

## Chapter 3

## Alternatives Considered

### 3.1 Introduction

#### 3.1.1 Legislative Requirement

Directive 2011/92/EU (as amended by Directive 2014/52/EU), Article 5(d) provides that the information to be provided by the developer shall include “a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment”.

#### 3.1.2 Project Appraisal Guidelines

In accordance with the *TII Project Appraisal Guidelines* which implement the Department of Transport, Tourism and Sports's *Guidelines on a Common Appraisal Framework for Transport Projects and Programmes*, the following alternatives are considered:

- Base Case:
  - Do-Nothing or Do-Minimum
- Do-Something including:
  - Alternative Modes
  - Management Options
  - Investment Options

### 3.2 Base Case

The Base Case represents the minimum intervention, which acts as the basis against which alternatives and options are appraised. The 'Do-Nothing' option as the name implies is an assessment of the status quo. This has been described in some detail in Chapter 2 Sections 2.3 to 2.7 inclusive. The 'Do-Minimum' option involves consideration of any planned improvements to the surrounding transport network that will impact on the corridor under consideration. The 'Do-Minimum' network for the N5 Ballaghaderreen to Scramoge Road Project includes the existing road network properly maintained over time, and the upgrade works along the N61 at Ratalen and Treanaghy completed recently. Plate 3.1 illustrates the Do-Minimum network.



**Plate 3.1 Do-Minimum (Baseline) Network**

### 3.3 Alternative Modes

Alternative modes can include road, rail, bus, air, water and non-motorised alternatives which can be delivered and meet the objective of the project. The need for the proposed road development contained in Chapter 2, identifies that the N5 corridor does not suffer from high levels of congestion and that the increased journey times and above average collision ranking are largely attributable to the sub-standard alignment and deficient cross-section for the majority of the existing N5 between Ballaghaderreen and Scramoge.

Many of the project objectives relate to long distance travel between the Western Region and the Midlands and Dublin Gateways. As such, non-motorised alternatives such as improved pedestrian or cycling facilities would not meet these objectives. Air and water alternatives would also not meet the objectives. Increasing bus services along the N5 corridor may potentially reduce traffic levels on the N5 corridor but would not meet the objectives of the proposed road development, as this would not:

- reduce journey times;
- improve journey time reliability;
- reduce HGV traffic through the various towns and villages;
- reduce the collision rate and severity of accidents on the N5 corridor; and,
- meet the requirements for TEN-T.

The existing settlements along the N5 corridor between Ballaghaderreen and Scramoge are not served by a rail line. The Dublin to Westport rail line runs to the south of the existing corridor, while the Dublin to Sligo line runs to the north of the corridor. Increasing services on these corridors may potentially reduce traffic levels on the N5 corridor, in particular long distance car trips, however the distances involved and the dispersed nature of the commercial activity that is served by the N5, mean that rail freight is not commercially viable and therefore many of the project

objectives would not be met. The development of a new rail line is not considered a viable alternative due to the low-density population which it would serve. Based on the above the only realistic alternative that would meet the objectives of the project is a road based alternative.

### **3.4 Management Options**

The Common Appraisal Framework states that *“Investment options will not always represent the most appropriate response to identified needs or objectives. Non-infrastructure options such as regulatory change, provision of improved information, changes to land use planning, bottleneck improvements, road safety works, fiscal or control measures, Intelligent Transport Systems or investment in other modes should always be considered before the major investment options are appraised”*

The need for the proposed road development as detailed in Chapter 2 identified that the primary issues along the existing N5 corridor are largely due to the sub-standard alignment and deficient cross-section of the majority of the existing route between Ballaghaderreen and Scramoge, as distinct from congestion due to high traffic volumes. There are no specific local issues which if addressed would alleviate the existing deficiencies and meet the project objectives. Section 2.6.2 identified several sections of the existing N5 corridor with a collision rate twice above the national average. The examination of the accident history presented in Section 2.6 indicates a high proportion of single vehicle collisions distributed along the road which relate to the general standard of the road rather than specific hazards that may be addressed individually. Consequently, there are no management options that would meet the project objectives.

### **3.5 Background to the Investment Options**

As far back as the 1998 National Road Needs Study, TII (then NRA) determined that the section of the N5 under consideration should be upgraded to Standard Single Carriageway, now known as Type 1 Single Carriageway. In December 2006, Roscommon County Council published a Constraints Study report that identified a broad study area for the proposed road development and major constraints, which would impact the identification of alternative route corridors during subsequent phases. In March 2010, following a route corridor selection process, Roscommon County Council published a route corridor selection report which identified a preferred route corridor for the proposed road development. Due to budgetary constraints in 2010, the further development of the project was suspended for a number of years.

With similar studies ongoing for the N4, N5 and N17 corridors, TII (then NRA) commissioned a strategic review of the three corridors, to consider whether as an alternative to the ongoing separate considerations, a more significant re-configuration of the national road network might provide a better outcome. This study considered various strategies and concluded that upgrading both the existing N5 and N4 corridors was preferred and would provide the greatest overall benefit.

The further development of the project was re-activated in 2014 with the appointment by Roscommon County Council of Roughan & O'Donovan - AECOM Alliance in order to progress the proposed road development through the statutory planning process.

### 3.6 Constraints Study

The objective of the constraints study was to identify the primary engineering, environmental, economic and legislative constraints that could affect the development of the project.

The constraints study was predominately informed by desktop studies, consultation with the public, statutory and non-statutory organisations, supplemented by various site visits and environmental assessments in relation to Archaeology and Ecology.

The Study area measured approximately 328km<sup>2</sup>, and generally extended approx. 35km in an east-west direction and approximately 11.5km in a north-south direction. The principal settlements within the study area include Strokestown, Tulsk, Frenchpark, Bellanagare, Tibohine, Fairymount, Lissalaway, Mantua, Cloonyquin and Scramoge. The main settlements adjacent to the study area include Ballaghaderreen, Castlerea, Castleplunkett and Elphin.

A summary of the key constraints identified is provided below.

#### 3.6.1 Topography

The western half of the study area is low-lying, with a slowly undulating landscape, dominated by extensive peat bogs, forested lands and low rolling hills. The land rises to the south to the plateau at Rathcroghan.

The eastern section of the study area is dominated by the Mid-Roscommon Ribbed Moraines, which produces a highly undulating drumlin landscape, interspersed with an interconnected network of rivers and lakes.

#### 3.6.2 Environmental Constraints

During the study, the following constraints were identified relating to development, humans and the natural environment:

- Existing development, existing properties and planning permissions;
- Land Zoning;
- Community facilities and recreational areas;
- Known archaeological sites, protected structures, and national monuments;
- Environmental conservation areas including: SACs (Special Areas of Conservation), SPAs (Special Protection Areas), NHAs (Natural Heritage Areas) and pNHAs (proposed Natural Heritage Areas);
- Other areas of ecological interest including watercourses, wetlands and woodland habitats; and
- Landscape features including areas of woodland, estate landscapes, and particular landscape types, including views from protected archaeological sites.

A map showing the key constraints identified is reproduced as Figure 3.1 in Volume 3. The area is heavily constrained in particular by the high density of archaeology and cultural heritage sites and also by significant nature conservation sites.

The high density of individual archaeological and cultural heritage sites is immediately obvious throughout the study area. The large archaeological complexes of Rathcroghan and Carnfree (shaded in red) dominate the centre of the study area. The Rathcroghan archaeological complex (Rathcroghan Mound shown in Plate 3.2

below) is now included on the UNESCO World Heritage Tentative list as part of The Royal Sites of Ireland: Cashel, Dún Ailinne, Hill of Uisneach, Rathcroghan Complex, and Tara Complex. In addition, Tulsk Medieval Borough, Ardakillin, Cloonfree and the adjacent Cloonfinlough, and the eighteenth century planned settlement of Strokestown are all important protected sites that significantly constrain potential improvements along the existing N5 corridor.



**Plate 3.2 Rathcroghan Mound Immediately Adjacent to the Existing N5**

The designated nature conservation sites within and adjacent to the study area include Bellanagare Bog (SAC, SPA and pNHA), Cloonshanville Bog (SAC and pNHA), Annaghmore Lough (SAC and pNHA), Mullygollan Turlough (SAC and pNHA), Castleplunkett Turlough (pNHA), Brierfield Turlough (pNHA), Corbally Turlough (pNHA) and Brierfield Lough (NHA). Adjoining sites include Tullaghanrock Bog (SAC and pNHA), Callow Bog (SAC), Lough Gara (SAC, SPA and pNHA), Ardagh Bog (pNHA) and Ardakillin Lough (pNHA).

In addition to the above, there are numerous water bodies, particularly between the Rathcroghan archaeological complex and Annaghmore Lough (SAC and pNHA).

### **3.6.3 Public Consultation 1 - Constraints Study**

As part of the constraints study for the project, Roscommon NRDO carried out the first public consultation on the 5<sup>th</sup> July 2005. Two public consultations were carried out simultaneously in different electoral areas within the constraints study area, namely at, Ballaghaderreen and Strokestown.

The purpose of the first Public Consultation (PC1) was as follows:

- To inform the public and local community that the N5 Ballaghaderreen to Scramoge Road project was being advanced by Roscommon County Council;
- To obtain general public opinion in relation to the proposed road development and to the relative importance of several environmental, engineering and economic factors that influences its development; and

- To obtain local knowledge that would help in the identification of possible constraints and to give the community an opportunity to be involved in the early stages of the proposed road development.

Large scale drawings were on display showing the extent of the constraint study area and members of the Design team were present to explain the information presented, discuss the proposed road development with the public and gain as much local knowledge as possible.

Further details of this consultation are contained in the Constraints Study Report.

### **3.7 Route Selection Process**

A summary of the route corridor selection process carried out is detailed in the N5 Ballaghaderreen to Scramoge Road Project Route Corridor Selection Report. The route selection process was carried out by Roscommon NRDO on behalf of Roscommon County Council and culminated with the publication of the N5 Route Corridor Selection Report in March 2010, a copy of which is appended to this EIA.

The development of alternative route corridor options was informed by the findings of the Constraints Study and by liaison with public and private organisations and the general public. Seven route corridor options were identified. Each option was typically 500m wide. Each of the route corridor options commenced in Ratra/Teevnacreeva townlands and terminated in Scramoge/Treanaceeve thus connecting the recently completed N5 Ballaghaderreen Bypass Road Scheme with the previously improved N5 Scramoge to Cloonmore scheme.

#### **3.7.1 Route Assessment**

The route corridor options were assessed in accordance with the NRA National Roads Project Management Guidelines (2000) under the following criteria:

- Engineering;
- Environment; and
- Economics.

##### **Engineering**

The Engineering assessment and evaluation of the route corridor options was in turn based on the following sub-criteria:

- Traffic;
- Accidents and Road Geometry;
- Structures;
- Utilities;
- Soils and Geology; and
- Road Safety.

##### **Environment**

The Environmental assessment and evaluation of the route corridor options was based on the following sub-criteria:

- Agriculture and non-Agriculture Property;
- Ecology;

- Soils and Geology;
- Hydrogeology;
- Hydrology;
- Air Quality;
- Noise and Vibration;
- Landscape and Visual;
- Archaeology, Architecture and Cultural Heritage; and
- Socio-Economic.

### **Economic**

Under the heading of Economy the assessment was subdivided as follows; -

- Cost Estimation; and
- Cost Benefit Analysis.

### **3.7.2 Alternative Route Corridor Options**

As part of the route selection process, seven route corridors were identified and labelled route options 1, 1A, 2, 2A, 2B, 3 and 4 respectively as indicated in Plate 3.3 and Figure 3.2 in Volume 3.

*Corridor 1* is approx. 33.7km long and is located north of the existing N5. This option passes north of Frenchpark where it crosses the R361 (Williamstown to Boyle) Regional Road. It continues north of Bellanagare and Tulsk, crossing the N61 (Athlone to Boyle) road near Shankill Cross. It continues north of the existing N5 and Clooncullaan Lough before crossing the R368 (Elphin to Strokestown) Regional Road at Lugboy townland and then veers south to bypass Strokestown to the north and east.

*Corridor 1A* is approx. 34.2km long. It commences south of the existing N5 before crossing north of the N5 immediately west of Bellanagare, from where it follows the same route as Option 1. This option passes south of Frenchpark where it crosses the R361 (Williamstown to Boyle) Regional Road. It crosses the N5 at Cashel Townland west of Bellanagare. It proceeds north of Bellanagare where it follows the same route as Option 1 from Corry West Townland eastwards.

