Proposed Road Improvement Scheme, N24 Carrick Road, Co. Kilkenny

NATURA IMPACT STATEMENT

Version (23-3-22)

ecofact
Environmental Consultants

Tait Business Centre, Dominic Street,
Limerick City, Ireland.
t. +353 61 419477
f. +353 61 414315

e. info@ecofact.ie
w. www.ecofact.ie
f. www.facebook.com/ecofact

EXECUTIVE SUMMARY

The current report provides an Appropriate Assessment of the proposed road improvement on the N24 Carrick Road in County Kilkenny. A Screening for Appropriate Assessment report has been prepared by Ecofact, which identified the potential for impacts on the Lower River Suir SAC. The Screening Assessment concluded that due to the potential for water quality, disturbance and invasive species impacts; mitigation was required to protect aquatic interests in the SAC. Mitigation is therefore set out in this Natura Impact Statement (NIS).

During the construction phase of the proposed development indirect water quality impacts have the potential to arise from instream works on the Skelpstown 16 stream and from run-off from excavated areas and soil deposition areas resulting in increased suspended solids, accidental spillages of hydrocarbons (oils and fuels) from machinery and waste materials such as concrete. It is noted that the Skelpstown 16 stream is small with low gradient and flow and thereby has relatively limited potential to convey large amounts of pollutants to the SAC c. 660rm downstream. Standard mitigation to protect water quality in the stream during the proposed works is provided and will be easily applied to the small watercourse and the works area across the proposed scheme and will effectively prevent any significant water quality impacts from arising. Non-native invasive species impacts could be introduced to the SAC through vectors such as machinery. This risk is low, with a buffer of c. 510m to the SAC but some standard mitigation will ensure the risk is negligible. Noise and disturbance impacts and air quality and dust impacts were also identified, Although, these impacts are both not considered to be significant in the absence of mitigation, there is some relatively low potential for Otter to be present in the Skelpstown 16 stream occasionally and therefore the designated species could be subject to disturbance impacts due to increased human activity and noise generated by the proposed works.

The inclusion of attenuation ponds and bypass petrol interceptors in the proposal will result in positive impact during the operational phase. There is currently no treatment of road run-off for the existing N24 road. In addition to this, the attenuation pond and bypass interceptors will have manual shut-off valves which will ensure easier containment of potential spillages; in turn ensuring adverse water quality impacts during the operational phase are avoided. Additionally, the road salt and grit on the existing N24 road is currently not attenuated before discharge. The drainage design for the proposed road development will ensure the direction of all surface water run-off through a controlled drainage system which includes attenuation ponds to allow for the settlement of run-off and capture of suspended solids and pollutants. Therefore, no operational impacts relating to water quality are envisaged.

The proposal also includes for the installation of a new box culvert over the realigned Skelpstown 16 stream and to construct a new combined underbridge and cattle underpass at the location of the local road L7416. These features restore a certain amount of habitat connectivity. The landscape in the area is already fragmented by the existing N24. This proposed culvert and underpass would facilitate safe passage of Otter and other animals under the road and thereby reduce the likelihood of animals crossing on the road and resulting in a collision with traffic.

No significant cumulative impacts are envisaged. The proposed development is of a small scale by comparison to the large receiving water body of the Lower River Suir SAC, the Middle Suir Estuary. The Suir Estuary, which supports the affected qualifying interests of the Lower River Suir SAC, is dynamic and robust by nature; with the strategic design and best practice procedures incorporated into the project cumulative impacts are considered to be imperceptible.

The mitigation measures proposed in the current NIS are intended to minimise the identified potential impacts. The main focus of the provided mitigation is on the protection of water quality. Also included

are measures for protecting Otter that could occur in the Skelpstown 16 stream, and preventing invasive species introduction. It is considered that following the mitigation provided and implementing best practice procedures throughout the project is sufficient to prevent significant impacts on the Lower River Suir SAC and the associated protected features of interest.

The current assessment concludes that provided all mitigation measures are adhered to, direct, indirect and cumulative impacts that may arise from the proposed road improvement works on the N24 Carrick Road in Co. Kilkenny will be avoided and therefore will not affect the integrity of the Lower River Suir SAC.

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1. INTRODUCTION

The current document is a Natura Impact Statement (NIS) and assesses the likely significant effects on the Lower River Suir SAC arising from a proposed road improvement scheme on the N24 Carrick Road in County Kilkenny. The location of the proposed development and layout is provided in Figure 1. A Screening for Appropriate Assessment has already been carried out for the proposed development, which concluded that the proposed road scheme on the N24 be subject to an Appropriate Assessment as the potential for water quality, invasive species and disturbance impacts were identified and water quality protection measures are required due to the presence of sensitive water-dependent qualifying interests of the Lower River Suir SAC downstream (Ecofact, 2022a). Mitigation is therefore set out here in this Natura Impact Statement.

The preparation of this NIS for Appropriate Assessment is as required under the Habitats Directive (92/43/EEC) in instances where a plan or project may give rise to significant effects upon a Natura 2000 site. Natura 2000 sites are of European Importance and have been designated in accordance with the requirements of the EC Habitats Directive (1992) and EC Birds Directive (2009/147/EC); transposed into Irish legislation as the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011). The Habitats Directive, in combination with the Birds Directive (2009), establishes a network of internationally important sites designated for their ecological status; identified as Special Areas of Conservation (SACs) designated under the Habitats Directive for the protection of flora, fauna and habitats and as Special Protection Areas (SPAs) designated under the Birds Directive to protect rare, vulnerable and migratory birds. These sites together form a Europe-wide 'Natura 2000' network of designated sites, referred to in this report as Natura 2000 sites.

This assessment follows the Habitats Directive 92/43/EEC, Article 6(3) and the guidance published by the National Parks and Wildlife Service (DoEHLG, 2010) '*Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities*'. The current Natura Impact Statement assesses the impact of the proposed road scheme at construction and operation stages in relation to direct, indirect and cumulative effects on the Integrity of the Natura 2000 sites.

1.1 Consultation

The following statutory bodies provided information via publicly available sources for this report:

- National Parks and Wildlife Service (NPWS);
- Inland Fisheries Ireland (IFI);
- Environmental Protection Agency (EPA); and
- National Biodiversity Data Centre (NBDC).

1.2 Legislative context

The current assessment takes account of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora - '*The Habitats Directive'* which was transposed into Irish law by the '*European Community (Natural Habitats) Regulations 1997*' (S.I. No. 94/1997). The most recent transposition of this legislation in Ireland is the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011). The Birds Directive (2009/147/EC) which is now included in the former Regulations seeks to protect birds of special importance by the designation of Special Protection Areas (SPAs) whereas the Habitats Directive does the same for habitats and other species groups within Special Areas of Conservation (SACs), which are designated or proposed as candidate Special Areas of Conservation (cSACs). It is the responsibility of each member state to designate SPAs

and SACs, both of which will form part of Natura 2000, a network of protected areas throughout the European Community. Article 6, paragraphs 3 and 4 of the EC 'Habitats' Directive (1992) state that:

6(3) 'Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.'

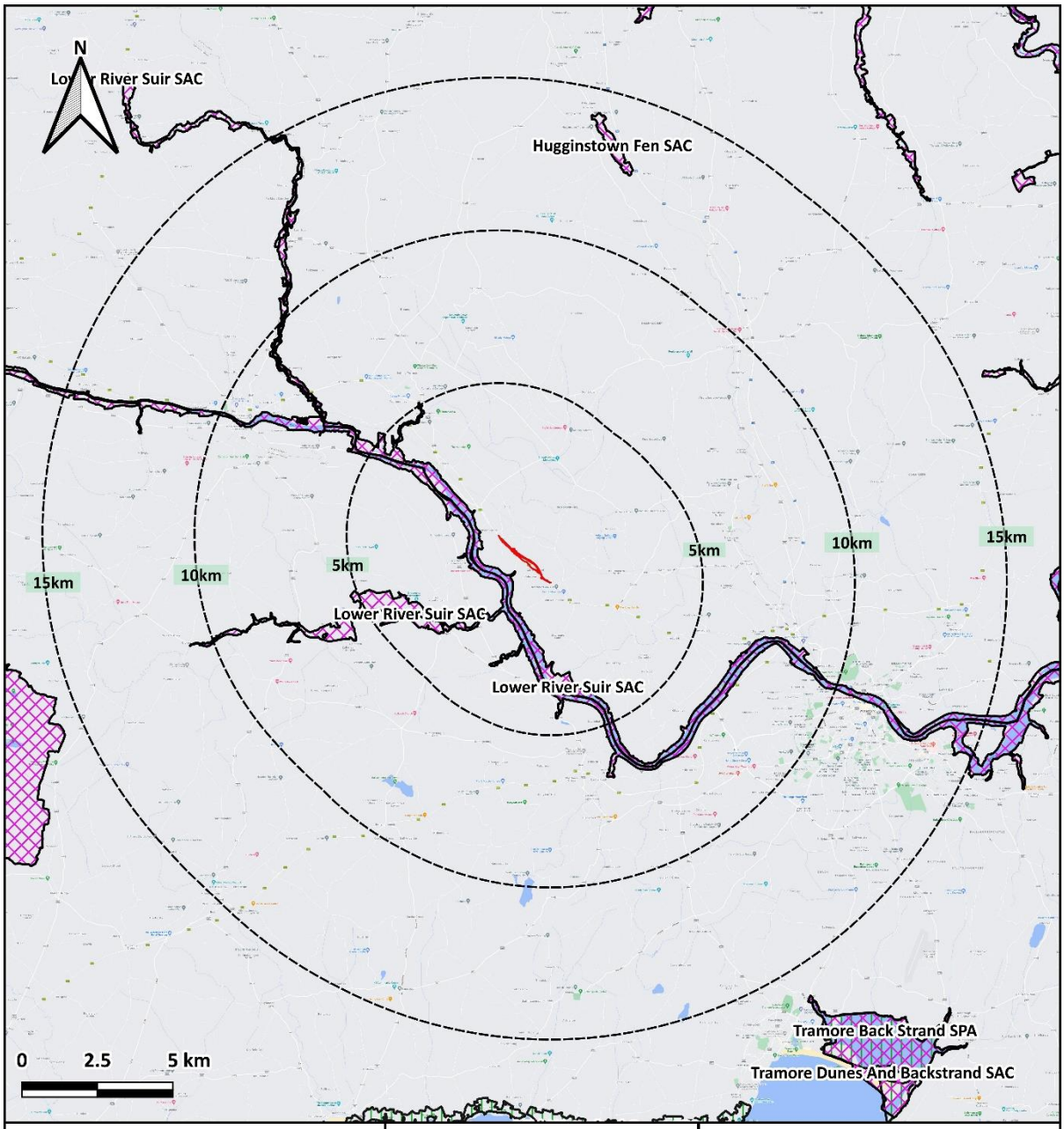
6(4) 'If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted. Where the site concerned hosts a priority natural habitat type and / or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.'

In addition, the European Court of Justice (ECJ) in Case C-127/02 (the "Waddenzee Ruling") has made a relevant ruling in relation to Appropriate Assessment and this is reflected in the current assessment:

'Any plan or project not directly connected with or necessary to the management of the site is to be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives if it cannot be excluded, on the basis of objective information, that it will have a significant effect on that site, either individually or in combination with other plans or projects" and that the plan or project may only be authorised "where no reasonable scientific doubt remains as to the absence of such effects.'

In case C-323/17 People Over Wind and Peter Sweetman v Coillte, the Court of Justice of the European Union (CJEU) ruled that mitigation measures could not be taken into account when undertaking a screening for Appropriate Assessment (AA). If mitigation measures are required to reduce or avoid a significant adverse effect, then Appropriate Assessment is required. In the Screening for Appropriate Assessment Report for the proposed N24 road scheme, it was assessed that mitigation was required for potential water quality impacts affecting the SAC; therefore the proposed N24 road scheme was subject to a NIS (AA).

In case C-461/17 *Holohan v An Bórd Pleanála*, the Court of Justice of the European Union ruled that the developer, under Article 5 of the Habitats Directive, was required to supply information in relation to the environmental impact both of the proposed project and of all the main alternatives studied by the developer (including any such alternative that had been rejected at an early stage), together with the reasons for his choice taking into account all of the environmental effects.



N24 Road Improvement Scheme
Special Area of Conservation
Special Protection Area

Date: 19.1.2022

Drawn by: Amy Butler
Checked by: William O'Connor

Natura 2000 Sites within 15km of the Proposed N24 Carrick Road Improvement Scheme

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Figure 1 Natura 2000 Sites within 15km of the proposed N24 Carrick Road Improvement Scheme.

2. METHODOLOGY

2.1 Desktop Review

A desktop study was undertaken to identify the extent and scope of the potentially affected Natura 2000 sites within the current study area, in relation to the proposed road scheme on the N24 Carrick Road in Co. Kilkenny. The desktop study identified the conservation interests of the designated sites with respect to the qualifying interests (species and habitats) relevant to the designated sites within the area.

A review of published literature was undertaken in order to collate data on the receiving environment; a range of additional sources of information including scientific reports produced by, and information on the websites of the EPA, NPWS and the IFI were also reviewed. Information sources reviewed included the NPWS site synopses for the Lower River Suir SAC, as well as protected species data held on the NPWS online database and the Biodiversity Ireland website (www.biodiversityireland.ie). A full bibliography of information sources reviewed is given in the reference section.

2.2 Site Survey

The proposed development was visited for a preliminary site walk-over survey in December 2017. The proposed development site was visited again during September 2020. The length of the proposed scheme and environs were inspected for evidence of ecological features of high conservation concern such as those flora and fauna that occur in the closest Natura 2000 sites. Weather conditions were dry and sunny during the surveying. The September 2020 survey included a walkover mammal survey of the proposed development site. The Skelpstown 16 stream was inspected in the vicinity of the proposed road scheme for evidence of Otter. It is noted that the stream was heavily over grown and in-accessible downstream of the existing N24. The accessible parts of the stream were searched for signs such as trails, tracks, slides, couches, prints and scat that would indicate the presence of Otter on the watercourse.

2.3 Appropriate Assessment Methodology

The preparation of this NIS for Appropriate Assessment follows the guidance published by DoEHLG (2010) '*Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities*'. According to these guidelines, assessing the impacts of a project or plan on a Natura 2000 site is a four staged approach, as described below:

- ***Stage One: Screening / Test of Significance*** - The process which identifies the likely impacts upon a Natura 2000 site of a project or plan, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant;
- ***Stage Two: Appropriate Assessment*** - The consideration of the impact of the project or plan on the integrity of the Natura 2000 site, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts;
- ***Stage Three: Assessment of Alternative Solutions*** - The process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site; and
- ***Stage Four: Assessment Where Adverse Impacts Remain*** - An assessment of compensatory measures where, in the light of an assessment of Imperative Reasons of Overriding Public Interest (IROPI), it is deemed that the project or plan should proceed.

The safeguards set out in Article 6(3) and (4) of the Habitats Directive are triggered not by certainty but by the possibility of significant effects. Thus, in line with the precautionary principle, it is unacceptable to fail to undertake an appropriate assessment on the basis that it is not certain that there are significant effects.

2.3.1 Natura Impact Assessment

A Natura Impact Statement considers whether the plan or project, alone or in combination with other projects or plans, will have adverse effects on the integrity of a Natura 2000 site, and includes any mitigation measures necessary to avoid, reduce or offset negative effects. The current report is set out in the format of a NIS and comprises a scientific examination of the plan / project and the relevant Natura 2000 sites; to identify and characterize any possible implications for the site in view of the site's conservation objectives, structure and function, taking account of in combination effects. The requirements for Appropriate Assessment derive directly from Article 6(3) of the EU Habitats Directive (1992).

Direct and indirect impacts in isolation or in combination with other plans and projects on the identified Natura 2000 sites in view of the sites' conservation objectives have been examined. Case law of the European Court of Justice has established that Appropriate Assessment must be based on best scientific knowledge in the field. These are the qualifying interests i.e. Annex I habitats, Annex I bird species (EU Birds Directive, incorporated into the EU Habitats Directive) and Annex II species hosted by a site and for which that site has been selected. The conservation objectives for Natura sites (SACs and SPAs) are determined under Article 4 of the Habitats Directive and are intended to ensure that the relevant qualifying interests i.e. Annex I habitats, Annex I bird species and Annex II species present within the designated sites are maintained in a favourable condition. The current assessment of the proposal for the road scheme on the N24 Carrick Road in County Kilkenny provides a description of the project and the receiving environment. The conservation objectives of Natura 2000 sites potentially affected by the proposal are listed and potential impacts outlined with respect to the integrity of the Natura 2000 site. Mitigation measures have been proposed for the protection of the conservation interests and the avoidance of impacts to Natura 2000 sites occurring within the study area.

3. DESCRIPTION OF THE PROJECT

The proposed N24 Carrick Road Improvement Scheme is c. 2.2km in length. The layout of the scheme in relation to designated sites within 15km is illustrated in Figure 1. Approximately 950m of the road scheme will run along the existing N24 road, and the remainder of the scheme involves a realignment that is c. 1.25km in length. The following information has been obtained from drawings, which are provided in the current report in Appendix 3.

The drainage designs for the proposed road scheme involve the construction of two no. attenuation pond treatment facilities to attenuate road surface run-off, with 2m high palisade fencing, one at the western end of the scheme and the other at the eastern end. According to the design drawings, included in Appendix 3, the proposed attenuation pond for road run-off to the west is noted to have a design flow of a 1 in 100-year return = 13 litres / second. The attenuation pond to the east is noted to have a design flow of 1 in 100-year return = 32 litres / second. The western attenuation pond will discharge to the Skelpstown 16 stream. 'Interceptor ditches' are also included along the edge of the scheme near an existing bohereen.

The proposal also includes for a proposed realignment of the Skelpstown 16 stream which flows through the site, with the construction of a new box culvert. A combined underbridge and a cattle underpass will be provided at the location of the Local Road L7416, according to the design drawings provided. It is noted in the drawings that the new box culvert will adhere to OPW guidelines. This new underbridge also includes for a 1.5m wide footpath underneath the road.

The proposed N24 Carrick Road Improvement Scheme also includes for a timber post and tension mesh fences are proposed along much of the scheme length, as well as 2.5m wide footpaths. Proposed residential access tracks and adjacent field access tracks are also included in the design. There is an existing 'bohereen' running through part of the site and as noted in the drawings, access to this will be closed due to its narrow nature and the fact that it is generally unsuitable for modern agricultural machinery.

4. RECEIVING ENVIRONMENT

4.1 Introduction

The proposed road improvement scheme involves the realignment of c. 2.2km of the N24 Carrick Road near Mooncoin in County Kilkenny and to the north of the River Suir Middle Estuary. The proposed N24 Carrick Road Improvement Scheme does not lie within any SAC or SPA. However, the Lower River Suir SAC is located approximately 510m southwest of the development, and c. 660rm via the Skelpstown 16 stream which runs through the site, so there are pathways for potential effects.

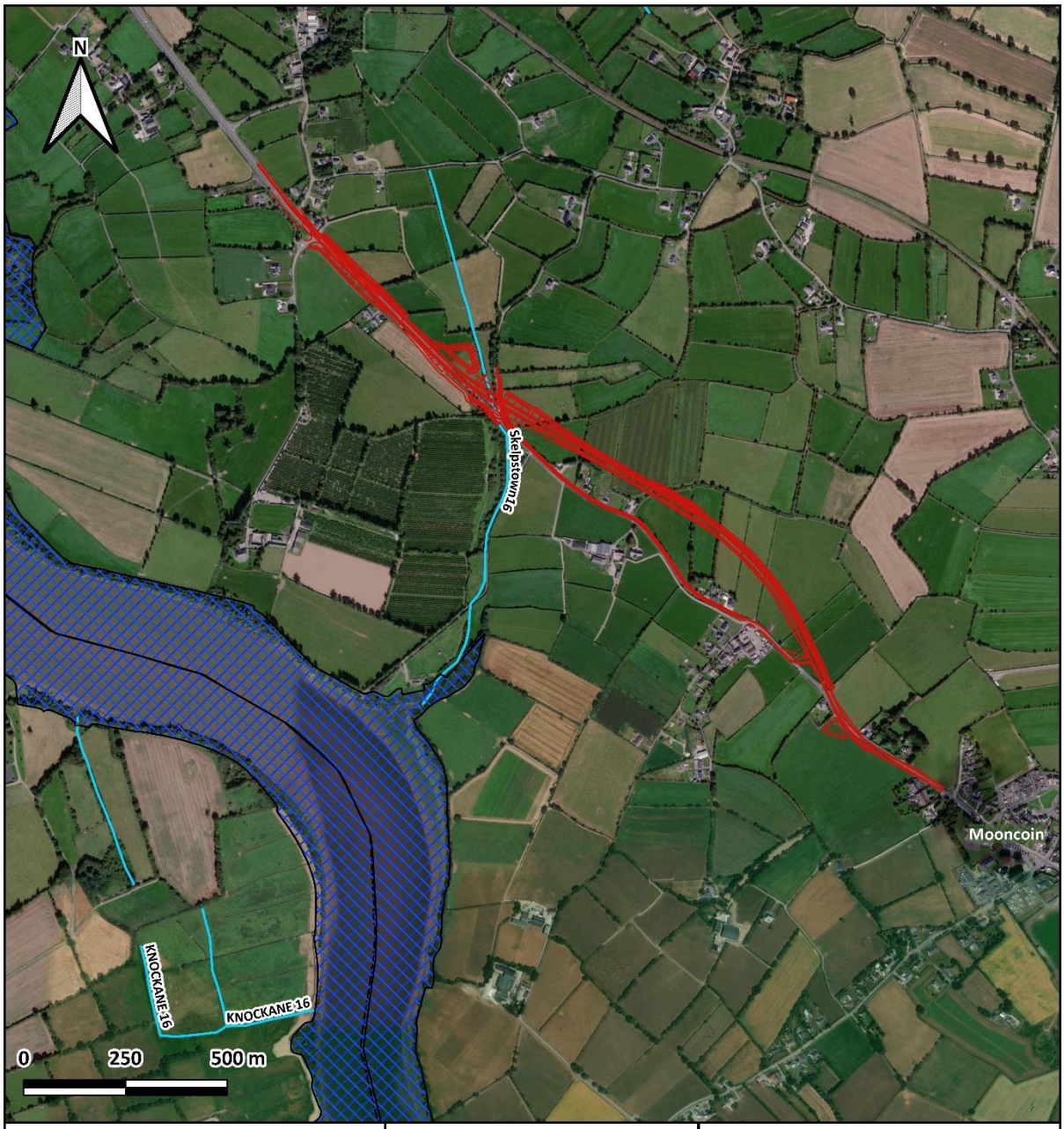
The River Suir is located within Hydrometric Area 16 (Suir) and the South Eastern River Basin District. The Middle Suir Estuary has a 'Poor' Ecological Status 2010-2015 (EPA, 2018). The Transitional Water Quality Status 2010-2012 assigned to the Suir Estuary is 'Eutrophic'. The Transitional Waterbodies Risk assessment of the Middle Suir Estuary is 'At risk'. The nearest upstream Q-rating assigned to the channel was upstream of Carrick-on-Suir in 2017, c. 13rkm upstream of the Skelpstown 16 stream (RS: 16S02 2850); a 'Q3 – Brackish' Q-rating was recorded, which indicates 'Poor' water quality.

4.2 Description of the Natura 2000 Sites affected

4.2.1 Lower River Suir SAC

The Lower River Suir SAC comprises the freshwater stretches of the River Suir south of Thurles, the tidal stretches as far as the confluence with the Barrow / Nore immediately east of Cheekpoint in Co. Waterford, and many tributaries along the way. The Suir and its tributaries flow through counties Tipperary, Kilkenny and Waterford. This site is designated mostly for aquatic habitats and species. The Lower River Suir holds excellent examples of a number of Annex I habitats, including the priority habitats alluvial forest and Yew Woodland. The site also supports populations of several important species; some listed on Annex II of the Habitats Directive or listed in the Irish Red Data Book. The presence of two legally protected plants and the ornithological importance of the site add further to the ecological interest and importance.

It is noted that the Lower River Suir SAC adjacent to the proposed development site is classified as a Water Framework Directive (WFD) Transitional Waterbody, i.e. an estuary. Estuaries have natural and dynamic levels of sediment and low sensitivities to pollution. No Freshwater Pearl Mussel habitat or White-clawed Crayfish habitat exist in this stretch of the river adjacent to the proposed development site according to the Conservation Objectives document and maps for the Lower River Suir SAC (NPWS, 2017). No Salmon, Twaite Shad or Lamprey nursery habitat is present along this stretch (NPWS, 2017). In addition, no Salmon, Twaite Shad or Lamprey spawning habitats exists in this tidal section of the Lower River Suir SAC. Salmon, Twaite Shad and Lampreys would migrate through this estuarine section of the SAC. Atlantic Salt Meadows and Mediterranean Salt Meadows are notably dynamic habitats and are tolerant of sedimentation and pollution. It is considered that Otter may be present in this section of the Lower River Suir SAC and may even be found in the Skelpstown 16 Stream occasionally.



N24 Road Improvement Scheme
Lower River Suir SAC
Watercourse

Date: 19.1.2022

Drawn by: Amy Butler
Checked by: William O'Connor

N24 Carrick Road Improvement Scheme showing Lower River Suir SAC

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Figure 2 Location of N24 Carrick Road Improvement Scheme showing Lower River Suir SAC (0021337).

4.2.1.1 Annex I Habitats

There are 7 habitats of qualifying interest of the Lower River Suir SAC: Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*), Mediterranean salt meadows (*Juncetalia maritimi),* Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation, Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels, Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles, Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) and *Taxus baccata* woods of the British Isles. Table 1 summarises the designated habitats in terms of the occurrence of each in the study area.

There are 3 of these designated habitats that have been identified as being potentially impacted by the proposed N24 development. Both Atlantic and Mediterranean salt meadows have been recorded downstream of the proposed development. Alluvial forests habitat mapped in the Conservation Objectives Maps is found upstream of the proposed development. However, the Conservation Objectives also acknowledges that the mapped area does not include the full extent of this habitat within the SAC and notes its likely presence along the Suir Estuary downstream of the proposed development. Due to the potential presence of these 3 habitat types downstream of the proposed development with hydrological connection, there is therefore potential for impacts on these to occur. Each of these 3 habitats is discussed in more detail below.

*4.2.1.1.1 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) / Mediterranean salt meadows (*Juncetalia maritimi*)(1330, 1410)*

"Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)" and "Mediterranean salt meadows (*Juncetalia maritimi*)" are intertidal habitats. These salt meadow habitats occur in the Lower River Suir SAC downstream of Waterford City at King's Channel, Little Island which is over 20rkm downstream of the proposed N24 Road Improvement Scheme. The two sub-types are generally intermixed but "Atlantic salt meadows" is the dominant of the two, and "Mediterranean salt meadows" habitat was not recorded in the Suir Estuary during 2007 Salt Marsh Monitoring Project surveying (McCorry & Ryle, 2009). The designated salt meadows habitats in this area are present mainly where embankments along the River Suir are absent or breached and along the tidal stretches of some of the tributaries of the channel below Little Island. The designated habitat is noted as occurring in narrow, non-continuous bands along both banks, being constrained in parts by an embankment (McCorry & Ryle, 2009). There are more extensive sections along the south bank at Ballynakill just east of Little Island. Three large salt meadows are also present on the south bank between Ballynakill and Cheekpoint (NPWS, 2013).

According to report on previous Saltmarsh Monitoring Project surveys the Little Island designated salt meadows have been affected by development and pipe-laying and Meadow Barley in the past and impacts from a sewage pipeline were noted in 2007 surveys. Loss of "Mediterranean salt meadows" was acknowledged also and likely a result of disturbance to the upper saltmarsh zone due to adjacent development (McCorry & Ryle, 2009).

The current overall assessment of Conservation Status of "Atlantic salt meadows" in Ireland is 'Inadequate' and the trend is 'Deteriorating'. "Mediterranean salt meadows" overall trend in Conservation Status is 'Deteriorating' also and the overall assessment of Conservation Status is currently 'Inadequate' too (NPWS, 2019a). The EU Conservation Status of the Little Island salt meadow habitats is considered 'Unfavourable – Bad' according to McCorry and Ryle (2009).

4.2.1.1.1 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) (91E0)

"Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)" habitat of the Lower River Suir SAC have been surveyed previously as part of the National Survey of Native Woodlands (NSNW), and some as part of national monitoring surveys (Perrin *et al.* 2008; O'Neill and Barron, 2013), at Fiddown (NSNW site code: 0022), Mountbolton (NSNW site code: 1823) and Ballycanvan Big (NSNW site code: 1839). The surveyed areas of this designated habitat within the SAC are estimated to cover 32.9ha.

There are also other un-surveyed areas of this habitat type present within the SAC, including at islands below Carrick-on-Suir, at Shanbally (Coillte LIFE project site), Tibberaghny Marshes, along the lower stretches of the more westerly Suir tributaries and along both banks of the River Suir as far east as the Dawn River which is downstream of the Skelpstown 16 stream (NPWS, 2017). This designated habitat is not present at the site of the proposed N24 Road Improvement Scheme. The surveyed sections of "Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)" in this SAC, which are mapped in the Conservation Objective maps, are located upstream of the proposed N24 Road Improvement Scheme and so there is no pathway for impacts on these areas. However, as it is noted that there is likely to be other un-surveyed sections of this habitat along the Suir downstream of the Skelpstown 16 stream, there could be a possible hydrological connection from the proposed works area to this protected habitat type.

According to the most recent EU Protected Habitats Assessment this designated habitat type is currently 'Bad' in terms of Conservation Status in Ireland and the trend is 'Deteriorating' (NPWS, 2019a).

Table 1 Habitats listed as qualifying interests of the Lower River Suir SAC.

Natura Code	Qualifying Interest	Occurrence in the study area
1330	Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	✓
1410	Mediterranean salt meadows (*Juncetalia maritimi*)	Potential
3260	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation	✗
6430	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	✗
91A0	Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	✗
91E0	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)	Potential
91J0	*Taxus baccata* woods of the British Isles	✗

4.2.1.2 Annex II Species

There are 8 species of qualifying interest of the Lower River Suir SAC: Freshwater Pearl Mussel (*Margaritifera margaritifera*), White-clawed Crayfish (*Austropotamobius pallipes*), Sea Lamprey (Petromyzon marinus), Brook Lamprey (*Lampetra planeri*), River Lamprey (*Lampetra fluviatilis*), Twaite Shad (*Alosa fallax fallax*), Salmon (*Salmo salar*) and Otter (*Lutra lutra*). Table 2 summarises the designated species in terms of the occurrence of each in the study area.

