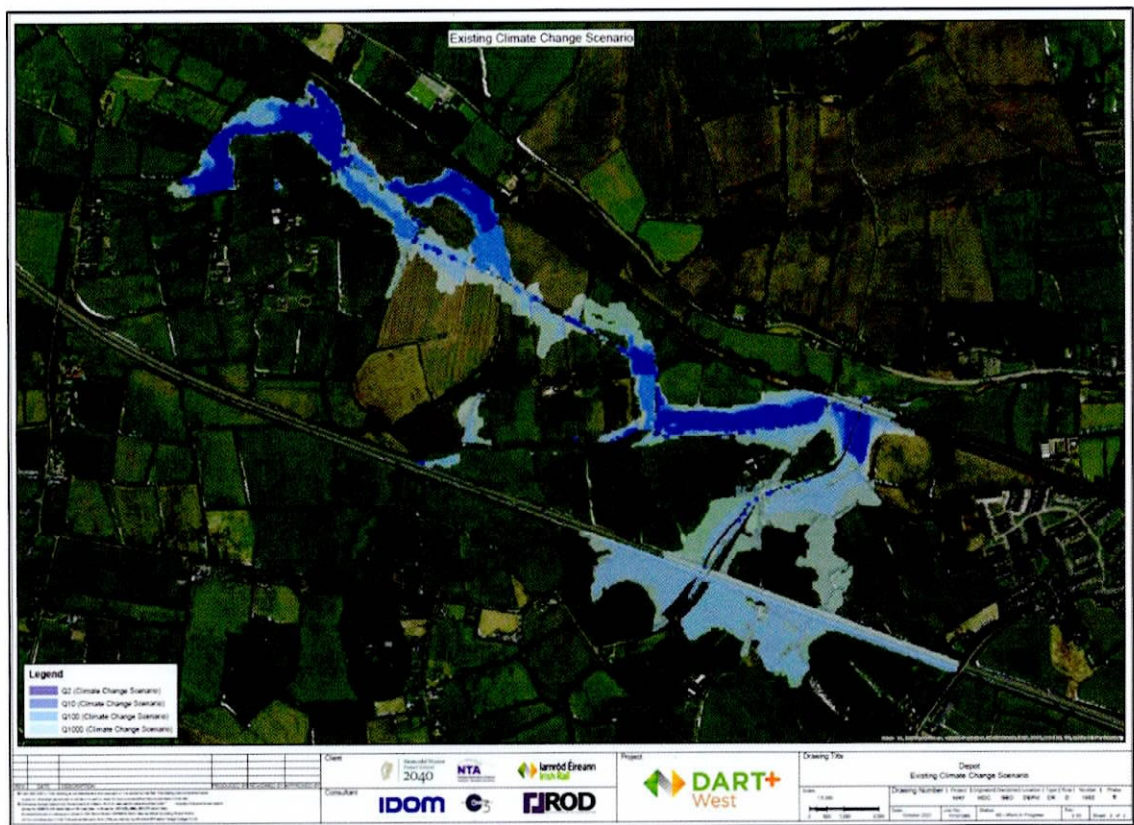


Figure 5.16: Existing Climate Change Scenario. (Source: DART + West SFRA Document.)



Figure 5.16: Post Development Climate Change Scenario. (Source: DART + West SFRA Document.)

6.0 DISTILLATION OF DEPOT OPTION SITES

As aforementioned, The *Depot Site Location Assessment Report* provides a description of analytical activities leading to the selection of the most suitable location of the proposed DART Depot.

Identified Strategic Location Nodes were subject to a two-stage evaluation process, including an initial preliminary pre-appraisal stage and a formal appraisal stage. The pre-appraisal was undertaken by assessing each of the Strategic Location Nodes' individually under a set of criteria, with a result being a pass/ fail style note and all locations meeting the minimum requirements transferred over to the comparative assessment.

At this second formal appraisal stage, more precisely defined areas within each Strategic Location Node passing the pre-appraisal stage have been evaluated under a set of criteria, and subsequently compared by applying the multi-criteria analysis (MCA) technique.

The following **pre-appraisal criteria** have been applied at the initial stage of the Depot site selection process:

- A. Site area equal to or greater than 20 hectares;
- B. Linear site length/ parallel to operational line equal to or greater than 1.8 kilometres (based on detailed maintenance process flow facilities' requirements);
- C. Practicality of developing a maintenance Depot at the exact strategic node;
- D. Practicality of developing a maintenance Depot lineside in the wider environs of the strategic node; and
- E. Existence of fundamental issues relating to the specific strategic node that deem it unfeasible to continue in the assessment.

The report sets out 13 No. locations at a preliminary consideration stage, whereby 4 No. of the 13 No. were carried forward for further detailed consideration.

The remaining nodes have been excluded from further evaluation, primarily for reasons related to lack of lands in their vicinity that would meet the minimum site size and straight track length thresholds.

No.	Strategic Location	Pre-Appraisal Conclusion
1	Fairview Depot	Discontinued from assessment
2	Connolly Station	Discontinued from assessment
3	Heuston Station	Discontinued from assessment
4	Pearse Station	Discontinued from assessment
5	North Wall Railway Yard	Discontinued from assessment
6	East Wall Railway Yard	Discontinued from assessment
7	Inchicore Railway Works	Discontinued from assessment
8	Drogheda Station/ Depot	Taken forward for further assessment
9	Maynooth Station	Taken forward for further assessment
10	M3 Parkway Station	Taken forward for further assessment
11	Hazelhatch Station	Taken forward for further assessment
12	Greystones Station	Discontinued from assessment
13	Bray Station	Discontinued from assessment