*Corridor 2* is approx. 34.6km long and weaves north and south of the existing N5. It follows substantially the same path as option 1A from the western tie-in to Tonaknick (north of Bellanagare). It crosses the R369 (Bellanagare to Elphin) Regional Road at Kilvoy Townland, the N61 at Castleland Townland and continues along the existing N5 between Ardkeenagh (Plunkett) Townland and Ardakillin Townland from where it veers south to bypass Strokestown.

*Corridor 2A* is approx. 35km long and is similar to Option 2 except that it veers further south between its western tie-in and the R361 crossing south of Frenchpark.

*Corridor 2B* is approx. 34.5km long and is similar to Option 2 except that between the crossing point of the N61 at Castleland Townland and the crossing point of the N5 at Ardakillin, the route is north of and parallel to the existing N5 as opposed to along it.

*Corridor 3* is approx. 35.7km long. This option represents an online upgrade of the existing N5 route and was considered as the "Do-Minimum" option, with minimal local

improvements. While this option did not fulfil the project objectives, it was considered for comparative purposes.

*Corridor 4* is approx. 38km long and is located south of the existing N5. It follows the approximate line of Options 1, 2 and 2B to the crossing of the R361 Regional Road south of Frenchpark. From here it veers further south crossing the R367 (Ballintober to Tusk) Regional Road at Mullygollan Townland and the N61 at Sheegeeragh Townland. The route then veers north eastwards towards the existing N5 at Lissaphuca Townland and follows a similar route to Options 2, 2A and 2B to bypass Strokestown on its southern side.

### **3.7.3 Comparison of Alternative Route Options**

Each of the route options were assessed and ranked under the criteria of Engineering, Environment and Economics using the sub-headings listed in section 3.7.1 above. The rankings under these sub-headings were then combined to produce overall rankings under the main headings of Engineering, Environment and Economics. Finally these three rankings were summed to identify an overall emerging preferred route corridor. The selected corridor 1A was clearly identified as the emerging preferred option having ranked first under all three of the main headings of Engineering, Environment and Economics.

### **3.7.4 Public Consultation 2 – Emerging Preferred Route Corridor**

Roscommon NRDO carried out a second Public Consultation (PC2) as part of the route corridor selection process. Submissions from the public were sought and considered throughout the process and the Emerging Preferred Route Corridor Public Consultation was held in the Community Hall in Bellanagare on 31<sup>st</sup> May 2007. The Emerging Preferred Route Corridor is indicated on Figure 3.3 in Volume 3.

Drawings highlighting the Route Corridor Options and the Emerging Preferred Route Corridor were placed on public display during the second public consultation. Members of the Design Team were present to provide information and assistance to all attendees. A brochure describing the main features of the emerging preferred route corridor, providing details of the process going forward and contact details for further comments/submissions and requesting further information was also provided on the day and subsequently made available at the offices of Roscommon County Council.

Approximately 226 people attended the second public consultation, a further 60 people visited the Design Team Offices to discuss the proposed road development. 135 written submissions/letters/questionnaires were received. Further details of Public Consultation 2 are available in the Route Corridor Selection Report.



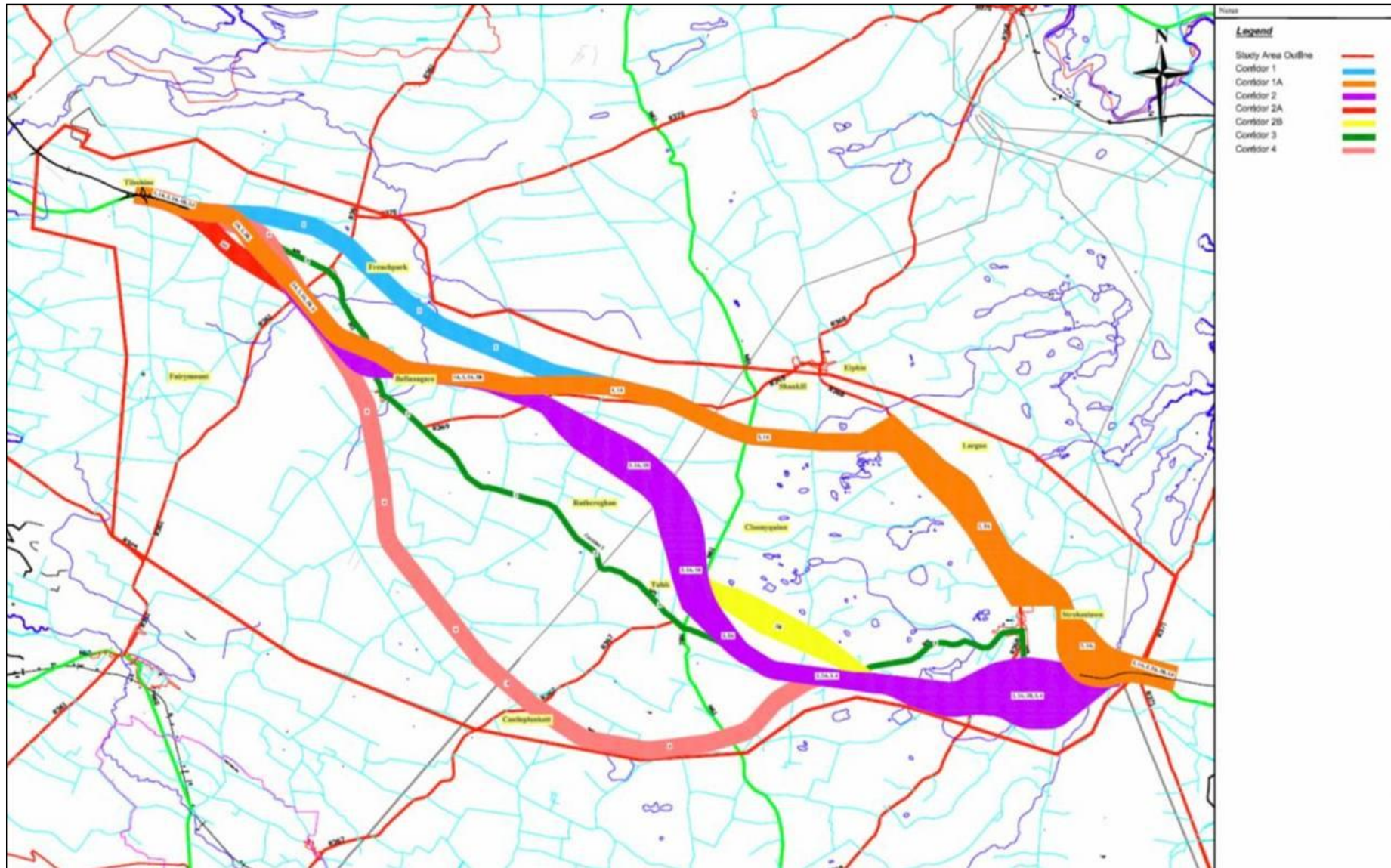


Plate 3.3 Route Corridor Options (See also Figure 3.2 in Volume 3)

### 3.8 Confirmation of the Preferred Route Corridor

The N5 Strategic Corridor Route Corridor Selection Report recommended the adoption of Corridor 1A as the Preferred Route Corridor for the proposed road development. When studies recommenced in 2014 the findings of the Constraints Study and Route Corridor Selection Study were reviewed in the light of the time period that had elapsed since their publication to identify any potential changes that may require re-consideration of the preferred corridor. This process confirmed that no significant changes had occurred which would compromise the identified Preferred Route Corridor. As part of this review, it was concluded that two issues should be reconsidered, namely, updated traffic studies were required and, given the current constrained economic environment, the potential to upgrade the existing N5 to maximise the use of the existing infrastructure.

The updated traffic studies and assessment undertaken are described in Chapter 5. While details of the methodology and resulting figures have been updated, no major changes in traffic patterns have been identified which would compromise the original route corridor selection process.

The assessment of the potential to upgrade sections of the existing N5 is described in Section 3.10 below.

### 3.9 Carriageway Type

The first matter to be considered prior to developing alignment options is that of carriageway cross section. The 1998 National Road Needs Study recommended upgrading to the then Standard Single Carriageway, now termed Type 1 Single Carriageway. Subsequently all of the upgrades along the N5 corridor that have taken place have adopted this cross section, with the exception of the section between Westport to Turlough (currently being upgraded to Type 2 Dual Carriageway, An Bord Pleanála Ref: 16.KA0028.) Continuation of the Type 1 Single Carriageways of the adjoining N5 Ballaghaderreen Bypass and N5 Scramoge – Cloonmore upgrade would provide consistency of standard.

Table 6/1 of Design Standard TII/NRA DN-GEO-03031, reproduced in Table 3.1 below, provides recommendations on the maximum traffic capacities of different cross sections to achieve the target minimum Level of Service D. The Design Manual for Roads and Bridges suggests that while road types may be selected based on the Annual Average Daily Traffic (AADT) predicted in the Design Year (15 years after opening), the recommendations in TII/NRA DN-GEO-03031 Table 6/1 should be treated as guidance only rather than as a definitive means of selecting carriageway type.

**Table 3.1 TII/NRA DN-GEO-03031 Table 6/1: Recommended Rural Road Layouts**

Type of Road <sup>1</sup>	Capacity <sup>2</sup> (AADT) for Level of Service D	Edge Treatment	Access Treatment	Junction Treatment at Minor Road	Junction Treatment at Major Road
<b>Type 3 Single</b> (6.0m) Carriageway (S2)	5,000	0.5m hard strip. Footways/Cycle Tracks where required,	Minimise number of accesses to avoid standing vehicles and concentrate turning movements.	Simple Priority Junctions	Priority junctions, with ghost islands where necessary.
<b>Type 2 Single</b> (7.0m) Carriageway (S2)	8,600	0.5m hard strips. Footways/Cycle Tracks where required	Minimise number of accesses to avoid standing vehicles and concentrate turning movements.	Priority junctions, with ghost islands where necessary.	Ghost islands
<b>Type 1 Single</b> (7.3m) Carriageway (S2)	11,600	2.5m hard shoulders Footways/Cycle Tracks where required	Minimise number of accesses to avoid standing vehicles and concentrate turning movements.	Priority junctions, with ghost islands where necessary.	Ghost islands or roundabouts <sup>3</sup> .
<b>Type 3 Dual</b> <sup>4</sup> (7.0m + 3.5m) Divided 2+1 lanes Primarily for retro fit projects	14,000	0.5m hard strips.	Minimise the number of accesses to avoid standing vehicles and concentrate turning movements.	Restricted number of left in/left out or ghost priority junctions.	Priority junctions or at-grade roundabouts.
<b>Type 2 Dual</b> <sup>4</sup> . Divided 2+2 Lanes (2x7.0m) Carriageways. ()	20,000	0.5m hard strips	No gaps in the central reserve. Left in / Left out	No gaps in the central reserve. Left in / Left out	At-grade roundabouts and compact grade separation
<b>Type 1 Dual</b> Divided 2+2 Lanes (2x7.0m) Carriageways ()	42,000	2.5m hard shoulders	No gaps in the central reserve. Left in / Left out	No gaps in the central reserve. Left in / Left out	At-grade roundabouts and full-or compact grade separation.
<b>Standard Motorway</b> Divided 2+2 Lane (2X7.0m) (D2M)	52,000	2.5m hard shoulders	Motorway Regulations	No gaps in the central reserve.	Motorway standards Full-grade separation.
<b>Wide Motorway</b> Divided 2+2 Lane (2X7.5m) (D2M)	55,500	3m hard shoulders	Motorway Regulations	No gaps in the central reserve	Motorway standards Full-grade separation.