There are 6 of these designated habitats that have been identified as being potentially impacted by the proposed N24 development. White-clawed Crayfish will not be significantly impacted as this species occurs upstream in the freshwater parts of the SAC, so there is no potential pathway for effects on this

freshwater species. Similarly, the Lower River Suir SAC Brook lamprey population is not present in this part of the protected site due to the tidal habitat here in the Middle Suir Estuary, there is no pathway for impacts on this species. Sea Lamprey, Twaite Shad and Salmon are aquatic species that occur in the SAC downstream of the proposed development. There is a hydrological pathway by which impacts could be transferred and affect these species. Otter is a semi-aquatic species which is also present downstream of the proposed works. It is also considered that Otter from the SAC could also be found in the Skelpstown 16 stream occasionally. There is therefore, potential for direct and indirect impacts on Otter to occur. Freshwater Pearl Mussel occurs only in the Clodiagh River within the SAC; there is no hydrological pathway for impacts to be conveyed to the Freshwater Pearl Mussel area. However, there is considered to be potential for this species to be affected as potential impacts to Salmon has been identified; Freshwater Pearl Mussel rely on Salmon to facilitate their life cycle to survive. The potentially affected designated species are each discussed in more detail below.

4.2.1.2.1 Freshwater Pearl Mussel [1029]

Freshwater Pearl Mussel (*Margaritifera margaritifera*) is currently at an overall Conservation Status of 'Bad' in Ireland based on the most recent assessment of EU Protected Species. The range of the species was considered 'Inadequate' while Ireland is classed as 'Bad' in terms of habitat for the species, population and future prospects. The trend of Conservation Status of the species is 'Deteriorating' (NPWS, 2019b).

The designated Freshwater Pearl Mussel occurs in the SAC only in the Clodiagh River. Although widespread throughout the Clodiagh River, and particularly in the stretch between Clonea and Portlaw, Freshwater Pearl Mussel occurs only in small numbers in the Clodiagh tributary to the east of the River Suir (NPWS, 2017). The Clodiagh Freshwater Pearl Mussel population is presently significantly below carrying capacity and has been suffering major declines in recent times, in particular between 2006 and 2016 according to Ross et al. (2017). Freshwater Pearl Mussels are particularly vulnerable to water quality impacts. There is no hydrological pathway for water quality impacts from the proposed N24 Road Improvement Scheme to affect the water quality in the River Clodiagh. It is noted however that if any water quality impacts on the River Suir were to result from the proposed works this could affect Salmon in the river system. This could indirectly impact on the designated Freshwater Pearl Mussel as this species need Salmon to survive. Salmon are important in the early life stage of the Freshwater Pearl Mussel life cycle, acting as hosts to the glochidia that attach to the gills of the fish for approximately 9 months as they develop to juvenile mussels.

4.2.1.2.2 Sea Lamprey [1095]

Habitat in Ireland for Sea Lamprey (Petromyzon marinus) is 'Inadequate' according to the most recent EU Protected Species Assessment, and the range, population and future prospects are all considered 'Bad'. Overall the Conservation Status of the species is 'Bad'. The trend of Conservation Status of Sea Lamprey in Ireland is 'Stable' (NPWS, 2019b).

Sea Lamprey occurs in the River Suir Estuary but there is no suitable nursery habitat downstream of the proposed N24 Road Improvement Scheme. According to the Lower River Suir SAC Conservation Objectives documents (NPWS, 2017), there are substantial areas of the River Suir from Cahir to Carrick-on-Suir which provide suitable spawning habitat for Sea Lamprey. It is noted that the access to the section upstream of Clonmel is limited due to a weir in the channel at Clonmel affecting upstream passage (IFI, 2016). Due to the presence of suitable spawning areas upstream of the proposed N24 works Sea Lamprey would pass upstream along the River Suir past the proposed development. It is therefore likely that Sea Lamprey is present in the Suir Estuary where the Skelpstown 16 stream (which provides hydrological connection to the Suir and SAC) joins the main channel

4.2.1.2.3 Brook/River Lamprey [1096, 1099]

Brook Lamprey (*Lampetra planeri*) range, habitat, population and future prospects have all been assessed as 'Favourable' for Ireland. The overall Conservation Status of Brook Lamprey is 'Favourable' with a 'Stable' trend. For River Lamprey (*Lampetra fluviatilis*) habitat in Ireland is considered 'Favourable' while range, population and future prospects are all 'Unknown' according to the most recent EU Protected Species Assessment. The current overall Conservation Status is therefore 'Unknown' (NPWS, 2019b).

Brook Lamprey and River Lamprey are included together as ammocoetes cannot readily be distinguished. There is no suitable nursery habitat for this species in the SAC downstream of the proposed development due to the tidal habitat. As Brook Lamprey is a generally non-migratory freshwater species it will not occur in the Suir Estuary. River Lamprey however may pass through the River Suir Estuary for their feeding stage at sea, or upon returning to the upstream freshwater habitat to spawn. Thus, River Lamprey can occur downstream of the proposed development.

4.2.1.2.4 Twaite Shad [1103]

The overall national Conservation Status of Twaite Shad (*Alosa fallax fallax*) is currently 'Bad' with a 'Stable' trend. Habitat for this species is 'Inadequate' and the range, population and future prospects of Twaite Shad in Ireland are all 'Bad' (NPWS, 2019b).

There is no suitable nursery habitat for Twaite Shad in the River Suir Estuary downstream of the proposed N24 Road Improvement Scheme due to the tidal habitat. Barriers to migration do affect Twaite Shad in some rivers of the Suir catchment and restrict the species to the lower reaches of the rivers, preventing access to some spawning areas (NPWS, 2017). It is also noted that in 2018 fish stock surveys carried out by IFI at 10 sites on the River Suir between Ardmayle Bridge upstream of Cashel and Kilsheelan Bridge downstream of Clonmel, no Twaite Shad were recorded (Matson *et al.* 2018). However, there are no major blocks to migration downstream of the proposed N24 development and so Twaite Shad can pass upstream through the River Suir channel and past the proposed development. Therefore, this species is likely to be present in the Suir Estuary where the Skelpstown 16 stream (which provides hydrological connection to the Suir and SAC) joins the main channel.

4.2.1.2.5 Salmon [1106]

The habitat and range of Salmon (*Salmo salar*) in Ireland is 'Favourable' but population and future prospects are both assessed as 'Inadequate'. Overall the Conservation Status of this species in Ireland is 'Inadequate' with a 'Stable' trend according to the most recent EU Protected Species Assessment (NPWS, 2019b).

In 2016 electro-fishing surveys on the River Suir determined that Salmon fry abundance in the Suir catchment was below the threshold conservation limit of ≥17 salmon fry per 5 minutes standardised electro-fishing, with the recorded site average of 10.2 per 5 minutes (SSCS, 2017). In August 2018 IFI (Inland Fisheries Ireland) carried out fish stock surveys in the South Eastern River Basin District (SERBD) (Matson *et al.* 2018). For the 2018 assessment of the Suir fish stocks, 10 sites were surveyed between Ardmayle Bridge upstream of Cashel and Kilsheelan Bridge downstream of Clonmel. Salmon were among the two most common species recorded, along with Brown Trout. Salmon were found to be present at 9 out of the 10 sites. There were two age classes of Salmon recorded: 0+ and 1+.

There is no suitable nursery habitat for Salmon in the River Suir Estuary downstream of the proposed N24 Road Improvement Scheme due to the presence of tidal habitat. However Salmon are migratory and move upstream to suitable spawning areas in clean gravels. It is noted in the Conservation Objectives of the Lower River Suir SAC that currently Salmon's upstream passage to suitable spawning habitat is not significantly affected by any barriers within the SAC. Salmon therefore are expected to be present in the River Suir Estuary where the Skelpstown 16 stream (which provides hydrological connection to the Suir and SAC) joins the main channel; and could be affected if impacts arising from the proposed works were conveyed to the Suir.

4.2.1.2.6 Otter [1355]

The range, habitat, population and the future prospects of Otter (*Lutra lutra*) have all been assessed as being 'Favourable' in Ireland. The Favourable Conservation Status target for national Otter distribution range in SACs is 88%; the current estimation exceeds the target at 93.6% (Reid et al. 2013; NPWS, 2017). Therefore the overall Conservation Status of this species is currently 'Favourable' and the trend is 'Improving' (NPWS, 2019b).

Otter are known to be present in the main River Suir and this species utilise river habitats from the estuaries to headwaters. The Skelpstown 16 stream provides a hydrological pathway for impacts to the River Suir and SAC site where this protected species occurs. Although the Skelpstown 16 stream is small and is not considered optimal habitat for otters, it is nonetheless possible for otters from the SAC to use this watercourse on occasion too. No evidence of Otter activity was observed and no holts identified during the walkover site survey of the proposed works area. However, it is considered that there is a possibility that Otter could commute in the watercourse occasionally, and therefore could be impacted directly if present in the stream. The species could indirectly be impacted too as there is a hydrological pathway for conveying impacts to the downstream Otter habitat in the designated SAC site.

Table 2 Annex II species listed as qualifying interests of Lower River Suir SAC.

Natura Code	Qualifying Interest	Occurrence in the study area
1109	Freshwater Pearl Mussel *Margaritifera margaritifera*	✗ (but life cycle dependent on Salmon which do occur here)
1092	White-clawed Crayfish *Austropotamobius pallipes*	✗
1095	Sea Lamprey *Petromyzon marinus*	✓
1096	Brook Lamprey *Lampetra planeri*	✗
1099	River Lamprey *Lampetra fluviatilis*	✓
1103	Twaite Shad *Alosa fallax fallax*	✓
1106	Salmon *Salmo salar*	✓
1355	Otter *Lutra lutra*	✓

5. IMPACT ASSESSMENT

The impact of the proposed project affecting the *integrity* of a Natura 2000 site is considered with respect to the conservation objectives of the site. Integrity is defined as: '*the coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and/or populations of species for which the site is or will be classified*'. Therefore, the integrity of a site is principally related to the structure and function of the site with regard to its Annex I habitats and Annex II species listed as the qualifying interests. The conservation status of these qualifying interests comprises the primary conservation objectives for all designated Natura 2000 sites.

5.1 Lower River Suir SAC

The qualifying interests of the Lower River Suir SAC are present in Table 3 below with the potential impacts of the proposed development on each and the type of mitigation measures required. The qualifying interests are discussed individually below in terms of the potential impacts that could arise from the proposed works.

Table 3 Potential impacts on the qualifying interests of the Lower River Suir SAC arising from the proposed development on the N24 Carrick Road, Co. Kilkenny.

	Natura Code	Qualifying Interests	Impacts
Annex I Habitats	1330	Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	This habitat is not present at the proposed works site but is located downstream. Potential impacts concern indirect water quality impacts during the construction phase of the development. Minor risk of invasive species impacts.
	1410	Mediterranean salt meadows (*Juncetalia maritimi*)	This habitat is not present at the proposed works site but is likely to be found downstream. Potential impacts concern indirect water quality impacts during the construction of the development. Minor risk of invasive species impacts.
	91E0	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)	This habitat is not present at the proposed works site but is likely to be found downstream. Potential impacts concern indirect water quality impacts during the construction of the development. Minor risk of invasive species impacts.
Annex II Species	1109	Freshwater Pearl Mussel *Margaritifera margaritifera*	There is no hydrological pathway for water quality or invasive species impacts to directly affect this species but impacts affecting Salmon (as included below) would interfere with the successful Freshwater Pearl Mussel life cycle completion.
	1095	Sea lamprey *Petromyzon marinus*	Sea Lamprey occurs in the Suir Estuary downstream of the proposed development. This species could potentially be impacted through water quality impacts during the construction phase of the development. Minor risk of invasive species impacts.
	1099	River lamprey *Lampetra fluviatilis*	River Lamprey occurs in the Suir Estuary downstream of the proposed development. This species could potentially be impacted through water quality impacts during the construction phase of the development. Minor risk of invasive species impacts.
	1103	Twaite Shad *Alosa fallax fallax*	Twaite Shad may be present in the Suir Estuary downstream of the proposed development. This species could potentially be impacted through water quality

	Natura Code	Qualifying Interests	Impacts
			impacts during the construction phase of the development. Minor risk of invasive species impacts.
	1106	Salmon *Salmo salar*	Salmon occurs in the Suir Estuary downstream of the proposed development. This species could potentially be impacted through water quality impacts during the construction phase of the development. Minor risk of invasive species impacts.
	1355	Otter *Lutra lutra*	Otter occurs in the Suir Estuary downstream of the proposed development. Otters are considered to possibly also use the Skelpstown 16 stream at the proposed works area. This species could be subject to direct disturbance impacts during construction if present; as well as indirect water quality impacts during the construction of the development. Minor risk of invasive species impacts.

5.1.1 Annex I Habitats

5.1.1.1 Atlantic salt meadows

5.1.1.1.1 Construction Phase

As this habitat is present downstream of the proposed development there is a hydrological pathway for impacts. A deterioration in water quality could arise through runoff of soil from excavated areas and soil deposition areas as well as dust generated by the works contributing to increased suspended solids, hydrocarbons (including fuels and lubricants) spilling from machinery, and waste materials such as concrete. Considering the distance to this designated habitat, more than 20rkm downstream in addition to the size and dynamic nature of the Suir Estuary, water quality impacts are expected to be well-diluted. The risk of significant water quality impacts on this habitat is considered to be low but there is the potential for such impacts none-the-less. Best practice water quality protection mitigation will easily minimise these impacts.

No non-native invasive species were identified on the site during the site survey. However, due to hydrological connection via the Skelpstown 16 stream and the fact that works on this watercourse are proposed as part of the development it is possible that invasive species could be carried downstream and become established in the SAC and adversely affect the designated habitats. Biosecurity measures implemented during the proposed works will prevent the introduction of invasive species.

5.1.1.1.2 Operational Phase

No significant adverse impacts are anticipated to arise during the operational phase of the proposed development. The scale of the project is small; the N24 is an already existing and busy road, with only a relatively small 1.25km realignment proposed. The main hydrological pathway for impacts would be via the Skelpstown 16 stream which is a small low gradient watercourse. This makes it less likely to carry significant levels of pollution / contamination to the Suir which is c. 660rm downstream. Minor impacts that may be conveyed via the Skelpstown 16 stream would easily be absorbed due to the dynamic and robust nature and the size of the receiving River Suir Estuary.

It is in fact considered that there would be a positive operational phase impact as run-off from the N24 does not currently receive any treatment. There already exists the risk of spillages occurring on the N24 road, including petrol, oil, lubricants and other chemical additives from HGVs. The new design for the

N24 road has kept safety in mind and will improve current conditions to help lower the risk of accidents causing such spills. The current proposal will provide treatment and attenuation for road run-off to remove chemicals / grit / salt etc. The drainage design for the proposed road development includes direction of all surface water run-off through a controlled drainage system which includes attenuation ponds to allow for the settlement of run-off and capture of suspended solids and pollutants.

5.1.1.2 Mediterranean salt meadows

5.1.1.2.1 Construction Phase

As this habitat is present downstream of the proposed development there is a hydrological pathway for impacts. A deterioration in water quality could arise through runoff of soil from excavated areas and soil deposition areas contributing to increased suspended solids, hydrocarbons (including fuels and lubricants) spilling from machinery, and waste materials such as concrete. The receiving water body, the Middle Suir Estuary, is large and robust and water quality impacts are expected to be well-diluted when it reaches this downstream habitat. The risk of significant water quality impacts on this habitat is considered to be low but there is the potential for such impacts none-the-less. Best practice water quality protection mitigation will easily minimise these impacts.

No non-native invasive species were identified on the site during the site survey. However, due to hydrological connection via the Skelpstown 16 stream and the fact that works on this watercourse are proposed as part of the development it is possible that invasive species could be carried downstream and become established in the SAC and adversely affect the designated habitat. Biosecurity measures implemented during the proposed works will prevent the introduction of invasive species.

5.1.1.2.2 Operational Phase

No significant adverse impacts are anticipated to arise during the operational phase of the proposed development. The scale of the project is relatively small. In addition the hydrological pathway via the Skelpstown 16 stream is not considered to have the capacity to carry significant levels of pollution to the SAC c. 660rm downstream. This habitat is located a further 20+rkm downstream. Minor impacts that may be conveyed via the Skelpstown 16 stream would easily be absorbed due to the dynamic and robust nature and the size of the receiving River Suir Estuary.

The proposed road scheme design is expected to reduce risks of chemical spills on the N24 as well as improve treatment of road surface run-off with an upgraded drainage system (see section 5.1.1.1.2). Therefore, no operational impacts relating to water quality are envisaged.

5.1.1.3 Alluvial forests

5.1.1.3.1 Construction Phase

As this habitat is present downstream of the proposed development there is a hydrological pathway for impacts. A deterioration in water quality could arise through runoff of soil from excavated areas and soil deposition areas contributing to increased suspended solids, hydrocarbons (including fuels and lubricants) spilling from machinery, and waste materials such as concrete. The receiving water body, the Middle Suir Estuary, is large and robust and water quality impacts are expected to be well-diluted when it reaches this downstream habitat. The risk of significant water quality impacts on this habitat is considered to be low but there is the potential for such impacts none-the-less. Best practice water quality protection mitigation will easily minimise these impacts.

No non-native invasive species were identified on the site during the site survey. However, due to hydrological connection via the Skelpstown 16 stream and the fact that works on this watercourse are proposed as part of the development it is possible that invasive species could be carried downstream and become established in the SAC and adversely affect the designated habitat. Biosecurity measures implemented during the proposed works will prevent the introduction of invasive species.

5.1.1.3.2 Operational Phase

No significant adverse impacts are anticipated to arise during the operational phase of the proposed development. The scale of the project is relatively small. In addition the hydrological pathway via the Skelpstown 16 stream is not considered to have the capacity to carry significant levels of pollution to the SAC and this designated habitat more than c. 660rm downstream. Minor impacts that may be conveyed via the Skelpstown 16 stream would easily be absorbed and diluted to a negligible level due to the dynamic and robust nature and the size of the receiving River Suir Estuary.

The proposed road scheme design is expected to reduce risks of chemical spills on the N24 as well as improve treatment of road surface run-off with an upgraded drainage system (see section 5.1.1.1.2). Therefore, no operational impacts relating to water quality are envisaged.

5.1.2 Annex II Species

5.1.2.1 Freshwater Pearl Mussel

5.1.2.1.1 Construction Phase

This species is not present within the proposed works are and will not be directly impacted. There is also no hydrological pathway for water quality impacts to affect this species which occurs in the Lower River Suir SAC only in the Clodiagh River. However, this species does rely on Salmon species as hosts for its larval form to complete its life cycle. Salmon do occur downstream of the proposed development and impacts on Salmon would in turn impact on the designated Freshwater Pearl Mussel population of the SAC. See section 5.1.2.5 for the potential impacts on Salmon from the proposed works.

5.1.2.1.2 Operational Phase

No significant adverse impacts are anticipated to arise during the operational phase of the proposed development that would affect Freshwater Pearl Mussel or their host species (Salmon). The scale of the project is relatively small and is not expected to cause significant adverse impacts. In addition the hydrological pathway via the Skelpstown 16 stream is not considered to have the capacity to carry significant levels of pollution to the SAC, c. 660rm downstream. Minor impacts that may be conveyed via the Skelpstown 16 stream would easily be absorbed and diluted to a negligible level due to the dynamic and robust nature and the size of the receiving River Suir Estuary.

The proposed road scheme design is expected to reduce risks of chemical spills on the N24 as well as improve treatment of road surface run-off with an upgraded drainage system (see section 5.1.1.1.2). Therefore, no operational impacts relating to water quality are envisaged.

5.1.2.2 Sea lamprey

5.1.2.2.1 Construction Phase

This species is not present within the proposed works are and will not be directly impacted.

There is a potential pathway for indirect water quality impacts on this species which occurs downstream of the proposed works via the Skelpstown 16 stream. A deterioration in water quality could arise through runoff of soil from excavated areas and soil deposition areas as well as dust generated by the works contributing to increased suspended solids, hydrocarbons (including fuels and lubricants) spilling from machinery, and waste materials such as concrete. Uncured concrete can kill fish and macroinvertebrates by altering the pH of the water. It is also considered that the Skelpstown 16 stream is a small watercourse with a low gradient and thereby has a relatively low capacity for transferring pollutants. Also the large size and dynamic nature of the receiving Middle Suir Estuary where this species occurs is expected to be capable of diluting and absorbing minor pollution. The risk of significant water quality impacts on this species is considered to be low but there is the potential for such impacts none-the-less. Best practice water quality protection mitigation will easily minimise these impacts.

No non-native invasive species were identified on the site during the site survey. However, due to hydrological connection via the Skelpstown 16 stream and the fact that works on this watercourse are proposed as part of the development it is possible that invasive species could be carried downstream and become established in the SAC and adversely affect the designated species. Biosecurity measures implemented during the proposed works will prevent the introduction of invasive species.

5.1.2.2.2 Operational Phase

No significant adverse impacts are anticipated to arise during the operational phase of the proposed development that would affect this species. The scale of the project is relatively small and is not expected to cause significant adverse impacts. In addition the hydrological pathway via the Skelpstown 16 stream is not considered to have the capacity to carry significant levels of pollution to the SAC, c. 660rm downstream. Minor impacts that may be conveyed via the Skelpstown 16 stream would easily be absorbed and diluted to a negligible level due to the dynamic and robust nature and the size of the receiving River Suir Estuary.

The proposed road scheme design is expected to reduce risks of chemical spills on the N24 as well as improve treatment of road surface run-off with an upgraded drainage system (see section 5.1.1.1.2). Therefore, no operational impacts relating to water quality are envisaged.

5.1.2.3 River lamprey

5.1.2.3.1 Construction Phase

This species is not present within the proposed works are and will not be directly impacted.

There is a potential pathway for indirect water quality impacts on this species which occurs downstream of the proposed works via the Skelpstown 16 stream. A deterioration in water quality could arise through runoff of soil from excavated areas and soil deposition areas as well as dust generated by the works contributing to increased suspended solids, hydrocarbons (including fuels and lubricants) spilling from machinery, and waste materials such as concrete. Uncured concrete can kill fish and macroinvertebrates by altering the pH of the water. It is also considered that the Skelpstown 16 stream

is a small watercourse with a low gradient and thereby has a relatively low capacity for transferring pollutants. Also the large size and dynamic nature of the receiving Middle Suir Estuary where this species occurs is expected to be capable of diluting and absorbing minor pollution. The risk of significant water quality impacts on this species is considered to be low but there is the potential for such impacts none-the-less. Best practice water quality protection mitigation will easily minimise these impacts.

No non-native invasive species were identified on the site during the site survey. However, due to hydrological connection via the Skelpstown 16 stream and the fact that works on this watercourse are proposed as part of the development it is possible that invasive species could be carried downstream and become established in the SAC and adversely affect the designated species. Biosecurity measures implemented during the proposed works will prevent the introduction of invasive species.

5.1.2.3.2 Operational Phase

No significant adverse impacts are anticipated to arise during the operational phase of the proposed development that would affect this species. The scale of the project is relatively small and is not expected to cause significant adverse impacts. In addition the hydrological pathway via the Skelpstown 16 stream is not considered to have the capacity to carry significant levels of pollution to the SAC, c. 660rm downstream. Minor impacts that may be conveyed via the Skelpstown 16 stream would easily be absorbed and diluted to a negligible level due to the dynamic and robust nature and the size of the receiving River Suir Estuary.

The proposed road scheme design is expected to reduce risks of chemical spills on the N24 as well as improve treatment of road surface run-off with an upgraded drainage system (see section 5.1.1.1.2). Therefore, no operational impacts relating to water quality are envisaged.

5.1.2.4 Twaite Shad

5.1.2.4.1 Construction Phase

This species is not present within the proposed works are and will not be directly impacted.

There is a potential pathway for indirect water quality impacts on this species which occurs downstream of the proposed works via the Skelpstown 16 stream. A deterioration in water quality could arise through runoff of soil from excavated areas and soil deposition areas as well as dust generated by the works contributing to increased suspended solids, hydrocarbons (including fuels and lubricants) spilling from machinery, and waste materials such as concrete. Uncured concrete can kill fish and macroinvertebrates by altering the pH of the water. It is also considered that the Skelpstown 16 stream is a small watercourse with a low gradient and thereby has a relatively low capacity for transferring pollutants. Also the large size and dynamic nature of the receiving Middle Suir Estuary where this species occurs is expected to be capable of diluting and absorbing minor pollution. The risk of significant water quality impacts on this species is considered to be low but there is the potential for such impacts none-the-less. Best practice water quality protection mitigation will easily minimise these impacts.

No non-native invasive species were identified on the site during the site survey. However, due to hydrological connection via the Skelpstown 16 stream and the fact that works on this watercourse are proposed as part of the development it is possible that invasive species could be carried downstream and become established in the SAC and adversely affect the designated species. Biosecurity measures implemented during the proposed works will prevent the introduction of invasive species.

5.1.2.4.2 Operational Phase

No significant adverse impacts are anticipated to arise during the operational phase of the proposed development that would affect this species. The scale of the project is relatively small and is not expected to cause significant adverse impacts. In addition the hydrological pathway via the Skelpstown 16 stream is not considered to have the capacity to carry significant levels of pollution to the SAC, c. 660rm downstream. Minor impacts that may be conveyed via the Skelpstown 16 stream would easily be absorbed and diluted to a negligible level due to the dynamic and robust nature and the size of the receiving River Suir Estuary.

The proposed road scheme design is expected to reduce risks of chemical spills on the N24 as well as improve treatment of road surface run-off with an upgraded drainage system (see section 5.1.1.1.2). Therefore, no operational impacts relating to water quality are envisaged.

5.1.2.5 Salmon

5.1.2.5.1 Construction Phase

This species is not present within the proposed works are and will not be directly impacted.

There is a potential pathway for indirect water quality impacts on this species which occurs downstream of the proposed works via the Skelpstown 16 stream. A deterioration in water quality could arise through runoff of soil from excavated areas and soil deposition areas as well as dust generated by the works contributing to increased suspended solids, hydrocarbons (including fuels and lubricants) spilling from machinery, and waste materials such as concrete. Uncured concrete can kill fish and macroinvertebrates by altering the pH of the water. It is also considered that the Skelpstown 16 stream is a small watercourse with a low gradient and thereby has a relatively low capacity for transferring pollutants. Also the large size and dynamic nature of the receiving Middle Suir Estuary where this species occurs is expected to be capable of diluting and absorbing minor pollution. The risk of significant water quality impacts on this species is considered to be low but there is the potential for such impacts none-the-less. Best practice water quality protection mitigation will easily minimise these impacts.

No non-native invasive species were identified on the site during the site survey. However, due to hydrological connection via the Skelpstown 16 stream and the fact that works on this watercourse are proposed as part of the development it is possible that invasive species could be carried downstream and become established in the SAC and adversely affect the designated species. Biosecurity measures implemented during the proposed works will prevent the introduction of invasive species.

5.1.2.5.2 Operational Phase

No significant adverse impacts are anticipated to arise during the operational phase of the proposed development that would affect this species. The scale of the project is relatively small and is not expected to cause significant adverse impacts. In addition the hydrological pathway via the Skelpstown 16 stream is not considered to have the capacity to carry significant levels of pollution to the SAC, c. 660rm downstream. Minor impacts that may be conveyed via the Skelpstown 16 stream would easily be absorbed and diluted to a negligible level due to the dynamic and robust nature and the size of the receiving River Suir Estuary.

The proposed road scheme design is expected to reduce risks of chemical spills on the N24 as well as improve treatment of road surface run-off with an upgraded drainage system (see section 5.1.1.1.2). Therefore, no operational impacts relating to water quality are envisaged.

5.1.2.6 Otter

5.1.2.6.1 Construction Phase

The construction phase of the proposed development will result in increased noise and disturbance levels in the study area. The proposed road scheme is of a relatively small size, and is located at least c. 510m straight line distance from the Lower River Suir SAC. It is not considered to cause disturbance impacts to Otter within the SAC. However, it is noted that Otter from the SAC could use the Skelpstown 16 stream also; noise and disturbance could therefore impact this species if otters happen to be present in the watercourse in the vicinity of the proposed works. The Skelpstown 16 stream is not considered to provide favorable habitat for Otter and Otter is considered unlikely to be present in the vicinity of the works. Therefore, this risk is relatively low; some basic mitigation measures to limit the work hours, so that no work is completed during night-time hours, will be sufficient to ensure no indirect disturbance impacts arise that could affect this qualifying interest of the SAC.

A deterioration in water quality could arise through runoff of soil from excavated areas and soil deposition areas as well as dust generated by the works contributing to increased suspended solids, hydrocarbons (including fuels and lubricants) spilling from machinery, and waste materials such as concrete. Uncured concrete can kill fish and macroinvertebrates by altering the pH of the water. Indirect water quality impacts could therefore affect Otter by affecting the general quality of its habitat as well as reducing the availability of a key food source for the species (fish) downstream from the works.

No non-native invasive plant species were identified on the site during the site survey. However, due to the hydrological connection via the Skelpstown 16 stream and the fact that works on this watercourse are proposed as part of the development, it is possible that invasive plant species could be carried downstream and become established in the SAC and adversely affect the designated species. Riparian invasive plant species can degrade habitats that Otters utilise. Biosecurity measures implemented during the proposed works will prevent the introduction of invasive species.

5.1.2.6.2 Operational Phase

No significant adverse impacts are anticipated to arise during the operational phase of the proposed development that would affect this species. The scale of the project is relatively small and is not expected to cause significant adverse impacts. In addition the hydrological pathway via the Skelpstown 16 stream is not considered to have the capacity to carry significant levels of pollution to the SAC, c. 660rm downstream. Minor impacts that may be conveyed via the Skelpstown 16 stream would easily be absorbed and diluted to a negligible level due to the dynamic and robust nature and the size of the receiving River Suir Estuary.

The proposed road scheme design is expected to reduce risks of chemical spills on the N24 as well as improve treatment of road surface run-off with an upgraded drainage system (see section 5.1.1.1.2). Therefore, no operational impacts relating to water quality are envisaged.

It was also noted that there were barriers to passage upstream of the existing N24 via the Skelpstown 16 stream according to the current surveys, and no evidence of activity was observed in the vicinity of the proposed road scheme. Therefore there is unlikely to be any established otter areas or holts to the

north side of the existing N24 which is where the proposed road realignment section will be located. It is also unlikely for the species to be attracted to the area due to the lack of favorable habitat. It is acknowledged that the Skelpstown 16 stream is of no particular fisheries importance and therefore is not suitable for Otter foraging. However, if otters do happen to pass up the watercourse on occasion, the N24 crossing over the watercourse will be designed to facilitated safe passage of otters under the proposed road scheme. It is considered that the proposed realignment of the Skelpstown 16 stream with a new box culvert may be a positive alteration to the watercourse of Otter. The proposed new culvert will facilitate clear passage under the N24, allowing Otter to access the upstream part of the stream safely and minimise that already low risk of Otter attempting to cross the road.