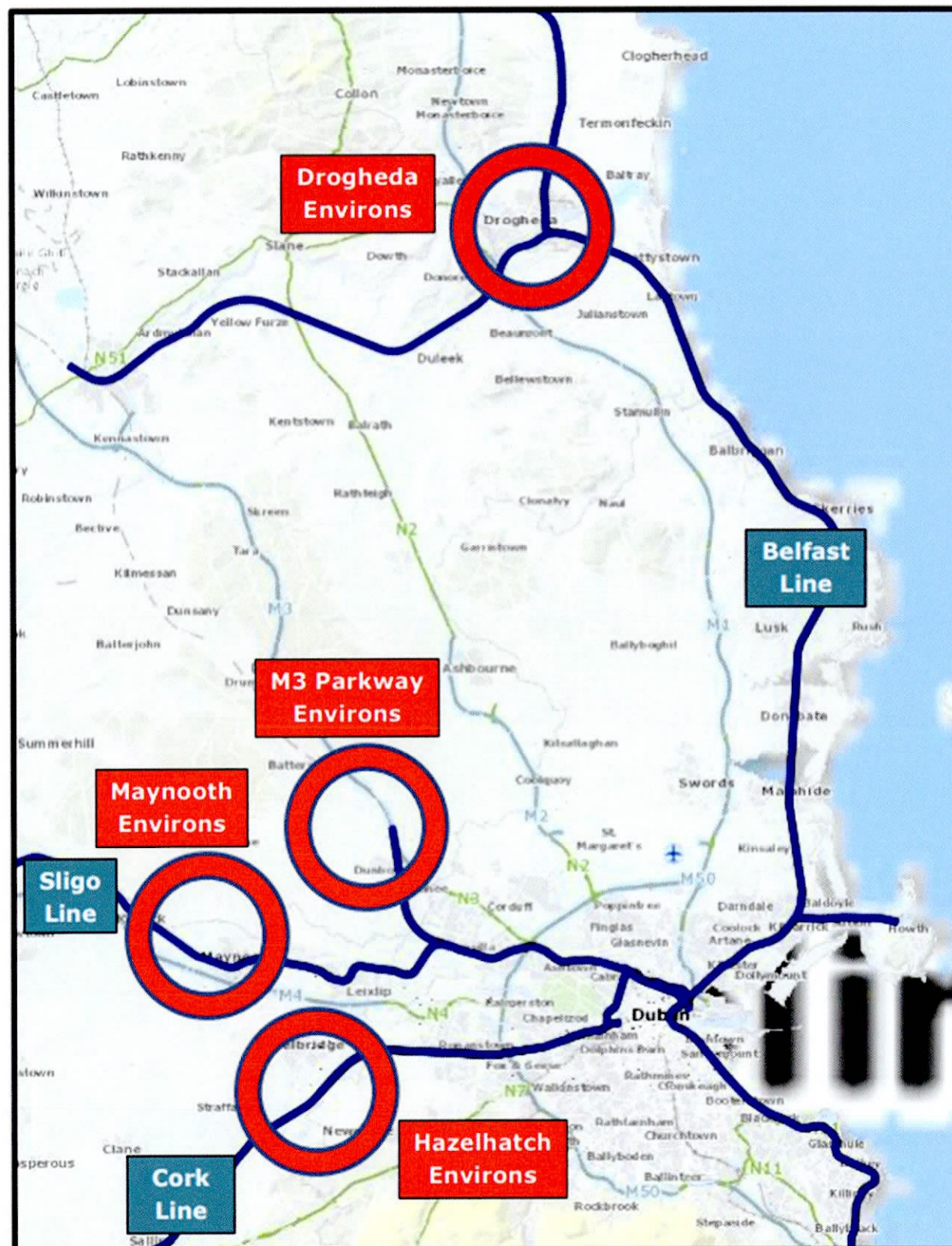


Figure 6.1: Regional Location of Potential Depot Site for Assessment. (Source: DART WEST Centre of Excellence Report, July 2019.)

Within these 4 No. sites environs' (Drogheda Station/Depot, Maynooth Station, M3 Parkway Station and Hazelhatch Station (see Figure 6.1)), further specific locations were identified within these environs, 2 No. individual sites per four environs. A set assessment criteria and the methodology was applied to each site in order to appraise each of the potential sites to be consistent and in an objective manner. The sites were critiqued under 8 No. criteria concerned with the development, facilitation, suitability and appropriateness of each site on a front of different criteria.

At the **formal appraisal** stage, a different set of assessment criteria was used, to be aligned with "applicable topics that should be considered under a qualitative appraisal as identified in the Common Appraisal Framework for Transport Projects (CAF) and Programmes (DTT&S, 2016)." The Report notes a number of criteria that have been considered, with some of them applied in the appraisal process, and others deemed not relevant at that stage. The initially considered criteria have been set out under the following headings:

1. Economy
2. Demand
3. Integration
4. Environment
5. Accessibility & Social Inclusion
6. Safety
7. Physical Activity

The fourth heading in this list, regarding the environment proposes that the following elements are considered:

CAF Parameter	Criteria	SET Electrification	OHLE Clearance at Structures	Permanent Way	Level Crossings	Stations	Depot	Depot Access	Substations & Technical Buildings	Construction Compounds
3. Environment	Noise and Vibration	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Air Quality and Climate		✓	✓	✓	✓	✓	✓	✓	✓
	Landscape and Visual (including light)	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Biodiversity (flora and fauna)		✓	✓	✓	✓	✓	✓	✓	✓
	Cultural, Archaeological and Architectural Heritage		✓	✓	✓	✓	✓	✓	✓	✓
	Water Resources		✓	✓	✓	✓	✓	✓	✓	✓
	Agriculture and Non-Agricultural		✓	✓	✓	✓	✓	✓	✓	✓
	Geology and Soils (including waste)		✓	✓	✓	✓	✓	✓	✓	✓
	Radiation and Stray Current	✓	✓	✓	✓	✓	✓	✓	✓	✓

Furthermore, the role of the environment plays a small role in the following specific criteria in which depot sites were judged against. Having regard to the aforementioned aspects of the proposed Depot, and following a stakeholder workshop, the following criteria were formed as a grading scheme in which to score potential Depot sites based on their compliance with these desired criteria:

1. Minimised empty running for daily service commencement/ ending of service (cost implication);
2. Maximise track access time for maintenance (rail safety/ public service obligation);
3. Complexity of access and egress to/ from Depot (public service obligation/ train planning logistics);
4. Availability of suitable lands (construction deliverability);
5. Consideration of neighbouring environment (construction deliverability);
6. Road vehicle routing access to site (construction deliverability);
7. Compliance with transportation and land use policy (compliance with policy); and
8. Short term impact on DART Expansion

In relation to the stakeholder workshop noted above, the Report states “the criteria used is detailed below and is the outcome of a workshop held with key internal stakeholders.” It is however unclear when such a workshop took place, what stakeholder organisations were represented, and what information was presented to stakeholders as the basis for decisions taken at the workshop.

It is specifically noted that the selected criteria excluded both the capital cost of delivery and accessibility and social inclusion, despite both being deemed relevant and included in the comparative assessment of Depot design options for the selected Maynooth West location.

The eight evaluated locations (two locations in the environs of each Strategic Node, as noted above) have been graded on a five-point scale illustrated by colour coding, as follows:

Dark green	Most preferable, with significant advantages over other options
Light green	Preferable, with some advantages over other options
Yellow	Neutral, comparable to other options
Amber	Not preferable, with some disadvantages to other options
Red	Least preferable, with significant disadvantages to other options

The table below presents the aggregated scores for each of the locations under the 8 No. criterion using the above mentioned grading scheme.

	Drogheda South	Drogheda North	Maynooth East	Maynooth West	M3 Parkway South	M3 Parkway North	Hazelhatch East	Hazelhatch West
Minimised empty running	Red	Red	Light green	Light green	Light green	Light green	Light green	Light green
Maximised track access	Amber	Amber	Light green	Light green	Light green	Light green	Light green	Light green
Complexity of access and egress	Red	Light green	Red	Light green	Red	Red	Light green	Light green
Availability of suitable lands	Light green	Light green	Light green	Light green	Amber	Light green	Amber	Light green
Adjacent environment	Amber	Amber	Amber	Light green	Red	Amber	Amber	Light green
Road vehicle access	Light green	Light green	Amber	Light green	Amber	Light green	Light green	Amber
Transport and land use compliance	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Short-term impact on DART Expansion Programme	Red	Red	Light green	Light green	Light green	Light green	Amber	Amber

By virtue of their distance from the City Centre the two sites in Drogheda scores poorly for operating costs (minimised empty running and maximised track access) and for short term impact on the DART Expansion delivery programme. The Drogheda Depot will also have some negative impacts on the neighbouring environment.

The Depot in the environs of the M3 Parkway station scores poorly in terms of complexity of accessing and egressing the network, by virtue of its location on a branch line. The M3 Parkway also scored negatively to varying degrees, in terms of negative impacts on the neighbouring environment.

The Maynooth East and the Hazelhatch East sites perform relatively similarly. However, Maynooth East scores very poorly for the complexity of access and egress from Depot to network start/end nodes and poorly for road access and impacts on the neighbouring environment; whilst Hazelhatch East scores poorly for availability of suitable lands, impacts on neighbouring environment and short-term impacts on delivery of DART Expansion.

Maynooth West and Hazelhatch West achieved the two best performance in the assessment. Maynooth West achieved a higher ranking than Hazelhatch West by virtue of better road access and less negative impact on the delivery of DART Expansion

We believe that unsatisfactory regard and consideration has been given to the Hazelhatch West site and the deciding criteria of having better road access, is an unjustified criteria for the Maynooth West site to be favoured.