The predicted Design Year traffic flows along the various sections of the N5 under consideration range from 5,400 AADT to 8,100 AADT in the Do-Minimum scenario. The predicted traffic flows for the proposed road development range from 4,300 AADT to 7,400 AADT (ref. Table 5.4 in Chapter 5). Comparing these flows with the capacities quoted in Table 3.1 above indicates that a Type 2 Single Carriageway designed to current standards, with reduced lane widths and hard strips in lieu of hard shoulders, would be capable of achieving the minimum Level of Service D. However minimum Level of Service D, delivering an average speed of 80kph with extremely difficult overtaking and platoon sizes of 5-10 vehicles, is the trigger at which improvements are required. To improve a road to only just meet this standard would be inconsistent with the carriageway provided on the remainder of the N5 between Longford and Castlebar which has previously been upgraded to a Type 1 Single Carriageway and would not provide any future proofing of capacity to accommodate increases in traffic demand along the N5. In order to determine the optimum cross-section and in accordance with the process set out in the TII/NRA Project Appraisal Guidelines, an incremental analysis was undertaken to compare the Type 1 Single Carriageway and Type 2 Single Carriageway options. This incremental analysis identified the selection of a Type 1 Single Carriageway as preferred for the following principal reasons:

- The N5 route provides a strategic link to destinations in the West, carrying a mix of local and long distance traffic. A significant proportion of the traffic (one third of light vehicles and two thirds of HGV traffic) originates in either County Mayo or east of Longford. Local traffic includes slow moving agricultural vehicles which, in the absence of hard shoulders, currently delay through traffic.
- The collision analysis indicates that 64% of collisions on the existing N5 occur in the five month period from June to November, while national statistics show an even spread throughout the year. This higher accident rate in the summer and autumn is co-incident with increased agricultural activity and higher volumes of tourist traffic during this period. The provision of a Type 1 Single Carriageway, incorporating hard shoulders will accommodate both slow moving agricultural machinery and occasional cyclists and pedestrians, and is considered inherently safer for the mix of road users present.
- Due to the absence of hard shoulders on Type 2 single carriageways, TII/NRA DN-GEO-03047 requires the provision of a parallel segregated pedestrian/cycle facility. Consequently the absolute minimum footprint required for a Type 2 Single Carriageway is 19m (back of verge to back of verge), slightly greater than that required for a Type 1 single carriageway which is 18.3m (back of verge to back of verge), resulting in similar environmental impacts.
- When assessed by the level of service provision, the Type 2 single carriageway would only achieve the minimum Level of Service D in the 2035 Design Year, while the Type 1 single carriageway option provides LOS C and accordingly incorporates an element of future proofing beyond the Design Year of 2035.
- Upgrading to a Type 1 single carriageway would provide a consistent cross section along the N5 between Longford and Westport. The provision of a consistent cross-section assists in fulfilling user expectation of the continuity of road standard, thereby improving the safety of the N5. The consistent cross section is also considered to integrate best with previous investments, ensuring the provision of a high quality road throughout the strategically important N5 transport corridor.
- The provision of a Type 2 single carriageway would not meet the description of a “High-Quality Road” as set out in Article 17(1) of the Regulation (EU) No. 1315/2013, which includes “Hardshouders” (See para 2.2.2.2 in Chapter 2 above) and therefore would not meet a key project objective of meeting the requirements of the EU Regulations relating to the TEN-T network.
- The cost comparison undertaken determined that no significant cost savings would arise from the provision of the reduced pavement width of a Type 2 single carriageway cross-section. The provision of a Type 1 over a Type 2 cross-section with segregated pedestrian/cycle facilities represents an increase in costs of just 2%. Such a modest increase does not justify the selection of a Type 2 cross-section considering the significant advantages, including safety benefits, offered by the Type 1 cross section for the mix of road users on this rural section of national road.

Considering the above, the alignment options for the N5 Ballaghaderreen to Scramoge Road project were developed with a Type 1 Single Carriageway cross-section.

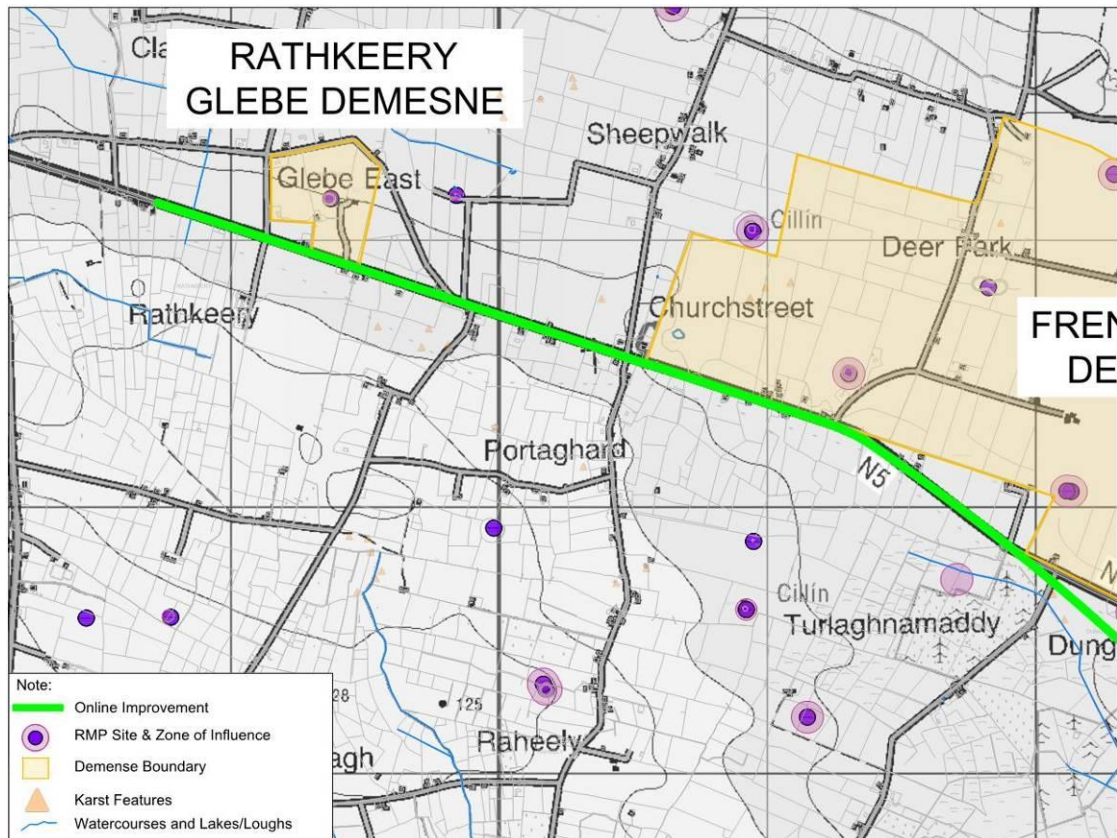
### **3.10 Potential to Upgrade Sections of the Existing N5**

Details of the existing road conditions along the N5 between Ballaghaderreen and Scramoge are outlined in Chapter 2. There is no single issue, or location, that detrimentally impacts the safety and limits vehicle speeds. The multitude of spatially dispersed geometric, junction, access, cross-section and sightline inadequacies and hazards along the existing N5 road, in terms of safety leads to a high accident rate and in terms of economy leads to long journey times and high journey time variance. The only traffic management measures available is to reduce speed further on the National Primary road leading to a further increase in journey time delays and probably in journey time variance. This is contrary to the objectives for the proposed road development. An analysis of the measures necessary to improve each section of the existing N5 to meet current design standards for Type 1 Single Carriageway was undertaken, and is summarised as follows:

#### **3.10.1 Ballaghaderreen to Frenchpark**

While the existing N5 between the east tie-in of the Ballaghaderreen Bypass and Frenchpark (approx. 4.5km) is generally compliant with current design standards in respect of horizontal and vertical geometry, the carriageway cross-section comprises two 3.5m lanes with narrow hard strips and wholly inadequate verges with deficient visibility and unforgiving roadsides. This is reflected in the 2012-2014 TII collision rating of twice above the national average for this section of the N5, highlighting the unsafe conditions. The cross section requires widening by a minimum of 8-10m in order to provide hard shoulders and appropriate verge widths. In addition, land take would be required to upgrade the road drainage system and provide safe access in order to maintain the permanent road boundary. Overall, significant land acquisition, including from residential properties would be required.

Along this section of the N5 there are multiple junctions, many of which do not meet current design standards, including in particular the cross road junction at Sheepwalk between the N5, LS-5625 and LP-1213. Locally improving the cross-section and visibility on the N5 alone would facilitate higher speeds, which in turn may render the junctions more dangerous. Extensive local junction realignments would therefore have to be considered, including additional verge widening along the N5 to provide adequate visibility over significant lengths either side of each junction.

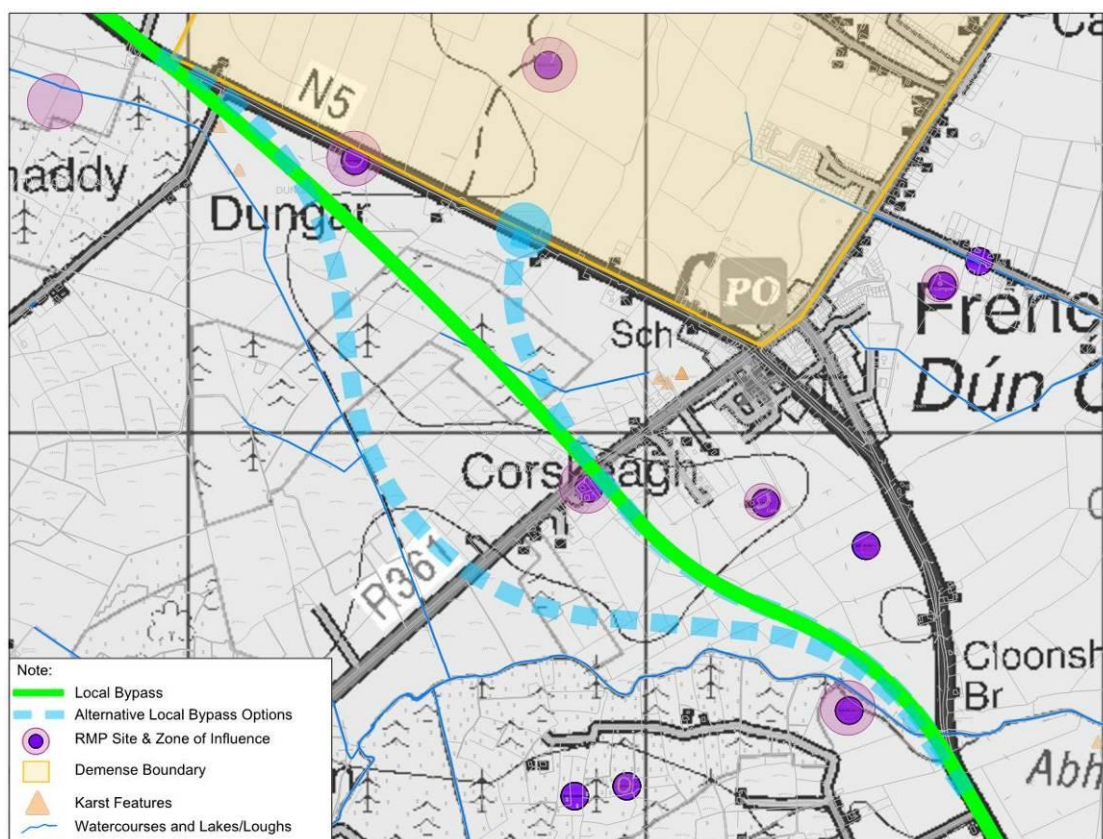


**Plate 3.4 Online Improvement – Ballaghaderreen to Frenchpark**

Along this section of the N5 there are a total of 38 dwellings, farms and businesses with direct access off the N5, 11 junctions and 38 direct field accesses located outside the speed restricted area. The provision of direct accesses onto rural sections of national primary roads is not recommended and whilst the accesses may be provided with appropriate junction visibility, such a proposal would not address the inherent safety issues that arise from a high density of direct accesses onto a high speed road. To upgrade the N5 to appropriate standards would require the direct accesses to be collected on parallel access roads along each side of the existing N5. The provision of such parallel access roads would require significant additional landtake, increasing the typical footprint width by approximately 12m, and significantly increasing the impact on adjacent properties. Space restrictions between properties in a number of areas effectively mean that it would not be possible to collect all accesses. The analysis undertaken has determined that approximately 25% of the accesses to dwellings would remain. Two properties are so close to the existing road that it may be necessary to acquire them.

### 3.10.2 Frenchpark

The existing N5 through Frenchpark (approx. 1km) is urban in nature, with shop fronts and properties (including a National School) opening directly onto the footpaths adjacent to the N5. There is on-street parking and several junctions with the R361 crossroads junction in particular having significantly sub-standard visibility (from the southern approach) to exit onto the N5.