6. POTENTIAL FOR IN-COMBINATION EFFECTS

Cumulative impacts or effects are changes in the environment that result from numerous human-induced, small-scale alterations. Cumulative impacts can be thought of as occurring through two main pathways: first, through persistent additions or losses of the same materials or resource, and second, through the compounding effects as a result of the coming together of two or more effects (Bowers-Marriott, 1997). The standard data Natura 2000 Form for the Lower River Suir SAC lists the threats and pressures currently having an impact on this protected site. The following are noted as having high impact on the SAC: discharges; pollution to surface waters; fertilisation; urbanised and human habitation and dykes and flooding defences in inland water systems. Threats and pressures listed as having a medium effect on the SAC include landfill, land reclamation and drying out in general.

A search for planning applications was carried out on the online National Planning Applications Database (NAPD). Conditional planning has been granted for the "construction of a milking parlour, dairy, plant room, drafting area, collecting yard, meal bin and underground slurry storage tank and all associated site works" at an existing farm property at the south side of the existing N24, c. 75m from the proposed realignment (Planning Ref: 19841). There are some other small scale developments in the area mainly involving minor extensions or construction projects around the existing dwellings.

The proposed scheme is of a relatively small scale, the N24 is an already existing and busy road, with only a relatively small 1.25km realignment proposed as part of the road improvement scheme. The proposed development site is already fragmented by the existing road and has a buffer zone of land for over 700m to the south, separating it from the River Suir. There are no pristine or protected habitats on site, with the majority of the area used for agriculture, comprising of treelines, hedgerows, and improved agricultural grassland land. This type of site may be useful to common mammals such as foxes or birds and maybe used by dogs / cats in the nearby houses. The site is not considered to be of any major significance. It is considered that there is no potential for significant cumulative impacts on the nearby Lower River Suir SAC. The site is separated from the SAC with a buffer zone of land for more than 510m, the landscape is already fragmented with the existing road, residential dwellings and agricultural land. The site will not result in any encroachment near the River Suir or SAC. The proposed realignment is in fact positioned to the north of the existing N24, which is further away from the SAC than the existing road. As the proposed project is for an improvement and slight realignment to an existing road it is not expected to result in any significant elevation in existing traffic levels either.

The main hydrological pathway for impacts on the SAC would be via the Skelpstown 16 stream. It is unlikely, due to the small size and low gradient of the watercourse, that major pollution / contamination additions to the Suir, which is c. 660rm downstream, would result from the proposed works. Any minor impacts that could potentially arise and be conveyed via the Skelpstown 16 stream would easily be absorbed due to the dynamic and robust nature and the size of the receiving River Suir Estuary. There are no other large scale developments in this area and no significant in-combination impacts to water quality are anticipated. Current levels of water quality impacts are those from run-off from the existing

road and agricultural land. There are no licensed discharge points on the Skelpstown 16 stream. The current proposal will provide treatment and attenuation for road run-off. The drainage design for the proposed road development includes direction of all surface water run-off through a controlled drainage system to allow for the settlement of run-off and capture of suspended solids and pollutants. Thisincludes a kerb and gully system along the roadside, two attenuation ponds, bypass petrol interceptor and manual shut off valve at outfalls, and an 'interceptor ditch'. With the improved drainage design, the low lying landscape in this area, the small scale of the scheme and the robust nature of the receiving water body, potential cumulative water quality impacts are not considered to have the potential to be significant.

7. MITIGATION

7.1 Method Statement and Construction and Environmental Management Plan

An Outline CEMP is included with the planning application documentation. The final CEMP will be completed by the contractor for the proposed development which will include all mitigation included in this NIS and will follow all relevant guidelines and standards. A Method Statement must be drawn up detailing precisely how the works will be carried out in compliance with the necessary mitigation measures and guidelines in particular in relation to the realignment of the Skelpstown 16 stream and the new box culvert.

All mitigation measures set out in this NIS have taken into account the following guidelines as relevant:

- CIRIA, (2002) *'Control of Water Pollution from Construction Sites - Guide to Good Practice (SP156)'*
- CIRIA, (2005) *'Environmental Good Practice – Site Guide (C650)'*
- CIRIA, (2006) *'Control of Water Pollution from Linear Construction Projects- Site Guide (C649)'*
- CIRIA, (2006) *'Control of Water Pollution from Linear Construction Projects -Technical Guidance (C648)'*
- CIRIA, (2001) *'Control of Water Pollution from Construction sites- Guidance for Consultants and Contractors (C532)'*
- NRA, (2008a) *'Guidelines for the Crossing of Watercourses During the Construction of National Road Schemes'*
- IFI, (2016) *'Guidelines of protection of Fisheries during construction works in and adjacent to waters'*
- NRA, (2010) *'The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads'*
- *TII Publications (Standards)*

7.2 Ecological Clerk of Works

An Ecological Clerk of Works (ECoW) will be appointed for the proposed works. The role of the ECoW will be to approve the contractors CEMP, ensure the CEMP contains all mitigation in the NIS and EcIA and ensure that it is implemented on site.

Silt fences and bunding will be installed to reduce potential water quality impacts. The ECoW will also ensure that the silt fences and bunding are in place and are effectively managed to ensure any run-off from these areas is intercepted. The ECoW will also carry out water quality monitoring upstream and

downstream of the works on the River Suir, and the Skelpstown 16 stream, to ensure water quality protection measures are effective.

7.3 Avoidance

7.3.1 Limiting Works Areas

The site compound shall be located away from the Skelpstown 16 stream. The works area and site compound will also be fenced off and will also have security to deter theft, vandalism and unauthorized access. Machinery will not operate or be stored outside of delineated works area.

The site compound is proposed to be located at the location of eastern attenuation pond (as shown in Appendix 3). It is located at a distance of at least 50m from the Skeplstown stream.

7.3.1 Timing of Works

Works within 50m of the Skelpstown 16 stream shall be limited to daytime hours to avoid potential disturbance to Otters that may be commuting using this watercourse. The ECoW will ensure that these restrictions are adhered to.

7.4 Water Quality Protection

Strict water quality protection measures are provided to ensure adverse water quality impacts do not arise during the construction phase. Silt fences will be erected around works adjacent to the Skelpstown 16 stream and the site compound. Terrastop Premium Silt Fences, or an equivalent alternative, will be used to intercept any run-off from these areas. The ECoW will ensure that the silt fences are correctly placed and that they are effectively managed on site. Particular attention will be paid to silt fencing around to works area on the Skelpstown 16 stream for the proposed stream realignment and the proposed new box culvert which will require instream works.

Any oils or fuels that may be required for minor machinery used during the proposed works will be stored appropriately in bunded tanks in the site compound to ensure no spillages occur. Machinery will be well-maintained and checked for leaks prior to its use on site.

Any tool washing and waste / grey water from the site will be stored securely until it can be removed from site. Contained portaloo toilets will be used and all sewage appropriately removed from the site to an authorised treatment plant.

Storage areas for concrete / cement and grout required for the works will be included in the site compound. Waste from any site clearance works will be dealt with appropriately, at least 50m away from the Skelpstown 16 stream.

Also, the precise process of the Skelpstown 16 stream realignment and box culvert installation will be detailed in the Method Statement and will follow mitigation and relevant guidelines. Silt fencing will be used around the works area, silt fences will be placed on the outside of instream works areas first, with sand bags placed inside to ensure no impacts regarding suspended solids arise. Details of the sandbags, if required, will be included in the CEMP. The ECoW will ensure that any sand bags and silt fences are erected correctly, if required. Also the works area will be fenced to avoid trampling or disturbance by personnel outside the works area or by public access. No concrete / cement mixing will

be carried out at the river bank area; mixing within a mixing area in the site compound will be controlled by the contractor, with all wash water, tool washings and any waste/grey water stored securely and removed; no waste will be stored beside the watercourse; concrete / cement work must be carried out behind the silt fencing and sandbags, in the dry works area. Storage areas for concrete / cement required for the works will be included in the site compound. The waste from any vegetation removal and spoil will also have to be dealt with appropriately away from the stream. These works will take place during dry weather and low flow conditions to minimise run-off and water contamination / sedimentation.

7.1.4 Biosecurity

Strict biosecurity measures will be employed during the construction of the proposed scheme to avoid the introduction of any non-native invasive species on site. Any hired equipment and machinery used on site will be treated with an approved biocide / cleaning agent prior to its arrival on site. The NRA guidelines *'The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads'* (2010) are considered to be sufficient for the current project as no non-native invasive plant species were recorded in the study area during the current surveys.

8. RESIDUAL IMPACTS

The overall aim of the Habitats Directive is to maintain or restore the favorable conservation status of habitats and species of community interest. Favorable conservation status is defined for Annex I habitats and Annex II species in the Habitat Directive (1992):

Article 1 (e)

> Conservation status of a natural habitat means the sum of the influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species within the territory referred to in Article 2.
>
> The conservative status of a natural habitat will be taken as 'favourable' when: its natural range and areas it covers within that range are stable or increasing, and the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future.

Article 1 (i)

> Conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within the territory referred to in Article 2;
>
> The conservation status will be taken as 'favourable' when: population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

The Conservation Objectives of the Lower River Suir SAC are detailed in a site specific report prepared by the National Parks and Wildlife Service (NPWS, 2017). The current assessment utilises the site-specific conservation objectives and the national 'Status of EU Protected Habitats and Species in Ireland' Report (NPWS, 2019a; NPWS, 2019b).

During the construction phase, water quality impacts, invasive species impacts, noise and disturbance, air quality and dust impacts may arise which could affect the Lower River Suir SAC. The implementation of mitigation measures prescribed for the works, such as silt fences, a bunded site compound, etc., will result in these impacts being reduced to imperceptible in scale.

The proposed road scheme design is expected to reduce risks of chemical spills on the N24 as well as improve treatment of road surface run-off with an upgraded drainage system. Therefore, any operational impacts from the proposed project affecting the Lower River Suir SAC relating to water quality are imperceptible.

There are no impacts arising from the proposed road scheme which would affect the conservation status of the Annex I habitats or Annex II species listed as qualifying interests of the SAC. The proposed development will not affect the conservation objectives of this site or have an adverse effect on the requirements to meet the conservation objectives with regard to the restoration of Annex I habitats and Annex II species to favourable conservation status. Water quality is identified as a key sensitivity of the water-dependent qualifying interests of the SAC. Mitigation measures to protect water quality to avoid impacts affecting the aquatic species of the SAC have been included in the current report.

The provisions of Article 6 of the 'Habitats' Directive 92/43/EC (2000) define 'integrity' as the 'coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and / or population of species for which the site is or will be classified'.

The proposed works are relatively small in scale and will comply with the required mitigations to ensure that there will be no impacts arising which would have the potential to affect the integrity of the Lower River Suir SAC, particularly with regard to the sensitive aquatic species in the study area.

Table 4 Impact Assessment for the qualifying interests of the Lower River Suir SAC potentially affected by the N24 Carrick Road Improvement Scheme.

Natura Code	Item Description	Construction Phase			Operational Phase			Significance affecting the Integrity of the SAC
1330	Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	Indirect water quality impacts; Minor risk of invasive species impacts	Detailed method statement and CEMP; biosecurity measures will follow NRA guidelines; delineate the works area using fencing; site compound will be located away from the Skelpstown 16 stream, silt fences and bunding around site compound and works area; Any oils / fuels required will be stored appropriately in bunded storage tanks in the site compound; machinery to be well maintained and checked for leaks; Tool washing / wastewater from site will be stored securely until it can be removed from site; contained portaloo toilets to be used and all sewage to be removed from site and brought to an authorised treatment plant.	None	Indirect water quality impacts	Design includes for improved drainage design on site including a kerb and gully system, two attenuation ponds, bypass petrol interceptor and manual shut off valve at outfalls and an 'interceptor ditch'.	No negative residual impact – slight positive due to improved drainage design	Providing mitigation is adhered to, not significant and not affecting the integrity of the SAC.
1410	Mediterranean salt meadows (*Juncetalia maritimi*)	Indirect water quality impacts; Minor risk of invasive species impacts	As above.		Indirect water quality impacts	As above.		
91E0	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*	Indirect water quality impacts; Minor risk of	As above.		Indirect water quality impacts	As above.		

Natura Code	Item Description	Construction Phase			Operational Phase			Significance affecting the Integrity of the SAC
	(*Alno-Padion, Alnion incanae, Salicion albae*)	invasive species impacts						
1109	Freshwater Pearl Mussel *Margaritifera margaritifera*	Indirect water quality and/or invasive species impacts affecting Salmon would secondarily affect Freshwater Pearl Mussel.	As above.		Indirect water quality impacts	As above.		
1095	Sea lamprey *Petromyzon marinus*	Indirect water quality impacts; Minor risk of invasive species impacts	As above.		Indirect water quality impacts	As above.		
1099	River lamprey *Lampetra fluviatilis*	Indirect water quality impacts; Minor risk of invasive species impacts	As above.		Indirect water quality impacts	As above.		
1103	Twaite Shad *Alosa fallax fallax*	Indirect water quality impacts; Minor risk of invasive species impacts	As above.		Indirect water quality impacts	As above.		
1106	Salmon *Salmo salar*	Indirect water quality impacts; Minor risk of invasive species impacts	As above.		Indirect water quality impacts	As above.		

Natura Code	Item Description	Construction Phase			Operational Phase			Significance affecting the Integrity of the SAC
1355	Otter *Lutra lutra*	Direct disturbance; indirect water quality impacts; minor risk of invasive species impacts	Detailed method statement and CEMP; biosecurity measures including to follow NRA Guidelines an appropriate removal of Buddleia on site; delineate the works area using hoarding / fencing; silt fences to the northern boundary of the site; Any oils / fuels required will be stored appropriately in bunded storage tanks in the site compound; machinery to be well maintained and checked for leaks; Tool washing / wastewater from site will be stored securely until it can be removed from site; contained portaloo toilets to be used and all sewage to be removed from site and brought to an authorised treatment plant; works within 50m of the Skelpstown 16 stream limited to daytime hours		Indirect water quality impacts	Design includes for improved drainage design on site including a kerb and gully system, two attenuation ponds, bypass petrol interceptor and manual shut off valve at outfalls and an 'interceptor ditch' ; Clear passage under the proposed box culvert over realigned Skelpstown 16 stream facilitated.		

9. CONCLUSION STATEMENT

The proposed road scheme on the N24 Carrick Road in County Kilkenny is located c. 510m straight line distance northeast of the Lower River Suir SAC. This is the only Natura 2000 site that could potentially be affected by the proposed road scheme as established in the previous Screening for Appropriate Assessment Report (Ecofact, 2022a). The proposed scheme consists of a 2.2.km section on the N24 and includes a c. 1.25km realignment of the road.

The Lower River Suir SAC is designated for a number of aquatic species including Sea Lamprey, River Lamprey, Twaite Shad, Atlantic Salmon and Otter. Water quality impacts could arise during the construction phase of the proposed scheme which could significantly impact these water dependent species. Other impacts identified which may arise during the construction phase of the project and were considered in the current NIS are non-native invasive species, noise and disturbance and air quality and dust impacts.

During the operational improved drainage designs including treatment and attenuation for road run-off and salt / grit via the proposed attenuation pond will positively affect the SAC in the study area. At present the existing N24 fragments the landscape, some habitat connectivity is facilitated with new road design which includes a proposed combined underbridge and a cattle underpass at the location of the Local Road L7416 and a box culvert crossing over the realigned Skelpstown 16 stream.

Taking cognisance of the sensitivity of the water-dependent Annex II species and habitats listed as qualifying interests of the SAC, mitigation measures have been prepared for implementation on the site to protect water quality and minimise risks of disturbance, dust impacts and invasive species introduction. With mitigations proposed, there will be no impacts arising which would have the potential to adversely affect the conservation objectives or the integrity of the River Suir SAC.

The provisions of Article 6 of the ‘Habitats’ Directive 92/43/EC (2000) defines ‘integrity’ as the ‘coherence of the site’s ecological structure and function, across its whole area, or the habitats, complex of habitats and / or population of species for which the site is or will be classified’. The mitigation measures proposed are considered to be sufficient to ensure that impacts regarding water quality, noise and dust, disturbance and invasive species introduction are reduced to imperceptible in scale. From the evidence presented in the current assessment, it is concluded that provided all mitigation measures are adhered to, direct, indirect and cumulative impacts that may arise from the proposed road improvement works on the N24 in Co. Kilkenny will be avoided and therefore will not affect the integrity of the Lower River Suir SAC.

10. OTHER ECOLOGY

The current document is a NIS and does not include an assessment of other ecological interests. However, other species may be present that are protected under the Annexes of the Habitats Directive, as well as a range of other fauna protected under the Wildlife Act (1976) and Wildlife Amendment Act (2000). In addition to the current NIS an Ecological Impact Assessment (Ecofact, 2022b) has also been completed for the proposed project to assess the likely significant effects on biodiversity.

In general, the habitats on the proposed development site are only of Local Importance at most and are habitats that are widespread and common across Ireland. The site was not found to be of importance to protected fauna during the surveying of the proposed development site. Some species such as Badger, Stoat and Otter are likely to occur within the wider study area.

10.1 Bats

It is noted that all bat species are strictly protected under Annex V of the EU Habitats Directive (European Protected Species. A bat suitability desk study was carried out for the proposed development site.

A bat assessment of the proposed development site was carried out by Ecofact in September 2020. It was found that the site was of limited importance to bats due to the fragmented landscape. The site was used mainly by Leisler's bat for commuting and foraging. No bat roosts were identified on the site (Ecofact, 2022b).

The National Biodiversity Data Centre (NBDC) maps landscape suitability for bats based on Lundy *et al.,* (2011). The maps are a visualisation of the results of the analyses based on a 'habitat suitability' index. The index ranges from 0 to 100, with 0 being least favourable and 100 most favourable for bats. Table 5 below gives the suitability of the study area for the bat species found in Ireland (based on NBDC) along with their Irish Red List Status (from Marnell *et al.,* 2009). The overall assessment of bat habitats for the current study area is given as 42.11.

Table 5 Suitability of the study area for the bat species previously recorded in the Carrick Road area (based on the NBDC data). Irish Red list status also indicated (based on Marnell et al. 2009).

Common name	Scientific name	Suitability index	Irish red list status
All bats	-	42.11	
Soprano pipistrelle	*Pipistrellus pygmaeus*	48	Least Concern
Brown long-eared bat	*Plecotus auritus*	67	Least Concern
Common pipistrelle	*Pipistrellus pipistrellus*	61	Least Concern
Lesser horseshoe bat	*Rhinolophus hipposideros*	4	Least Concern
Leisler's bat	*Nyctalus leisleri*	52	Near Threatened
Whiskered bat	*Myotis mystacinus*	40	Least Concern
Daubenton's bat	*Myotis daubentonii*	40	Least Concern
Nathusiius's pipistrelle	*Pipistrellus nauthusii*	8	Least Concern
Natterer's bat	*Myotis nattererii*	59	Least Concern

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PLATES

Plate 1 Skelpstown 16 stream at the north side of the existing N24, overgrown and almost no flow during the September 2020 survey.

Plate 2 River Suir at the Skelpstown 16 stream confluence to the south of the proposed road scheme.

Plate 3 Improved agricultural grassland adjoining the existing N24 road.

Plate 4 Section of scrub with thick bramble growth adjacent to existing N24 road.

Plate 5 Existing N24 Carrick road to the west of the Skelpstown 16 stream.

Plate 6 Maintained agricultural pastures adjacent the N24 occupied by cattle during the 2020 survey.

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Plate 8 Existing N24 near Mooncoin with maintained road margin vegetation and hedgerows.

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Plate 12 Farm lanes on maintained agriculture lands to the north side of the

APPENDIX 1 SCREENING FOR APPROPRIATE ASSESSMENT

N24 Carrick Road Improvement Scheme, Co. Kilkenny

Screening for Appropriate Assessment

Version (23-3-22)

ecofact
Environmental Consultants

Tait Business Centre, Dominic Street, Limerick City, Ireland.
t. +353 61 313519, f. +353 61 414315
e. info@ecofact.ie
w. www.ecofact.ie

EXECUTIVE SUMMARY

The current document presents a 'Screening for Appropriate Assessment' for the proposed N24 Carrick Road Improvement Scheme located near Mooncoin, Co. Kilkenny. The proposed scheme is c. 2.2km in length and includes for two no. attenuation ponds, as well as a realignment of a stream which runs through the site with box culvert for stream crossing at the road development. It is proposed to construct a new combined underbridge and cattle underpass at the location of the local road L7416 underneath the new road. This report assesses whether the proposed works at these locations is likely to have a significant effect on the Natura 2000 site network.

The closest Special Area of Conservation is the Lower River Suir SAC (Site Code: 002137), located to the southwest of the proposed development, c. 660rm downstream. This Natura 2000 site is hydrologically connected to the proposed development via the stream that runs through the proposed works area (the Skelpstown 16 Stream).

It is concluded that due to the presence of the Skelpstown 16 stream on the site – and the proposed works on this stream – there is a pathway for impacts on the Lower River Suir SAC. The proposed road scheme is located c. 510m straight line distance from the SAC at its closest point and 660rm upstream from the SAC boundary via the Skelpstown Stream. There is the potential for water quality impacts to arise via this pathway. Instream works will be required. There is also the potential for semi-aquatic qualifying interests, i.e. Otter, to occur in the Skelpstown 16 stream outside of the SAC boundary which have the potential to be impacted. It is also noted that there is a pathway for non-native invasive species impacts, which could affect the quality of the SAC environment downstream and thereby affect qualifying interests of the SAC that could be present including Salmon (indirectly Freshwater Pearl Mussel), Lamprey sp., Twaite Shad, Otter and the Atlantic salt meadows, Mediterranean salt meadows and Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) habitats. There is also uncertainty in relation to what standards the discharge will be treated to leading to uncertainty surrounding potential operational phase impacts.

Given the location of the proposed road scheme and the Skelpstown 16 stream, there may be an effect on the Lower River Suir SAC due to the potential pathway of the stream through the site. This at least leads to the possibility of an effect on the conservation objectives of the downstream SAC. Mitigation measures are required for the current proposal in order to avoid water quality and invasive species impacts, which cannot be provided at Screening Stage. It is also noted that there is a lack of detail in the proposal, including method statements for construction, which leads to uncertainty regarding impacts.

Therefore, the current 'Screening for Appropriate Assessment' has concluded that a Natura Impact Statement (NIS) is required for the proposed N24 Carrick Road Improvement Scheme. It has been concluded that there is a possibility of effects on the qualifying interests of the Lower River Suir SAC and mitigation measures will be required. The purpose of the current report is to inform the decision of the Competent Authority.

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1. INTRODUCTION

The current document provides a 'Screening for Appropriate Assessment' of the proposed N24 Carrick Road Improvement Scheme located near Mooncoin, Co. Kilkenny. The proposed scheme is c. 2.2km in length. The proposal also includes for two no. attenuation ponds, as well as a realignment of the existing Skelpstown 16 stream which runs through the site. It is proposed to construct a new box culvert for the realigned stream which crosses the road development. It is also proposed to construct a new combined underbridge and cattle underpass at the location of the local road L7416 underneath the new road.

This report assesses whether the proposed works at these locations is likely to have a significant effect on the Natura 2000 site network. Effects upon the conservation objectives and qualifying interests (including habitats and species) within the affected designated areas are considered.

Appropriate Assessment (AA) is required under Article 6 of the Habitats Directive (92/43/EEC), in instances where a plan or project may give rise to significant effects upon a Natura 2000 site. Natura 2000 sites are those identified as sites of European Community importance designated under the Habitats Directive (1992) or the Birds Directive (2009). This report assesses whether this development is likely to have a significant effect on the Natura 2000 site network. Effects upon the conservation objectives and qualifying interests (including habitats and species) within the affected designated areas are considered. The current document meets this requirement by providing a Screening Assessment of the development and follows the guidance for screening published by the Department of the Environment, Heritage and Local Government (DoEHLG, 2010) *'Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities'.*

According to DoEHLG (2010), screening is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3) of the EU Habitats Directive:

> (1) Whether a plan or project is directly connected to or necessary for the management of the site, and;
> (2) Whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a Natura 2000 site in view of its conservation objectives.

The current Screening Assessment therefore sets out to determine whether the proposed project, alone or in combination with other plans and projects, is likely to have significant effects on the Natura 2000 sites within the study area.

If the effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 (AA). When assessing the significance of potential effects, DoEHLG (2010) recommends that *"a precautionary approach is fundamental and, in cases of uncertainty, it should be assumed the effects could be significant".*

1.1 Consultation

The following bodies provided information for this report, via publicly available sources:

- National Parks and Wildlife Service (NPWS);
- Inland Fisheries Ireland (IFI);
- National Biodiversity Data Centre (NBDC); and
- Environmental Protection Agency (EPA).

1.2 Legislative context

Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora - '*The Habitats Directive'*, has been transposed into Irish law by The European Community (Natural Habitats) Regulations 1997 (S.I. No. 94/1997).

The 1997 Regulations were updated in 1998 by The European Communities (Natural Habitats) (Amendment) Regulations 1998 (S.I. No. 233/1998) to include Council Directive 97/62/EC which served to update Council Directive 92/43/EEC, adapting it to technical and scientific progress made in the intervening years.

The 1997 Regulations were again updated in 2005, by The European Communities (Natural Habitats) (Amendment) Regulations 2005 (S.I. No. 378/2005). This amendment served to consolidate the main nature conservation legislation enacted in Ireland, meaning The Wildlife Act 1976, The Wildlife (Amendment) Act 2000, The European Communities (Natural Habitats) Regulations 1997, The European Communities (Natural Habitats) (Amendment) Regulations 1998, and to draw direct reference upon Council Directive (2009/147/EC) on the conservation of wild birds – '*The Birds Directive'*.

The Birds Directive (2009/147/EC) seeks to protect birds of special importance by the designation of Special Protection Areas (SPAs) whereas the Habitats Directive does the same for habitats and other species groups with Special Areas of Conservation (SACs). It lists certain rare habitats (Annex I) and species (Annex II) whose conservation is of community interest. It is the responsibility of each member state to designate SPAs and SACs, both of which will form part of Natura 2000, a network of protected areas throughout the European Community.

Article 6, paragraphs 3 and 4 of the Habitats Directive state that:
'6(3) Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.

6(4) If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.

Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest.'

In case C-323/17 People Over Wind and Peter Sweetman v Coillte, the Court of Justice of the European Union (CJEU) ruled that mitigation measures could not be taken into account when undertaking a

screening for Appropriate Assessment. If mitigation measures are required to reduce or avoid a significant adverse effect, then Appropriate Assessment is required.

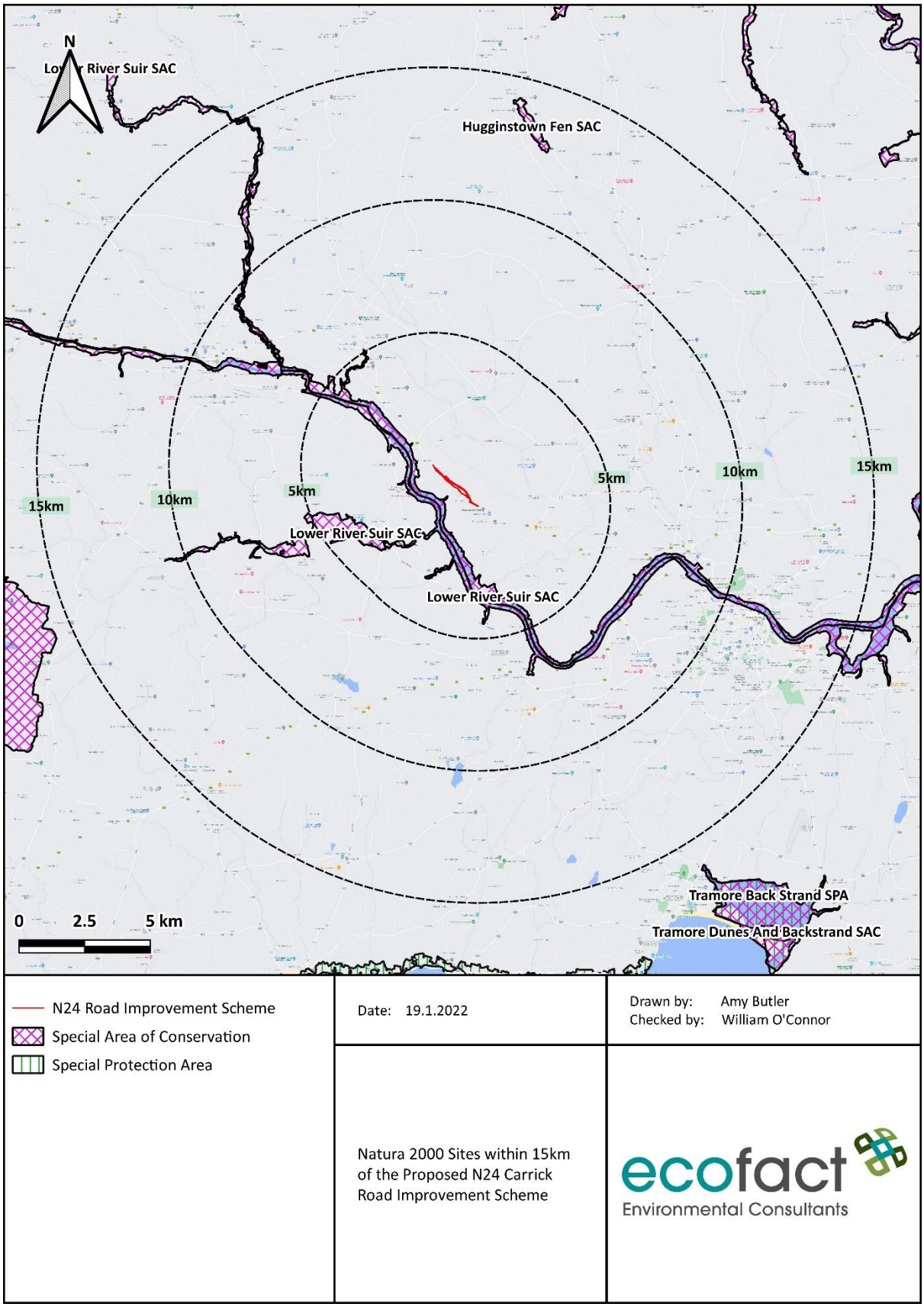


Figure 1 Natura 2000 Sites within 15km of the proposed N24 Carrick Road Improvement Scheme.

2. METHODOLOGY

2.1 Desk study

A desktop study was undertaken to identify the extent and scope of the potentially affected designated Natura 2000 sites within the current study area in relation to the development site, including the Lower River Suir SAC (Site Code: 002137). The desktop study identified the qualifying interests (species and habitats) relevant to the designated sites within the area.

A review of published literature was undertaken in order to collate data on the receiving environment; a range of additional sources of information including scientific reports produced by, and information on the websites of the EPA, NPWS and the IFI were also reviewed. Information sources reviewed as part of the current assessment included NPWS site synopses, as well as protected species data held on the NPWS/NBDC online databases. A full bibliography of information sources reviewed is given in the reference section. Online aerial imagery was accessed to characterise the nature of proposed works locations near the Natura 2000 network.