This preferred criteria of ease of access merely benefits the construction phase of the Depot, which then becomes a relatively immaterial factor in the day-to-day operation of the Depot and logistics.

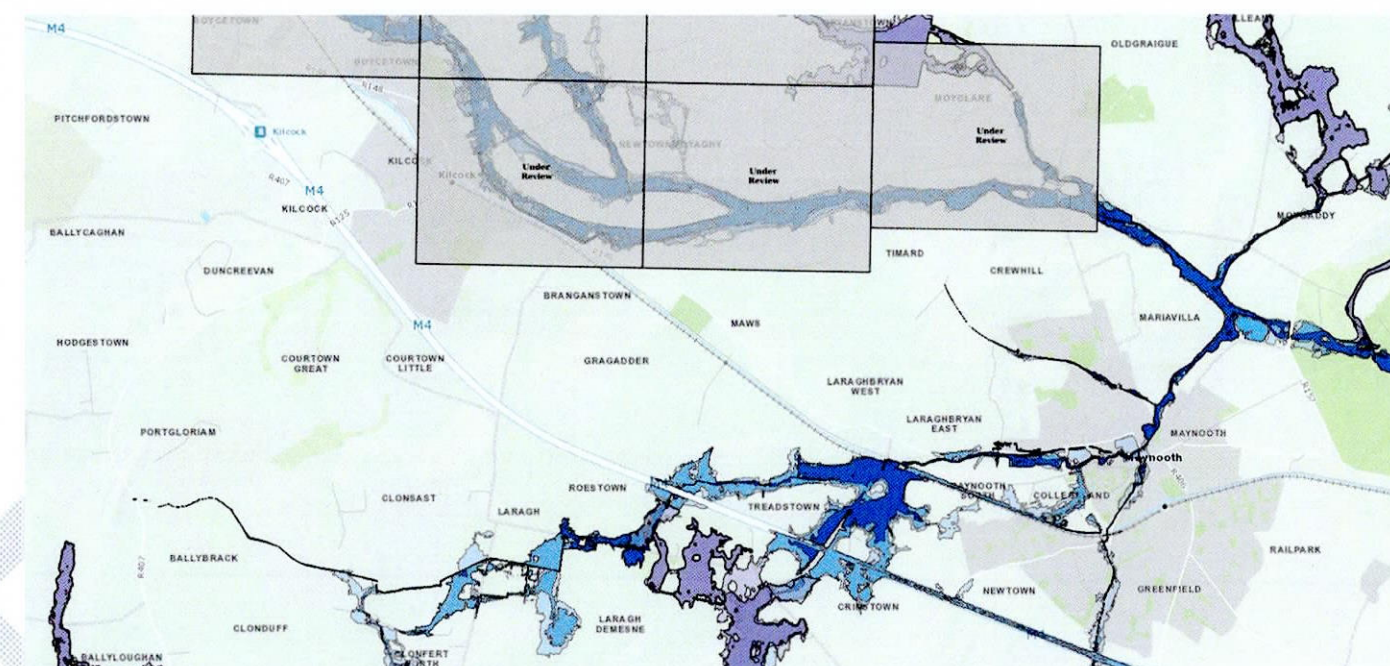


Figure 6.2: Maynooth environs and proposed Depot site flood mapping.

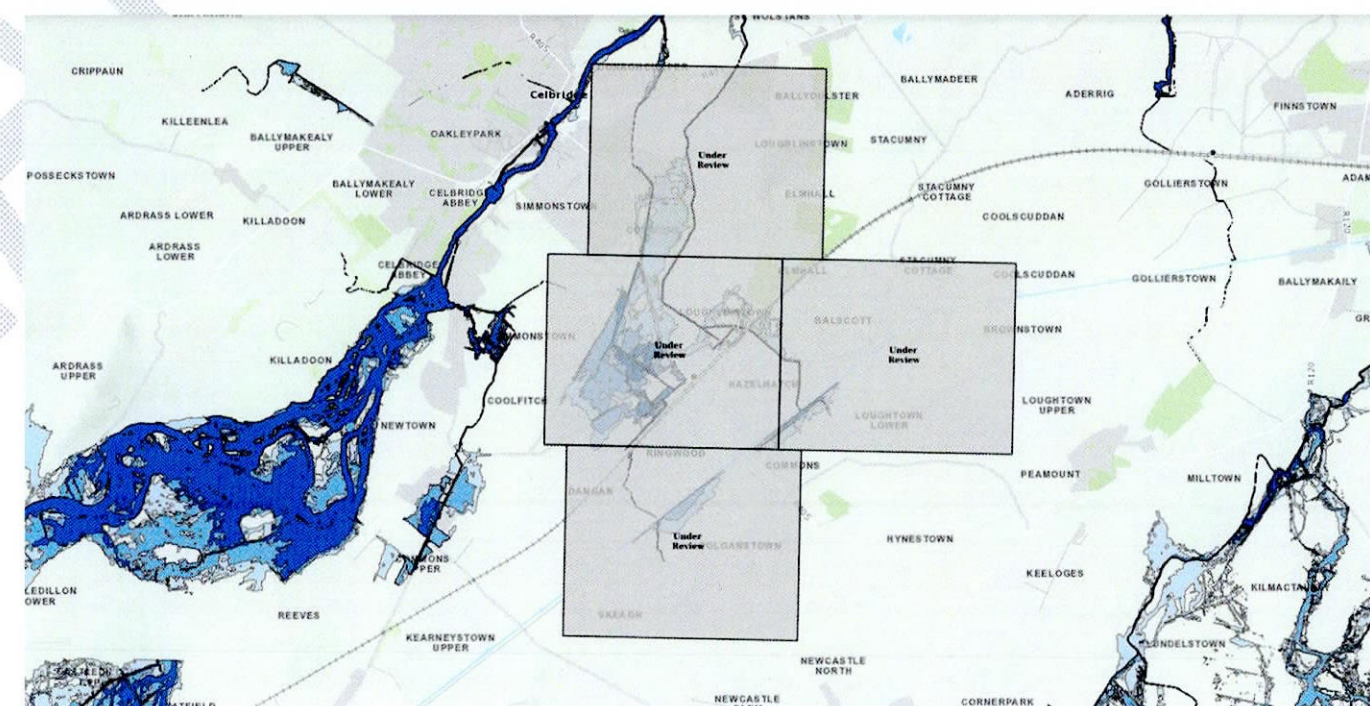


Figure 6.3: Hazelhatch environs flood mapping.

6.1 Flooding

In the assessment of the 13 No. potential Depot sites, and 4 No. more detailed assessment, flooding was not listed as a factor when deciding the location of a Depot.