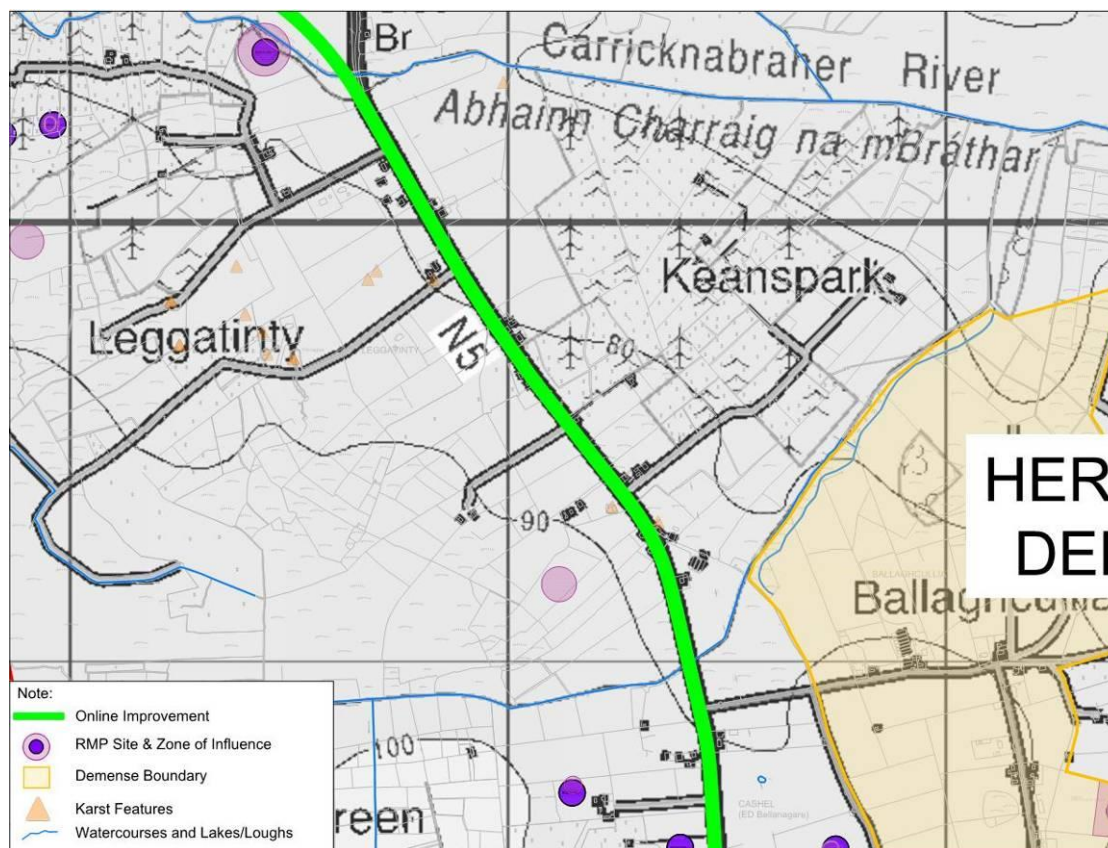
**Plate 3.5 Local Bypass – Frenchpark**

It is not feasible to upgrade this section on-line to provide a Type 1 single carriageway and therefore a local bypass would be required. A number of potential routes for a local bypass of Frenchpark were considered, having regard to the surrounding constraints, as illustrated in Plate 3.5 above. Based on the available information, a feasible option would involve a 2.5km long bypass with a new junction on the R361 approximately 500m south of Frenchpark to provide access to Frenchpark and the R361.

### 3.10.3 Frenchpark to Bellanagare

The existing N5 alignment between Frenchpark and Bellanagare (approx. 3.3km) has poor horizontal and vertical geometry with significant lengths of carriageway being below standard, which is reflected in the TII Collision rating 2012-2014 of twice above the national average for this section of the existing N5. The cross-section is sub-standard with carriageway width of just 6m coupled with minimal verge widths ranging from 0.5m to 1m. On-line improvement would require both widening of the cross section to meet the Type 1 Single Carriageway standards and local realignments to improve the horizontal and vertical alignment. This would require significant associated land acquisition (including from residential properties.)

Along this section of the N5 there are a total of 24 dwellings, farms and businesses with direct access off the N5, 7 junctions and 31 direct field accesses outside the speed restricted areas. To upgrade the N5 to appropriate standards, the construction of parallel access roads in order to collect the direct accesses is required. This would require significant additional landtake, and entail significant impact on adjacent properties. At least 3 direct accesses would have to be retained due to space restrictions between dwellings on opposite sides of the road and considering the impact severity, it is likely that at least one dwelling would have to be acquired. Significant lengths of verge widening in addition to the standard 3m verge would be required to in order to provide adequate visibility at each junction along the N5 carriageway.



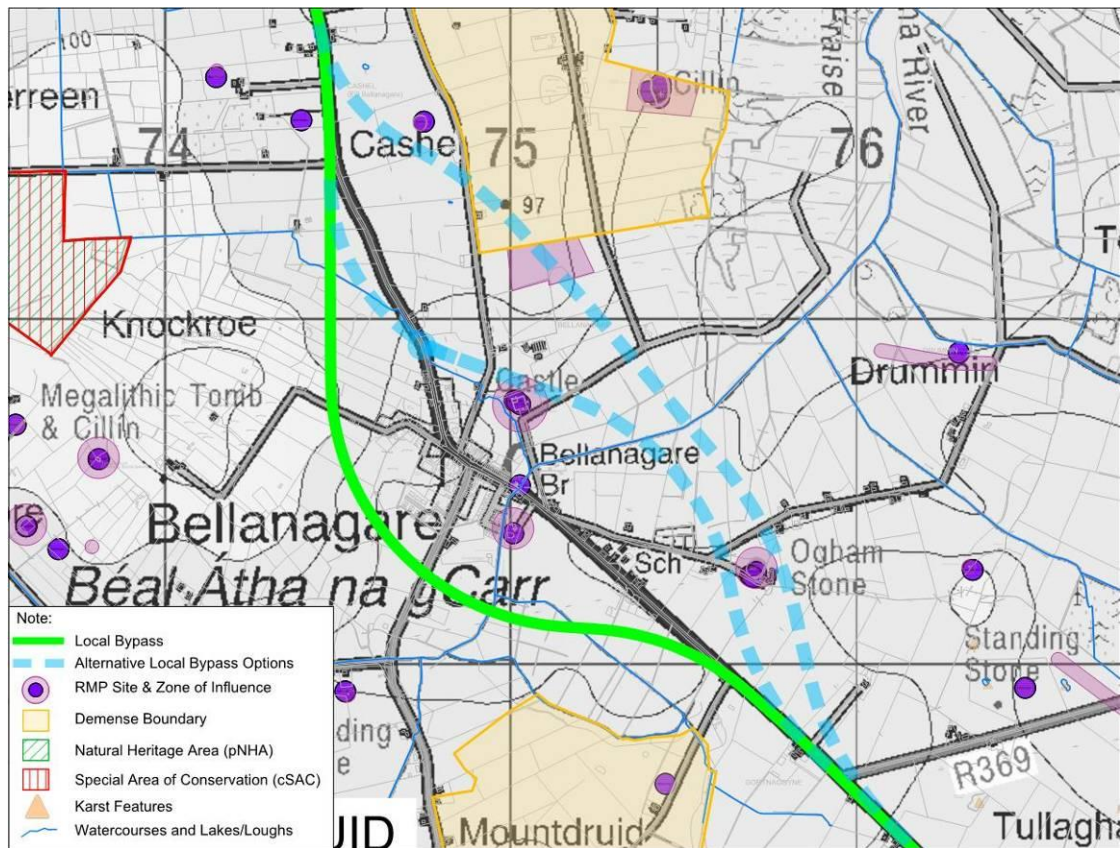
**Plate 3.6 Online Improvement – Frenchpark to Bellanagare**

### 3.10.4 Bellanagare

The existing N5 through Bellanagare (approx. 1km) is urban in nature, with shop fronts and properties (including a National School) opening directly onto the footpaths adjacent to the N5. There is on-street parking and numerous local road junctions, some of which have sub-standard visibility onto the N5.

It is not feasible to upgrade this section on-line to provide a Type 1 single carriageway and therefore a local bypass is required. A number of potential routes for a local bypass of Bellanagare were considered, having regard to the surrounding constraints, as illustrated in Plate 3.7 below. Based on the available information, a feasible option would involve a 2.5km long bypass with a new junction on local road LP-1221 approximately 350m south of the N5 in Bellanagare providing access to Bellanagare and the local road.

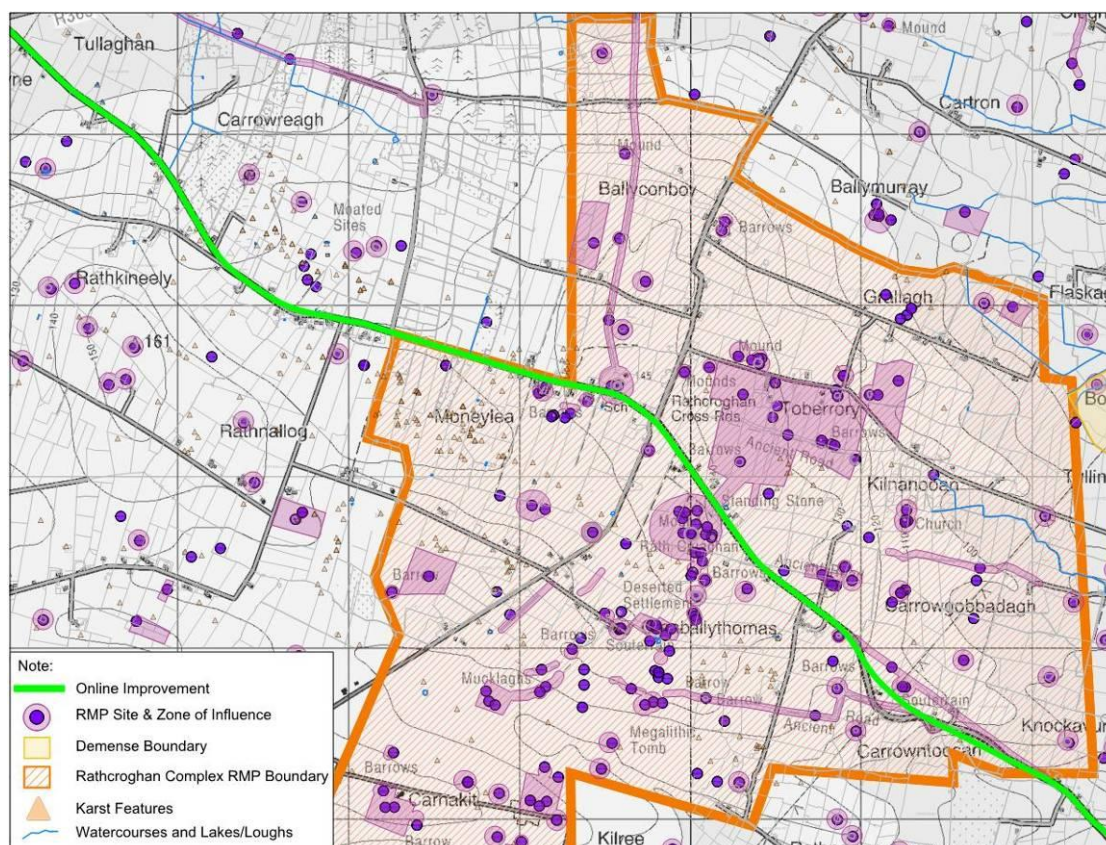




**Plate 3.7 Local Bypass – Bellanagare**

### 3.10.5 Bellanagare to Tulsk

The assessment of the horizontal alignment between Bellanagare and Tulsk (approx. 10.2km) concluded that portions of the current N5 alignment are below current design standards. A number of the horizontal curves are up to 4 steps below desirable minimum for 100kph design speed (i.e. the current alignment is consistent with a design speed of just 50kph) and many vertical curves are also up to 4 steps below desirable minimum. The cross-section of the existing N5 in this section is sub-standard with a typical carriageway width of 6m, with narrow verges of 0.5m to 1.0m. This sub-standard geometry and cross-section is reflected in the TII collision rate 2010-2012 and 2012-2014 of twice above the national average for this section of the existing N5. This section of the N5 is also prone to flooding during periods of heavy rainfall immediately west of Tulsk. As with other sections, on-line improvement would require both widening of the cross section and local realignments to improve the horizontal and vertical alignments, requiring significant associated land acquisition from farms and properties throughout and to a greater extent in the vicinity of the existing sub-standard bends.