2.2 Field Survey

In December 2017 the proposed development site was visited and a walk-over survey was carried out. This was a preliminary survey as there were three different design options proposed for the road scheme at this stage. A final design has now been selected and the proposed development site was visited again during September 2020 for a walk-over survey to be completed with cognisance of the chosen design option. The proposed scheme and environs were inspected for evidence of ecological features of high conservation concern such as those fauna that occur in the closest Natura 2000 sites.

2.3 Assessment Methodology

The current Screening Assessment follows the guidance published by the Department of the Environment, Heritage and Local Government (DoEHLG, 2010) '*Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities'*. Based on these guidelines, the Appropriate Assessment process is a four staged approach described below:

Stage One: Screening / Test of Significance - the process which identifies the likely impacts upon a Natura 2000 site of a project or plan, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant;

Stage Two: Appropriate Assessment - the consideration of the impact of the project or plan on the integrity of the Natura 2000 site, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts;

Stage Three: Assessment of Alternative Solutions - the process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the Natura 2000 site; and

Stage Four: Assessment Where Adverse Impacts Remain - an assessment of compensatory measures where, in the light of an assessment of Imperative Reasons of Overriding Public Interest (IROPI), it is deemed that the project or plan should proceed.

The current report is a Screening Report and therefore makes Stage One assessment only.

According to DoEHLG (2010), screening can result in the following possible conclusions or outcomes:

1. **AA is not required.** Screening establishes that the plan or project is directly connected with or necessary to the nature conservation management of the site.

2. **No potential for significant effects/AA is not required.** Screening establishes that there is no potential for significant effects and the project or plan can proceed as proposed. However, no changes may be made after this as this will invalidate the findings of screening. Documentation of the AA screening process, including conclusions reached and how decisions were made, must be kept on file**.**

3. **Significant effects are certain, likely or uncertain.** The plan or project **must either proceed to Stage 2 (AA), or be rejected**. Rejection of a plan or project that is too potentially damaging and/or inappropriate ends the process and negates any need to proceed to Stage 2 (AA).

The safeguards set out in Article 6(3) and (4) of the Habitats Directive are triggered not by certainty but by the possibility of significant effects. Thus, in line with the precautionary principle, it is unacceptable to fail to undertake an appropriate assessment on the basis that it is not certain that there are significant effects.

The approach to screening is likely to differ somewhat for plans and projects, depending on scale and on the likely effects. It is stated in DoEHLG (2010) that any Natura 2000 site within or adjacent to the proposed development area as well as any Natura 2000 sites within the likely zone of impact should be included for assessment. A distance of 15km is currently recommended by DoEHLG (2010) to loosely define the zone of impact in the case of plans but the distance could be much less than 15km, and in some cases less than 100m: this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects. In the case of the current project, where all proposed works are located outside of Special Areas of Conservation and Special Protection Areas, only the nearest Special Areas of Conservation and Special Protection Areas and / or those with downstream hydrological connectivity have been considered.

3. DESCRIPTION OF PROJECT CHARACTERISTICS

The proposed N24 Carrick Road Improvement Scheme is c. 2.2km in length. The layout of the scheme in relation to designated sites within 15km is illustrated in Figure 1. Approximately 950m of the road scheme will run along the existing N24 road, and the remainder of the scheme involves a realignment that is c. 1.25km in length. The following information has been obtained from drawings, which are provided in the current report in Appendix 1.

The drainage designs for the proposed road scheme involve the construction of two no. attenuation ponds treatment facilities to attenuate road surface run-off, with 2m high pallisade fencing, one at the western end of the scheme and the other at the eastern end. According to the design drawings, included in Appendix 1, the proposed attenuation pond for road run-off to the west is noted to have a design flow of 1 in 100-year return = 13 litres / second. The attenuation pond to the east is noted to have a design flow of 1 in 100-year return = 32 litres / second. The western attenuation pond will discharge to the Skelpstown 16 stream. 'Interceptor ditches' are also included along the edge of the scheme near an existing bohereen.

The proposal also includes for a proposed realignment of the Skelpstown 16 stream which flows through the site, with the construction of a new box culvert at the stream crossing. and a combined underbridge / cattle underpass at the location of the local road L7416, according to the design drawings provided. It is noted in the drawings that the new box culvert will adhere to OPW guidelines. This new underbridge also includes for a 1.5m wide footpath underneath the road.

The proposed N24 Carrick Road Improvement Scheme also includes for a timber post and tension mesh fences are proposed along much of the scheme length, as well as 2.5m wide shared surface. Proposed residential access tracks and adjacent field access tracks are also included in the design. There is an existing 'bohereen' running through part of the site and as noted in the drawings, access to this will be closed due to its narrow nature and the fact that it is generally unsuitable for modern agricultural machinery.

4. IDENTIFICATION OF RELEVANT NATURA 2000 SITES

4.1 Rationale for Appropriate Assessment Screening

Article 6 assessments are required under the Habitats Directive (92/43/EEC), in instances where a plan or project may give rise to significant effects upon a Natura 2000 site. Natura 2000 sites are those identified as sites of European Community importance designated under the Habitats Directive (Special Areas of Conservation, here after referred to as SACs) or the Birds Directive (Special Protection Areas, here after referred to as SPAs).

Following the guidelines set out by DoEHLG (2010) Appropriate Assessment Stage 1: Screening is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3); i.e. whether a plan or project can be excluded from Appropriate Assessment requirements because it is directly connected with or necessary to the management of the site; and the potential effects of a project or plan, either alone or in combination with other projects or plans, on a Natura 2000 site in view of its conservation objectives, and considering whether these effects will be significant.

According to DoEHLG (2010), screening is the process that addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3) of the EU Habitats Directive:

> (1) Whether a plan or project is directly connected to or necessary for the management of the site, and;
> (2) Whether a plan or project, alone or in combination with other plans and projects, is likely to have significant effects on a Natura 2000 site in view of its conservation objectives.

The proposed road improvement works near Mooncoin, Co. Kilkenny does not comply with the first screening test (i.e. the proposed works are not directly connected to or necessary for the management of any Natura 2000 site). The current Screening Assessment therefore sets out to determine whether the development, alone or in combination with other plans and projects, is likely to have significant effects on the Natura 2000 sites within the study area.

If the effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Natura Impact Statement. When assessing the significance of potential effects, DoEHLG (2010) recommends that "*a precautionary approach is fundamental and, in cases of uncertainty, it should be assumed the effects could be significant*".

4.2 Natura 2000 sites considered for the proposed works

The location of the N24 Carrick Road Improvement Scheme in the context of the Natura 2000 network is indicated in Figure 1. Special Areas of Conservation are sites of international importance because of the presence of habitats or species that are of European importance, listed on the EU Habitats Directive (1992). Special Protection Areas for birds are designated based on the presence of internationally significant populations of bird species, listed in Annex I of the EU Birds Directive (2009).

Special Areas of Conservation and Special Protection Areas considered in the current screening are listed in Table 1. The proposed N24 Carrick Road Improvement Scheme does not lie within any SAC or any SPA. The closest Special Area of Conservation is the Lower River Suir SAC (Site Code: 002137), located c. 510m straight line to the southwest of the development. This site will be considered further in relation to potential impacts arising from the proposed development.

Hugginstown Fen SAC (Site Code: 000404) lies approximately 13.2km northeast of the proposed development. The Lower River Suir SAC and the Hugginstown Fen SAC are the only Special Areas of Conservation within 15km of the proposed development. The Hugginstown Fen SAC will not be considered further in the screening due to a lack of pathways for effects and the geological separation from the proposed development. No Special Protection Areas lie within 15km of the proposed development.

4.2.1 Lower River Suir SAC

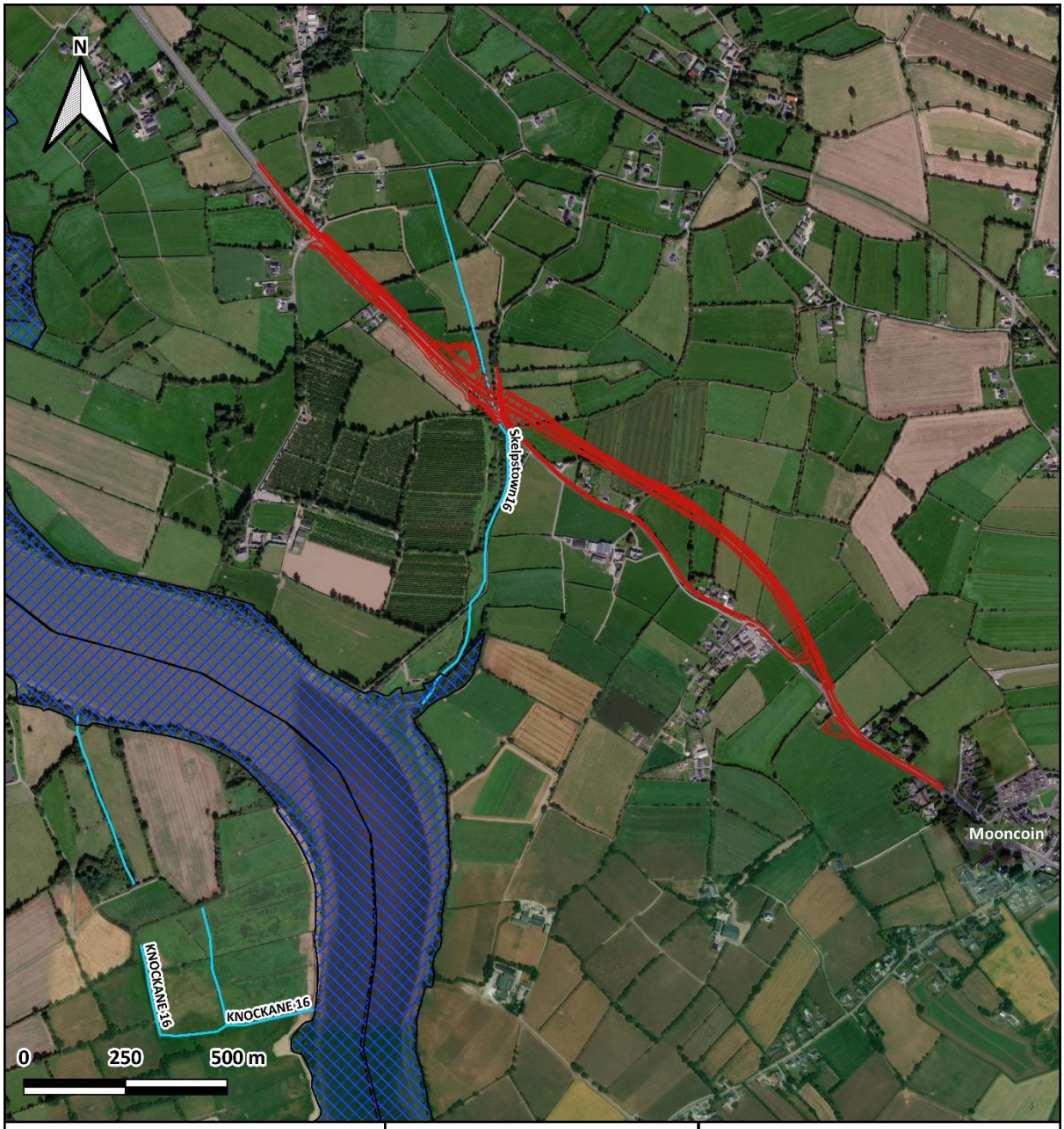
The Lower River Suir SAC comprises the freshwater stretches of the River Suir south of Thurles, the tidal stretches as far as the confluence with the Barrow / Nore immediately east of Cheekpoint in Co. Waterford, and many tributaries along the way. The Suir and its tributaries flow through counties Tipperary, Kilkenny and Waterford. This site is designated mostly for aquatic habitats and species. The Lower River Suir holds excellent examples of a number of Annex I habitats, including the priority habitats alluvial forest and Yew Woodland. The site also supports populations of several important species; some listed on Annex II of the Habitats Directive or listed in the Irish Red Data Book. The presence of two legally protected plants and the ornithological importance of the site adds further to the ecological interest and importance.

It is noted that the Lower River Suir SAC adjacent to the proposed development site is classified as a Water Framework Directive (WFD) Transitional Waterbody, i.e. an estuary. Estuaries have natural and dynamic levels of sediment and low sensitivities to pollution. No Freshwater Pearl Mussel habitat or White-clawed Crayfish habitat exist in this stretch of the river adjacent to the proposed development site according to the Conservation Objectives document and maps for the Lower River Suir SAC (NPWS, 2017). No Salmon, Twaite Shad or Lamprey nursery habitat is present along this stretch (NPWS, 2017). In addition, no Salmon, Twaite Shad or Lamprey spawning habitats exists in this tidal section of the Lower River Suir SAC. Salmon, Twaite Shad and Lampreys would migrate through this estuarine section of the SAC. Atlantic Salt Meadows and Mediterranean Salt Meadows are notably dynamic habitats and are tolerant of sedimentation and pollution. It is considered that Otter may be present in this section of the Lower River Suir SAC and may use the Skelpstown 16 Stream.

Table 1 Summary details of the designated Natura 2000 sites within 15km of proposed N24 Carrick Road Improvement Scheme in Co. Kilkenny considered in the current screening.

Natura 2000 Site	Conservation Interests	AA Required	Distance (km)
Lower River Suir SAC (002137)	Atlantic salt meadows (*Glauco-Puccinellietalia maritimae)* [1330]	Yes (Hydrological connection; located far from the site downstream of Waterford according to NPWS Conservation Objectives Map 3, but potential pathway exists)	510m from the SAC at its closest point and 660rm upstream from the SAC boundary via the Skelpstown 16 stream.
	Mediterranean salt meadows (*Juncetalia maritimi*) [1410]	Yes (Hydrological connection; not mapped by NPWS for this SAC but likely to be present downstream; potential pathway for impacts)	
	Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]	No (No potential pathways for effects; not mapped by NPWS for this SAC but is a freshwater habitat; estuarine habitat located downstream of the proposed development; no potential for this habitat to occur in the Skelpstown 16 stream at the site)	
	Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430]	No (No potential pathways for effects; not present in study area; not mapped by NPWS for this SAC but terrestrial habitat not present at the site)	
	Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0]	No (No potential pathways for effects; not present in study area; located upstream near Clonmel according to the NPWS Conservation Objectives Map 4)	
	Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0]	Yes (Potential hydrological connection; the areas mapped in the NPWS Conservation Objectives Map 5 are upstream but it is also noted in the Conservation Objectives as likely to be present downstream too; potential pathway for impacts)	
	Taxus baccata woods of the British Isles [91J0]	No (No potential pathways for effects; not present in study area; not mapped by NPWS for this SAC but terrestrial habitat not present at the site or in the vicinity)	
	Freshwater Pearl Mussel (*Margaritifera margaritifera*) [1029]	Yes (No potential pathways for direct effects; only present in the Clodiagh River, according to NPWS Conservation Objectives Map 6; However, require salmon for survival and salmon have the potential to be impacted)	
	White-clawed Crayfish (*Austropotamobius pallipes*) [1092]	No (Freshwater species not present downstream of the site, according to NPWS the NPWS Conservation	

Natura 2000 Site	Conservation Interests	AA Required	Distance (km)
		Objectives Map 7; no potential pathway for impacts. Also unlikely to be present in the River Suir at all due to crayfish plague)	
	Sea Lamprey (*Petromyzon marinus*) [1095]	Yes (Hydrological connection, no suitable nursery habitat downstream due to tidal habitats but likely to pass through the River Suir travelling upstream; potential pathway for impacts)	
	Brook Lamprey (*Lampetra planeri*) [1096]	No (Freshwater species would not be present downstream due to tidal habtiats, generally non-migratory species; no potential pathway for impacts)	
	Lampetra fluviatilis (*River Lamprey*) [1099]	Yes (Hydrological connection, no suitable nursery habitat downstream due to tidal habitats but may pass through the River Suir travelling upstream; potential pathway for impacts)	
	Twaite Shad (*Alosa fallax fallax*) [1103]	Yes (Hydrological connection, no suitable nursery habitat downstream due to tidal habitats but likely to pass through the River Suir travelling upstream; potential pathway for impacts)	
	Salmon (*Salmo salar*) [1106]	Yes (Hydrological connection, no suitable nursery habitat downstream due to tidal habitats but likely to pass through the River Suir travelling upstream; potential pathway for impacts)	
	Otter (*Lutra lutra*) [1355]	Yes (Hydrological connection; may even utilise the Skelpstown 16 stream on the site; potential pathway for impacts)	
Hugginstown Fen SAC (000404)	Alkaline fens [7230]	No (No pathways for effects; geolographical separation)	13.2km Northeast



N24 Road Improvement Scheme
Lower River Suir SAC
Watercourse

Date: 19.1.2022

Drawn by: Amy Butler
Checked by: William O'Connor

N24 Carrick Road Improvement Scheme showing Lower River Suir SAC

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Figure 2 Location of N24 Carrick Road Improvement Scheme showing Lower River Suir SAC (0021337).

5. ASSESSMENT OF EFFECTS

The potential direct, indirect and cumulative impacts on Natura 2000 sites identified in section 4 resulting from the proposed N24 Carrick Road Improvement Scheme are discussed below.

5.1 Assessment of potential direct impacts affecting Natura 2000 sites

5.1.1 Construction Phase

The proposed N24 Carrick Road Improvement Scheme is not located within any Natura 2000 site. However, there is the potential for the semi-aquatic qualifying interest, Otter, to be present within the Skelpstown 16 stream. Therefore, there is the potential for direct disturbance impacts to arise that could affect this species during the works associated near this area, particularly the new box culvert. There is also uncertainty surrounding the proposal and methods of construction. Taking the precautionary principle, significant effects may arise. The above potential impacts are likely to require mitigation measures which cannot be provided in a Screening for Appropriate Assessment.

5.1.2 Operational Phase

The proposed N24 Carrick Road Improvement Scheme is not located within any Natura 2000 site. As the N24 is an existing road at the location of the Skelpstown 16 stream, it is unlikely that impacts would arise that could affect Otters. Access for Otters to use the realigned Skelpstown 16 stream will be retained following installation of the new box culvert and adjacent combined underbridge and cattle underpass. However, these new access routes underneath the bridge have the potential to cause disturbance impacts to this semi-aquatic qualifying interest which is designated under the Lower River Suir SAC. It is considered likely that the increase in human activity under the bridge would be very low, however the precautionary principle for disturbance applies.

5.2 Assessment of potential indirect impacts affecting Natura 2000 sites

Indirect (or secondary) impacts are defined as effects that are “caused by and result from the activity although they are later in time or further removed in distance, but still reasonably foreseeable” (Bowers-Marriott, 1997).

5.2.1 Construction Phase

The proposed N24 Carrick Road Improvement Scheme is located approximately 660m upstream of the Lower River Suir SAC via the Skelpstown 16 stream on the site. This provides a hydrological connection to the SAC. This stream flows into the River Suir, at which point the watercourse is classed as a WFD transitional waterbody, i.e. an estuary. This stream may act as a vector for water quality pollutants to travel downstream, such as hydrocarbons, oils, concrete / cement. Concrete / cement in a watercourse can led to altered pH levels and increased turbidity, as well as reduced oxygen. These pollutants can be very harmful to aquatic life, including aquatic species designated in the Lower River Suir SAC such as Salmon, Twaite Shad and Lamprey species. It is likely that instream works will be required for the Skelpstown 16 stream realignment. The stream on the site is noted to have a sluggish flow and is overgrown with vegetation. Nonetheless, in the absence of any mitigation measures the potential for impacts exists. Again, mitigation measures cannot be provided in a Screening for Appropriate Assessment Report.

There is also potential for non-native invasive species may be introduced to the site via vectors such as machinery, tools or personnel. There is a direct pathway via the Skelpstown 16 stream for invasive

species to reach the Lower River Suir SAC. Mitigation measures are required to reduce the potential for non-native invasive species impacts.

5.2.2 Operational Phase

The proposal includes for two no. attenuation ponds, as well as using some existing gullies on the site for footpaths. In the drawings it states that the proposed attenuation pond for road run-off to the west is noted to have a design flow of a 1 in 100 yr return = 13 litres / second. The attenuation pond to the east is noted to have a 1 in 100 yr return = 32 litres / second. 'Interceptor ditches' are also included along the edge of the scheme near an existing bohereen. The proposed attenuation pond to the west of the scheme will discharge to the Skelpstown 16 stream. This is a hydrological pathway for water quality impacts which will need to be assessed.

5.3 Assessment of potential cumulative impacts affecting the Natura 2000 site

Cumulative impacts or effects are changes in the environment that result from numerous human-induced, small-scale alterations. Cumulative impacts can be thought of as occurring through two main pathways: first, through persistent additions or losses of the same materials or resource, and second, through the compounding effects as a result of the coming together of two or more effects (Bowers-Marriott, 1997).

The Natura 2000 form provided by the NPWS names and quantifies the threats, pressures and activities that have impacts on the corresponding Natura 2000 site as a whole (NPWS, 2015). The following threats and pressures are considered to have a high potential for negative impacts on the Lower River Suir SAC: Urbanised areas, human habitation; dykes and flooding defence in inland water systems; pollution to surface water; fertilisation; discharges. In the case of the current proposal, there is the potential for in-combination effects regarding fertilisation, discharges and pollution to surface waters. The potential for water quality impacts during both the construction and operational phases have been identified and mitigation is required. In the absence of any mitigation, there is the potential for these impacts to act cumulatively with existing background pressures on the Lower River Suir SAC.

6. SCREENING STATEMENT WITH CONCLUSIONS

According to the guidance published by the DoEHLG (2010), Screening for Appropriate Assessment can either identify that an Appropriate Assessment is not required, where a project / proposal is directly related to the management of the site; or that there is no potential for significant effects affecting the Natura 2000 network; or that significant effects are certain, likely or uncertain (i.e., the project must either proceed to Stage 2 (AA) or be rejected).

The proposed scheme is c. 2.2km in length. The proposal also includes for two no. attenuation ponds, as well as a realignment of the existing Skelpstown 16 stream which runs through the site. It is proposed to construct a new box culvert for the realigned stream. It is also proposed to construct a new combined underbridge and cattle underpass at the location of the local road L7416 underneath the new road.

The closest Special Area of Conservation is the Lower River Suir SAC (Site Code: 002137), located c. 660rm downstream the development. This Natura 2000 site is hydrologically connected to the proposed development via the Skelpstown 16 Stream.

It is concluded that due to the presence of the Skelpstown 16 stream on the site, within which there are works proposed, there is a pathway for impacts on the Lower River Suir SAC. Therefore, there is potential for the proposed works to adversely affect the qualifying interests of the SAC present downstream of the proposed development including aquatic and semi-aquatic species such as Salmon (indirectly Freshwater Pearl Mussel), Lamprey sp., Twaite Shad, Otter, as well as water-associated Annex I habitats such as Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*), Atlantic salt meadows and Mediterranean salt meadows. The proposed road scheme is located c.510m straight line distance from the SAC at its closest point and 660rm upstream from the SAC boundary via the Skelpstown 16 stream. There is the potential for water quality impacts to arise via this pathway. Instream works are likely to be required. There is also the potential for semi-aquatic qualifying interests to occur in the Skelpstown 16 stream outside of the SAC boundary which have the potential to be impacted. It is also noted that there is a pathway for non-native invasive species impacts, which could affect the qualifying interests of the Lower River Suir SAC. There will also be a discharge from the attenuation ponds into the Skelpstown 16 stream. There is also the requirement for a detailed CEMP, Resource and Waste Management Plan, Surface Water Management Plan and an Invasive species Management Plan.

As per Finlay Geoghegan J. in Kelly -v- An Bord Pleanála 2013/802 JR, *'When doing a screening it is merely necessary to determine that there may be such an effect. The threshold at the first stage of Article 6(3) is a very low one'*. Given the location of the proposed road scheme and the Skelpstown 16 stream, there may be an effect on the Lower River Suir SAC due to the potential pathway of the stream through the site. This at least leads to the possibility of an effect on the conservation objectives of the downstream SAC. Additionally, in case C-323/17 People Over Wind and Peter Sweetman v Coillte, the Court of Justice of the European Union ruled that mitigation measures could not be taken into account when undertaking a screening for Appropriate Assessment. Mitigation measures are required for the current proposal in order to avoid water quality and invasive species impacts, which cannot be provided in a Screening for Appropriate Assessment. It is also noted that there is a lack of detail in the proposal, including method statements for construction, which leads to uncertainty regarding impacts. When assessing the significance of potential effects, DoEHLG (2010) recommends that *"a precautionary approach is fundamental and, in cases of uncertainty, it should be assumed the effects could be significant".* If the effects are deemed to be uncertain then the process must proceed to Stage 2 (AA).

Therefore, the current Screening for Appropriate Assessment has concluded that a Natura Impact Statement (NIS) is required for the proposed N24 Carrick Road Improvement Scheme. It has been concluded that there is a possibility of effects on the qualifying interests of the Lower River Suir SAC and mitigation measures will be required. This report has been prepared to inform the decision of the Competent Authority.

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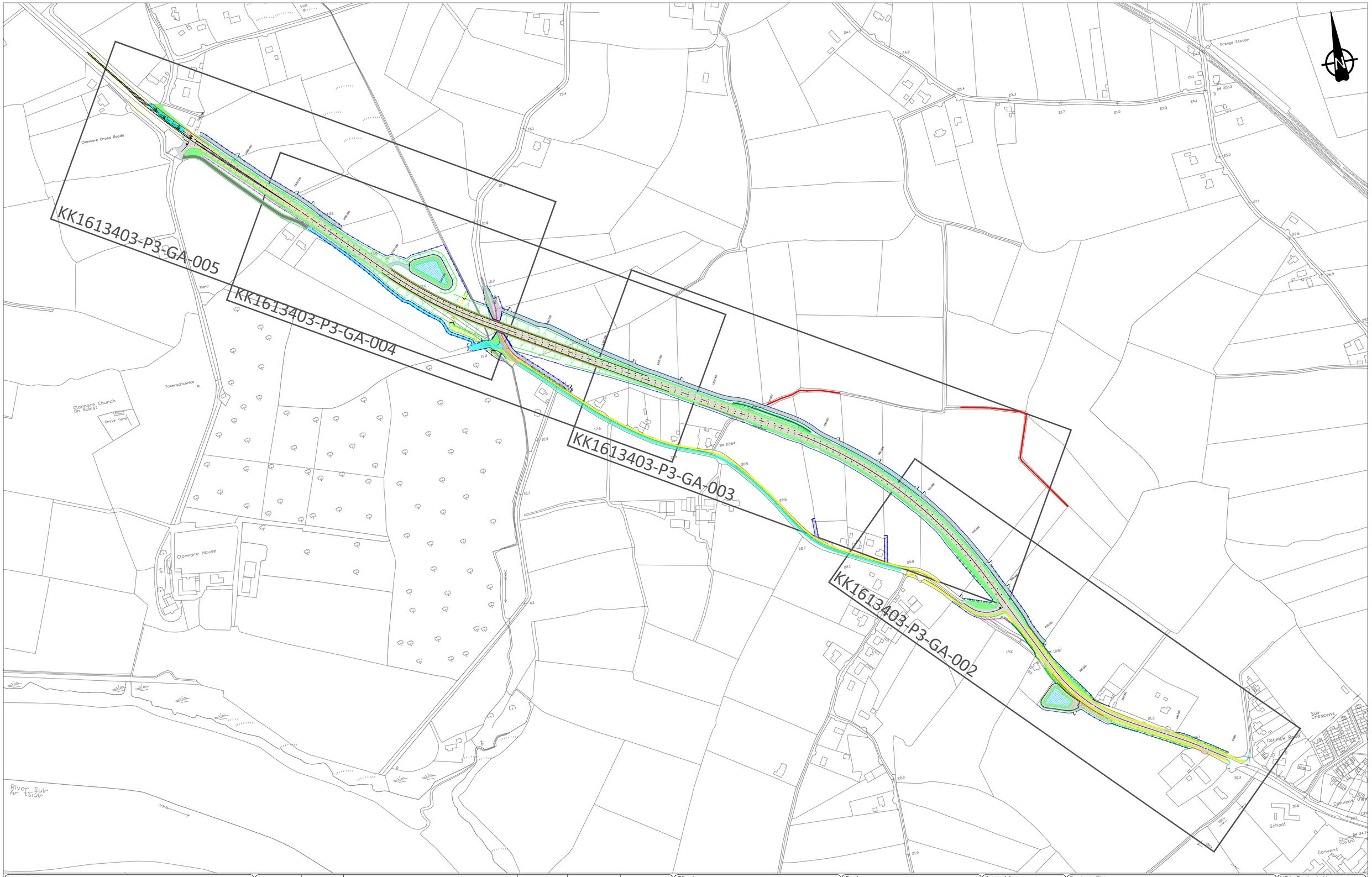
APPENDIX 1 PROJECT DRAWINGS



NOTES:

1. Actual extent of scheme land acquisition to be determined at a later date.

DO NOT SCALE

Revision	Date	Description	Drawn by	Checked by	Approved by
F1	4/12/2019	First Issue	JL	DR	GJ
F2	5/2/2020	Revised for issue further to comments received from Client	JL	CD	GJ
F3	11/3/2020	Revised to include Details of Underbridge	JL	CD	GJ
F4	24/3/2020	Revised further to comments received from Client	JL	CD	GJ
F5	09/9/2020	Revision to farm access roads	JL	CD	GJ
F6	22/4/2021	Further alterations to layout further to TII review	JL	AM	GJ
F7	23/2/2022	Further alterations to layout further to final review	JL	CD	GJ
F8	1/6/2022	Further alterations to layout further to Client review	JL	CD	GJ

Client

KILKENNY COUNTY COUNCIL
COUNTY HALL
JOHN STREET
KILKENNY

Tel: (056) 7794000
e-mail: secretar@kilkennycoco.ie

Design

TRAMORE HOUSE
REGIONAL DESIGN OFFICE
TRAMORE
CO. WATERFORD

Tel: (051) 390130
e-mail: natroads@thrdo.com

Approved by: G.Jones (GJ)
Checked by: C.Daly (CD)
Drawn by: J.Leacy (JL)

Scale: NTS

Rev. Date: 1/06/2022

Project Title: N24 Carrick Road Improvement Scheme

Drawing Title: General Arrangement Drawing. Key Map (Sheet 1 of 5)