	Drogheda South	Drogheda North	Maynooth East	Maynooth West	M3 Parkway South	M3 Parkway North	Hazelhatch East	Hazelhatch West
Flood Zone	A	A	A	A	A	A	A	A

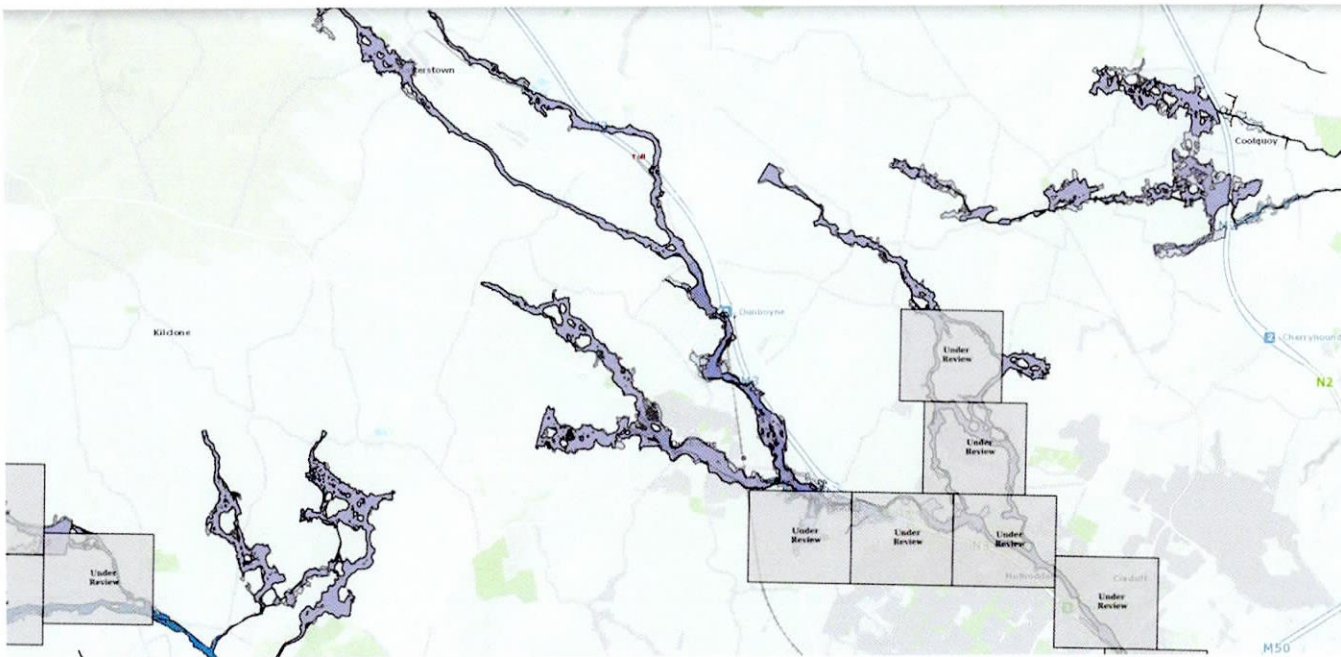


Figure 6.4: M3 Parkway environs flood mapping.

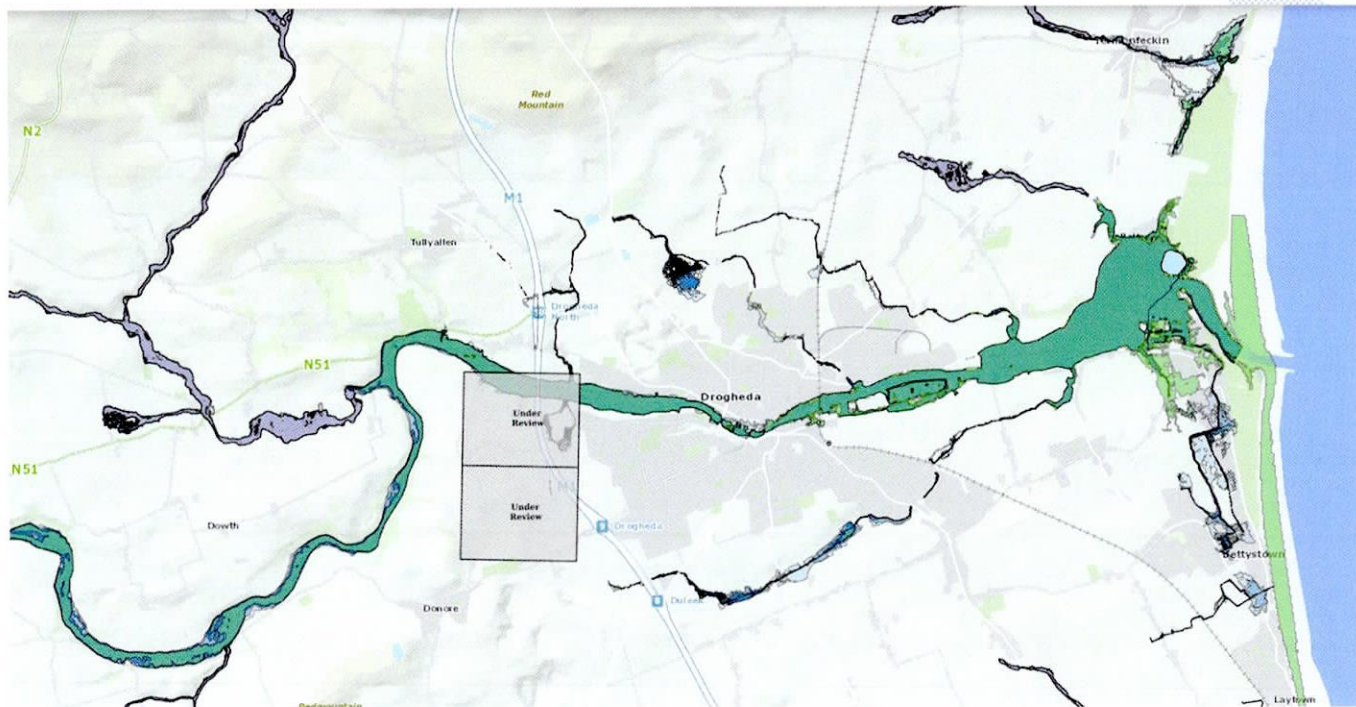


Figure 6.5: Drogheda environs flood mapping.

6.2 Hazelhatch West

Hazelhatch Station currently lies on a twin track section, approximately 16-18km west of Heuston Station. A Depot west of Hazelhatch will require the extension of the 4 tracking to the point of entry to the Depot, so that the capacity of the Mainline is not compromised. The short to medium term configuration will operate DART trains on the northernmost tracks. Therefore, the maintenance Depot would have to be on the northside of the railway corridor to prevent capacity restrictions. In the longer term with DART Underground in-situ, DART train will operate on the southernmost tracks. At this stage, the maintenance Depot will result in network capacity restrictions.

The table below depicts side-by-side ranking of the Maynooth West and Hazelhatch West potential Depot sites to show the suitability of the Hazelhatch site as a place for consideration in place of the Maynooth West site.

	Maynooth West	Hazelhatch West
Minimised empty running		
Maximise track access		
Complexity of access and egress		
Availability of suitable lands		
Adjacent Environment		
Road vehicle access		
Transport and Land Use Compliance		
Short term impact on DART Expansion Programme		

Hazelhatch outperformed Maynooth West in two of the eight criteria, and likewise Maynooth West outperformed Hazelhatch in two of the eight criteria, with the two locations tied in four categories.

We argue that the two criteria that Maynooth West outperforms Hazelhatch West in are least relevant in the day-to-day running and overall long-term impact of the DART West scheme, these two criteria being;

- 3. Road vehicle access; and
- 4. Short term impact on DART expansion programme

The two criteria that Hazelhatch West outperforms Maynooth West are far more viable options, impactful upon the long-term viability, functionality and quality of the DART + expansion programme, these criteria being:

- 3. Minimised empty running; and
- 4. Availability of suitable lands

With this regard, we believe that the fundamental weaknesses of the site have been minimised and positive attributes overstressed in privileging Maynooth West over the other possible locations, namely the better suited Hazelhatch West location. Furthermore, we believe that the comparative advantages between these sites have been underestimated and undervalued.