**Plate 3.8 Online Improvement – Bellanagare to Tulsk**

Along this section of the N5 there are a total of 78 dwellings, farms and businesses with direct access onto the N5, 20 junctions and 98 direct field accesses outside the speed restricted areas. The extent of parallel access roads required to collect the direct accesses would add significantly to the required landtake, increasing the impact on properties. Approximately 15% of the properties would retain direct access to the N5 due to the proximity of properties on both sides of the road with consequential safety impacts. In addition to the widening to provide a Type 1 Single Carriageway, significant lengths of verge widening would also be required to provide adequate visibility at each junction along the N5 carriageway.

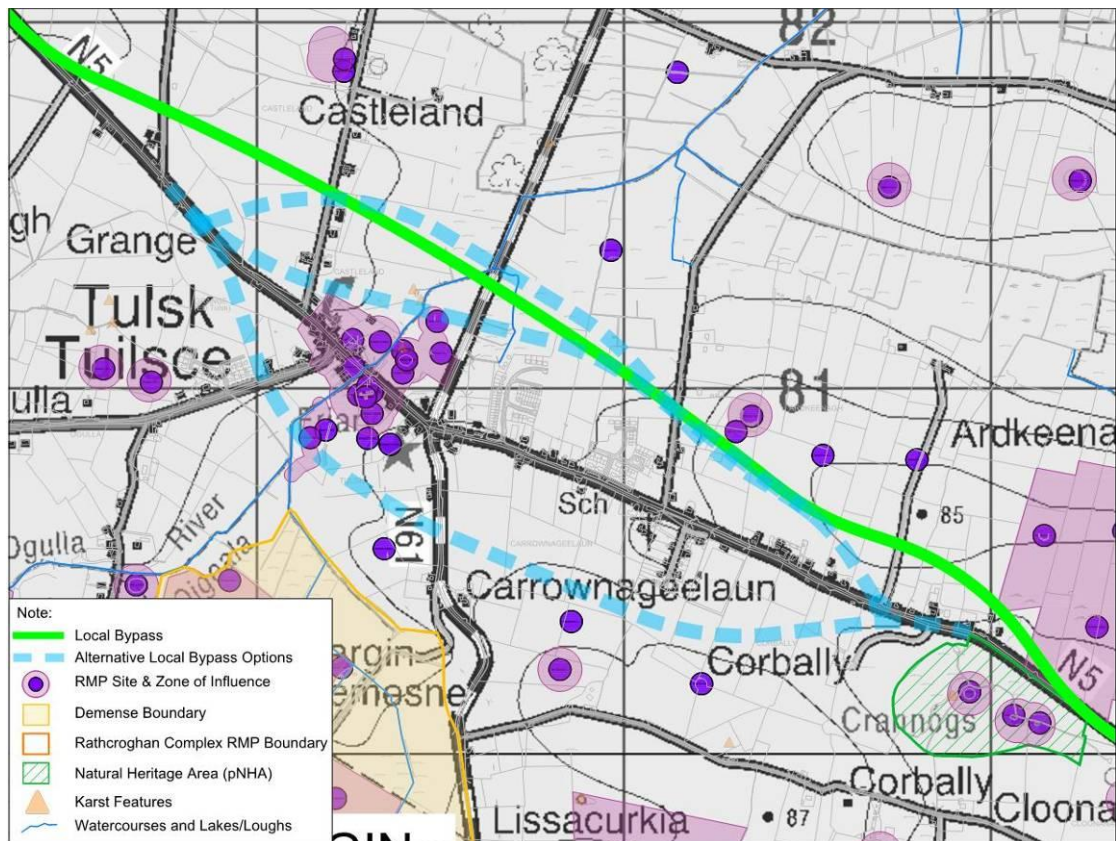
On the approach to the settlement of Tulsk, the N5 alignment crosses through the important cultural heritage site of Rathcroghan, as illustrated in Plate 3.8 which is regarded as internationally important by the National Monuments Service. The Rathcroghan Royal Complex is on the tentative list of UNESCO World Heritage Sites. Upgrading the N5 alignment to meet the current design standards and rectify the flooding problem currently experienced on the western side of Tulsk would generate irreversible impacts on the Rathcroghan site and surrounding area.

The Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs (DAHRRGA) previously DAHG, National Monuments Service have advised that any “*online upgrade of the existing N5 would impact negatively upon the important archaeological remains at the Rathcroghan complex, a candidate World Heritage Site, and is therefore undesirable and should be avoided*”. However the Rathcroghan Complex RMP boundary extends several kilometres north and south of the N5, and therefore any feasible ‘local bypass’ would involve a long diversion. Notwithstanding the higher operating speed on such a bypass, due to its length, it would be quicker to continue to use the existing N5 through the middle of the complex rather than a local bypass. In order to produce a sufficiently direct and

smooth alignment to achieve journey time savings it would be necessary to divert from the existing N5 west of Bellanagare and re-join the N5 east of Tulsk. This alternative is discussed further in section 3.11.3.6 below.

### 3.10.6 Tulsk

The existing N5 through Tulsk (approx. 1.5km) is urban in nature, with shop fronts and properties (including a National School and GAA grounds) opening directly onto the footpaths adjacent to the N5. There is on-street parking and numerous junctions within Tulsk, notably the N61 National Secondary Road junction, the northern side of which has sub-standard visibility to the left in particular, onto the N5.

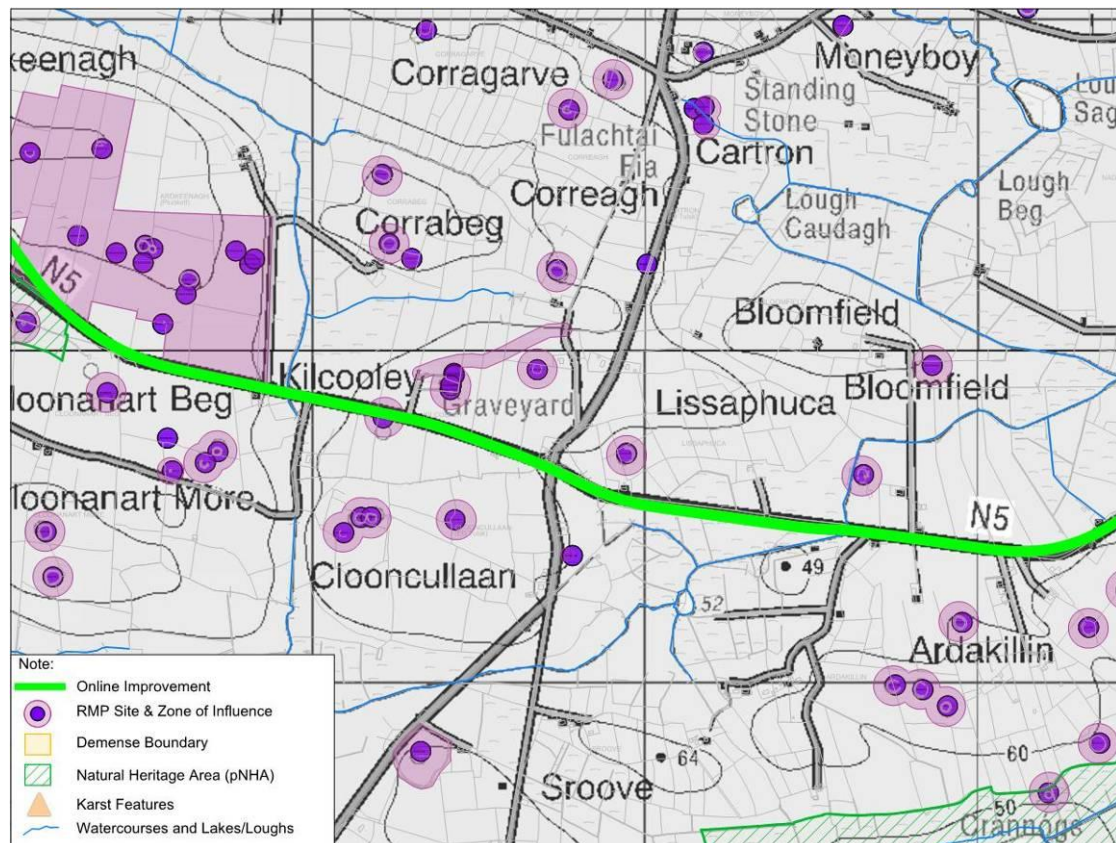


**Plate 3.9 Local Bypass – Tulsk**

It is not feasible to upgrade this section on-line to provide a Type 1 single carriageway and therefore a local bypass is required. A number of potential routes for a local bypass of Tulsk were considered, having regard to the surrounding constraints, as illustrated in Plate 3.9. This concluded that the most feasible option would involve a 4km long bypass with a new roundabout junction on the N61 approximately 400m north of the existing N5 providing access to the village. While this option minimises direct impacts on RMP's and the Corbally Lough pNHA, it does encroach on the notification area of the RMP's opposite Corbally Lough and passes through the 800m archaeological constraints area around Tulsk Medieval Borough as established in consultation with the Discovery Programme. Alternatively it would be necessary to route offline from west of Bellanagare to east of Tulsk as discussed in Sections 3.10.5 above and 3.11.3.6 below.

### 3.10.7 Tulsk to Strokestown

The horizontal and vertical alignments of the N5 between the settlements of Tulsk and Strokestown (approx. 8.6km) are of a particularly poor standard with approximately 7km of the 8.6km section below current design standards. A 1.5km section has recently been upgraded to a Type 1 single carriageway cross section, incorporating right turn lanes and an overtaking lane in the westbound direction. This corresponds to the TII Collision Rate (2012-2014) of either above or twice above the national average, with the exception of the recently improved 1.5km section of Type 1 single carriageway.



**Plate 3.10 Online Improvement – Tulsk to Strokestown**

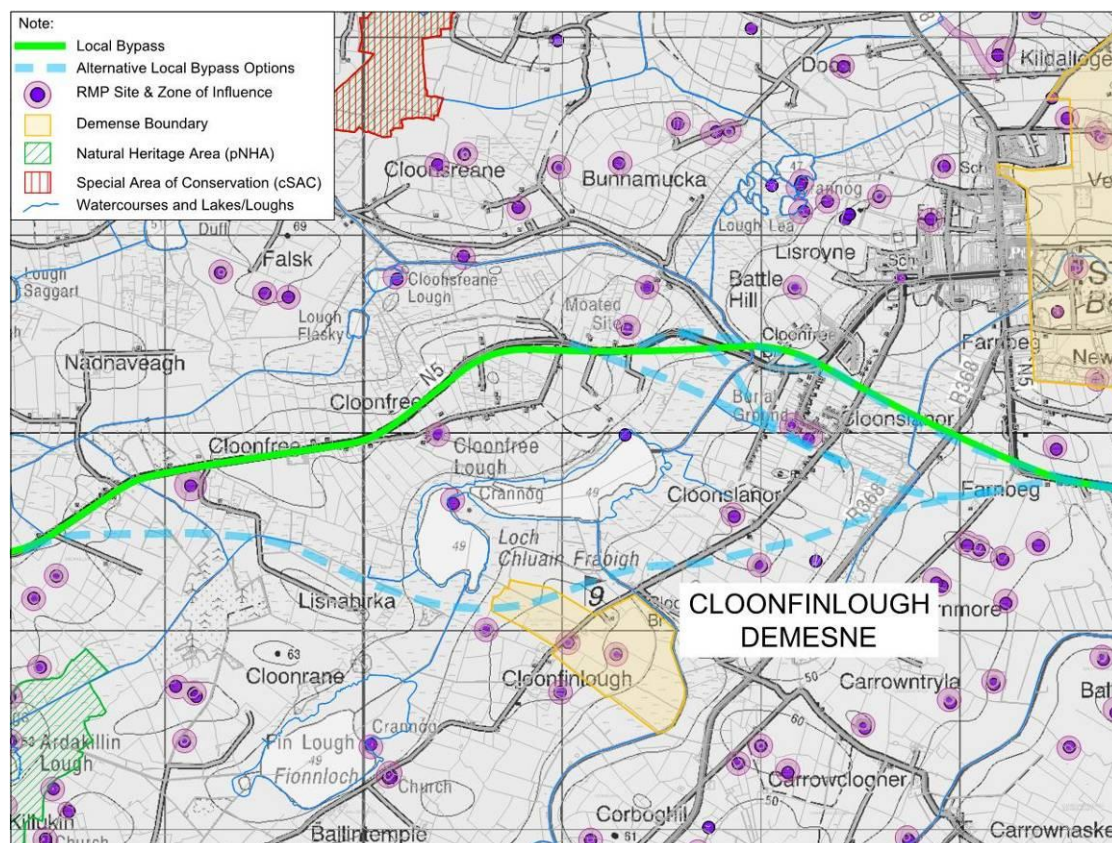
A number of the horizontal curves are up to 5 steps below desirable minimum for 100kph design speed (i.e. the existing alignment is consistent with a design speed of just 42kph) and vertical curves are up to 4 steps below desirable minimum. The cross-section of the existing N5 in this section is sub-standard with a typical carriageway width of 6m, in conjunction with narrow verges of 0.5m to 1.0m. As with other sections, on-line improvement would require both widening of the cross section and local realignments, requiring significant associated land acquisition from farms and properties close to the existing sub-standard bends.