Drawing Number: KK1613403-P3-GA-001

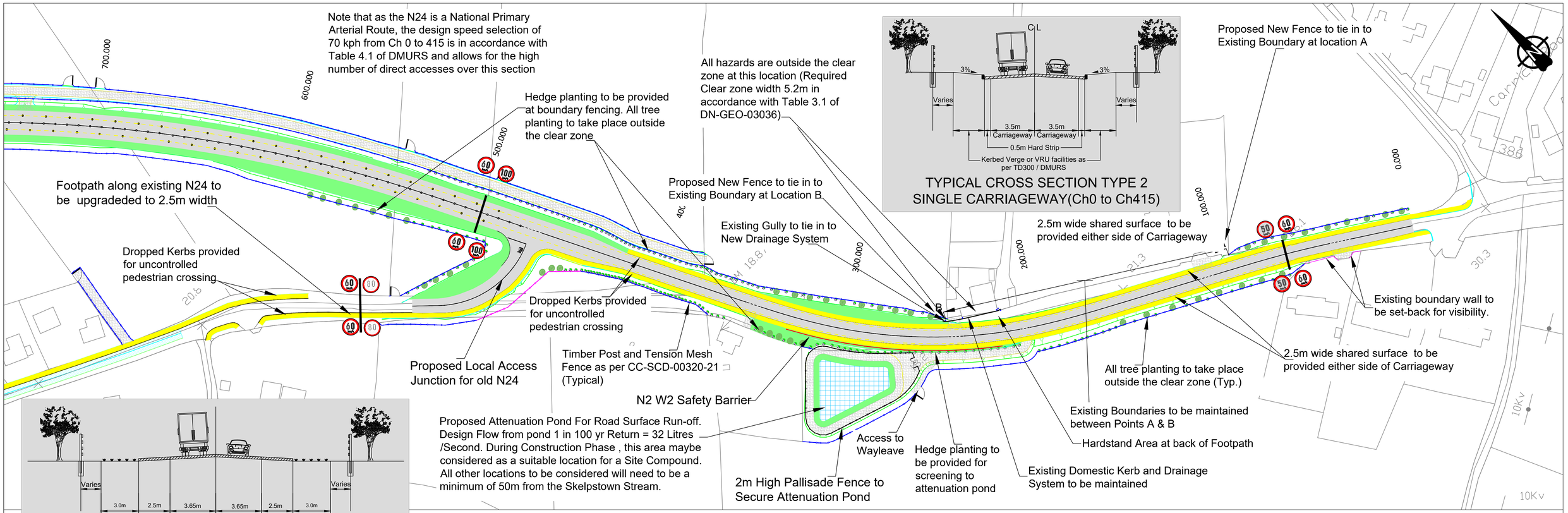
NRA Project No.: KK/16/13403

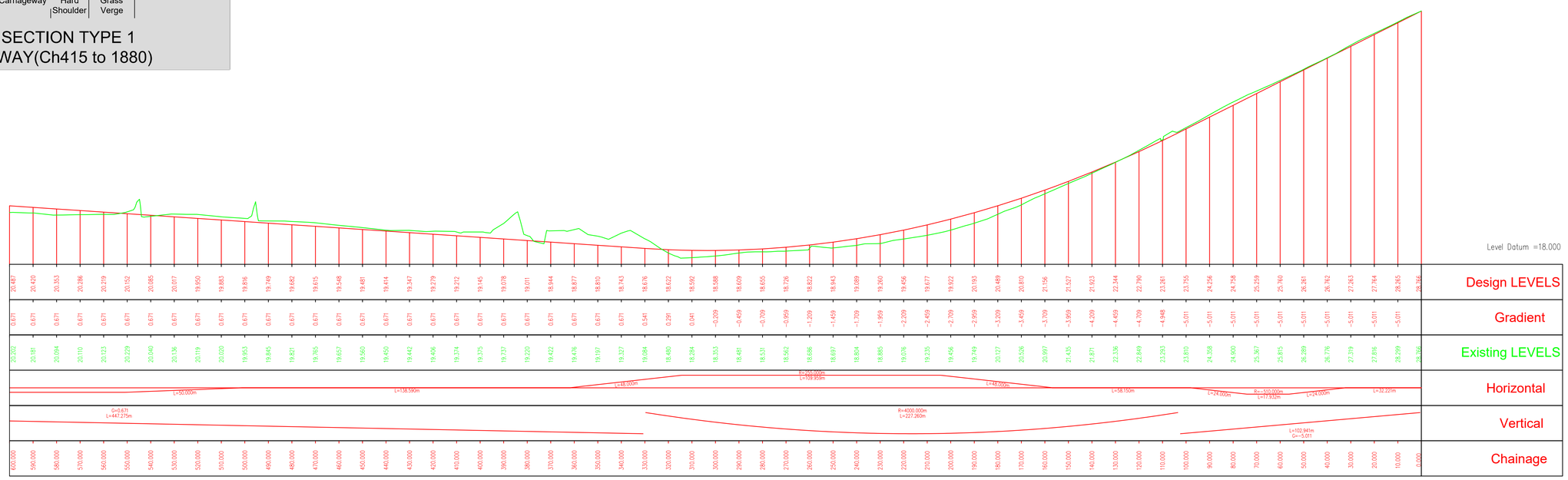
TH Project No.: TH/16/030

Project Folder No.: 7.6.1

Rev.: F8

Pdf Drawing: KK1613403-P3-GA-001F8





Long-section Road Centreline Ch 0 to Ch 600

NOTES:

1. Actual extent of scheme land acquisition to be determined at a later date.

DO NOT SCALE

Revision	Date	Description	Drawn by	Checked by	Approved by
F1	4/12/2019	First Issue	JL	DR	GJ
F2	5/2/2020	Revised for issue further to comments received from Client	JL	CD	GJ
F3	11/3/2020	Revised to include Details of Underbridge	JL	CD	GJ
F4	24/3/2020	Revised further to comments received from Client	JL	CD	GJ
F5	09/9/2020	Revision to farm access roads	JL	CD	GJ
F6	22/4/2021	Further alterations to layout further to TII review	JL	AM	GJ
F7	31/1/2022	Identification of Potential Site Compound Construction Phase	JL	CD	GJ
F8	23/2/2022	Further alterations to layout further to final review	JL	CD	GJ

Client
KILKENNY COUNTY COUNCIL
COUNTY HALL
JOHN STREET
KILKENNY
Tel: (056) 7794000
e-mail: secretar@kilkennycoco.ie

Design
TRAMORE HOUSE
REGIONAL DESIGN OFFICE
TRAMORE
CO. WATERFORD
Tel: (051) 390130
e-mail: natroads@thrdo.com

Approved by: G.Jones (GJ)
Checked by: C.Daly (CD)
Drawn by: J.Leacy (JL)
Scale: Horizontal: 1:1000 (A1) Vertical: 1:100 (A1)
Rev. Date: 23/02/2022

Project Title: N24 Carrick Road Improvement Scheme

Drawing Title: General Arrangement Drawing Ch 0 to 600 (Sheet 2 of 5)

Drawing Number: KK1613403-P3-GA-002

NRA Project No.: KK/16/13403
TH Project No.: TH/16/030
Project Folder No.: 7.6.1
Rev.: F8
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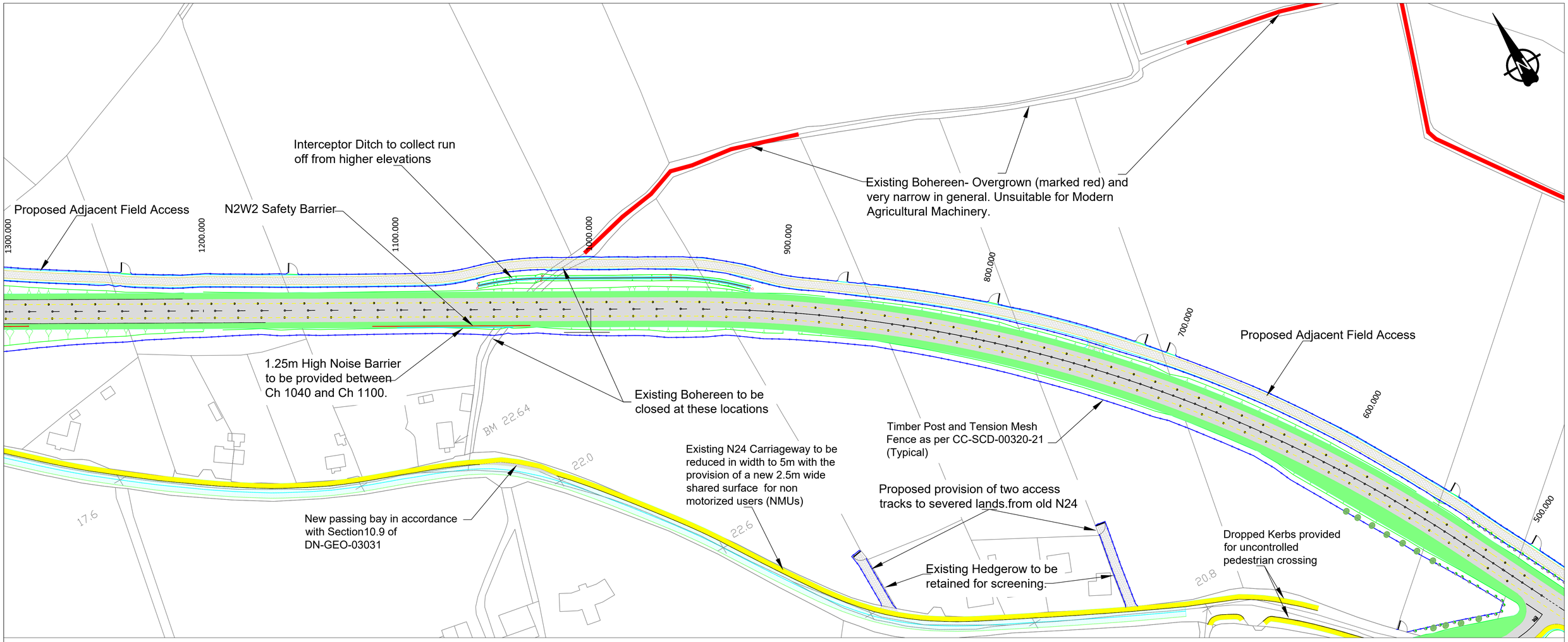

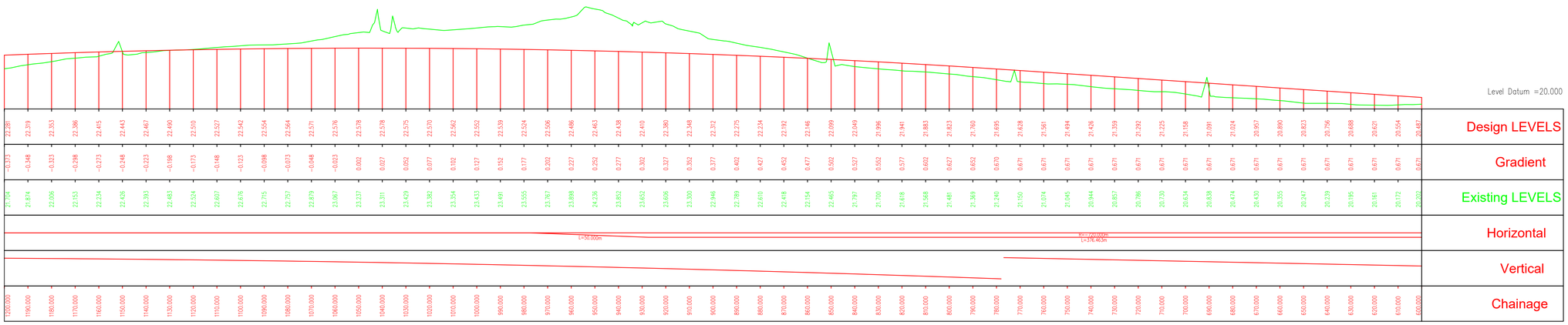

Long-section Road Centreline Ch 600 to Ch 1200

NOTES:

1. Actual extent of scheme land acquisition to be determined at a later date.

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Revision	Date	Description	Drawn by	Checked by	Approved by
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F2	5/2/2020	Revised for issue further to comments received from Client	JL	CD	GJ
F3	11/3/2020	Revised to include Details of Underbridge	JL	CD	GJ
F4	24/3/2020	Revised further to comments received from Client	JL	CD	GJ
F5	09/9/2020	Revision to farm access roads	JL	CD	GJ
F6	22/4/2021	Further alterations to layout further to TII review	JL	AM	GJ
F7	31/1/2022	Inclusion of Noise Barrier between Ch 1040 & Ch 1100	JL	CD	GJ

Client
KILKENNY COUNTY COUNCIL
COUNTY HALL
JOHN STREET
KILKENNY
Tel: (056) 7794000
e-mail: secretar@kilkennycoco.ie

Design
TRAMORE HOUSE
REGIONAL DESIGN OFFICE
TRAMORE
CO. WATERFORD
Tel: (051) 390130
e-mail: natroads@thrdo.com

Approved by: G.Jones (GJ)
Checked by: C.Daly (CD)
Drawn by: J.Leacy (JL)
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Project Title: N24 Carrick Road Improvement Scheme
Drawing Title: General Arrangement Drawing Ch 600 to 1200 (Sheet 3 of 5)
Drawing Number: KK1613403-P3-GA-003

NRA Project No.: KK/16/13403
TH Project No.: TH/16/030
Project Folder No.: 7.6.1
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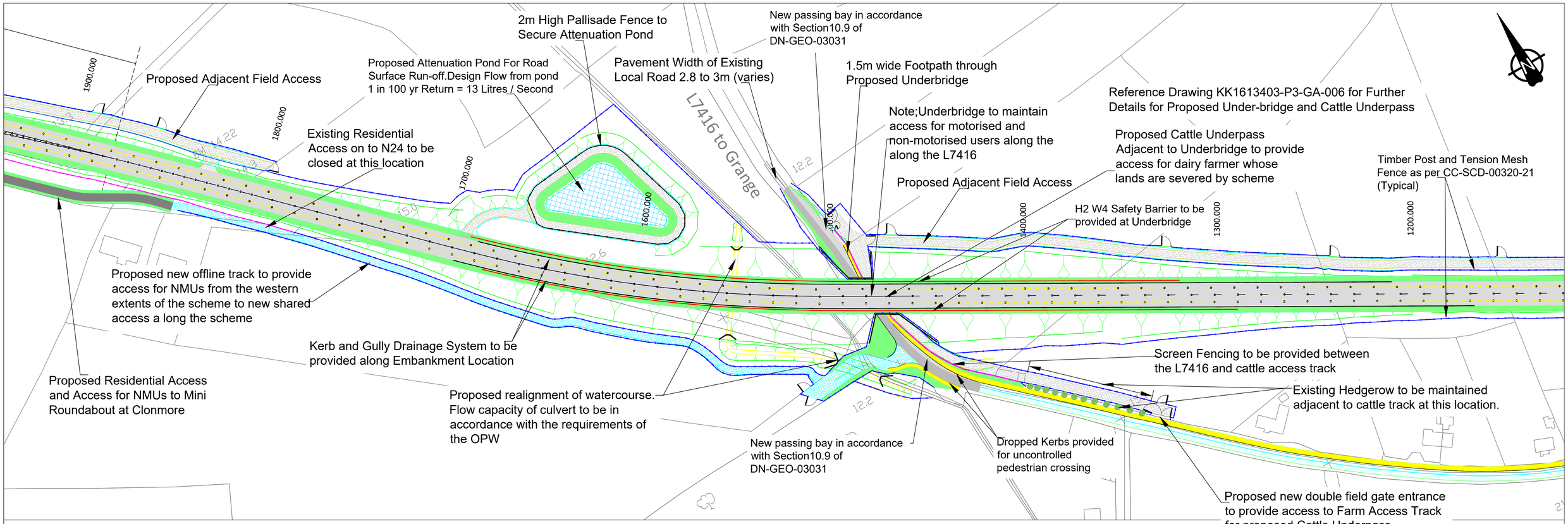

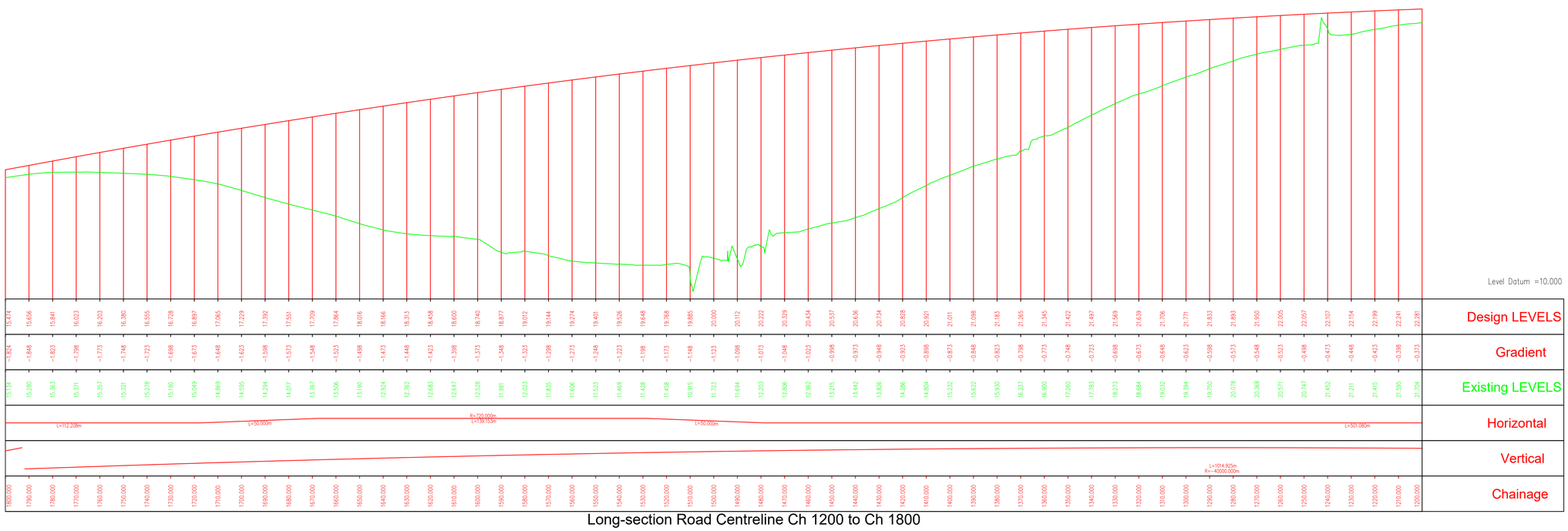

Long-section Road Centreline Ch 1200 to Ch 1800

NOTES:

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DO NOT SCALE

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F1	4/12/2019	First Issue	JL	DR	GJ
F2	5/2/2020	Revised for issue further to comments received from Client	JL	CD	GJ
F3	11/3/2020	Revised to include Details of Underbridge	JL	CD	GJ
F4	24/3/2020	Revised further to comments received from Client	JL	CD	GJ
F5	09/9/2020	Revision to farm access roads	JL	CD	GJ
F6	18/9/2020	Revised location for field access	JL	CD	GJ
F7	22/4/2021	Further alterations to layout further to TII review	JL	AM	GJ
F8	1/6/2022	Further alterations to layout further to Client review	JL	CD	GJ

Client
KILKENNY COUNTY COUNCIL
COUNTY HALL
JOHN STREET
KILKENNY
Tel: (056) 7794000
e-mail: secretar@kilkennycoco.ie

Design
TRAMORE HOUSE
REGIONAL DESIGN OFFICE
TRAMORE
CO. WATERFORD
Tel: (051) 390130
e-mail: natroads@thrdo.com

Approved by: G.Jones (GJ)
Checked by: C.Daly (CD)
Drawn by: J.Leacy (JL)
Scale: Horizontal: 1:1000 (A1) Vertical: 1:100 (A1)
Rev. Date: 1/06/2022

Project Title: N24 Carrick Road Improvement Scheme
Drawing Title: General Arrangement Drawing Ch 1200 to 1800 (Sheet 4 of 5)
Drawing Number: KK1613403-P3-GA-004

NRA Project No.: KK/16/13403
TH Project No.: TH/16/030
Project Folder No.: 7.6.1
Rev.: F8
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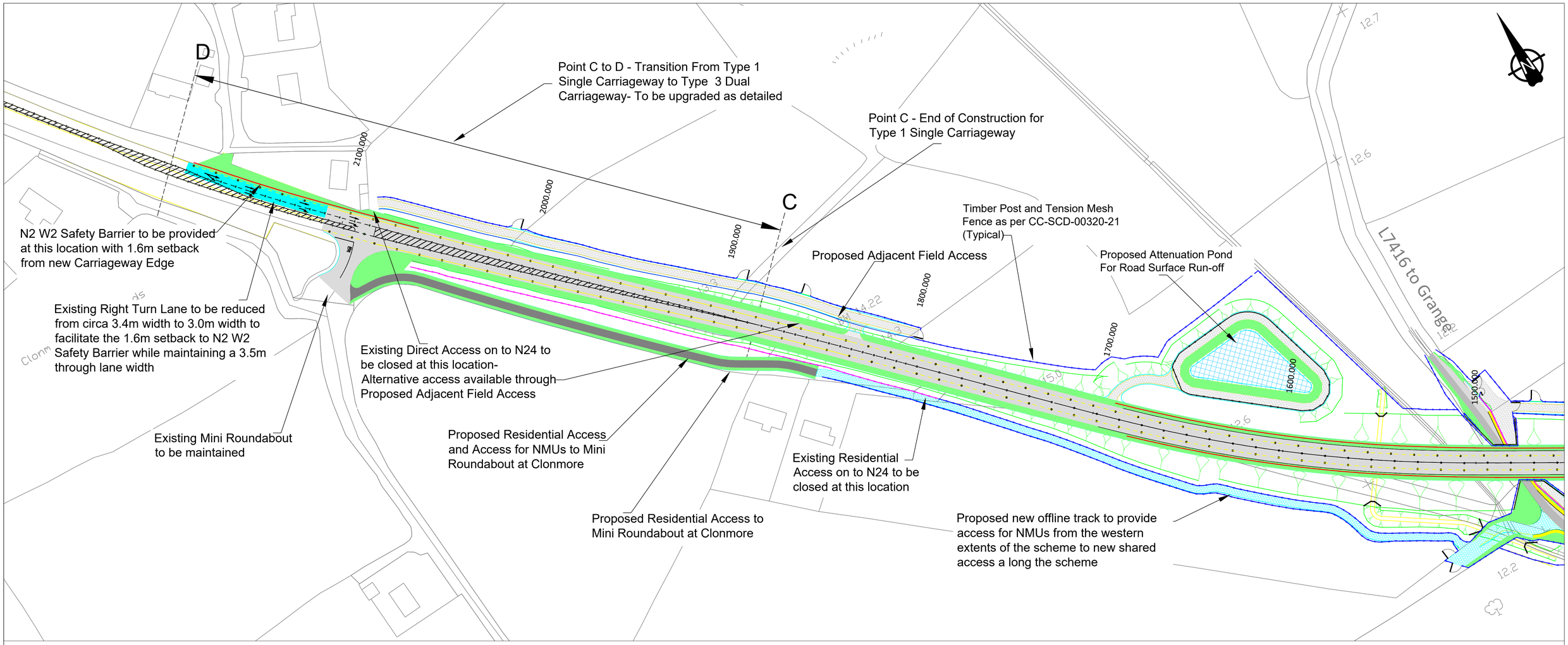
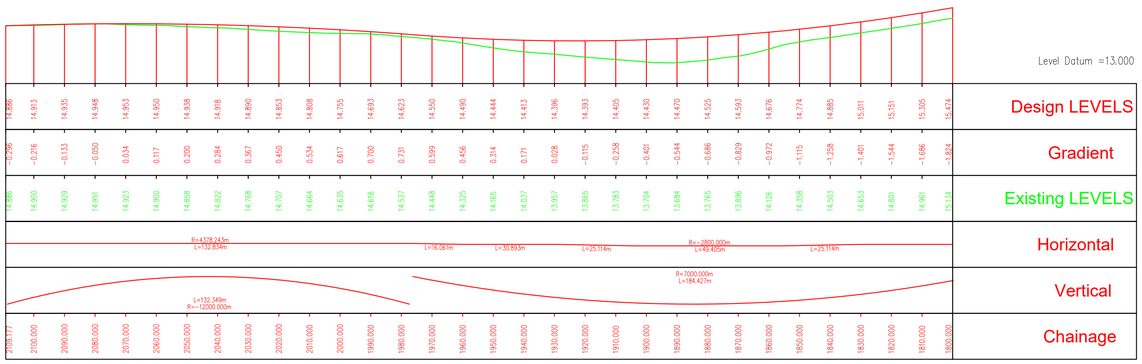




Long-section Road Centreline Ch 1800 to End

NOTES:

1. Actual extent of scheme land acquisition to be determined at a later date.

DO NOT SCALE

Revision	Date	Description	Drawn by	Checked by	Approved by
F1	4/12/2019	First Issue	JL	DR	GJ
F2	5/2/2020	Revised for issue further to comments received from Client	JL	CD	GJ
F3	11/3/2020	Revised to include Details of Underbridge	JL	CD	GJ
F4	24/3/2020	Revised further to comments received from Client	JL	CD	GJ
F5	09/9/2020	Revision to farm access roads	JL	CD	GJ
F6	22/4/2021	Further alterations to layout further to TII review	JL	AM	GJ

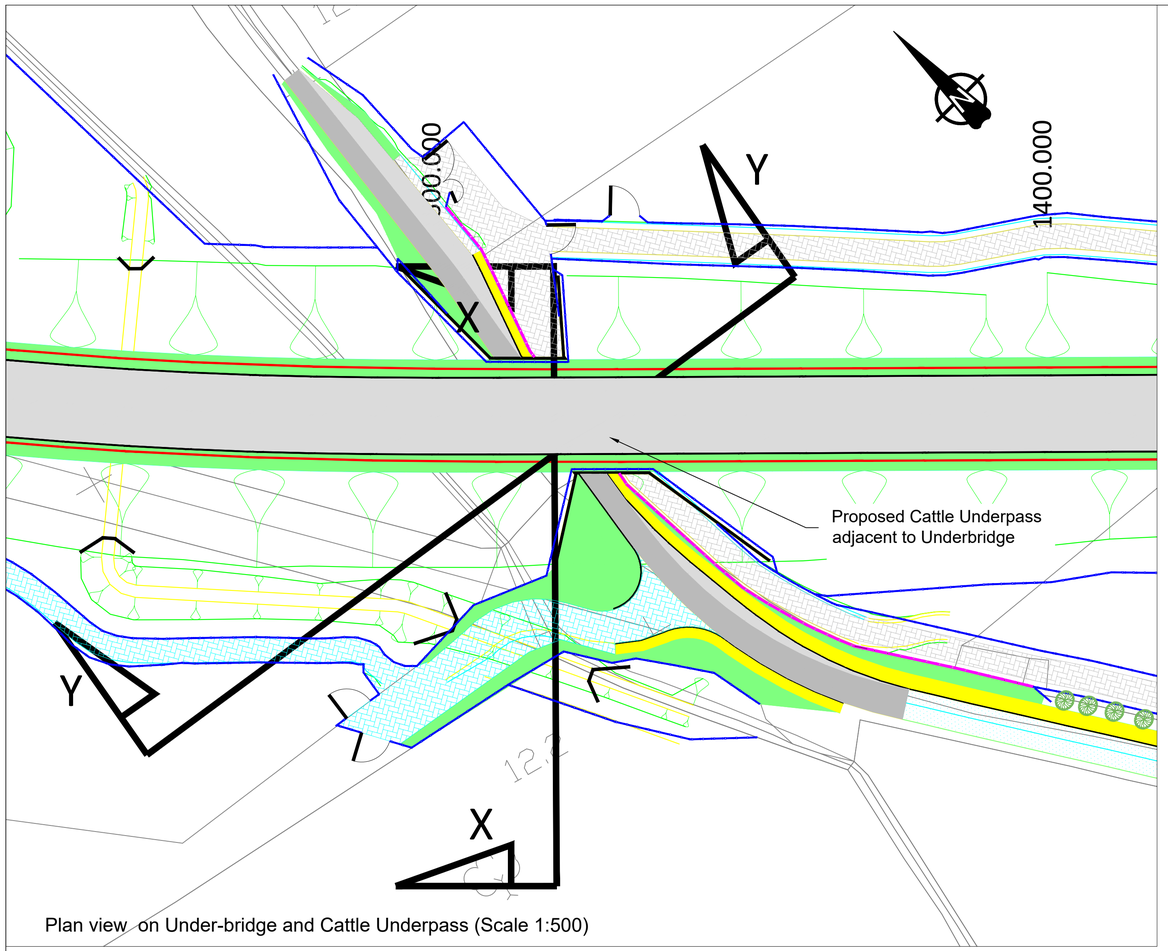
Client
KILKENNY COUNTY COUNCIL
COUNTY HALL
JOHN STREET
KILKENNY
Tel: (056) 7794000
e-mail: secretar@kilkennycoco.ie

Design
TRAMORE HOUSE
REGIONAL DESIGN OFFICE
TRAMORE
CO. WATERFORD
Tel: (051) 390130
e-mail: natroads@thrdo.com

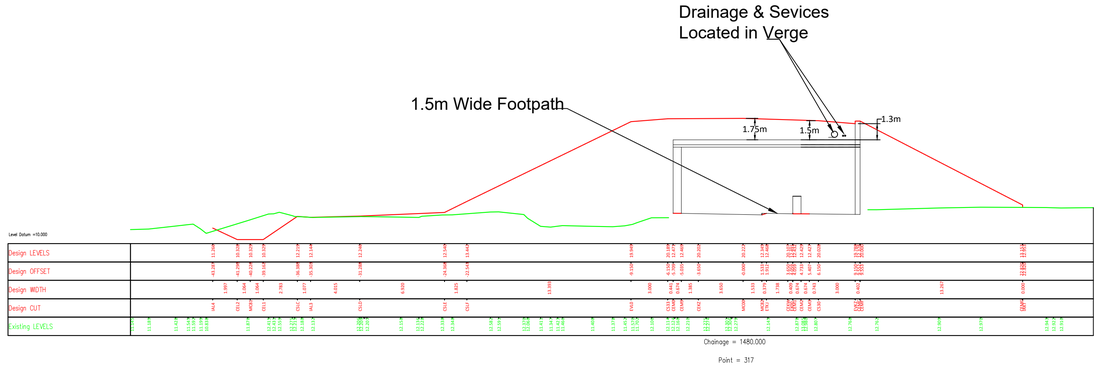
Approved by: G.Jones (GJ)
Checked by: A.Morrissey (AM)
Drawn by: J.Leacy (JL)
Scale: Horizontal: 1:1000 (A1) Vertical: 1:100 (A1)
Rev. Date: 22/04/2021

Project Title: N24 Carrick Road Improvement Scheme
Drawing Title: General Arrangement Drawing Ch 1800 to End (Sheet 5 of 5)
Drawing Number: KK1613403-P3-GA-005

NRA Project No.: KK/16/13403
TH Project No.: TH/16/030
Project Folder No.: 7.6.1
Rev.: F6
Pdf Drawing: KK1613403-P3-GA-005F6

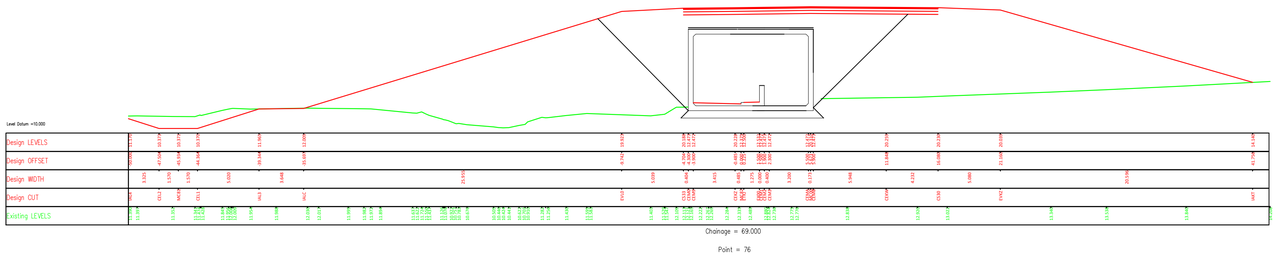


Plan view on Under-bridge and Cattle Underpass (Scale 1:500)

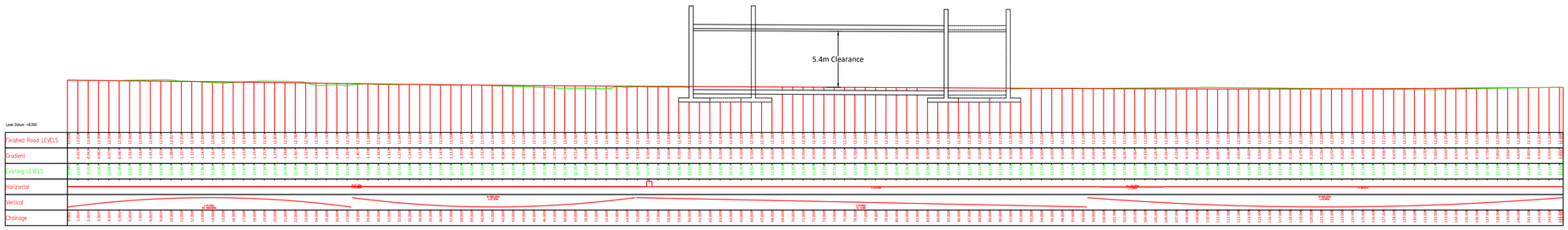


Section X - X (Proposed Under-Bridge) Scale 1:250

Construction of Combined Underbrige and Cattle Underpass shall be in accordance with the requirements of the TII approved Structures Options Report.