Eight qualitative criteria have been applied to all locations with no weighting (qualitative of quantitative) differentiating between criteria. Three criteria allocate parity for all sites in the Maynooth West and Hazelhatch West zones: subsequent differentiation is dependent upon the remaining five variables viz. a comparison and analysis of the

6.3 Minimised empty running for daily service commencement / ending service (Cost Implication):

Hazelhatch West:

"With a single centre of excellence maintenance Depot, a number of trains at commencement and termination of daily passenger timetable will run empty between city centre and Depot. By virtue of the distance, a Depot in the Hazelhatch environs has significant advantages over other options".

Maynooth West:

"With a single centre of excellence maintenance Depot, a number of trains at commencement and termination of daily passenger timetable will run empty between city centre and Depot. By virtue of the distance, a Depot in the Maynooth environs has some advantages over other options".

Hazelhatch West at approximately 17kms west of Heuston Station, has an advantage over other options re empty running time. Maynooth East option is three kms further away from Dublin (20kms) and Maynooth West (25 kms) is eight kms more distant from Dublin than the Hazelhatch West location.

There is good reason to allocate the same score to the Maynooth East and the M3 Parkway locations, and every good reason to distinguish them from the less advantaged and much more distant Maynooth West. Locating the Depot at Maynooth West will require the laying of a second track and electrification of track for a distance of 5 kms beyond the designated terminus of the Dart expansion scheme.

6.4 Maximise track access time for maintenance (Rail Safety / Public Service Obligation):

Hazelhatch West:

"Maximising the time available for infrastructural maintenance is fundamental to the ongoing operation of the railway. A city centre Depot would result in maximising possession times. Greater distances from city centre will result in shorter possession times being granted. Possessions need to be sufficient to allow a reasonable time to complete and hand back required works. If possessions are too short it will extend non-disruptive possession time (i.e. normal night time work opportunity) into disruptive possessions (i.e. impacting on timetabled passenger services).

A Depot at Hazelhatch will result in lower magnitude impact on possession times and will have some advantages to other options by virtue of lower travel distance."

Maynooth West:

"Maximising the time available for infrastructural maintenance is fundamental to the ongoing operation of the railway. A city centre Depot would result in maximising possession times. Greater distances from city centre will result in shorter possession times being granted. Possessions need to be sufficient to allow a reasonable time to complete and hand back required works. If possessions are too short it will extend non-disruptive possession time (i.e. normal night time work opportunity) into disruptive possessions (i.e. impacting on timetabled passenger services). A Depot at Maynooth will result in lower magnitude impact on possession times and will have some advantages to other options by virtue of lower travel distance. A Depot at Maynooth will result in lower magnitude impact on possession times and will have some advantages to other options by virtue of lower travel distance".

With regards to maximising track access time for maintenance, both Maynooth West and Hazelhatch West score equally for maximising the time available for infrastructural maintenance. However, we believe that this is a minute detail in the consideration of the siting of a Depot. Whilst track maintenance is crucial in the fluidity of services and longevity of the track, we believe that it has little correlation to the siting of a Depot.

Furthermore, due to the location of the Maynooth West Depot being located after the final stop at Maynooth Station, approximately 5 kilometres of extra unserviceable track will have to be constructed, purely for the DART to get to and from the Depot. This then creates an additional 5 kilometres of track that which in turn will need to be maintained, a feature which we believe to be unnecessarily costly and counterproductive.

6.5 Complexity of access and egress:

Hazelhatch West:

"Trains entering and exiting the Depot need to travel to timetabled service positions. The movement into/out of the Depot will potentially impact with other passenger services operating on the line. The complexity in getting into position is a negative factor to logistics and rolling stock marshalling.

A Depot west of Hazelhatch is at the end of line and will only interface with one train/hour passenger service. The access/egress from the operational line to the Depot is not considered complex. This will result in significant advantages in comparison to other options".

Maynooth West:

"Trains entering and exiting the Depot need to travel to timetabled service positions. The movement into/out of the Depot will potentially impact with other passenger services operating on the line. The complexity in getting into position is a negative factor to logistics and rolling stock marshalling. A Depot west of Maynooth is at the end of line and will only interface with one train/hour passenger service. The access/egress from the operational line to the Depot is not considered complex. This will result in significant advantages in comparison to other options".

The definition of Hazelhatch West as a key location for an existing busy train line, serving locations such as Kildare, Portlaois and Cork, coupled with the fact that Maynooth West is located south of the existing busy commuter line are instrumental in the decision to allocate maximum scores to Hazelhatch West and while simultaneously allocating maximum advantageous score to Maynooth West. This factor is primarily responsible for the equal scoring of Maynooth West and Hazelhatch West as the preferred sites.

The differentiation conflates two different locational attributes, placing them at the extreme end of the qualitative banding it is difficult to accept the resultant privileging of Maynooth West. Quantitative analysis of the significance of the Cork line effect on differentiation is necessary. This analysis also ignores the fact that Maynooth West will require five additional kms of electrified track beyond the Maynooth terminus.

6.6 Availability of suitable lands:

Hazelhatch West:

"At preliminary desk-based appraisal there appears to be agricultural lands adjacent to the operational railway that may be suitable for Depot development. The location in a broadly agricultural setting offers some advantages over other options".

Maynooth West:

"At preliminary desk-based appraisal there appears to be agricultural lands adjacent to the operational railway that may be suitable for Depot development. The location in a broadly agricultural setting offers some advantages over other options".

The Hazelhatch location rates preferably in land suitability, with both sites being made up of agricultural lands. However, in the analysis of the "suitability" of land, we believe that the Maynooth West land does not meet the requirements for it to be graded so highly with regards to land suitability.

Whilst on a base level, the Maynooth West lands offer open greenfield space for development, the suitability of that land is not examined. As aforementioned, the land is susceptible to flooding and the development would require the demolishing of a historically significant bridge that traverses the Canal. Furthermore, how can it be said that electrifying an additional 5km of rail line between Maynooth Station and the proposed Depot site solely for accessing the Depot is a suitable or viable option. We argue that a Depot located on an electrified or planned electrified track is a more suitable option for the Depot.

The reasoning behind this differentiation is not transparent at this level of analysis.

6.7 Consideration of neighbouring environment (Construction Deliverability):

Hazelhatch West:

"Residential density in the environs of Hazelhatch Station is quite low. Agricultural land use predominates to the west of the station. The lands are not within any fluvial flood risk areas. There are small localised pockets of pluvial flood risk across the sites. There are no National Monuments record within the potential sites. There are no buildings of national importance on any of the potential sites. Given the setting of this potential site, some advantages over other options".

Maynooth West:

"The potential site west of Maynooth is set to agricultural use. There are no significant watercourses crossing the potential sites. There are pockets of 100-year pluvial flood zones adjacent to the railway corridor on the sites adjacent to the railway. There is a single National Monuments record within the potential sites (Barrow). There are no buildings of national importance on any of the potential sites. Residential development is generally associated with agricultural holdings and has also developed in ribbon fashion along local roads. The environmental issues identified are not considered significant to preclude development of the site. Therefore, this option has some advantages over other options".

The possibility of flooding from the Royal Canal and other local unnamed watercourses traversing the proposed Maynooth West Depot site make it unclear as to how the location scored the second highest possible score in this category. As aforementioned, the site is susceptible to flooding with extreme and unconventional rerouting of streams and development of water attenuation systems to prevent the flooding to the Depot. Furthermore, the designated access point to the Maynooth Depot at Jackson's Bridge has been subject to flooding by the Lyreen River for 3-5 day periods in each of the past ten years.

We believe that these works prove to be extremely unnecessary and potentially harmful to the existing environment and may potentially harm a *Water Framework Directive* protected watercourse only a few kilometres downstream.

Ecological and heritage issues are ignored but remain significant for Maynooth West. The development of the Depot at Maynooth West jeopardises the ecological and social benefits of the Royal Canal Greenway.