Along this section of the N5 there are a total of 61 dwellings, farms and businesses with direct access off the N5, 26 junctions and 80 direct field accesses located on either side of the N5 carriageway. Again parallel access roads would be required to collect the direct accesses involving significant additional landtake and increasing the impact on properties. Approximately 15% of the properties would have to retain direct access to the N5 due the proximity of properties on both sides of the road. In addition to widening to Type 1 Single Carriageway, significant lengths of additional

verge widening would also be required to provide adequate visibility to each junction along the N5 carriageway.

### 3.10.8 Strokestown

The existing N5 through Strokestown (approx. 2.2km) is urban in nature, with shop fronts and properties opening directly onto the footpaths adjacent to the N5. The wide Church Street provides for markets and a wide pull off area adjacent to the shops for on street parking. The roundabout at the junction of Elphin Street (R368) and Church Street turns the N5 through a 90-degree bend to the south onto Bridge Street, continuing through a narrower streetscape with shop fronts opening directly onto the footpaths adjacent to the N5, with on-street parking present.



**Plate 3.11 Do-Minimum Option –Strokestown**

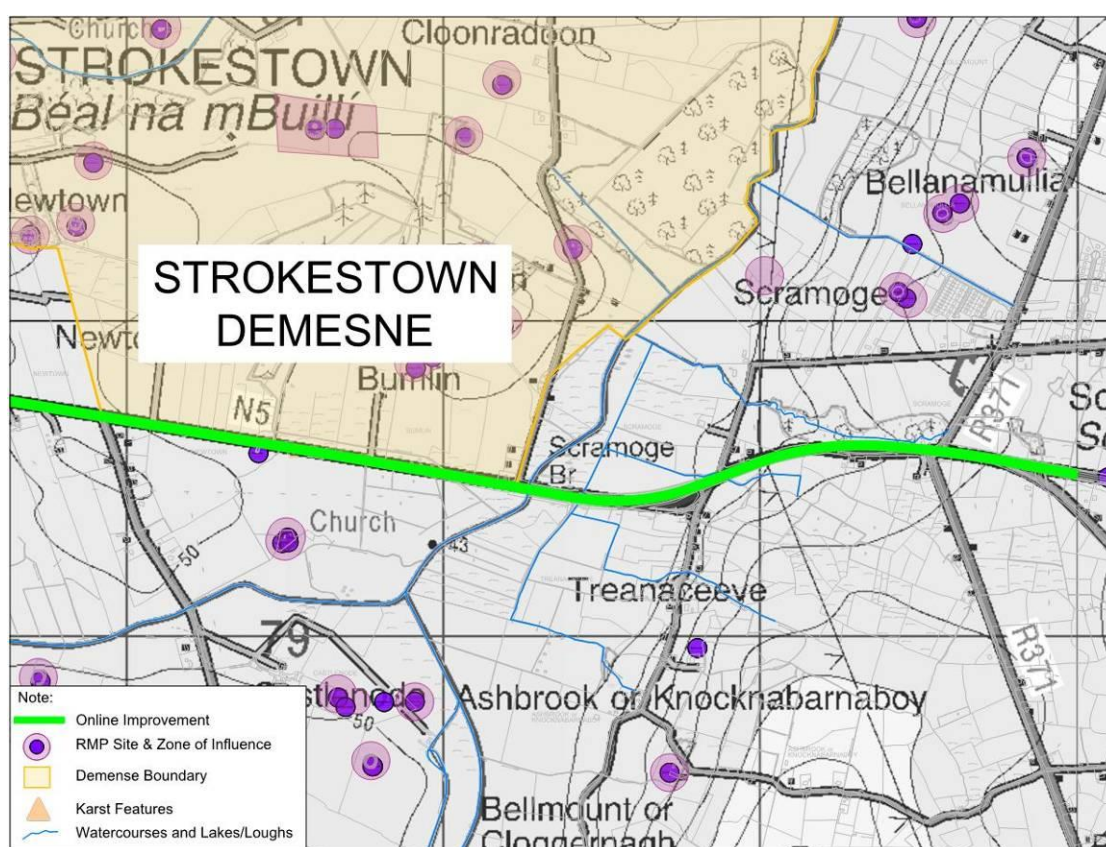
The 90 degree sub-standard bend at Farnbeg on the existing N5 to the south of Strokestown is within the speed restriction of Strokestown, however would constitute a three step relaxation for a Design Speed of 60kph (consistent with a Design Speed of less than 42kph).

It is not feasible to upgrade this section on-line to provide a Type 1 single carriageway and therefore local bypass is required. A number of potential routes for a local bypasses were considered, having regard to the surrounding constraints, as illustrated in Plate 3.11 above. This concluded that the most feasible option would involve a 3.5km bypass to the south of Strokestown, eliminating the sub-standard bend at Farnbeg, whilst providing access to Strokestown off the existing R368 (Fourmilehouse to Strokestown regional road) 600m south of the junction of the R368 and N5.

Notwithstanding the selection of the above route as the most feasible option, such a bypass of Strokestown would pass within close proximity of the substantial moated site of Cloonfree, a stronghold of the King of Connacht, O'Connor in 1306, and archaeological resource of Cloonfree-Ardakillin and Cloonfinlough which lies to the south west of Strokestown. Community severance at Cloonslanor would result and four properties would be very close to the proposed road and could potentially need to be acquired. The bypass also encounters significant areas of soft ground to the south of Strokestown, adjacent to the crossing of the Scramoge River and Strokestown River. As such, considerable further study would be required before it could be confirmed that a local bypass could be delivered.

### 3.10.9 Strokestown to Scramoge

The horizontal and vertical alignment of the N5 between Strokestown and Scramoge (approx. 3.6km) is generally to current design standards, with only local improvements necessary at Scramoge. However, it would be necessary to widen the existing carriageway to provide a cross section, which complies with current design standards.



**Plate 3.12 Online Improvement –Strokestown to Scramoge**

Along this section of the N5 there are a total of 9 dwellings, farms and businesses with direct access from the N5, 10 junctions and 15 direct field accesses. Parallel access roads to collect the direct accesses would be required with associated landtake and property impacts. In addition to widening to Type 1 Single carriageway significant lengths of verge widening would be required to provide adequate visibility to each junction along the N5 carriageway. The online upgrade would tie in to the previously improved Type 1 Single carriageway at Scramoge.

### 3.11 Evaluation of the Online Option with Local Bypasses

The works necessary to upgrade the existing N5 to the required design standards would entail major road works, with significant impacts on adjacent properties and the local environment. The following sections evaluate this option in terms of cost and property impacts, safety and its ability to achieve the project objectives.

#### 3.11.1 Cost and Property Impacts

The engineering assessment above indicates that of the 35.9km total length of the existing N5 between the end of the Ballaghaderreen bypass and Scramoge, 12.5km would involve local bypasses for the settlements of Frenchpark, Bellanagare, Tulsk and Strokestown. In addition, approximately 2.5km of local realignment would be necessary to meet current horizontal alignment standards.

The remaining 20.9km route length could potentially be improved largely along the current alignment, although many sections would require improvements to the vertical alignment, involving earthworks and full re-construction of the road pavement. Improving the cross section of this remaining 20.9km to that of a Type 1 Single carriageway would involve significant widening and would require a minimum landtake of 8-10m, effectively doubling the current corridor width. Additional land would be required at each of the 74 junctions to make necessary improvements, including further widening of the N5 verges either side of the junctions to provide visibility for the 100kph design speed. In order to reduce the number of direct accesses onto the national primary road parallel access roads would be required on one or both sides over much of the online length, adding another 6-12m to the landtake requirements. Land acquisition from the gardens and yards of the 210 houses, farms and businesses that front onto the N5 outside the speed restricted areas would be required. When appropriate compensation and accommodation works are included, the cost of property acquisition far exceeds that of general agricultural land. It is probable that several properties would have to be acquired in their entirety.

The investment required to upgrade the drainage to meet current design and environmental requirements would generally be similar in respect of the online and offline sections, while potentially higher on those sections adjoining existing properties and/or requiring parallel access roads.

It can be concluded that an on-line option coupled with local bypasses of the various settlements is unlikely to generate any cost advantage over a full offline solution for the following reasons:

- 42% of the route length would require 'offline' construction;
- any potential savings associated with reduced earthworks and re-use of the existing pavement on the remaining 58% would be offset by:
  - increased property costs;
  - the need for an extensive network of parallel access roads; and
  - the construction cost premium and traffic disruption associated with online construction on a route that must be kept open throughout the construction phase.

One advantage of the online option would be that this could be delivered on a phased basis, allowing greater flexibility in the allocation of the capital funding commitment. However, it would still be essential that the full length is delivered,

including the controversial sections through the Rathcroghan archaeological complex and around the Tulsk Medieval borough, to achieve the project objectives and realise the full potential of the benefits. Investment in other sections would be wasted if it simply focussed traffic on these highly constrained and particularly poor sections of road.

### 3.11.2 Safety

While the offline sections can be designed to the same safety standards as an entirely offline solution, the online improvement requires the provision of a large number of junctions, property accesses and field accesses. With careful design and the introduction of parallel access roads, it will be possible to reduce the number (74) of existing local road junctions, reduce property accesses (210) by approximately 75% and eliminate from the proposed N5 a large proportion of the 262 direct field accesses. Wherever possible these access roads would be connected to the local road network, but it is anticipated that a significant number would have to be reconnected to the N5. Reductions in the number of local road junctions by joining local roads together would be considerably outweighed by the need for approximately 30 new access road junctions and there would still also be approximately 50 direct property accesses that would be connected directly onto the N5.

The online option would require approximately four times the number of junctions of the proposed offline alternative. Given that the proposed upgrade is intended to increase the Level of Service (LOS) from LOS F currently experienced to a minimum of LOS D, this will result in an overall increase in vehicle speeds on the route. This increase in vehicle speeds in conjunction with the significant number of junctions and accesses retained as part of the online option has the potential to significantly reduce the safety benefits that would otherwise be realised in a fully offline option.

### 3.11.3 Ability to Meet the Project Objectives

#### 3.11.3.1 Economy

The economic objectives of reduced journey time and journey time reliability to support the wider economic development of counties Mayo, Roscommon and the linked hub of Castlebar-Ballina would be equally well served by any option that provides a continuous high quality road without increasing the overall route length. In terms of benefit to cost ratio the online option with local bypasses has a marginal benefit in that it would better serve local traffic between the settlements of Frenchpark, Bellanagare, Tulsk and Strokestown. However this is offset by the increased costs of the online option due to the additional 2.5km of construction and the additional temporary traffic management when compared to the fully offline proposed road development.

#### 3.11.3.2 Safety

The safety objectives of reducing collision rates and severity and improving safety for pedestrians and cyclists in support of the RSA Road Safety Strategy 2013-2020 would be achieved by any option that provides a continuous Type 1 Single carriageway designed to current standards. However, TII/NRA DMRB DN-GEO-03043 paragraph 2.7 states that *“the overriding principle is that direct access onto national roads should be avoided as far as practicable”* and *“where an existing national road is to be improved online, there are likely to be existing direct accesses. Where possible these should be relocated on another road or to a better location onto the national road”*.