Section Y - Y (Proposed Under-Bridge) Scale 1:250



Long - section along Realigned Local Road (L7416) Scale 1:250

NOTES:

1. Actual extent of scheme land acquisition to be determined at a later date.

DO NOT SCALE

Revision	Date	Description	Drawn by	Checked by	Approved by
F1	11/03/2020	First Issue	JL	CD	GJ
F2	24/3/2020	Revised further to comments received from Client	JL	CD	GJ
F3	09/9/2020	Revision to farm access roads	JL	CD	GJ
F4	22/4/2021	Further alterations to layout further to TII review	JL	AM	GJ
F5	16/5/2021	Further alterations to layout further to TII review	JL	CD	GJ
F6	1/6/2022	Further alterations to layout further to Client review	JL	CD	GJ

Client
KILKENNY COUNTY COUNCIL
COUNTY HALL
JOHN STREET
KILKENNY
Tel: (056) 7794000
e-mail: secretar@kilkennycoco.ie

Design
TRAMORE HOUSE
REGIONAL DESIGN OFFICE
TRAMORE
CO. WATERFORD
Tel: (051) 390130
e-mail: natroads@thrdo.com

Approved by: G.Jones (GJ)
Checked by: C.Daly (CD)
Drawn by: J.Leacy (JL)
Scale: Horizontal: 1:1000 (A1) Vertical: 1:100 (A1)
Rev. Date: 1/06/2022

Project Title: N24 Carrick Road Improvement Scheme
Drawing Title: Indicative Details for combined Under-bridge & Cattle Underpass
Drawing Number: KK1613403-P3-GA-006

NRA Project No.: KK/16/13403
TH Project No.: TH/16/030
Project Folder No.: 7.6.1
Rev.: F6
Pdf Drawing: KK1613403-P3-GA-006F6

Calculated Design Speed for the L7416 to Grange is 42Kph, Reference Appendix G of Preliminary Design Report for Details of calculations

Proposed Residential Access to Mini Roundabout at Clonmore will also serve as access for NMUs rom the western scheme extents to Mooncoin Village

Underbridge to maintain access for motorised and non-motorised users along the along the L7416 and to the north of the schememe onto the N24 and into Mooncoin Village

Proposed new offline track to provide access for NMUs from the western extents of the scheme to new shared access a long the scheme

Proposed Cattle Underpass Adjacent to Underbridge to provide access for dairy farmer whose lands are severed by scheme

Proposed Type 1 Single Carriaway Crossection (Design Speed 100Kph), to provide required Level of Service as per Table 6.1 of DN-GEO-03031

Further to reduction in pavement width of existing N24 Carriageway to 5m, calculated Design Speed is 70kph. Reference Appendix G of Preliminary Design Report for Details of calculations

New 2.5m wide shared surface

Carriageway width on Existing N24 reduced to 5m with provision of adjacent shared access for Non-motorised Users

Dropped Kerbs provided for uncontrolled pedestrian crossing

Footpath along existing N24 to be upgradeded to 2.5m width

Dropped Kerbs provided for uncontrolled pedestrian crossing

2.5m wide shared surface to be provided either side of Carriageway

NOTES:

1. Actual extent of scheme land acquisition to be determined at a later date.

DO NOT SCALE

Revision	Date	Description	Drawn by	Checked by	Approved by
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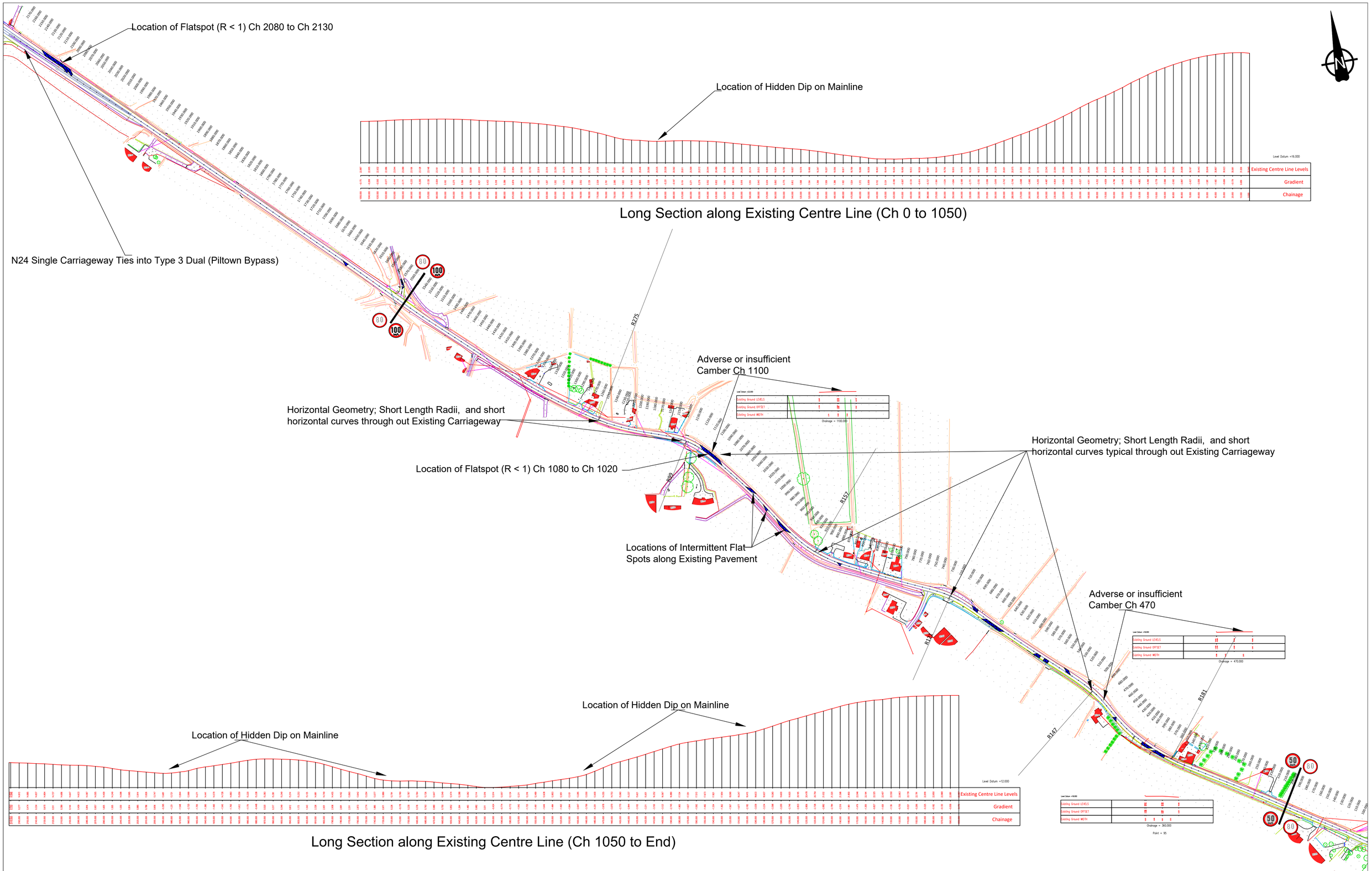
Client
KILKENNY COUNTY COUNCIL
COUNTY HALL
JOHN STREET
KILKENNY
Tel: (056) 7794000
e-mail: secretar@kilkennycoco.ie

Design
TRAMORE HOUSE
REGIONAL DESIGN OFFICE
TRAMORE
CO. WATERFORD
Tel: (051) 390130
e-mail: natroads@thrdo.com

Approved by: G.Jones (GJ)
Checked by: A.Morrissey (AM)
Drawn by: J.Leacy (JL)
Scale: NTS
Rev. Date: 22/04/2021

Project Title: N24 Carrick Road Improvement Scheme
Drawing Title: General Arrangement Drawing. Overall Access Arrangements.
Drawing Number: KK1613403-P3-GA-007

NRA Project No.: KK/16/13403
TH Project No.: TH/16/030
Project Folder No.: 7.6.1
Rev.: F1
Pdf Drawing: KK1613403-P3-GA-007F1



NOTES:

1. Actual extent of scheme land acquisition to be determined at a later date.

DO NOT SCALE

Revision	Date	Description	Drawn by	Checked by	Approved by
F1	27/04/2021	First Issue	JL	AM	GJ

Client
KILKENNY COUNTY COUNCIL
COUNTY HALL
JOHN STREET
KILKENNY
Tel: (056) 7794000
e-mail: secretar@kilkennycoco.ie

Design
TRAMORE HOUSE
REGIONAL DESIGN OFFICE
TRAMORE
CO. WATERFORD
Tel: (051) 390130
e-mail: natroads@thrdo.com

Approved by: G.Jones (GJ)
Checked by: A.Morrissey (AM)
Drawn by: J.Leacy (JL)
Scale: NTS
Rev. Date: 27/04/2021

Project Title: N24 Carrick Road Improvement Scheme

Drawing Title: General Arrangement Drawing. Existing N24 Geometry

Drawing Number: KK1613403-P3-GA-008

NRA Project No.: KK/16/13403
TH Project No.: TH/16/030
Project Folder No.: 7.6.1
Rev.: F1
Pdf Drawing: KK1613403-P3-GA-008F1

Calculated Design Speed for the L7416 to Grange is 42Kph, Reference Appendix G of Preliminary Design Report for Details of calculations (Width of L7416 pavement 2.8 to 3.0m)

Departure 1g (Mainline Turning Loop on Type 3 Dual Carriageway- Existing)

Departure 1d (Forward Visibility on Local Road)

Departure 1e (Visibility from Access)

Departure 1b (Pavement Drainage Ch 950 to 960)

Further to reduction in pavement width of existing N24 Carriageway to 5m, calculated Design Speed is 70kph. Reference Appendix G of Preliminary Design Report for Details of calculations

New 2.5m wide shared surface

Departure 1f (Visibility from Access)

Departure 1c (Road Design, horizontal Geometry)

Departure 1a (Road Design- Visibility on approach to Junction with N24 mainline)

NOTES:

DO NOT SCALE

Revision	Date	Description	Drawn by	Checked by	Approved by
F1	24/04/2021	First Issue	JL	AM	GJ

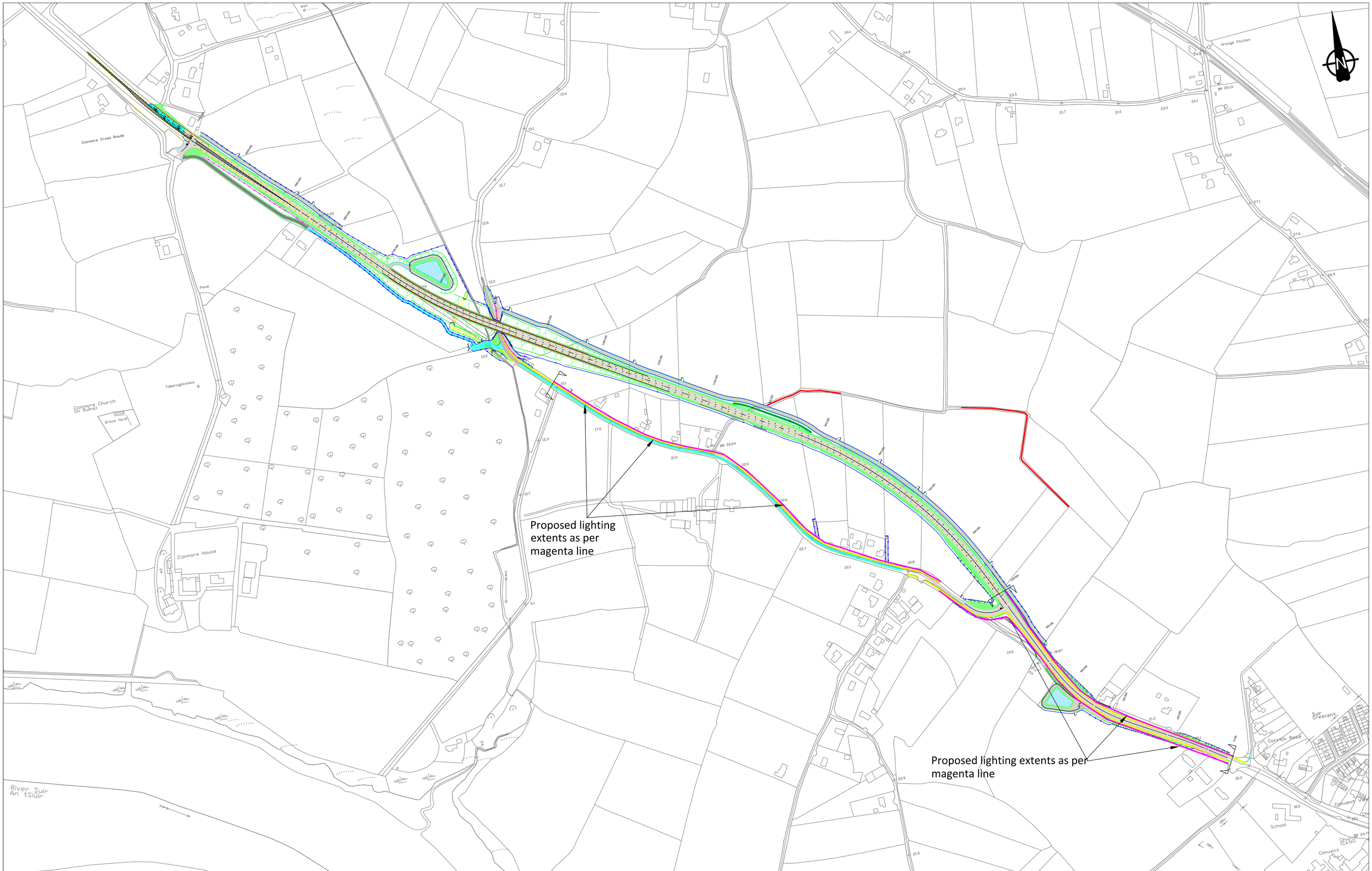
Client
KILKENNY COUNTY COUNCIL
COUNTY HALL
JOHN STREET
KILKENNY
Tel: (056) 7794000
e-mail: secretar@kilkennycoco.ie

Design
TRAMORE HOUSE
REGIONAL DESIGN OFFICE
TRAMORE
CO. WATERFORD
Tel: (051) 390130
e-mail: natroads@thrdo.com

Approved by: G.Jones (GJ)
Checked by: A.Morrissey (AM)
Drawn by: J.Leacy (JL)
Scale: NTS
Rev. Date: 24/04/2021

Project Title: N24 Carrick Road Improvement Scheme
Drawing Title: Departure Application Details.
Drawing Number: KK1613403-P3-DP-001

NRA Project No.: KK/16/13403
TH Project No.: TH/16/030
Project Folder No.: 7.6.1
Rev.: F1
Pdf Drawing: KK1613403-P3-DP-001F1



NOTES:

DO NOT SCALE

Revision	Date	Description	Drawn by	Checked by	Approved by
F1	28/02/2022	Issued for Information	JL	DR	GJ

Client

KILKENNY COUNTY COUNCIL
COUNTY HALL
JOHN STREET
KILKENNY

Tel: (056) 7794000
e-mail: secretar@kilkennycoco.ie

Design

TRAMORE HOUSE
REGIONAL DESIGN OFFICE
TRAMORE
CO. WATERFORD

Tel: (051) 390130
e-mail: natroads@thrdo.com

Approved by: G.Jones (GJ)
Checked by: C.Daly (CD)
Drawn by: J.Leacy (JL)
Scale: NTS
Rev. Date: 28/02/2022

Project Title: N24 Carrick Road Improvement Scheme

Drawing Title: Proposed Lighting Extents

Drawing Number: KK1613403-P3-LT-001

NRA Project No.: KK/16/13403
TH Project No.: TH/16/030
Project Folder No.: 7.6.1
Rev.: F1
Pdf Drawing: KK1613403-P3-LT-001F1

APPENDIX 2 NPWS SITE SYNOPSIS

SITE NAME: LOWER RIVER SUIR SAC
SITE CODE: 002137

Lower River Suir SAC consists of the freshwater stretches of the River Suir immediately south of Thurles, the tidal stretches as far as the confluence with the Barrow/Nore immediately east of Cheekpoint in Co. Waterford, and many tributaries including the Clodiagh in Co. Waterford, the Lingaun, Anner, Nier, Tar, Aherlow, Multeen and Clodiagh in Co. Tipperary. The Suir and its tributaries flow through the counties of Tipperary, Kilkenny and Waterford.

Upstream of Waterford city, the swinging meanders of the Suir criss-cross the Devonian sandstone rim of hard rocks no less than three times as they leave the limestone-floored downfold below Carrick-on-Suir. In the vicinity of Carrick-on-Suir the river follows the limestone floor of the Carrick Syncline. Upstream of Clonmel the river and its tributaries traverse Upper Palaeozoic Rocks, mainly the Lower Carboniferous Visean and Tournaisian. The freshwater stretches of the Clodiagh River in Co. Waterford traverse Silurian rocks, through narrow bands of Old Red Sandstone and Lower Avonian Shales, before reaching the carboniferous limestone close to its confluence with the Suir. The Aherlow River flows through a Carboniferous limestone valley, with outcrops of Old Red Sandstone forming the Galtee Mountains to the south and the Slievenamuck range to the north. Glacial deposits of sands and gravels are common along the valley bottom, flanking the present-day river course.

Alluvial wet woodland is a declining habitat type in Europe as a result of drainage and reclamation. The best examples of this type of woodland in the site are found on the islands just below Carrick-on-Suir and at Fiddown Island. Species occurring here include Almond Willow (Salix triandra), White Willow (S. alba), Rusty Willow (S. cinerea subsp. oleifolia), Osier (S. viminalis), with Yellow Iris (Iris pseudacorus), Hemlock Water-dropwort (Oenanthe crocata), Wild Angelica (Angelica sylvestris), Pendulous Sedge (Carex pendula), Meadowsweet (Filipendula ulmaria) and Common Valerian (Valeriana officinalis). The terrain is littered with dead trunks and branches and intersected with small channels which carry small streams to the river. The bryophyte and lichen floras appear to be rich. A small plot is currently being coppiced and managed by the National Parks and Wildlife Service. In the drier areas species such as Ash (Fraxinus excelsior), Hazel (Corylus avellana), Hawthorn (Crataegus monogyna) and Blackthorn (Prunus spinosa) occur.

Eutrophic tall herb vegetation occurs in association with the various areas of alluvial forest and elsewhere where the floodplain of the river is intact. Characteristic species of the habitat include Meadowsweet, Purple Loosestrife (Lythrum salicaria), Marsh Ragwort (Senecio aquaticus), Ground Ivy (Glechoma hederacea) and Hedge Bindweed (Calystegia sepium).

Old oak woodlands are also of importance at the site. The best examples are seen in Portlaw Wood which lies on both sides of the Clodiagh River. On the south-facing side the stand is more open and the oaks (mainly Pedunculate Oak, Quercus robur) are well grown and spreading. Ivy (Hedera helix) and Bramble (Rubus fruticosus agg.) are common on the ground, indicating relatively high light conditions. Oak regeneration is dense, varying in age from 0-40 years and Holly (Ilex aquifolium) is fairly common but mostly quite young. Across the valley, by contrast, the trees are much more closely spaced and though taller, are poorly grown on average. There are no clearings; large oaks extend to the boundary wall. In the darker conditions, Ivy is much rarer and Holly much more frequent, forming a closed canopy in places. Oak regeneration is uncommon since there are as yet few natural clearings. The shallowness of the soil on the north-facing slope probably contributes to the poor tree growth there. The acid nature of the substrate has induced a ‘mountain’ type oakwood community to develop. The site is quite

species-rich throughout, including an abundance of mosses, liverworts and lichens. The rare lichen Lobaria pulmonaria, an indicator of ancient woodlands, is found here.

Inchinsquillib Wood consists of three small separate sloping blocks of woodland in a valley cut by the young Multeen River and its tributaries through acidic Old Red Sandstone and Silurian rocks. Two blocks, both with an eastern aspect, located to the north of the road, are predominantly of Sessile Oak (Quercus petraea) and Hazel, with Downy Birch (Betula pubescens), Ash and Holly. The ground flora is quite mixed with, for example, Wood-sedge (Carex sylvatica), Bluebell (Hyacinthoides non-scripta), Primrose (Primula vulgaris), Wood-sorrel (Oxalis acetosella), Pignut (Conopodium majus) and Hard Fern (Blechnum spicant). The base poor nature of the underlying rock is to some extent masked by the overlying drift. The third block, to the south of the road, and with a northern aspect, is a similar although less mature mixture of Sessile Oak, Birch and Holly. Here the influence of the drift is more marked, with the occurrence of Wood Anemone (Anemone nemorosa) amongst the ground flora.

Two stands of Yew (Taxus baccata) woods, a rare habitat in Ireland and the E.U., occur within the site. These are on limestone ridges at Shanbally and Cahir Park. Both are in woods planted with non-native species, including conifers. However, the area at Cahir Park is fairly substantial in size and includes some relatively undisturbed patches of wood and some very old trees. Regeneration of the Yew trees is mostly poor, due to competition from species such as Sycamore (Acer pseudoplatanus) and, at Shanbally, due to heavy grazing by goats. Other native species which occur with the Yew trees include Ash, Pedunculate Oak, Hazel and Spindle (Euonymus europaeus). Future prospects for these Yew woods are good as the sites are proposed for restoration under a Coillte E.U. LIFE programme.

Floating river vegetation is evident in the freshwater stretches of the River Suir and along many of its tributaries. Typical species found include Canadian Pondweed (Elodea canadensis), water-milfoils (Myriophyllum spp.), Fennel Pondweed (Potamogeton pectinatus), Curled Pondweed (P. crispus), Perfoliate Pondweed (P. perfoliatus), Pond Water-crowfoot (Ranunculus peltatus), other crowfoots (Ranunculus spp.) and the moss Fontinalis antipyretica. At a couple of locations along the river Opposite-leaved Pondweed (Groenlandia densa) occurs. This species is protected under the Flora (Protection) Order, 1999.

The Aherlow River is fast flowing and mostly follows a natural unmodified river channel. Submerged vegetation includes the aquatic moss Fontinalis antipyretica and Stream Water-crowfoot (R. pencillatus), while shallow areas support species such as Reed Canary-grass (Phalaris arundinacea), Brooklime (Veronica beccabunga) and Water Mint (Mentha aquatica). The river bank is fringed in places with Alder (Alnus glutinosa) and willows (Salix spp.).

The Multeen River is fast flowing, mostly gravel-bottomed and appears to follow a natural unmodified river channel. Water-crowfoots occur in abundance and the aquatic moss Fontinalis antipyretica is also common. In sheltered shallows, species such as Water-cress (Nasturtium officinale) and water-starworts (Callitriche spp.) occur. The river channel is fringed for most of its length with Alder, Willow and a narrow strip of marshy vegetation.

Salt meadows occur below Waterford City in old meadows where the embankment is absent, or has been breached, and along the tidal stretches of some of the inflowing rivers below Little Island. There are very narrow, non-continuous bands of this habitat along both banks. More extensive areas are also seen along the south bank at Ballynakill, the east side of Little Island, and in three large salt meadows between Ballynakill and Cheekpoint. The Atlantic and Mediterranean sub-types are generally intermixed. The species list is extensive and includes Red Fescue (Festuca rubra), oraches (Atriplex spp.), Sea Aster (Aster tripolium), Sea Couch (Elymus pycnanthus), frequent Sea Milkwort (Glaux

maritima), occasional Wild Celery (Apium graveolens), Parsley Water-dropwort (Oenanthe lachenalii), English Scurvygrass (Cochlearia anglica) and Sea Arrowgrass (Triglochin maritima). These species are more representative of the Atlantic sub-type of the habitat. Common Cord-grass (Spartina anglica), is rather frequent along the main channel edge and up the internal channels. The legally protected (Flora (Protection) Order, 1999) Meadow Barley (Hordeum secalinum) grows at the landward transition of the saltmarsh. Sea Rush (Juncus maritimus), an indicator of the Mediterranean salt meadows, also occurs.

Other habitats at the site include wet and dry grassland, marsh, reedswamp, improved grassland, coniferous plantations, deciduous woodland, scrub, tidal river, stony shore and mudflats. The most dominant habitat adjoining the river is improved grassland, although there are wet fields with species such as Yellow Iris, Meadowsweet, rushes (Juncus spp.), Meadow Buttercup (Ranunculus acris) and Cuckooflower (Cardamine pratensis).

Cabragh marshes, just below Thurles, lie in a low-lying tributary valley into which the main river floods in winter. Here there is an extensive area of Common Reed (Phragmites australis) with associated marshland and peaty fen. The transition between vegetation types is often well displayed. A number of wetland plants of interest occur, in particular the Narrow-leaved Bulrush (Typha angustifolia), Bottle Sedge (Carex rostrata) and Blunt-flowered Rush (Juncus subnodulosus). The marsh is naturally eutrophic but it has also the nutritional legacy of the former sugar factory which discharged into it through a number of holding lagoons, now removed. Production is high, which is seen in the size of such species as Celery-leaved Buttercup (Ranunculus sceleratus), as well as in the reeds themselves.

Throughout the Lower River Suir site are small areas of woodland other than those described above. These tend to be a mixture of native and non-native species, although there are some areas of semi-natural wet woodland with species such as Ash and willow. Cahir Park Woodlands is a narrow tract of mixed deciduous woodland lying on the flat-lying floodplain of the River Suir. This estate woodland was planted over one hundred years ago and it contains a large component of exotic tree species. However, due to original planting and natural regeneration there is now a good mix of native and exotic species. About 5 km northwest of Cashel, Ardmayle pond is a long, possibly artificial water body running parallel to the River Suir. It is partly shaded by planted Lime (Tilia hybrids), Sycamore and the native Alder. Growing beneath the trees are shade tolerant species such as Remote sedge (Carex remota).

The site is of particular conservation interest for the presence of a number of Annex II animal species, including Freshwater Pearl Mussel (both Margaritifera margaritifera and M. margaritifera subsp. durrovensis occur), White-clawed Crayfish, Salmon, Twaite Shad (Alosa fallax fallax), three species of Lampreys - Sea Lamprey, Brook Lamprey and River Lamprey, and Otter. This is one of only three known spawning grounds in the country for Twaite Shad.

The site also supports populations of several other animal species. Those which are listed in the Irish Red Data Book include Daubenton's Bat, Nattererer's Bat, Pipistrelle Bat, Pine Marten, Badger, Irish Hare, Smelt and Common Frog. Breeding stocks of Carp are found in Kilsheelan Lake. This is one of only two lakes in the country which is known to have supported breeding Carp. Carp require unusually high summer water temperatures to breed in Ireland. As the site is therefore unusual in this regard, it may also support interesting invertebrate populations.

Parts of the site have also been identified as of ornithological importance for a number of Annex I (E.U. Birds Directive) bird species, including Greenland Whitefronted Goose (10), Golden Plover (1,490), Whooper Swan (7) and Kingfisher. Figures given in brackets are the average maximum counts from four count areas within the site for the three winters 1994-1997. Wintering populations of migratory birds use the site. Flocks are seen in Coolfinn Marsh and also along the reedbeds and saltmarsh areas of

the Suir. Coolfinn supports nationally important numbers of Greylag Goose on a regular basis, with numbers between 600 and 700 recorded. Other species occurring include Mallard (21), Teal (159), Wigeon (26), Tufted Duck (60), Pintail (4), Pochard (2), Little Grebe (2), Black-tailed Godwit (20), Oystercatcher (16), Lapwing (993), Dunlin (101), Curlew (195), Redshank (28), Greenshank (4) and Green Sandpiper (1). Nationally important numbers of Lapwing (2,750) were recorded at Faithlegg in the winter of 1996/97. In Cabragh marshes there is abundant food for surface feeding wildfowl which total approximately 1,000 in winter. Widgeon, Teal and Mallard are numerous, and the latter has a large breeding population, with up to 400 in summer. In addition, less frequent species like Shoveler and Pintail occur and there are records for both Whooper and Bewick's swans. Kingfisher, a species that is listed on Annex I of the E.U. Birds Directive, occurs along some of the many tributaries throughout the site.