Hundreds of pedestrians and cyclists use this greenway daily and it has emerged as an important and, indeed, vital part of community life. It is more than a mere transportation corridor. It is a greenway of high natural beauty, offering peace and tranquillity and an opportunity to appreciate the rich ecological resource of diverse local flora and fauna. This stretch of the towpath currently represents the very best in greenway amenity provision.

Moreover, the proposed siting of a Depot in Maynooth West would have significant heritage impacts, namely impacting on Jackson's Bridge, a listed structure. The proposal is to remodel this historic structure by raising it and inserting precast concrete support walls and arch replacement. Widening will also be undertaken to incorporate pedestrian and cyclist access. In totality it represents environmental degradation and historical obliteration.

6.8 Road vehicle routing for access to site (Construction Deliverability:

Hazelhatch West:

"Vehicles access to Hazelhatch West Depot will generally be reliant on the M4 motorway. Vehicle will leave the M4 at Junction 5 and travel southbound on R403 and then via Loughlinstown Road to access Hazelhatch Station and the potential sites to its west. There is an existing road to the west of Hazelhatch Station (The Lords Road) but this is access to residential dwellings. It is not considered suitable for HGVs access. Therefore, a new road would be required from Hazelhatch Station to the proposed Depot adjacent to the railway corridor. Therefore, this site has some disadvantages in comparison to other options".

Maynooth West:

"Vehicles access to a Maynooth West Depot will generally be reliant on the M4 motorway. Vehicle will leave the M4 at Junction 7 and travel on R406 through Maynooth and on to R148 and L5041 to access the potential sites. Alternatively the potential sites could be accessed by leaving the M4 at Junction 8 and travelling via R148 through Kilcock and then the L5041. Access to site is not precluded for HGV vehicles, therefore this site has some advantages over other options".

Both sites are in the vicinity of motorways but ranking of direct access is not equally attributed to both.

The Hazelhatch West potential Depot location is approximately 6km off the M4 motorway, with the journey not traversing through any local towns or villages. The site of the Maynooth West Depot however has two routes coming off the M4 at two different exits.

One route is approximately 5.8km from the M4 and would require HGVs to traverse through Maynooth Town to get to the site, with the other route being approximately 5km from the M4, however would require HGVs to traverse through Kilcock Town. Neither of these options are viable for the timely and

synchronous construction of a Depot on the Maynooth West lands, however these lands scored the second highest score for this category.

As discussed in the Site Assessment Report, the "improved localised assess from the R148 to the potential Depot site will need to be provided to facilitate HGV vehicle access" ... is the justification for allocating the second lowest banding to Maynooth East while an identical issue (required construction of a new bridge and roadway from R148) in the case of Maynooth West is ignored and that site is allocated the second highest ranking. This is certainly puzzling and doubly so when the fact that access to Maynooth West from the M4 will involve traversing the town centres of either Kilcock or Maynooth.



The allocation of a qualitative penalty to Hazelhatch West and the elevation of the advantage of Maynooth West represents a serious error of judgement.

6.9 Compliance with Transportation and Land-Use Development Policy (Compliance with Policy):

Hazelhatch West:

"The potential sites are in rural areas but bordered by zoned lands to the east. The site is within Kildare Co functional area".

Maynooth West:

"The potential sites are in rural areas outside the zoned boundaries of Maynooth and Kilcock".

Both the Maynooth West and Hazelhatch West locations scored equally, however the Hazelhatch West location has the addition of the not that the area is contained within the Kildare County functional area, which we perceive to be an additional bonus to the site.

6.10 Short-term impact on DART Expansion Programme delivery by 2027 (Compliance with Policy / Compliance with Funding)

Hazelhatch West:

"The key requirements to enable delivery and deployment of new DART rolling stock are:

1. Commissioning of Maintenance Depot;
2. Increase City Centre capacity through enhancement works in the Connolly/Docklands environs;
3. Completion of the electrification on whichever line the Depot is located. Until these works are complete, the train path capacities on all lines converging on City Centre are limited to present day levels.

The funding limitations within the NDP program are a factor in this short-term impact assessment to make best use of the available funding to provide additional capacity as soon as possible. In planning the DART Expansion delivery programme, IE has focused on providing increased passenger capacity in the short term, within the constraints of the path limits, by re-deploying carriages freed through new fleet deliveries to provide longer trains in areas where electrification is not completed.

The Kildare Line is currently comparatively well served with train services into the city centre, comprising Intercity, Outer Commuter and Inner Commuter diesel service sharing a section of 4 track from Hazelhatch to Park West, with the remainder reducing to twin track. At present 12 train services enter the city centre in the morning AM Peak. The planned service pattern under DART Expansion is 26 train service into the city centre (12 Intercity/Outer Commuter and 14 DART services).

The 2018 rail census shows train occupancy levels of 65% for inbound trains in the morning AM peak hour, with relatively low passenger boarding inbound from Hazelhatch (albeit Hazelhatch to GCD is only newly added to the Working Timetable). The land-use along the Hazelhatch Heuston rail corridor is not well established, with significant remaining undeveloped land. Development at Adamstown and Clonburris has progressed at a slower pace than originally anticipated.

If DART Expansion progressed with the maintenance Depot at Hazelhatch:

1. *The passenger demand for services could grow annually in a significant increasing manner only if development rate accelerates. The potential level of train service if Kildare Line Upgrade was developed early may be excessive until the lands are fully completed;*
2. *Extension of electrification, together with completion of 4 tracking from Park West to Heuston and the city centre enhancements will bring a very significant increase in train path capacity;*
3. *The 20km Kildare Line electrification is the most expensive radial line for early delivery but the service benefits are also high. However, the passenger demand for services may not materialise in the short term if land development is not completed;*
4. *The Kildare Line will be capable of fully absorbing the planned early fleet deliveries. Early progression of the Kildare Line will impact the cashflow;*
5. *Based on the current Working Timetable, electrification of the Kildare Line would displace 4 ICR/DMU trains which will be cascaded to other non-electrified lines. This is the lowest cascade effect which will provide the lowest passenger capacity benefits to the other lines.*

Therefore, a Depot at Hazelhatch would have some disadvantages to other options as it would negatively impact on the cashflow, and the service levels delivered may not be utilised if future land development is delayed".

Maynooth West:

The key requirements to enable delivery and deployment of new DART rolling stock are:

1. Commissioning of Maintenance Depot;
2. Increase City Centre capacity through enhancement works in the Connolly/Docklands environs;
3. Completion of the electrification on whichever line the Depot is located.

Until these works are complete, the train path capacities on all lines converging on City Centre are limited to present day levels.

The funding limitations within the NDP program are a factor in this short term impact assessment to make best use of the available funding to provide additional capacity as soon as possible. In planning the DART Expansion delivery programme, IE has focused on providing increased passenger capacity in the short term, within the constraints of the path limits, by re-deploying carriages freed through new fleet deliveries to provide longer trains in areas where electrification is not completed.

The Maynooth /M3 Line is currently comparatively poorly served with train services into the city centre, comprising Intercity and Commuter diesel service sharing twin track. At present 6 train

services enter the city centre in the morning AM Peak. The planned service pattern under DART Expansion is 15 train service into the city centre.

The 2018 rail census shows train occupancy levels of 92% for inbound trains in the morning AM peak hour, with the vast majority of passenger boarding inbound from Maynooth. The land-use along Maynooth /M3 rail corridor is moderately well established, with some significant major land holding still not yet developed.