The proposed road development has the additional safety benefit of eliminating all but one direct access and reducing the numbers of junctions on the high speed national primary road to a minimum. An online option with local bypasses would require approximately four times as many direct access and junctions.

### 3.11.3.3 Environment

The environmental objectives of improvements within the settlements of Frenchpark, Bellanagare, Tulsk and Strokestown and avoiding impacts on the ecologically important European sites would be achieved by either the fully offline proposed road development or an online option with local bypasses. However, the objective to minimise impact on the Candidate UNESCO World Heritage Site of the Rathcroghan Archaeological complex could not be achieved by an online improvement of the existing N5, which passes through the middle of the RMP. During the original route selection studies Professor John Waddell of NUIG Department of Archaeology stated *"Rathcroghan, 'the Tara of the West', as William Wilde once called it over a century ago, is a very sensitive archaeological landscape and I believe the online option on the present N5 is best avoided"*.

In 2015 the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs (DAHRRGA), previously the DAHG, National Monuments Services expressed the view that any *"online upgrade of the existing N5 would impact negatively upon the important archaeological remains at the Rathcroghan complex, a candidate World Heritage Site, and is therefore undesirable and should be avoided"*.

When the current studies commenced, the design team re-engaged with National Monuments Service. In January 2015 it stated *"The National Monuments Service has, throughout this on-going consultation process, been of the view that any online upgrade of the existing N5 that would impact negatively upon the important archaeological remains at the Rathcroghan complex, a candidate World Heritage Site, and is therefore undesirable and should be avoided. Our objections to the on-line option have been outlined previously and our position remains unchanged, as was reiterated at our meeting on 9<sup>th</sup> October 2014"*.

The potential online option was updated, to reflect current standards and policies, as described in Sections 3.10.1 to 3.10.9 and drawings indicating the potential alignment and land requirement were provided to the National Monuments Service of the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, for its consideration. The Department responded in November 2016 stating that:

*"the National Monuments Service (NMS) has provided views on this project on a number of occasions over a lengthy period. While there have been staff changes in NMS, it should be noted that all such views were provided as official positions of the National Monuments Service. At all times NMS has been part of the Department charged with advising, and acting on behalf of, the Minister with responsibility for heritage.*

*In any event, having further reviewed the matter, the National Monuments Service notes as follows:*

1. *The archaeological complex at Rathcroghan is one of major importance. Not only does it contain a number of national monuments... but the complex is part of a candidate World Heritage Site "The Royal Sites of Ireland" which the State is working towards proposing formally for inclusion in the World Heritage List... This demonstrates that NMS views the Rathcroghan complex as not only being of major national importance, but also being of a high degree of international importance... Any proposed "on-line upgrade" of the existing road which*

*passes through the Rathcroghan complex would have a direct, negative impact on the setting of this candidate World heritage Site as well as the various national monuments within it... Any development which could be seen as detracting from the outstanding universal value of the candidate World Heritage Site could put its progressions towards World Heritage Site status in jeopardy.*

2. *The negative impact of an “on-line upgrade” on national monuments of which the minister is owner or guardian would include detracting from the visitor experience of those national monuments. The widened road would impinge more closely on the national monuments and persons standing on these monuments are likely to be more aware of the road through its increased proximity and increased noise from increased traffic flow and/or increased speed of vehicles. Conversely, providing an alternative route away from the existing road line will remove traffic from the Rathcroghan complex so improving visitor experience through reduced noise and traffic flow, the latter also being likely to make it easier for visitors to park cars and access the monuments from the road safely and in maximum comfort.*
3. *There are likely to be significant sub-surface archaeological features in the immediate vicinity of the known monuments forming the Rathcroghan complex. Ongoing surveys and research are revealing a highly complex archaeological landscape and there are likely to be as yet unidentified monuments that could be of such significance as to be themselves national monuments...*

*Having regard to all of the above, the National Monuments Service would recommend strongly against any pursuit of an “on-line upgrade” of the existing road.”*

In addition to the potential impacts on Rathcroghan, a local bypass of Tulsk would impact on the notification area of the cluster of RMP's at Ardkeenagh, opposite Corbally Lough and passes through the 800m archaeological constraints area around Tulsk Medieval Borough as established in consultation with Discovery Programme.



**Plate 3.13 Existing N5 with Archaeological Site of Rathmore with Rathcroghan in Close Proximity**

### **3.11.3.4 Accessibility and Social Inclusion**

The accessibility and social inclusion objectives to improve access to key facilities, support investment and employment in County Roscommon and the Western Region and reduce severance on vulnerable groups, all in support of national, regional and local planning policy would be equally served by both the fully offline proposed road development or an online option with local bypasses.

### **3.11.3.5 Integration**

The integration objectives to support the integration objectives set out in European, National, Regional and Local planning policy, support initiatives to bring investment into the West Region and support transport integration within the wider region, maximising the benefits of previous investment in the N5 corridor and improving access to Ireland West Airport Knock would be equally served by both the fully offline proposed road development or an online option with local bypasses. However the objective to meet the requirements of the EU Regulations relating to the TEN-T network of a high quality road “specially designed for and built for motor traffic” with an emphasis on “long distance freight and passenger traffic” is much better served by the fully offline proposed road development than by an online option with local bypasses which will retain approximately 50 direct property accesses and another 100 local road and access road junctions.

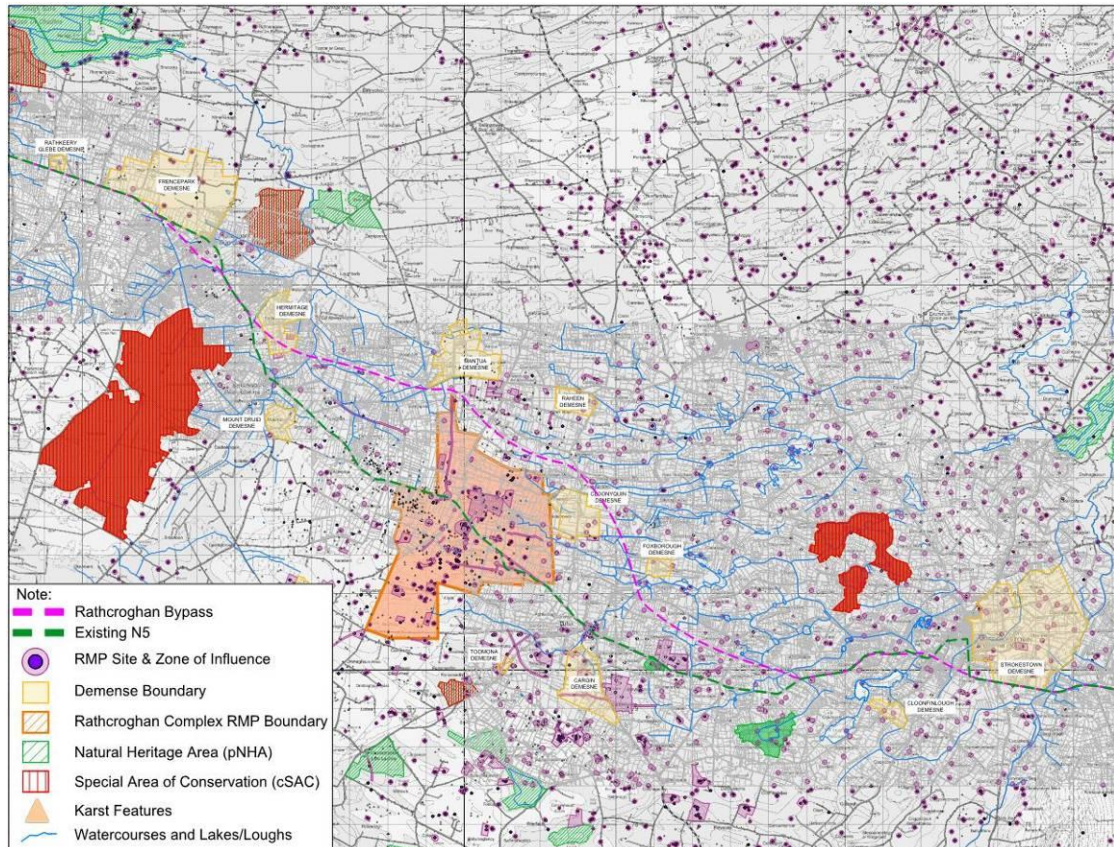
### **3.11.3.6 Conclusion**

This updated assessment of the potential to provide an online upgrade of the existing N5 supports the conclusion of the original Route Selection process that led to the identification of Corridor 1A, an offline option, as the preferred route corridor for the following reasons:

- The DAHRRGA's NMS remains of the opinion that any option which sought to follow the existing road, entailing the on-line widening of sections of the existing roadway coupled with localised road realignments to remove particularly sub-standard bends is not acceptable due to the significant negative archaeological impacts such a proposal would generate. This position was recently further strengthened because the Rathcroghan landscape is now included on the UNESCO World Heritage Tentative list as part of The Royal Sites of Ireland: Cashel, Dún Ailinne, Hill of Uisneach, Rathcroghan Complex, and Tara Complex.
- An online option would require at least 200 junction/accesses leading to a significant reduction in the safety benefits that could be achieved with an offline option with less than a sixth the number of junctions/accesses.
- Impacts on residential and commercial property would be much greater for the online upgrade option than for the preferred route offline option.
- An online option would not meet the requirements of the TEN-T network and therefore would not meet a key project objective.
- There would be significant permanent diversions for land and property owners along the online option due to the requirement for link roads to minimise the number of accesses. In addition, there would be significant temporary disruption during the construction phase due to traffic management requirements for the construction phase.

In an effort to address the difficulties associated with the above online option while maximising the re-use of existing infrastructure, a further option was considered comprising local bypasses of Frenchpark and Strokestown and an offline bypass of the Rathcroghan RMP extending from west of Bellanagare to East of Tulsk. A

preliminary assessment of this arrangement shows that it would incorporate just 9km approx. of an online upgrade of the existing N5 corridor (which represents approx. 25% of the route length), as illustrated in Plate 3.14 and Figure 3.4 in Volume 3. Such a route would pass within 200m of the RMP boundary of Rathcroghan at its closest point and would be clearly visible from the Candidate UNESCO World Heritage site. Given this impact and the reality that only 25% of the existing N5 could potentially be improved online (notwithstanding the significant property impacts and the safety concerns regarding the numbers of direct access and local junctions on these sections), this option was considered undesirable and the route corridor selection study sought to identify the best fully offline option.



**Plate 3.14 Online Option with Bypasses of Frenchpark, Bellanagare, Rathcroghan RMP, Tusk and Strokestown**

### 3.12 Development of the Preferred Route Alignment

Following confirmation of the Preferred Route Corridor, ROD-AECOM undertook additional targeted studies and surveys of the selected corridor in accordance with current guidelines and best practice. The objective of this next stage of work was to identify any potential local constraints within or adjacent to the preferred route corridor to be taken into consideration when developing the specific route alignment. The studies and surveys included:

- Design team assessment of the existing road infrastructure and traffic flows on the national, regional and local roads to determine the optimal side road arrangements and junction types. The corridor selection had included provision for the option of grade separation at all junctions and local road crossings. Closer consideration of the traffic flows relative to current design standards and the more constrained economic environment required consideration of at-grade junctions. This introduced both additional level constraints to tie into the local

road network and opportunities to improve the alignment where the reduced landtake of an at-grade arrangement permitted previously identified constraints to be avoided;

- Ecological walkover surveys were undertaken to identify areas of ecological importance, which ideally should be avoided by the route alignment. This included protected species surveys, including otter surveys at proposed watercourse crossings and dedicated Marsh Fritillary Larval web surveys;
- Archaeological and Cultural Heritage desktop studies and walkover surveys to clarify the extents and significance of sites and areas of archaeological potential were undertaken;
- Geotechnical walk over surveys and assessments of areas of soft ground and karst features, such as swallow holes, supplemented with data from GSI;
- Landscape and Visual surveys of the corridor and emerging route alignment to determine the potential impacts on properties and the wider landscape;
- Hydrology and Hydrogeological assessment of the proposed road development, including assessment of the watercourses and review of the karst features (swallow holes) within and connected with the corridor; and
- Agronomy assessment of the farm holdings and operations to determine the severance impacts on farms and propose accommodation works solutions to minimise those impacts.