Land use at the site consists mainly of agricultural activities including grazing, silage production, fertilising and land reclamation. The grassland is intensively managed and the rivers are therefore vulnerable to pollution from run-off of fertilisers and slurry. Arable crops are also grown. Fishing is a main tourist attraction on stretches of the Suir and some of its tributaries, and there are a number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. Both commercial and leisure fishing takes place on the rivers. The Aherlow River is a designated Salmonid Water under the E.U. Freshwater Fish Directive. Other recreational activities such as boating, golfing and walking are also popular. Several industrial developments, which discharge into the river, border the site including three dairy related operations and a tannery.

The Lower River Suir contains excellent examples of a number of Annex I habitats, including the priority habitats alluvial forest and Yew woodland. The site also supports populations of several important animals species, some listed on Annex II of the Habitats Directive or listed in the Irish Red Data Book. The presence of two legally protected plants (Flora (Protection) Order, 1999) and the ornithological importance of the site adds further to the ecological interest and importance.

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The Multeen River is fast flowing, mostly gravel-bottomed and appears to follow a natural unmodified river channel. Water-crowfoots occur in abundance and the aquatic moss Fontinalis antipyretica is also common. In sheltered shallows, species such as Water-cress (Nasturtium officinale) and water-starworts (Callitriche spp.) occur. The river channel is fringed for most of its length with Alder, Willow and a narrow strip of marshy vegetation.

Salt meadows occur below Waterford City in old meadows where the embankment is absent, or has been breached, and along the tidal stretches of some of the inflowing rivers below Little Island. There are very narrow, non-continuous bands of this habitat along both banks. More extensive areas are also seen along the south bank at Ballynakill, the east side of Little Island, and in three large salt meadows between Ballynakill and Cheekpoint. The Atlantic and Mediterranean sub-types are generally intermixed. The species list is extensive and includes Red Fescue (Festuca rubra), oraches (Atriplex spp.), Sea Aster (Aster tripolium), Sea Couch (Elymus pycnanthus), frequent Sea Milkwort (Glaux

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Cabragh marshes, just below Thurles, lie in a low-lying tributary valley into which the main river floods in winter. Here there is an extensive area of Common Reed (Phragmites australis) with associated marshland and peaty fen. The transition between vegetation types is often well displayed. A number of wetland plants of interest occur, in particular the Narrow-leaved Bulrush (Typha angustifolia), Bottle Sedge (Carex rostrata) and Blunt-flowered Rush (Juncus subnodulosus). The marsh is naturally eutrophic but it has also the nutritional legacy of the former sugar factory which discharged into it through a number of holding lagoons, now removed. Production is high, which is seen in the size of such species as Celery-leaved Buttercup (Ranunculus sceleratus), as well as in the reeds themselves.

Throughout the Lower River Suir site are small areas of woodland other than those described above. These tend to be a mixture of native and non-native species, although there are some areas of semi-natural wet woodland with species such as Ash and willow. Cahir Park Woodlands is a narrow tract of mixed deciduous woodland lying on the flat-lying floodplain of the River Suir. This estate woodland was planted over one hundred years ago and it contains a large component of exotic tree species. However, due to original planting and natural regeneration there is now a good mix of native and exotic species. About 5 km northwest of Cashel, Ardmayle pond is a long, possibly artificial water body running parallel to the River Suir. It is partly shaded by planted Lime (Tilia hybrids), Sycamore and the native Alder. Growing beneath the trees are shade tolerant species such as Remote sedge (Carex remota).

The site is of particular conservation interest for the presence of a number of Annex II animal species, including Freshwater Pearl Mussel (both Margaritifera margaritifera and M. margaritifera subsp. durrovensis occur), White-clawed Crayfish, Salmon, Twaite Shad (Alosa fallax fallax), three species of Lampreys - Sea Lamprey, Brook Lamprey and River Lamprey, and Otter. This is one of only three known spawning grounds in the country for Twaite Shad.

The site also supports populations of several other animal species. Those which are listed in the Irish Red Data Book include Daubenton's Bat, Nattererer's Bat, Pipistrelle Bat, Pine Marten, Badger, Irish Hare, Smelt and Common Frog. Breeding stocks of Carp are found in Kilsheelan Lake. This is one of only two lakes in the country which is known to have supported breeding Carp. Carp require unusually high summer water temperatures to breed in Ireland. As the site is therefore unusual in this regard, it may also support interesting invertebrate populations.

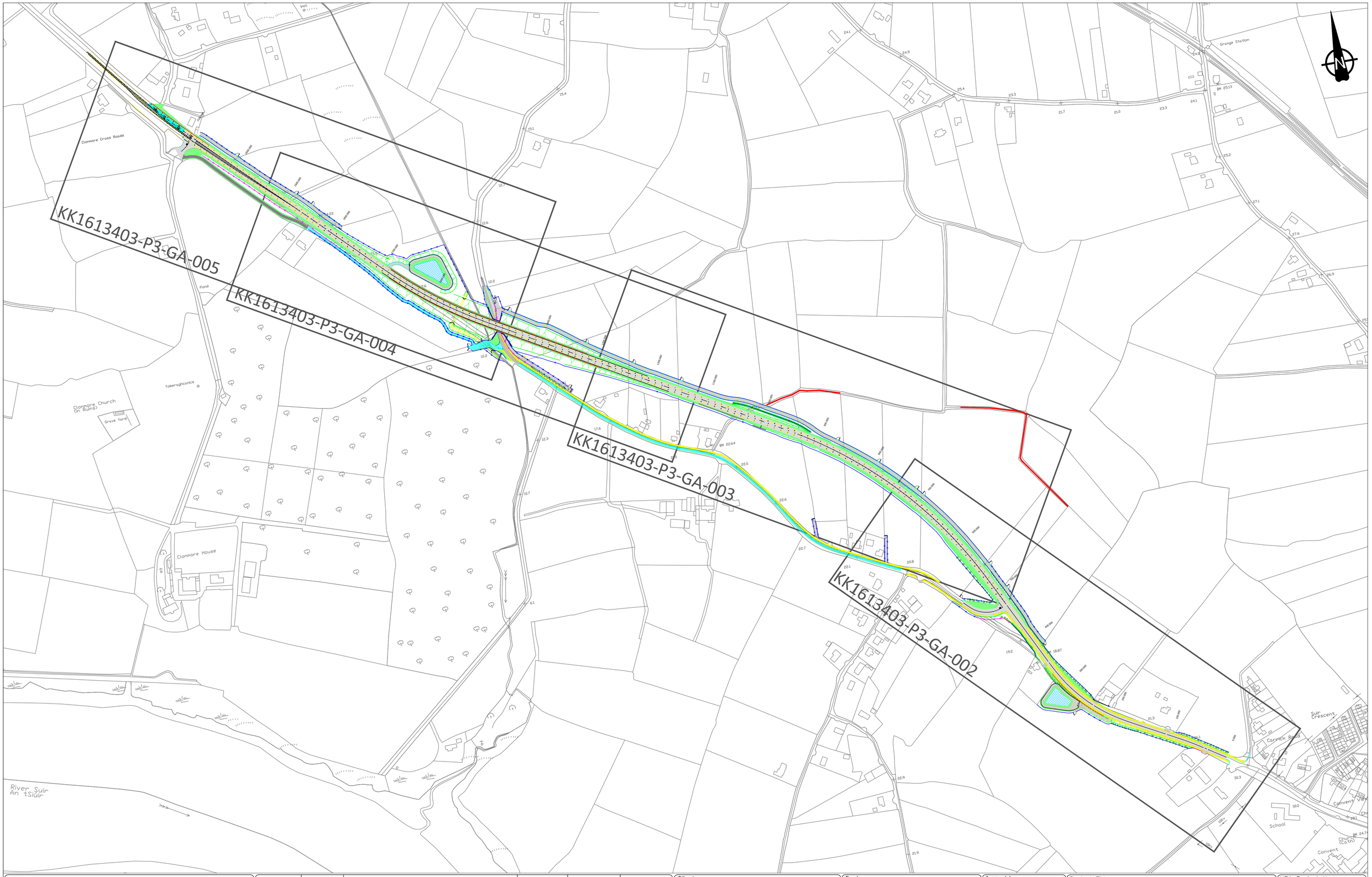
Parts of the site have also been identified as of ornithological importance for a number of Annex I (E.U. Birds Directive) bird species, including Greenland Whitefronted Goose (10), Golden Plover (1,490), Whooper Swan (7) and Kingfisher. Figures given in brackets are the average maximum counts from four count areas within the site for the three winters 1994-1997. Wintering populations of migratory birds use the site. Flocks are seen in Coolfinn Marsh and also along the reedbeds and saltmarsh areas of

the Suir. Coolfinn supports nationally important numbers of Greylag Goose on a regular basis, with numbers between 600 and 700 recorded. Other species occurring include Mallard (21), Teal (159), Wigeon (26), Tufted Duck (60), Pintail (4), Pochard (2), Little Grebe (2), Black-tailed Godwit (20), Oystercatcher (16), Lapwing (993), Dunlin (101), Curlew (195), Redshank (28), Greenshank (4) and Green Sandpiper (1). Nationally important numbers of Lapwing (2,750) were recorded at Faithlegg in the winter of 1996/97. In Cabragh marshes there is abundant food for surface feeding wildfowl which total approximately 1,000 in winter. Widgeon, Teal and Mallard are numerous, and the latter has a large breeding population, with up to 400 in summer. In addition, less frequent species like Shoveler and Pintail occur and there are records for both Whooper and Bewick's swans. Kingfisher, a species that is listed on Annex I of the E.U. Birds Directive, occurs along some of the many tributaries throughout the site.

Land use at the site consists mainly of agricultural activities including grazing, silage production, fertilising and land reclamation. The grassland is intensively managed and the rivers are therefore vulnerable to pollution from run-off of fertilisers and slurry. Arable crops are also grown. Fishing is a main tourist attraction on stretches of the Suir and some of its tributaries, and there are a number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. Both commercial and leisure fishing takes place on the rivers. The Aherlow River is a designated Salmonid Water under the E.U. Freshwater Fish Directive. Other recreational activities such as boating, golfing and walking are also popular. Several industrial developments, which discharge into the river, border the site including three dairy related operations and a tannery.

The Lower River Suir contains excellent examples of a number of Annex I habitats, including the priority habitats alluvial forest and Yew woodland. The site also supports populations of several important animals species, some listed on Annex II of the Habitats Directive or listed in the Irish Red Data Book. The presence of two legally protected plants (Flora (Protection) Order, 1999) and the ornithological importance of the site adds further to the ecological interest and importance.

APPENDIX 3 DESIGN DRAWINGS



NOTES:

1. Actual extent of scheme land acquisition to be determined at a later date.

DO NOT SCALE

Revision	Date	Description	Drawn by	Checked by	Approved by
F1	4/12/2019	First Issue	JL	DR	GJ
F2	5/2/2020	Revised for issue further to comments received from Client	JL	CD	GJ
F3	11/3/2020	Revised to include Details of Underbridge	JL	CD	GJ
F4	24/3/2020	Revised further to comments received from Client	JL	CD	GJ
F5	09/9/2020	Revision to farm access roads	JL	CD	GJ
F6	22/4/2021	Further alterations to layout further to TII review	JL	AM	GJ
F7	23/2/2022	Further alterations to layout further to final review	JL	CD	GJ
F8	1/6/2022	Further alterations to layout further to Client review	JL	CD	GJ

Client

KILKENNY COUNTY COUNCIL
COUNTY HALL
JOHN STREET
KILKENNY

Tel: (056) 7794000
e-mail: secretar@kilkennycoco.ie

Design

TRAMORE HOUSE
REGIONAL DESIGN OFFICE
TRAMORE
CO. WATERFORD

Tel: (051) 390130
e-mail: natroads@thrdo.com

Approved by: G.Jones (GJ)
Checked by: C.Daly (CD)
Drawn by: J.Leacy (JL)

Scale: NTS

Rev. Date: 1/06/2022

Project Title: N24 Carrick Road Improvement Scheme

Drawing Title: General Arrangement Drawing. Key Map (Sheet 1 of 5)

Drawing Number: KK1613403-P3-GA-001

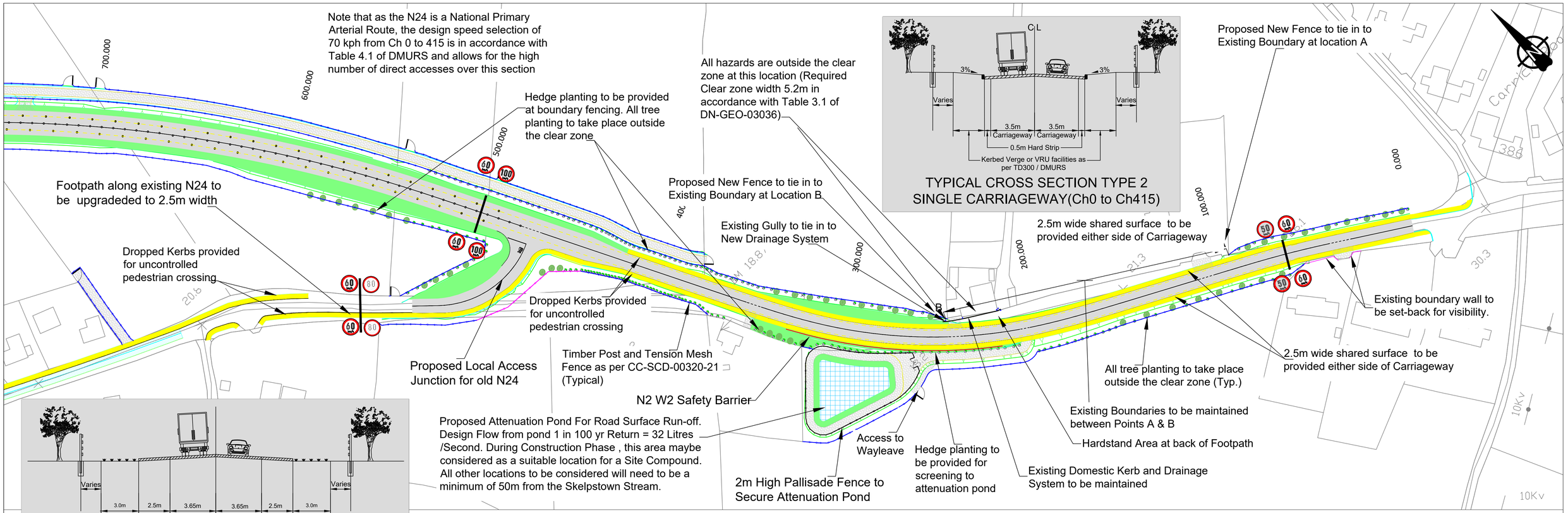
NRA Project No.: KK/16/13403

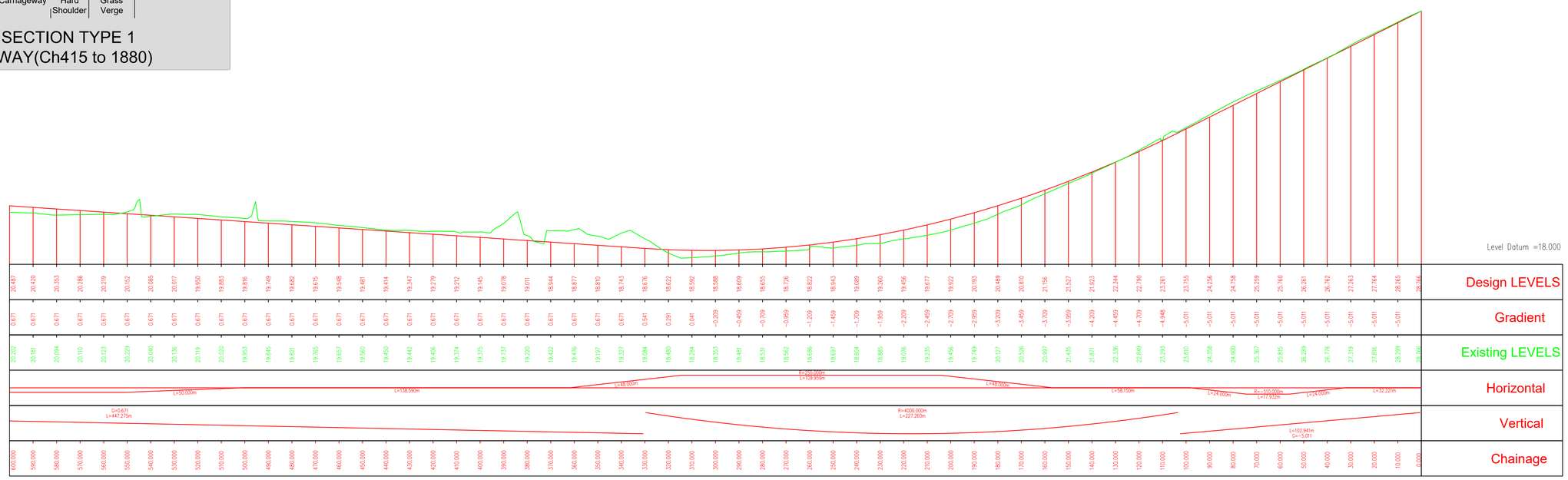
TH Project No.: TH/16/030

Project Folder No.: 7.6.1

Rev.: F8

Pdf Drawing: KK1613403-P3-GA-001F8





Long-section Road Centreline Ch 0 to Ch 600

NOTES:

1. Actual extent of scheme land acquisition to be determined at a later date.

DO NOT SCALE

Revision	Date	Description	Drawn by	Checked by	Approved by
F1	4/12/2019	First Issue	JL	DR	GJ
F2	5/2/2020	Revised for issue further to comments received from Client	JL	CD	GJ
F3	11/3/2020	Revised to include Details of Underbridge	JL	CD	GJ
F4	24/3/2020	Revised further to comments received from Client	JL	CD	GJ
F5	09/9/2020	Revision to farm access roads	JL	CD	GJ
F6	22/4/2021	Further alterations to layout further to TII review	JL	AM	GJ
F7	31/1/2022	Identification of Potential Site Compound Construction Phase	JL	CD	GJ
F8	23/2/2022	Further alterations to layout further to final review	JL	CD	GJ

Client
KILKENNY COUNTY COUNCIL
COUNTY HALL
JOHN STREET
KILKENNY
Tel: (056) 7794000
e-mail: secretar@kilkennycoco.ie

Design
TRAMORE HOUSE
REGIONAL DESIGN OFFICE
TRAMORE
CO. WATERFORD
Tel: (051) 390130
e-mail: natroads@thrdo.com

Approved by: G.Jones (GJ)
Checked by: C.Daly (CD)
Drawn by: J.Leacy (JL)
Scale: Horizontal: 1:1000 (A1) Vertical: 1:100 (A1)
Rev. Date: 23/02/2022

Project Title: N24 Carrick Road Improvement Scheme

Drawing Title: General Arrangement Drawing Ch 0 to 600 (Sheet 2 of 5)

Drawing Number: KK1613403-P3-GA-002

NRA Project No.: KK/16/13403
TH Project No.: TH/16/030
Project Folder No.: 7.6.1
Rev.: F8
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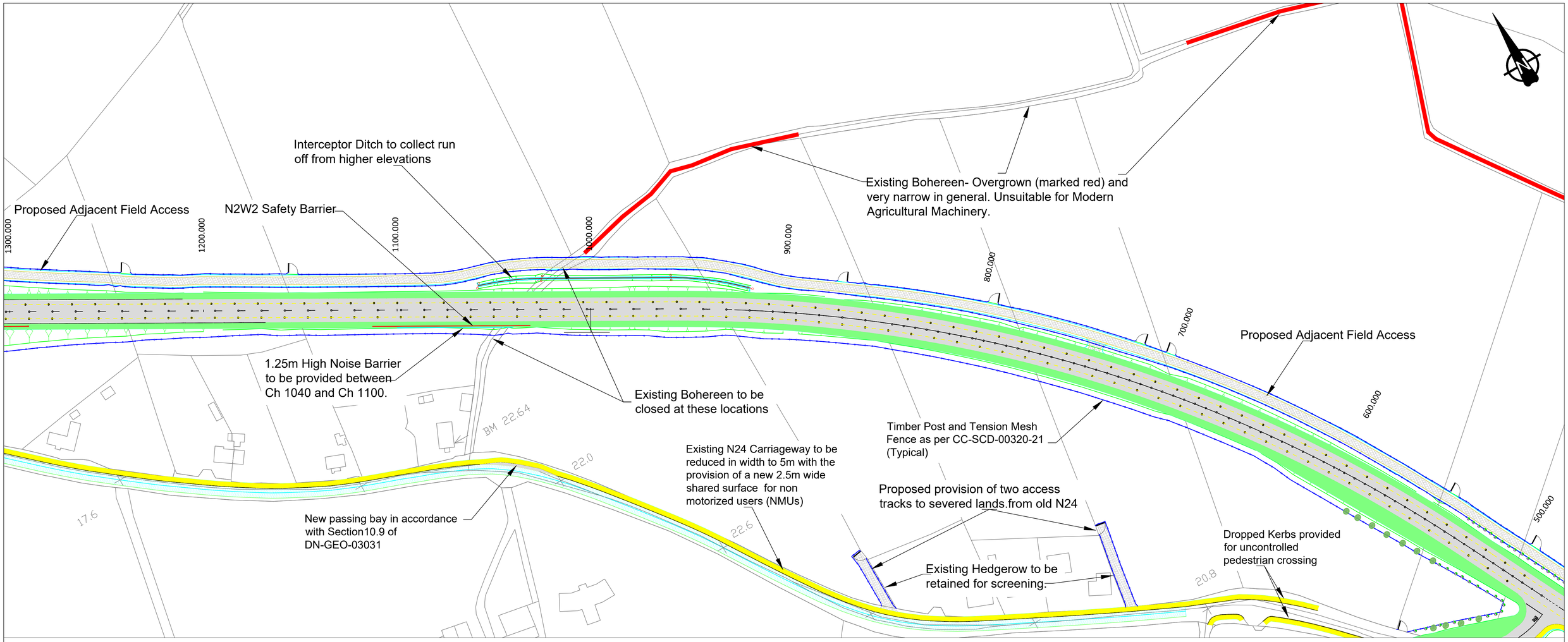

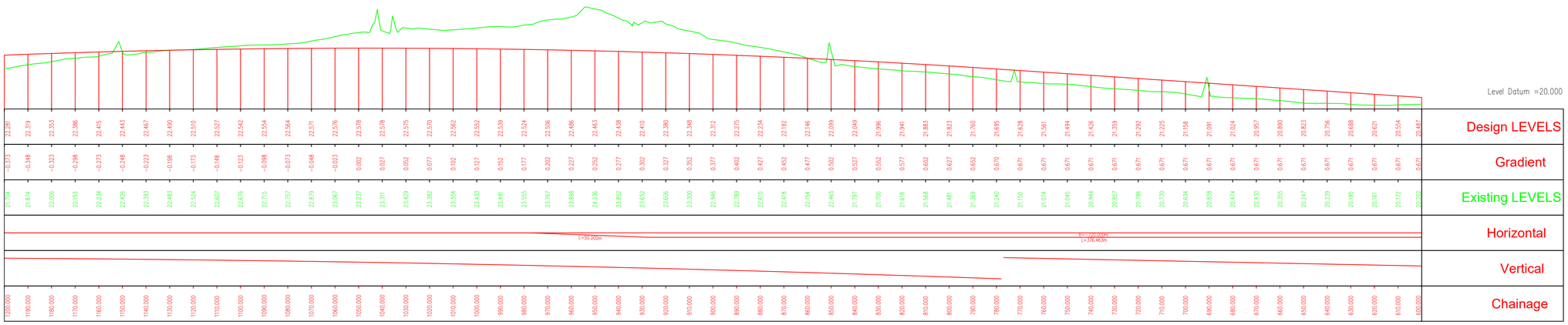

Long-section Road Centreline Ch 600 to Ch 1200

NOTES:

1. Actual extent of scheme land acquisition to be determined at a later date.

DO NOT SCALE

Revision	Date	Description	Drawn by	Checked by	Approved by
F1	4/12/2019	First Issue	JL	DR	GJ
F2	5/2/2020	Revised for issue further to comments received from Client	JL	CD	GJ
F3	11/3/2020	Revised to include Details of Underbridge	JL	CD	GJ
F4	24/3/2020	Revised further to comments received from Client	JL	CD	GJ
F5	09/9/2020	Revision to farm access roads	JL	CD	GJ
F6	22/4/2021	Further alterations to layout further to TII review	JL	AM	GJ
F7	31/1/2022	Inclusion of Noise Barrier between Ch 1040 & Ch 1100	JL	CD	GJ

Client
KILKENNY COUNTY COUNCIL
COUNTY HALL
JOHN STREET
KILKENNY
Tel: (056) 7794000
e-mail: secretar@kilkennycoco.ie

Design
TRAMORE HOUSE
REGIONAL DESIGN OFFICE
TRAMORE
CO. WATERFORD
Tel: (051) 390130
e-mail: natroads@thrdo.com

Approved by: G.Jones (GJ)
Checked by: C.Daly (CD)
Drawn by: J.Leacy (JL)
Scale: Horizontal: 1:1000 (A1) Vertical: 1:100 (A1)
Rev. Date: 31/01/2022

Project Title: N24 Carrick Road Improvement Scheme
Drawing Title: General Arrangement Drawing Ch 600 to 1200 (Sheet 3 of 5)
Drawing Number: KK1613403-P3-GA-003

NRA Project No.: KK/16/13403
TH Project No.: TH/16/030
Project Folder No.: 7.6.1
Rev.: F7
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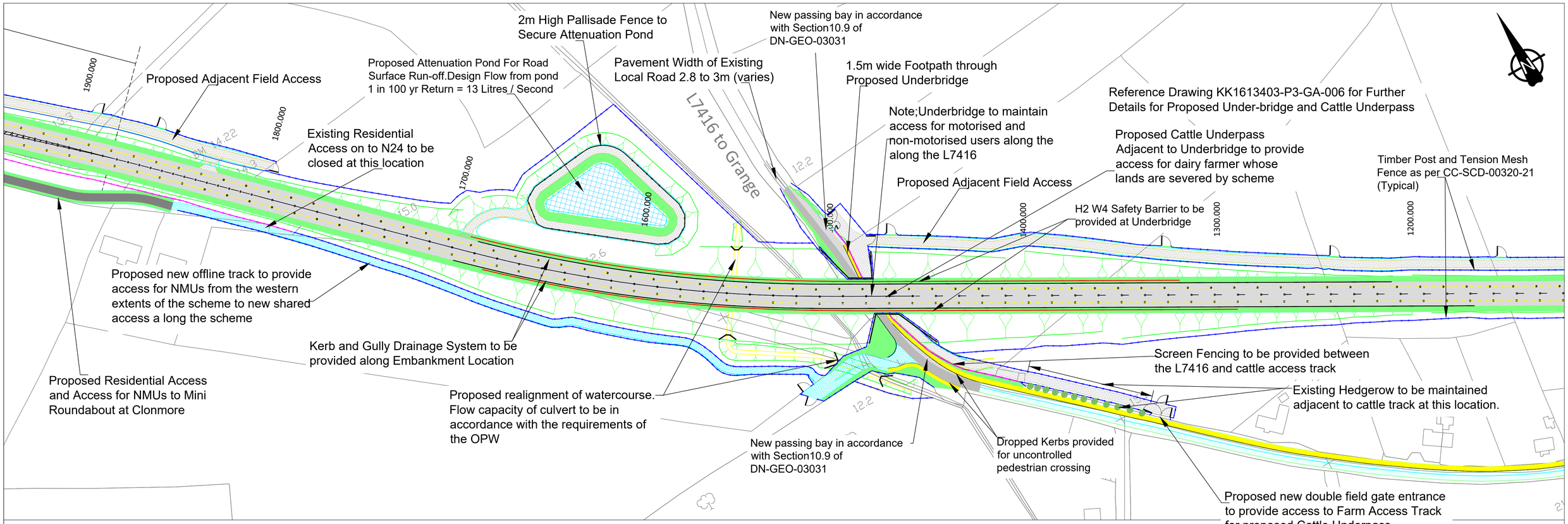

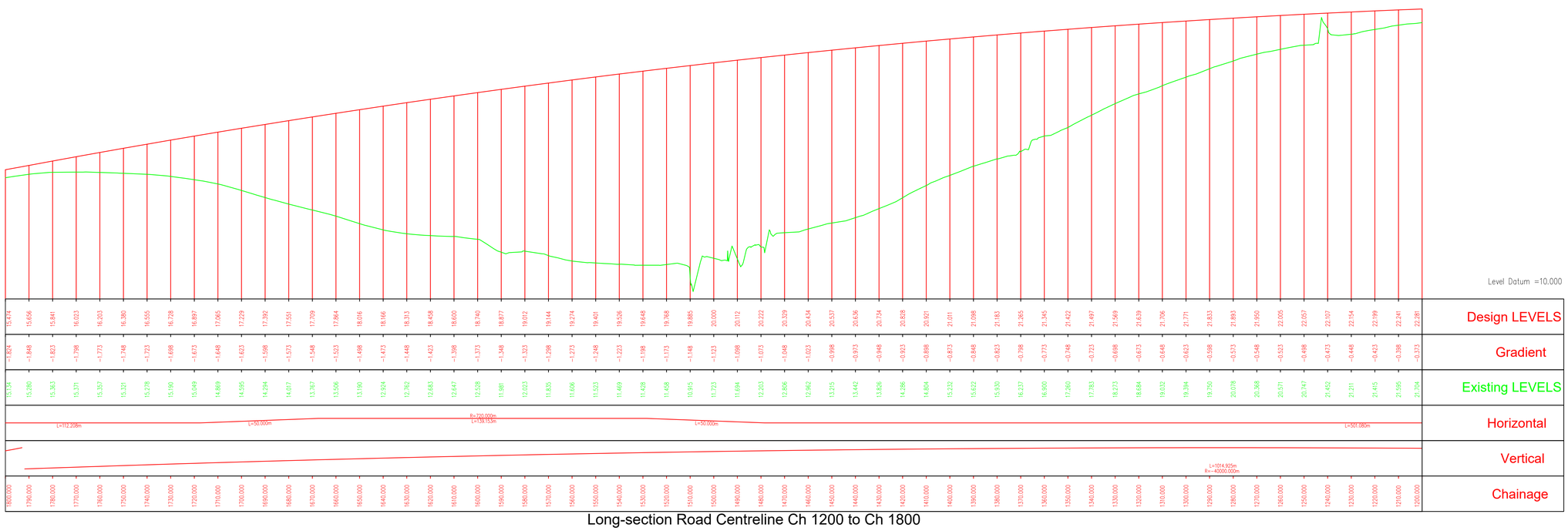

Long-section Road Centreline Ch 1200 to Ch 1800

NOTES:

1. Actual extent of scheme land acquisition to be determined at a later date.

DO NOT SCALE

Revision	Date	Description	Drawn by	Checked by	Approved by
F1	4/12/2019	First Issue	JL	DR	GJ
F2	5/2/2020	Revised for issue further to comments received from Client	JL	CD	GJ
F3	11/3/2020	Revised to include Details of Underbridge	JL	CD	GJ
F4	24/3/2020	Revised further to comments received from Client	JL	CD	GJ
F5	09/9/2020	Revision to farm access roads	JL	CD	GJ
F6	18/9/2020	Revised location for field access	JL	CD	GJ
F7	22/4/2021	Further alterations to layout further to TII review	JL	AM	GJ
F8	1/6/2022	Further alterations to layout further to Client review	JL	CD	GJ

Client
KILKENNY COUNTY COUNCIL
COUNTY HALL
JOHN STREET
KILKENNY
Tel: (056) 7794000
e-mail: secretar@kilkennycoco.ie

Design
TRAMORE HOUSE
REGIONAL DESIGN OFFICE
TRAMORE
CO. WATERFORD
Tel: (051) 390130
e-mail: natroads@thrdo.com

Approved by: G.Jones (GJ)
Checked by: C.Daly (CD)
Drawn by: J.Leacy (JL)
Scale: Horizontal: 1:1000 (A1) Vertical: 1:100 (A1)
Rev. Date: 1/06/2022

Project Title: N24 Carrick Road Improvement Scheme
Drawing Title: General Arrangement Drawing Ch 1200 to 1800 (Sheet 4 of 5)
Drawing Number: KK1613403-P3-GA-004

NRA Project No.: KK/16/13403
TH Project No.: TH/16/030
Project Folder No.: 7.6.1
Rev.: F8
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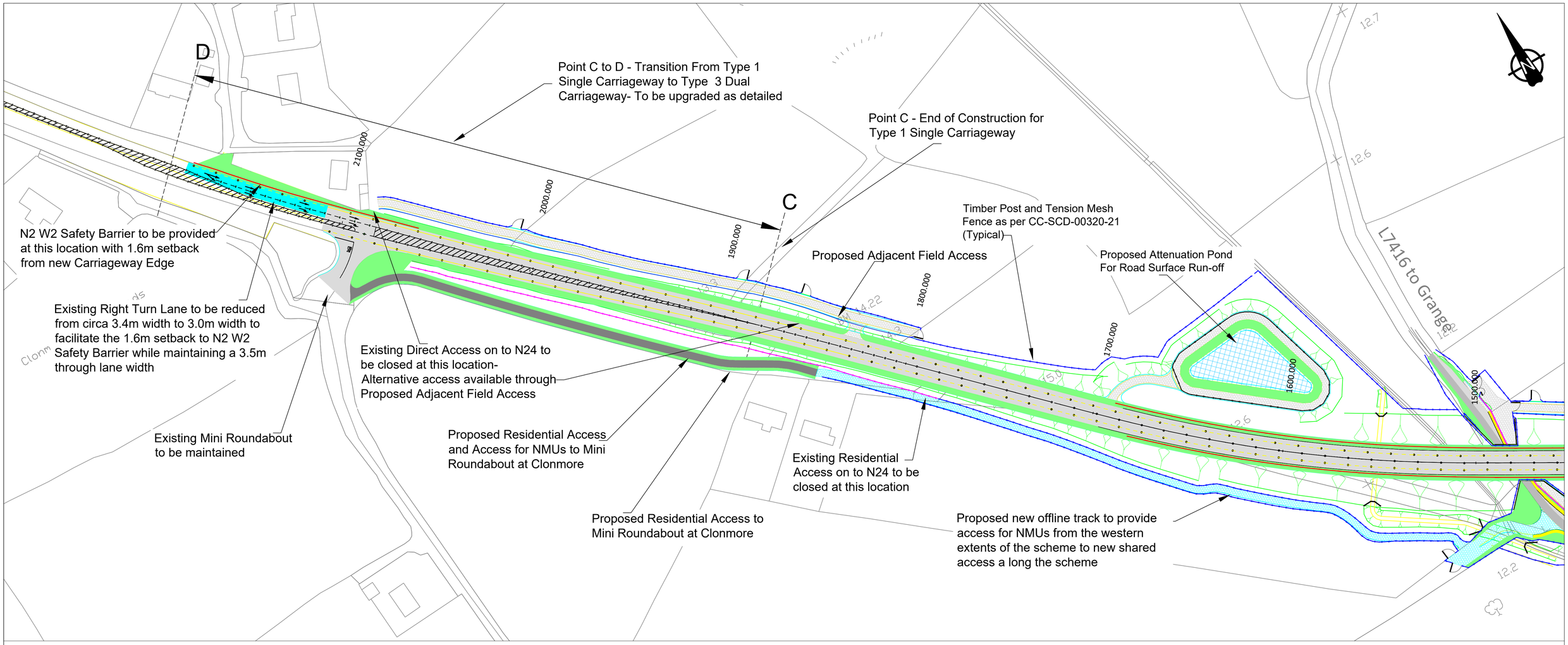
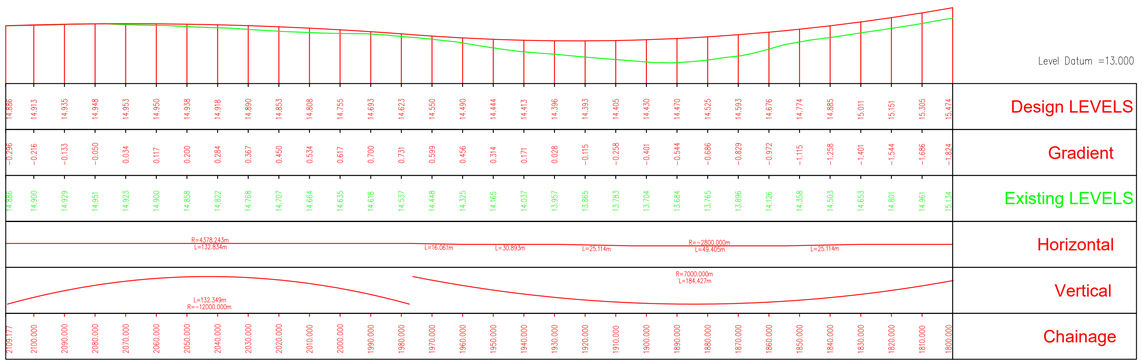




Long-section Road Centreline Ch 1800 to End

NOTES:

1. Actual extent of scheme land acquisition to be determined at a later date.

DO NOT SCALE

Revision	Date	Description	Drawn by	Checked by	Approved by
F1	4/12/2019	First Issue	JL	DR	GJ
F2	5/2/2020	Revised for issue further to comments received from Client	JL	CD	GJ
F3	11/3/2020	Revised to include Details of Underbridge	JL	CD	GJ
F4	24/3/2020	Revised further to comments received from Client	JL	CD	GJ
F5	09/9/2020	Revision to farm access roads	JL	CD	GJ
F6	22/4/2021	Further alterations to layout further to TII review	JL	AM	GJ

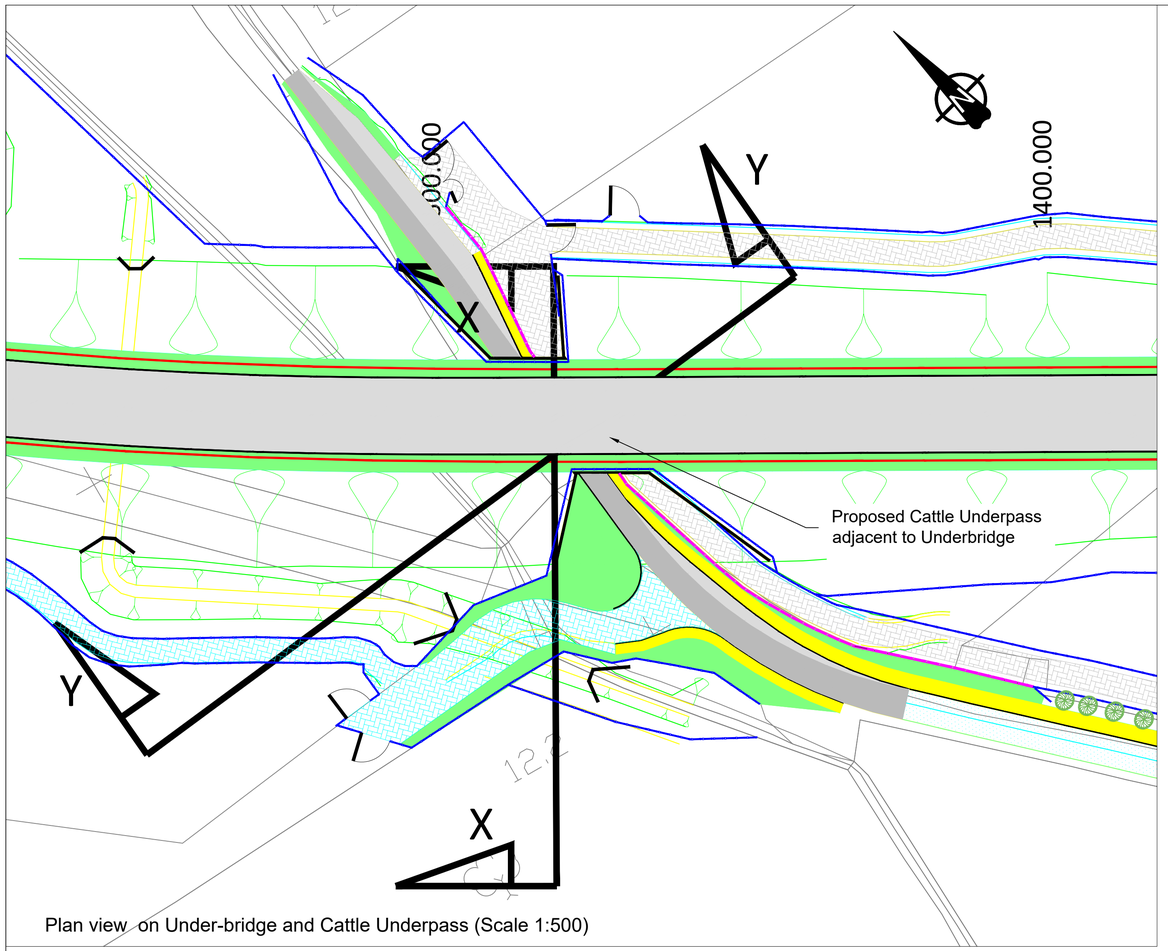
Client
KILKENNY COUNTY COUNCIL
COUNTY HALL
JOHN STREET
KILKENNY
Tel: (056) 7794000
e-mail: secretar@kilkennycoco.ie

Design
TRAMORE HOUSE
REGIONAL DESIGN OFFICE
TRAMORE
CO. WATERFORD
Tel: (051) 390130
e-mail: natroads@thrdo.com

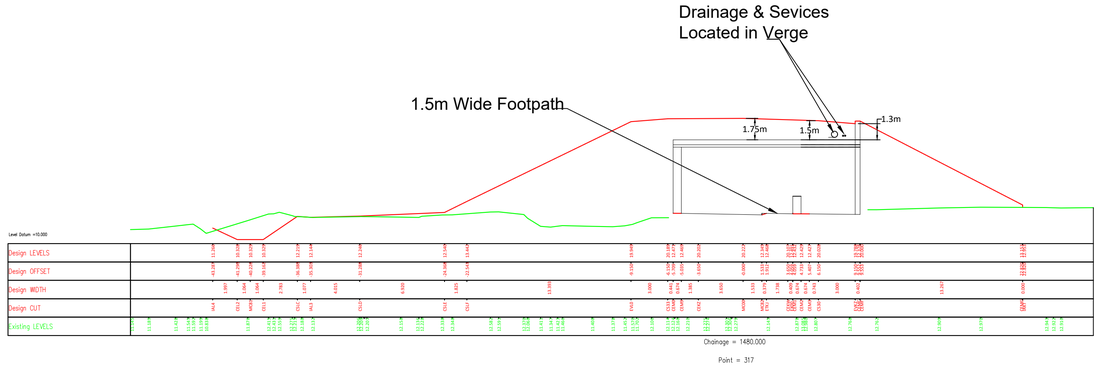
Approved by: G.Jones (GJ)
Checked by: A.Morrissey (AM)
Drawn by: J.Leacy (JL)
Scale: Horizontal: 1:1000 (A1) Vertical: 1:100 (A1)
Rev. Date: 22/04/2021

Project Title: N24 Carrick Road Improvement Scheme
Drawing Title: General Arrangement Drawing Ch 1800 to End (Sheet 5 of 5)
Drawing Number: KK1613403-P3-GA-005

NRA Project No.: KK/16/13403
TH Project No.: TH/16/030
Project Folder No.: 7.6.1
Rev.: F6
Pdf Drawing: KK1613403-P3-GA-005F6

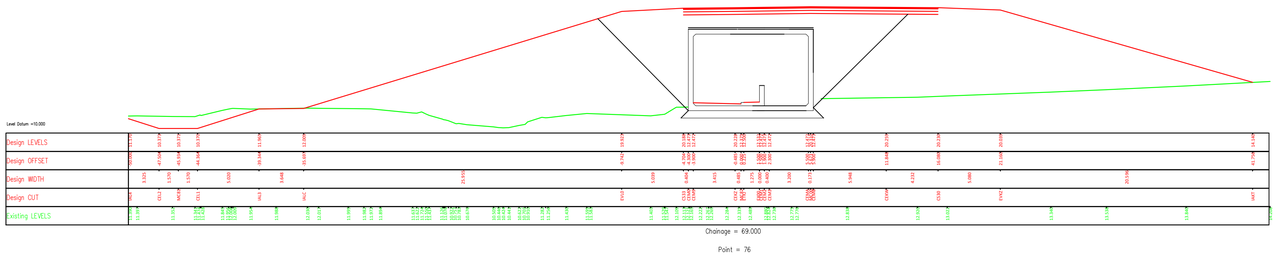


Plan view on Under-bridge and Cattle Underpass (Scale 1:500)



Section X - X (Proposed Under-Bridge) Scale 1:250

Construction of Combined Underbrige and Cattle Underpass shall be in accordance with the requirements of the TII approved Structures Options Report.



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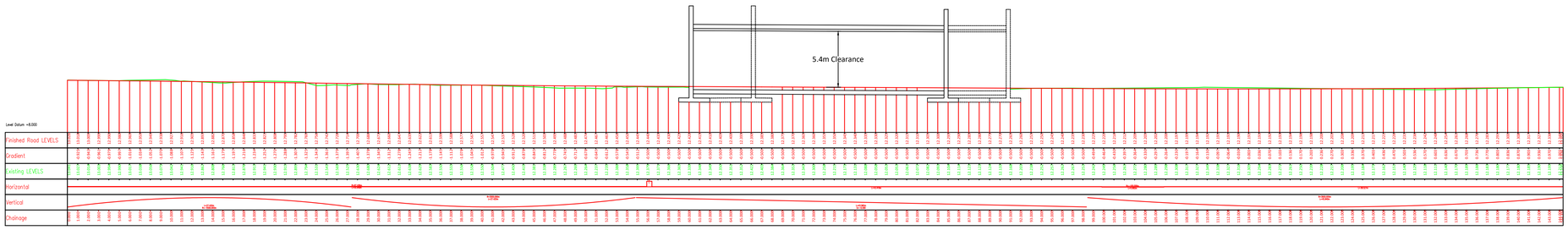


Long - section along Realigned Local Road (L7416) Scale 1:250

NOTES:

1. Actual extent of scheme land acquisition to be determined at a later date.

DO NOT SCALE

Revision	Date	Description	Drawn by	Checked by	Approved by
F1	11/03/2020	First Issue	JL	CD	GJ
F2	24/3/2020	Revised further to comments received from Client	JL	CD	GJ
F3	09/9/2020	Revision to farm access roads	JL	CD	GJ
F4	22/4/2021	Further alterations to layout further to TII review	JL	AM	GJ
F5	16/5/2021	Further alterations to layout further to TII review	JL	CD	GJ
F6	1/6/2022	Further alterations to layout further to Client review	JL	CD	GJ

Client
KILKENNY COUNTY COUNCIL
COUNTY HALL
JOHN STREET
KILKENNY
Tel: (056) 7794000
e-mail: secretar@kilkennycoco.ie

Design
TRAMORE HOUSE
REGIONAL DESIGN OFFICE
TRAMORE
CO. WATERFORD
Tel: (051) 390130
e-mail: natroads@thrdo.com

Approved by: G.Jones (GJ)
Checked by: C.Daly (CD)
Drawn by: J.Leacy (JL)
Scale: Horizontal: 1:1000 (A1) Vertical: 1:100 (A1)
Rev. Date: 1/06/2022

Project Title: N24 Carrick Road Improvement Scheme
Drawing Title: Indicative Details for combined Under-bridge & Cattle Underpass
Drawing Number: KK1613403-P3-GA-006

NRA Project No.: KK/16/13403
TH Project No.: TH/16/030
Project Folder No.: 7.6.1
Rev.: F6
Pdf Drawing: KK1613403-P3-GA-006F6

Calculated Design Speed for the L7416 to Grange is 42Kph, Reference Appendix G of Preliminary Design Report for Details of calculations

Proposed Residential Access to Mini Roundabout at Clonmore will also serve as access for NMUs rom the western scheme extents to Mooncoin Village

Underbridge to maintain access for motorised and non-motorised users along the along the L7416 and to the north of the schememe onto the N24 and into Mooncoin Village

Proposed new offline track to provide access for NMUs from the western extents of the scheme to new shared access a long the scheme

Proposed Cattle Underpass Adjacent to Underbridge to provide access for dairy farmer whose lands are severed by scheme

Proposed Type 1 Single Carriaway Crossection (Design Speed 100Kph), to provide required Level of Service as per Table 6.1 of DN-GEO-03031

Further to reduction in pavement width of existing N24 Carriageway to 5m, calculated Design Speed is 70kph. Reference Appendix G of Preliminary Design Report for Details of calculations

New 2.5m wide shared surface

Carriageway width on Existing N24 reduced to 5m with provision of adjacent shared access for Non-motorised Users

Dropped Kerbs provided for uncontrolled pedestrian crossing

Footpath along existing N24 to be upgradeded to 2.5m width

Dropped Kerbs provided for uncontrolled pedestrian crossing

2.5m wide shared surface to be provided either side of Carriageway

NOTES:

1. Actual extent of scheme land acquisition to be determined at a later date.

DO NOT SCALE

Revision	Date	Description	Drawn by	Checked by	Approved by
F1	24/04/2021	First Issue	JL	AM	GJ

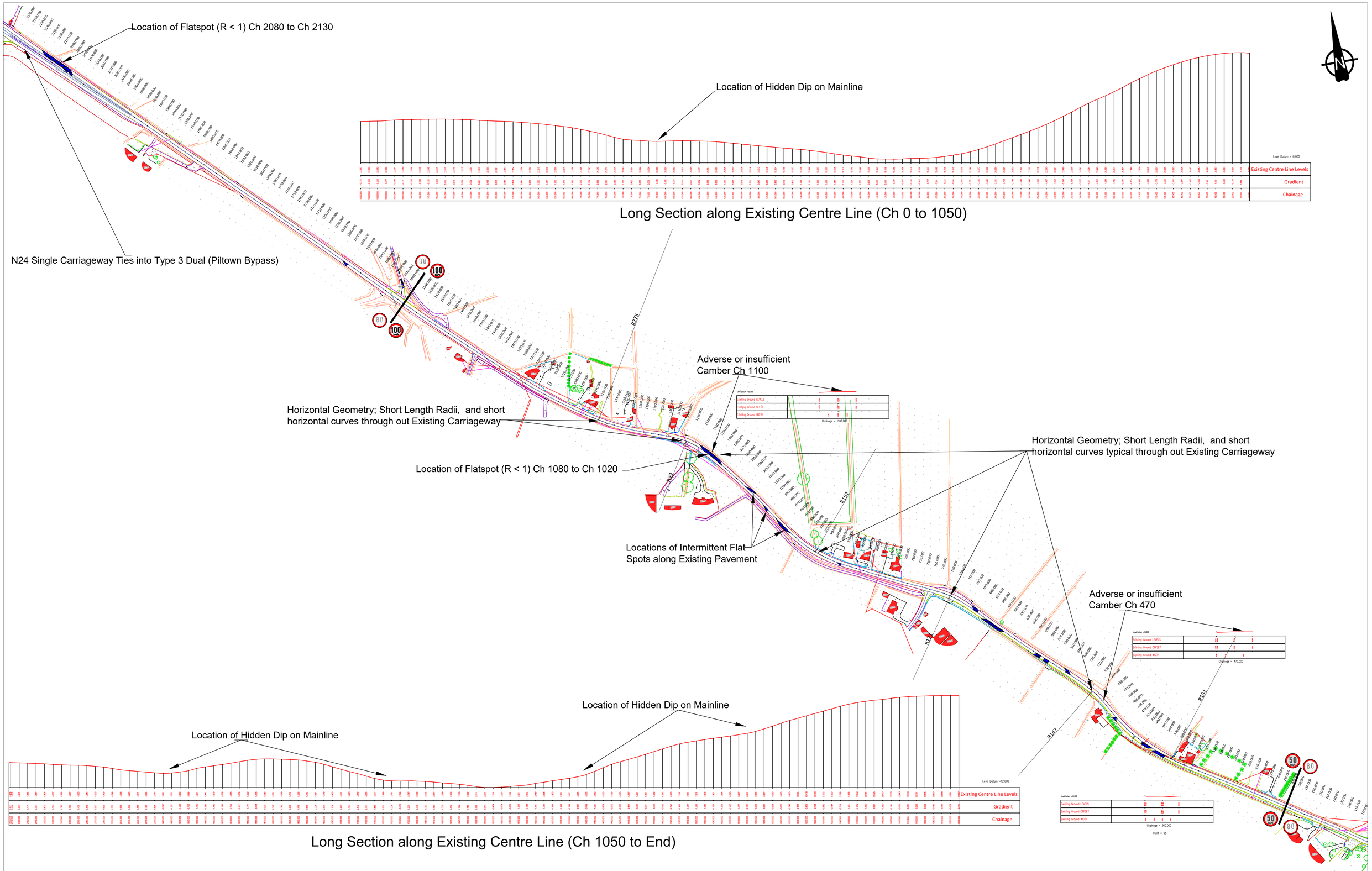
Client
KILKENNY COUNTY COUNCIL
COUNTY HALL
JOHN STREET
KILKENNY
Tel: (056) 7794000
e-mail: secretar@kilkennycoco.ie

Design
TRAMORE HOUSE
REGIONAL DESIGN OFFICE
TRAMORE
CO. WATERFORD
Tel: (051) 390130
e-mail: natroads@thrdo.com

Approved by: G.Jones (GJ)
Checked by: A.Morrissey (AM)
Drawn by: J.Leacy (JL)
Scale: NTS
Rev. Date: 22/04/2021

Project Title: N24 Carrick Road Improvement Scheme
Drawing Title: General Arrangement Drawing. Overall Access Arrangements.
Drawing Number: KK1613403-P3-GA-007

NRA Project No.: KK/16/13403
TH Project No.: TH/16/030
Project Folder No.: 7.6.1
Rev.: F1
Pdf Drawing: KK1613403-P3-GA-007F1



NOTES:

1. Actual extent of scheme land acquisition to be determined at a later date.

DO NOT SCALE

Revision	Date	Description	Drawn by	Checked by	Approved by
F1	27/04/2021	First Issue	JL	AM	GJ

Client
KILKENNY COUNTY COUNCIL
COUNTY HALL
JOHN STREET
KILKENNY
Tel: (056) 7794000
e-mail: secretar@kilkennycoco.ie

Design
TRAMORE HOUSE
REGIONAL DESIGN OFFICE
TRAMORE
CO. WATERFORD
Tel: (051) 390130
e-mail: natroads@thrdo.com

Approved by: G.Jones (GJ)
Checked by: A.Morrissey (AM)
Drawn by: J.Leacy (JL)
Scale: NTS
Rev. Date: 27/04/2021

Project Title: N24 Carrick Road Improvement Scheme

Drawing Title: General Arrangement Drawing. Existing N24 Geometry

Drawing Number: KK1613403-P3-GA-008

NRA Project No.: KK/16/13403
TH Project No.: TH/16/030
Project Folder No.: 7.6.1
Rev.: F1
Pdf Drawing: KK1613403-P3-GA-008F1

Calculated Design Speed for the L7416 to Grange is 42Kph, Reference Appendix G of Preliminary Design Report for Details of calculations (Width of L7416 pavement 2.8 to 3.0m)

Departure 1g (Mainline Turning Loop on Type 3 Dual Carriageway- Existing)

Departure 1d (Forward Visibility on Local Road)

Departure 1e (Visibility from Access)

Departure 1b (Pavement Drainage Ch 950 to 960)

Further to reduction in pavement width of existing N24 Carriageway to 5m, calculated Design Speed is 70kph. Reference Appendix G of Preliminary Design Report for Details of calculations

New 2.5m wide shared surface

Departure 1f (Visibility from Access)

Departure 1c (Road Design, horizontal Geometry)

Departure 1a (Road Design- Visibility on approach to Junction with N24 mainline)

NOTES:

DO NOT SCALE

Revision	Date	Description	Drawn by	Checked by	Approved by
F1	24/04/2021	First Issue	JL	AM	GJ

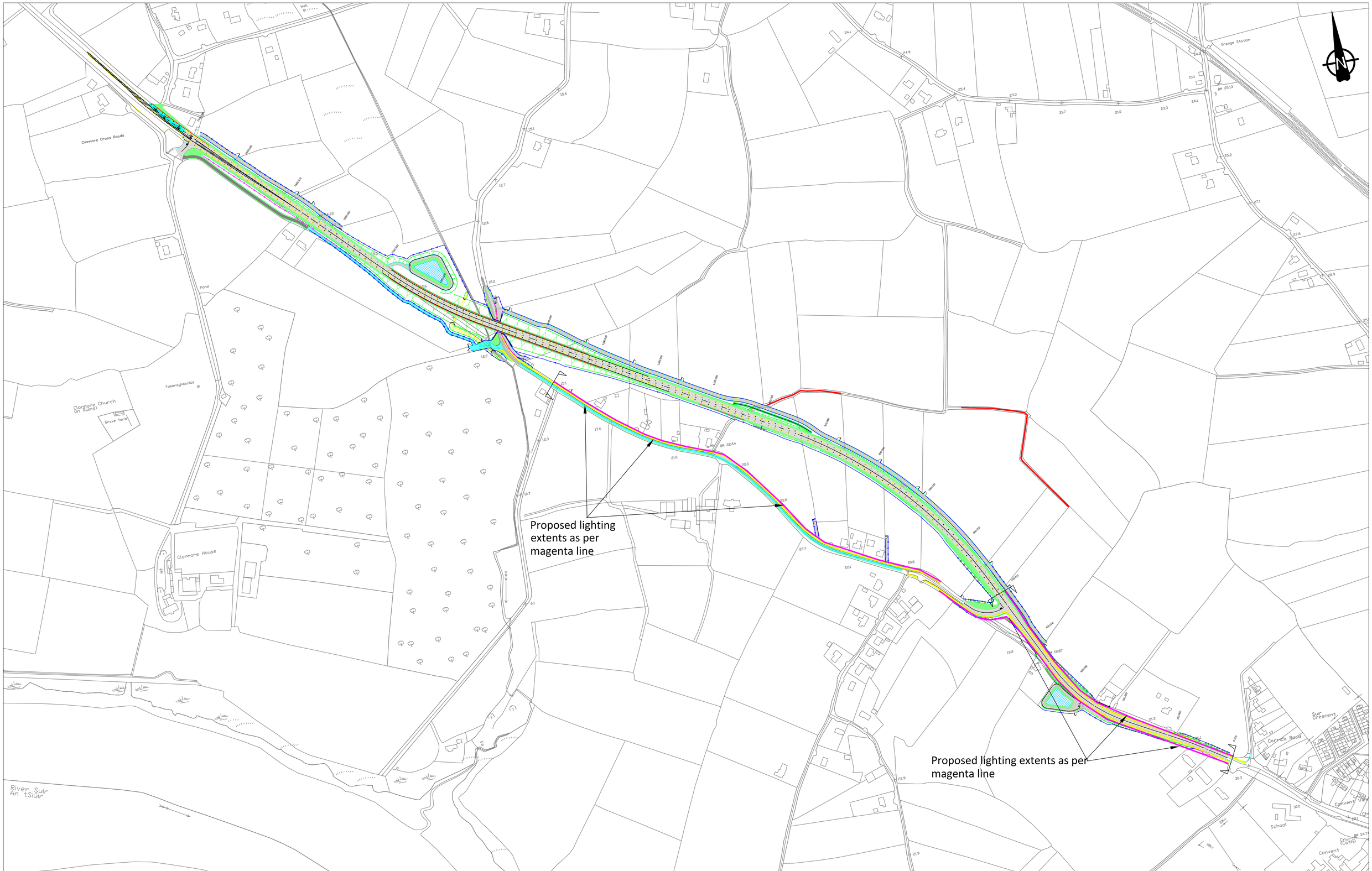
Client
KILKENNY COUNTY COUNCIL
COUNTY HALL
JOHN STREET
KILKENNY
Tel: (056) 7794000
e-mail: secretar@kilkennycoco.ie

Design
TRAMORE HOUSE
REGIONAL DESIGN OFFICE
TRAMORE
CO. WATERFORD
Tel: (051) 390130
e-mail: natroads@thrdo.com

Approved by: G.Jones (GJ)
Checked by: A.Morrissey (AM)
Drawn by: J.Leacy (JL)
Scale: NTS
Rev. Date: 24/04/2021

Project Title: N24 Carrick Road Improvement Scheme
Drawing Title: Departure Application Details.
Drawing Number: KK1613403-P3-DP-001

NRA Project No.: KK/16/13403
TH Project No.: TH/16/030
Project Folder No.: 7.6.1
Rev.: F1
Pdf Drawing: KK1613403-P3-DP-001F1



NOTES:

DO NOT SCALE

Revision	Date	Description	Drawn by	Checked by	Approved by
F1	28/02/2022	Issued for Information	JL	DR	GJ

Client

KILKENNY COUNTY COUNCIL
COUNTY HALL
JOHN STREET
KILKENNY

Tel: (056) 7794000
e-mail: secretar@kilkennycoco.ie

Design

TRAMORE HOUSE
REGIONAL DESIGN OFFICE
TRAMORE
CO. WATERFORD

Tel: (051) 390130
e-mail: natroads@thrdo.com

Approved by: G.Jones (GJ)
Checked by: C.Daly (CD)
Drawn by: J.Leacy (JL)
Scale: NTS
Rev. Date: 28/02/2022

Project Title: N24 Carrick Road Improvement Scheme

Drawing Title: Proposed Lighting Extents

Drawing Number: KK1613403-P3-LT-001

NRA Project No.: KK/16/13403
TH Project No.: TH/16/030
Project Folder No.: 7.6.1
Rev.: F1
Pdf Drawing: KK1613403-P3-LT-001F1