If DART Expansion progressed with the maintenance Depot at Maynooth or M3 Parkway:

1. The passenger demand for services will grow annually in a significant increasing manner as a latent population demand exists for train services that cannot be accommodated at present due to rail infrastructure constraints. Developing remaining land holdings will add population demand for increased services;
2. Extension of electrification, together with city centre enhancement works and removal of level crossing conflicts will bring a very significant increase in train path capacity;
3. The 32km Maynooth Line upgrade is more expensive electrification than the Northern Line upgrade, but the service benefits of Maynooth line upgrade is significantly higher;
4. The Maynooth Line will be capable of fully absorbing the planned early fleet deliveries and this will not affect the overall programme for electrification of other radial lines, nor impact the cashflow;
5. Based on the current Working Timetable, electrification of the Maynooth Line would displace 9 ICR/DMU trains which will be cascaded to other nonelectrified lines. This is the highest cascade effect which will provide increase passenger capacity benefits to the other lines.

Therefore, a Depot at Maynooth / M3 Parkway would have significant advantages to other options as it would locate the Depot on the line with a high service capacity increase. Therefore, the DART Expansion delivery programme would be optimised and passenger benefits would accrue in tandem".

7.0 CONCLUSION – WHY THE PROPOSED DEPOT SITE IS UNSUITABLE AND UNJUSTIFIED

In summary, the selection of Maynooth West as the preferred option for the siting of the Depot requires the installation of a double track and electrification for a distance of approximately five kilometres beyond the designated terminus of DART + Maynooth. Apart from the additional cost factor this choice of location will incur, the following negative implications will be resultant from the siting of a Depot on the Maws Farm lands:

1. The Destruction of a unique protected structure (Jackson's Bridge).
2. Despoliation of the sites and viewpoints along the Royal Canal Greenway contrary to the *Kildare County Development Plan 2017-23*.
3. The direction of associated traffic and HGVs through the town centres of either Kilcock or Maynooth.
4. The imposition of an industrial complex on the greenbelt separating Maynooth and Kilcock.
5. Noise, air and light pollution will be produced on a 2.6km long industrial strip whose curtilage terminates 500 metres from newly developed residential neighbourhoods in Kilcock. Residents of that town will have all the pain but none of the gain of the Depot development for there is no provision to extend a commuter service to the town.

As noted in Section 6 of this Submission, the Site Location Assessment includes eight generic criteria categories to be assessed against when choosing the Depot site. The way this criterion was applied in the formal appraisal of the potential Depot locations, it is apparent that neither capital cost nor operating cost had been considered explicitly. This is deemed to represent a significant limitation of the approach pursued, which may have distorted the site selection process' outcomes.

In relation to the capital cost aspect of the proposed development, the *Depot Site Location Assessment Report* states that no capital cost differences between the evaluated sites were identified.

In particular, it is noted that siting of the DART maintenance Depot in the location Maynooth West, as recommended by the Report, will require double-tracking and electrification of a ca. 4.0-kilometre section of the Sligo Line west of Maynooth solely for the purpose of enabling access to the proposed Depot.

This will need to be accompanied by extensive road infrastructure works, including alterations to the Jackson's Bridge (a protected structure), which has been identified to have insufficient clearance for overhead electrical equipment and the current emerging preferred option is to completely reconstruct it at a higher level.

The current width of Jackson's Bridge is not sufficient to accommodate a double tracked railway line, arising from which the mainline will need to be re-aligned further to the south of the Royal Canal rather than running directly adjacent to the existing track as it currently does, requiring additional land take.

Moreover, to enable vehicular access to the proposed Depot, a new 75 metre bridge over the Royal Canal, the mainline, and the eastern part of the Depot with accompanying ramps will have to be constructed, if the current emerging preferred layout option is implemented while the existing private over-bridge on our Client's lands shall be demolished.

Furthermore, while some flooding risks were acknowledged in the formal appraisal process under the "Adjacent environment" heading in relation to all locations with the exception of Hazelhatch East, the feasibility, extent, and cost of mitigating such impacts do not appear to either have been considered nor have been the subject of a comparative evaluation.

From this perspective, this results in an implicit assumption that the cost of flood risk mitigation is either negligible or comparable for all sites, however this has not been expressed explicitly. Furthermore, a sound rationale for such an assumption has not been provided.

As noted in Section 5, the southern landholding at The Maws Farm includes a traditional drainage system that mitigates the pluvial flood risk, which might otherwise significantly affect the farming operations on the site.

It is our Client's concern that as part of the proposed Depot's construction, the current drainage arrangements, including the three culverts under the railway line which serve the entire southern landholding, will be severed from the Royal Canal, thus impeding the drainage system's functional integrity.

Providing a replacement drainage system would represent a significant cost and engineering challenge, which may prove technically insurmountable, considering that the southern landholding would be entirely severed from the Royal Canal by the proposed Depot. In such case, the increased flooding risk would have a significant further adverse impact on the viability of The Maws Farm.

The Dart West Report's assert that the Depot development is in accordance with Kildare County Council's aim of supporting transportation infrastructure in the County. And it is, but only when a most partial reading of the *County Development Plan* is undertaken. Any informed interpretation of that Development Plan would recognise that the location and scale of the Depot is at variance with the Council's *Development Plan* and statutory function to preserve and protect the ecology and heritage of the region and to ensure holistic development of the county.

Furthermore, due to the splitting of our Client's land, with the Depot segmenting the Northern and Southern lands, severe devaluation of the Southern lands and overall lands will occur. The Southern lands, by design of the Depot and destruction of Bailey's Bridge, means that this land then becomes inaccessible from the Maws Farm farmhouse and northern section of land. This will result in the extreme devaluation of this land from a functional and accessibility use, as well as due to the close proximity of the Depot.

The location and siting of the Depot is unsuitable given the status of the lands of the Depot, the scale and impact of the Depot and furthermore the suitability of better locations for the development of the Depot in Hazelhatch West.

Yours faithfully,



Tom Phillips
Managing Director
Tom Phillips + Associates

Enc.

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APPENDIX 1: MAWS FARM DEPOT SITE RISK ASSESSMENT OF FLOODING.

The following appendix includes an extract from a Report conducted by Ciaran Costello (November 2021) of Maxpro Consultants, of which "to invite proposals for hydrological study and assessment of the site".

MAWS FARM DEPOT SITE RISK ASSESSMENT of FLOODING.

Report to invite Proposals for Hydrological Study and
Assessment of the Site.

Author Ciaran Costello
November 2021

Flooding of Depot Site

CIE in their Depot Site Appraisal state that "The potential site west of Maynooth is set to agricultural use. There are no significant watercourses crossing the potential sites. There are pockets of 100 year pluvial flood zones adjacent to the railway corridor on the sites adjacent to the railway."

This statement, is in complete as the flooding is extensive, frequent and prolonged. Furthermore, there are problems with previous catchment area flood management studies on which this judgment may have been based. The issues of concern are:

1. In storm conditions the proposed site has been flooded to the level of the proposed top of rail +63.50 O. D. several times in the last 25 years. Some, but not all, of these floods were noted, June 1993, November 2000, Dec 2015, November 2017
2. An initial flood risk assessment to confirm the sources of flooding that may affect the proposed development site was not carried out. This study should have appraised the adequacy of existing information and to determine what surveys and modelling approach was appropriate to match the spatial resolution required and complexity of the flood risk issues. The site is on the flood plain of the Lyreen and its tributary the Gragaddar¹. The hydrologically site is bound on the North by the Dublin – Sligo railway line and the Royal Canal and on the South by the M4 motorway on the East by the Lyreen.
3. There were three previous Catchment Flood Risk Assessments carried out which focused on the flooding in Maynooth and on the M4 and other roads in the catchment area. The most recent of which is OPW CFRAM IBE0600Rp0027_HA09 Hydraulics Report. The flooding of farmland was mentioned in the report but not mapped.² The catchment boundary, in the vicinity of Kilcock, used in these studied needs to be revaluated as the catchment maps used for the Lyreen Catchment area are incorrect.³ The catchment area maps show lands which drain to the Gragaddar as being in the Rye catchment and not the Lyreen catchment as should be the case. The fact that the aerial photographs in HA-09 show the flooding and mentions the striking difference between the simulated values derived from the and those derived from the catchment descriptor-based FSU approach should have alerted them to an issue.⁴
4. The site is level and with an underlying karst limestone aquifer and the contribution of the groundwater flow, to the surface water streams, has not been taken into account in any of the various catchment models and flood calculations.
5. The Gragaddar enters the Maws farm through a culvert under the motorway and flows North-East and under Jacksons Bridge (L5041) south of the railway before joining the Lyreen. There is an unnamed tributary of the Gragaddar flowing through

¹ Referred to as Ballybrack/ Roestown in OPW CFRAM IBE0600Rp0027_HA09 Hydraulics Report

² See Appendix 1

³ See Appendix 2

⁴ Page 4.18-2

the Maws farm from Kilcock direction and joining the Gragaddar before its junction with the Lyreen. This stream was not gauged and was not taken into account in the various catchment models or the flood level calculations.

6. There is a drain flowing east from Kilcock along the railway embankment which discharges through a culvert into the Royal Canal, which has also not been taken into account in the various catchment models and flood calculations.
7. The Lyreen flows under the M4 in a North-East direction. After its Junction with the Gragaddar it flows through an inverted siphon⁵ under the Railway line and the Royal Canal and on to the Rye. The flow of the Lyreen is restricted in storm conditions by the inverted siphon and floods over the L5041 and adjoining farm land. One of the proposed alternative entrances to the site is off this flood risk section of the L5041.
8. The flow restriction of the inverted siphon, by limiting the peak flow to the downstream section of the Lyreen, acts as flood barrier for Maynooth. Any alteration to the siphon to increase the flow which may be required to drain the Depot site is likely to cause flooding in Maynooth.
9. In storm conditions the flow of both the Lyreen and the Gragaddar are restricted by the culverts under the M4.⁶ In conjunction with the inverted siphon this causes flooding of the M4 and of the land on both sides of the motorway. Any increase in the peak flow resulting from the proposed development will increase the flooding risk of the M4
10. In storm conditions the flow into the Royal Canal from the site causes the canal level to rise and to overflow flood which has caused flooding in Maynooth and the M4⁷

Flood Risk Assessment and Management

The Planning System and Flood Risk Management- Guidelines for Planning Authorities published in 2009 were established to ensure that, where applicable, flood risk is a key consideration in preparing development and planning applications to avoid increasing flood risk to new and existing developments.

The proper application of the Guidelines on the Planning System and Flood Risk Management by the planning authorities is essential to avoid inappropriate development in flood prone areas, and hence avoid unnecessary increases in flood risk into the future. The existing flood mapping as related to this site is incomplete.

⁵ As reported in HA-09 "the inverted siphon culvert doesn't have sufficient capacity to convey flow during flood events of 10% AEP or greater, resulting in widespread out-of-bank flooding and ponding upstream of the culvert inlet."

⁶ "On the Ballybrack/ Roestown tributary, culvert 09ROES002811 and bridge 09ROES00228D do not have sufficient capacity to convey flow during flood events of 10% AEP or greater, resulting in flooding in the Laragh area which affects roads and properties".

⁷ "One of the unexpected casualties of the heavy rainfall was the M4 motorway, near Maynooth, Co Kildare. It had to be closed to traffic after the local Meadowbrook stream flooded the road surface. A spokesman for the NRA said yesterday that the risk of flooding had been taken into account in designing this motorway. What the engineers did not expect was that the nearby Royal Canal would burst its banks, flooding the Meadowbrook and, in turn, a stretch of the M4." Irish Times 8/11/2000

Prior to advancing the proposed site for final selection Irish Rail failed to carry out a flood risk identification process which would have identified the flooding or surface water management issues related the proposed development.

Having identified the risk Irish Rail should, in accordance with the guidelines have designed a systematic and transparent framework for the consideration of flood risk in which:

- A sequential approach should be adopted to planning and development based on avoidance, reduction and mitigation of flood risk.
- A flood risk assessment should be undertaken that should inform the process of decision-making within the planning and development management processes at an early stage.
- Development should be avoided in floodplains unless there are demonstrable, wider sustainability and proper planning objectives that justify appropriate development and where the flood risk to such development can be reduced and managed to an acceptable level without increasing flood risk elsewhere. Any justification should have been evaluated through a Justification Test.

In accordance with planning guidelines Flood Risk Assessments (FRA) must be carried out in all areas where flood risk have been identified. These assessments should identify:

- the sources of flood risk,
- the effects of climate change,
- the impact of the development,
- the effectiveness of flood mitigation and management measures,
- the residual risks that remain after those measures are put in place.
- the assessments, will need to describe with sufficient certainty that the core flood risk elements of the Justification Test are passed, namely that residual risks can be successfully managed and there are no unacceptable impacts on adjacent lands.

In order to carry out this assessment it would be necessary to correct the errors in the catchment area boundaries, to measure and log the flows in the unnamed stream and in the culverts discharging to the canal and at the same time logging rainfall and ground water level. The measurements should be taken for a long enough time establish a relationship between ground water flow, surface water flow and rainfall. The previous models should then be amended taking this data into account and new simulations run to establish the flood risk.

Effect of Proposed development on the Risk of Flooding

The impermeable surfaces of the stabling, platforms, maintenance and other buildings will, reduce infiltration and increasing stormwater runoff rates and volumes. There are no proposals for surface water disposal or management in the documents issued for public consultation. If standard storm water drainage systems are used, these will transfer surface water quickly, providing limited attenuation causing the volume of water in the receiving watercourses to increase more rapidly therefore the increase the risk of flooding.

It is difficult to see how Sustainable Urban Drainage Systems (SUDS), which comprise a wide range of techniques, including swales, basins, ponds and infiltration systems, can be employed on this site. The site is on a flood plain with an underlying aquifer the water level of which rises under existing flood conditions limiting for below ground level storage. The attenuation capacity of the site, which limits the risk of flooding in Maynooth, is fully utilised in major storm events. There is little scope for attenuating the increased flow from the impervious surfaces of the proposed development. The proposed depot will have at least 40,000 sq. m of impervious surface area. The impervious area together with the diversion of the flow presently flowing to the Royal Canal as detailed below will increase the flow rate to the Lyreen upstream of the inverted siphon increasing the risk of flooding both of the Depot site and the M4.

Water Framework Directive

The EU Water Framework Directive requires all Member States to protect and at the same time improve water quality in all waters so that to achieve good ecological status by 2015 or, at the latest, by 2027. It was given legal effect in Ireland by the European Communities (Water Policy) Regulations 2003. The Lyreen and its tributaries are at risk due to Poor ecological status and therefore should be protected and improved. The status of the Royal Canal at this point is unknown.

Because there is a risk that the canal and other receiving waters will be polluted due to oil, wash water, and spills from the depot, the stormwater together with the existing discharge to the canal may have to be diverted to the Gragadder-Lyreen through oil interceptors and some form of treatment. A discharge licence will be required for the discharge of any contaminated surface water. No such proposals are contained in the plans submitted for public consultation.

As the Lyreen flows into the Rye upstream of a SAC any further deterioration of the condition of the Lyreen could adversely affect the Rye SAC.