Following a review of these corridor studies and surveys, an initial route alignment was developed, generally within the preferred route corridor. In addition to all of the usual design requirements in terms of safety, compliance with standards, establishing adequate drainage arrangements, seeking to achieve an earthworks balance etc., the key issues that informed the selection of this alignment were as described in the following sub-sections.

### **3.12.1 Section A – Ballaghaderreen Bypass to R361 (Frenchpark Roundabout)**

This section is 4.7km long and connects the N5 Ballaghaderreen Bypass at Rathkeery to a proposed roundabout south of Frenchpark at Corskeagh. The terrain is generally flat and the horizontal and vertical alignments were co-ordinated in order to closely follow the existing landform and thereby facilitate connections to the local road network.

The design adopted meets the design standard requirements for overtaking opportunities. Due to the low longitudinal gradients proposed to follow the existing landform, large horizontal radii have been adopted to avoid the need to provide carriageway superelevation, which would create flat areas that could potentially lead to aquaplaning and associated road safety issues.

The reduced landtake associated with an at-grade solution facilitated the identification of a route south of the existing N5, eliminating the need to cross the existing N5. This alignment diverts slightly south of the preferred route corridor between Ch. 2+300 and Ch. 3+000.

The alignment to the south of the existing N5 provides the shortest route, whilst also reducing severance to landholdings and consequently the number of direct accesses from the proposed N5 that would be required to facilitate landowner access. The design standards seek to improve the safety of the national primary road network through limiting the number of junctions and direct accesses onto the national road, as 50% of all collisions involving injury or death occur at junctions or involve turning

movements either onto or off roads (Paragraph 4.2 TII/NRA DMRB DN-GEO-03043). Therefore, an alignment that minimises the number of direct accesses to the national road provides a greater improvement in terms of safety.

### **3.12.2 Section B – R361 (Frenchpark Roundabout) to N61 (North of Tulsk)**

This section is 14.2km long and connects the proposed roundabout south of Frenchpark at Corskeagh to a proposed roundabout on the N61 at Gortnacranagh. The development of the vertical alignment was primarily influenced by the need to provide adequate at-grade connections to the local road network whilst ensuring that the alignment maintained sufficient longitudinal gradient to adequately drain the carriageway. At either end of this section, the alignment generally follows the preferred route corridor. Over the central section between Ch. 14+500 and Ch. 20+500 the route alignment generally follows the southern boundary of the corridor. Only the section between Ch. 17+400 and Ch. 19+750 is routed outside of the preferred route corridor, where it is marginally to the south of the corridor to minimise the impact on cultural heritage features associated with the former Mantua Demesne, minimise landholding severance and to avoid direct impact on an identified karst feature.

### **3.12.3 Section C – N61 (North of Tulsk) to R368 (North West of Strokestown)**

This section is 10.6km long and connects the proposed roundabout on the N61 at Gortnacranagh with the proposed roundabout junction at Lavally, with a connection to a proposed roundabout on the R368 connecting to Strokestown. Between Ch. 30+500 and Ch. 32+000 the selected alignment follows the southern boundary of the preferred route corridor in order to avoid an area of floodplain underlain by deep deposits of soft ground, which is also identified as an area of local higher ecological interest.

Between Ch. 33+500 and Ch. 34+000, the alignment crossed local road L1409 in order to avoid an area identified as Annex I Fen. Despite using minimum horizontal radii from this point, the alignment is forced north of the cross roads in Lugboy and east of the preferred route corridor between Ch. 34+800 and Ch. 35+400. Between Ch. 37+100 and Ch. 38+000, to avoid a large area of seasonal flooding, the alignment is located east of the preferred route corridor. This pushes the alignment through high ground requiring deep cuttings and an undulating vertical alignment.

### **3.12.4 Section D – R368 (North West of Strokestown) to Existing N5 (at Scramoge)**

This section is 4km long and connects the proposed roundabout at Lavally to the tie-in with the existing N5 at Scramoge. The route travels on an almost straight alignment passing north east of Strokestown House and Golf Club before turning east to re-join the existing N5 at Scramoge.

### **3.12.5 Public Consultation No. 3 – Emerging Route Alignment**

Following the above studies, the emerging route alignment was placed on public display and comment sought during Public Consultation No.3 (PC3) held on the 4<sup>th</sup> March 2015 in the Percy French Hotel, Strokestown and on the 5<sup>th</sup> March 2015 in Bellanagare Health and Leisure Centre, Co. Roscommon (see Figure 3.5 in Volume 3).

The objectives of this consultation were to:

- Inform the public of the reactivation of the project;
- Present the emerging Route Alignment to the public;

- Further inform the public of the process involved and the outline programme for the project;
- Invite submissions;
- Gather local information including land ownership patterns in the area;
- Address queries raised by the public; and
- Review and consider all information received.

A publicity campaign was undertaken by Roscommon County Council prior to the consultation. The display information for the proposed road development during PC3 consisted of the following:

- The Emerging Route Alignment indicated on aerial photography background mapping;
- OSi Discovery Series Mapping showing the earlier Preferred Route Corridor Plans, the emerging Route Alignment and known landownership Information for comment

Both public consultations recorded a large attendance of over 500 people predominately from the local community. Information regarding landownership was obtained to inform the development of local access routes (see Plate 3.15).



**Plate 3.15** Photos from PC3 in Strokestown (March 2015)

Those wishing to make a written submission were advised that same would be considered and the design team requested that written submissions should ideally be issued with a 4-week period following the consultation (i.e. on or before 3<sup>rd</sup> April 2015).

### 3.12.6 PC3 – Responses

Following the public consultation on the emerging Route Alignment held in March 2015, a number of submissions were made to Roscommon County Council. The main points raised at the consultation event and in subsequent written submissions and individual landowner meetings are summarised below -

- The route severs landholdings at the proposed tie in to the existing N5 at the west end. The Design team was requested to reconsider alternative options on-line and north of the existing N5 at this location;
- Agricultural access difficulties caused by the proposed severance of local road LS-5632 at the western tie-in of the existing N5;
- Access requirements to Leggatinty Bog;

- Requests to move the alignment south at Leggatinty to reduce the impact on better quality agricultural lands;
- Concern that the existing junction between local roads LT-56411 & LS-5641 at Ballaghcullia is not suitable to accommodate the proposed diverted traffic;
- A walking route at Bellanagare along the local roads LS-5640 and LS-5641 is being severed by the proposed road development;
- Impact of the proposed severance of local road LS-5642 Peak road on the operation of a dairy farm;
- Impacts of the proposed LS-5601 local road arrangements at Mantua on adjoining properties and landholdings;
- Inadequate access to a site with planning permission for a driver training centre off local road LS-6131;
- Concerns regarding community severance resulting from the closure of local road LP-1218 at Mantua/Yambo Cross and the diversion lengths involved with the proposed junction arrangement. Request for consideration of an additional access point to reduce the diversion length;
- Request for the route to be moved north either side of local road LP-1412 at Killeen to reduce the severance on farms;
- Impact on a property on local road LP-1409 at Tullyloyd and associated severance of the farm holding;
- Concerns raised regarding the severance of a landholding in Lugboy split by both the proposed N5 and the proposed regional road R368 connection to the new N5;
- Access difficulties resulting from the proposed curtailment of local road LT-60312 Cregga Lane;
- Long diversion routes at Lettreen resulting from the proposed severance of local road LT-60443;
- Pedestrian and cycling access into Strokestown along local road LP-1405 at Lavally and the need to improve this, especially through the proposed roundabout; and
- Access difficulties resulting from local road LS-6144 at Scramoge being closed and the poor standard of the alternative route.

Where possible, amended proposals were developed to address the issues raised, and directly affected land and property owners were subsequently invited to meet with the design team at a series of scheduled appointments on 19<sup>th</sup> May 2015 in order to explain the proposals and seek further feedback to inform the further development of the design.

### **3.13 Preferred Route Alignment to Peer Review**

Following PC3 further amendments to the emerging route alignment were incorporated into the design prior to its submission for Peer Review. These changes were made in response to submissions made during and after the public consultation, further design refinement, ongoing consultation with statutory and non-statutory bodies and information arising from additional surveys and assessments as detailed below:

- LiDAR archaeological survey;
- Geophysical Archaeological Survey;



- Archaeological Test Trenching;
- Targeted Ground Investigation Survey;
- Detailed Botanical Surveys & further ecological surveys;
- Water Sampling;
- Dye Tracer Testing;
- Watercourse Topographical survey; and
- Other environmental surveys and assessments.

Details of the changes to the alignment following PC3 are detailed below as section specific changes:

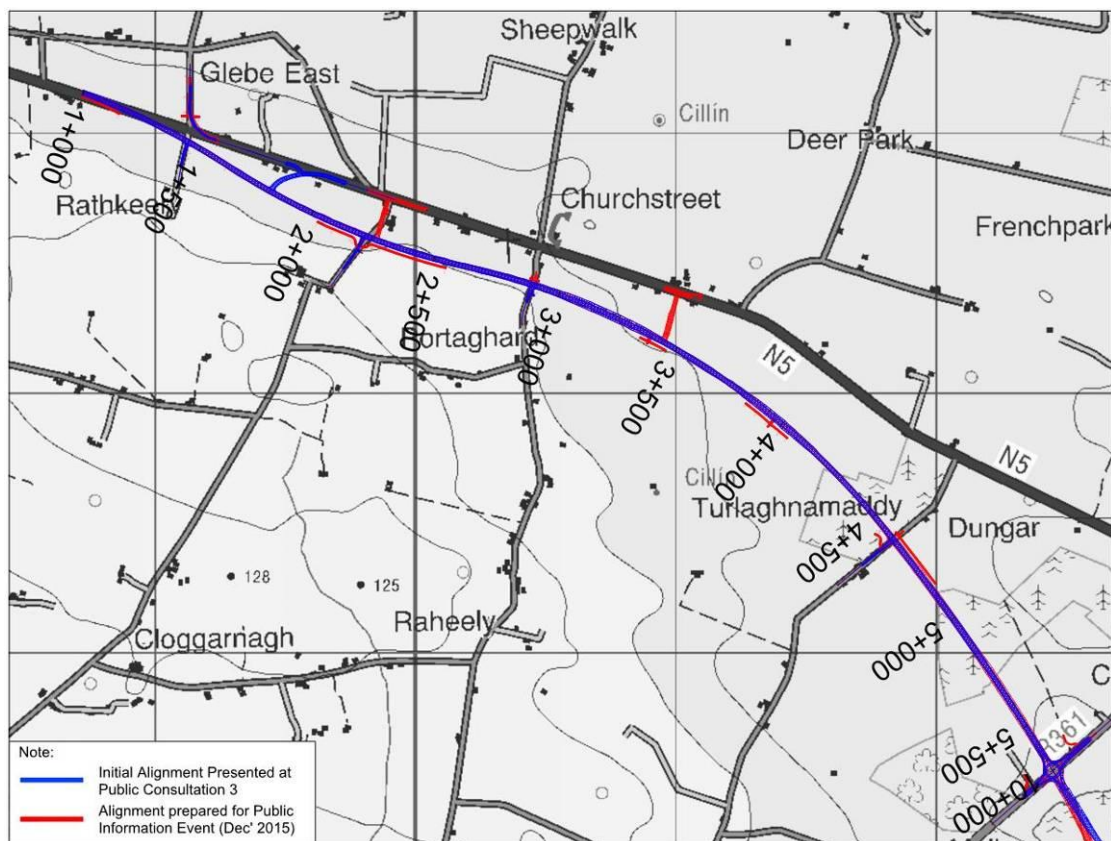


Plate 3.16 Alignment Development Section A

### 3.13.1 Section A

#### 3.13.1.1 Junctions 1 and 2

In response to comments at PC3 the initial Junction 1 which connected the existing N5 to the proposed N5 at Ch. 1+850 was relocated to Ch. 2+250 and combined with the initial Junction 2 to form a right-left staggered junction. This re-connected local road LS-6532 north and south of the proposed N5, providing the required connection to the existing N5, whilst reducing diversion lengths for local landowners and minimising the impact on the immediately surrounding landowners (see Plate 3.16).

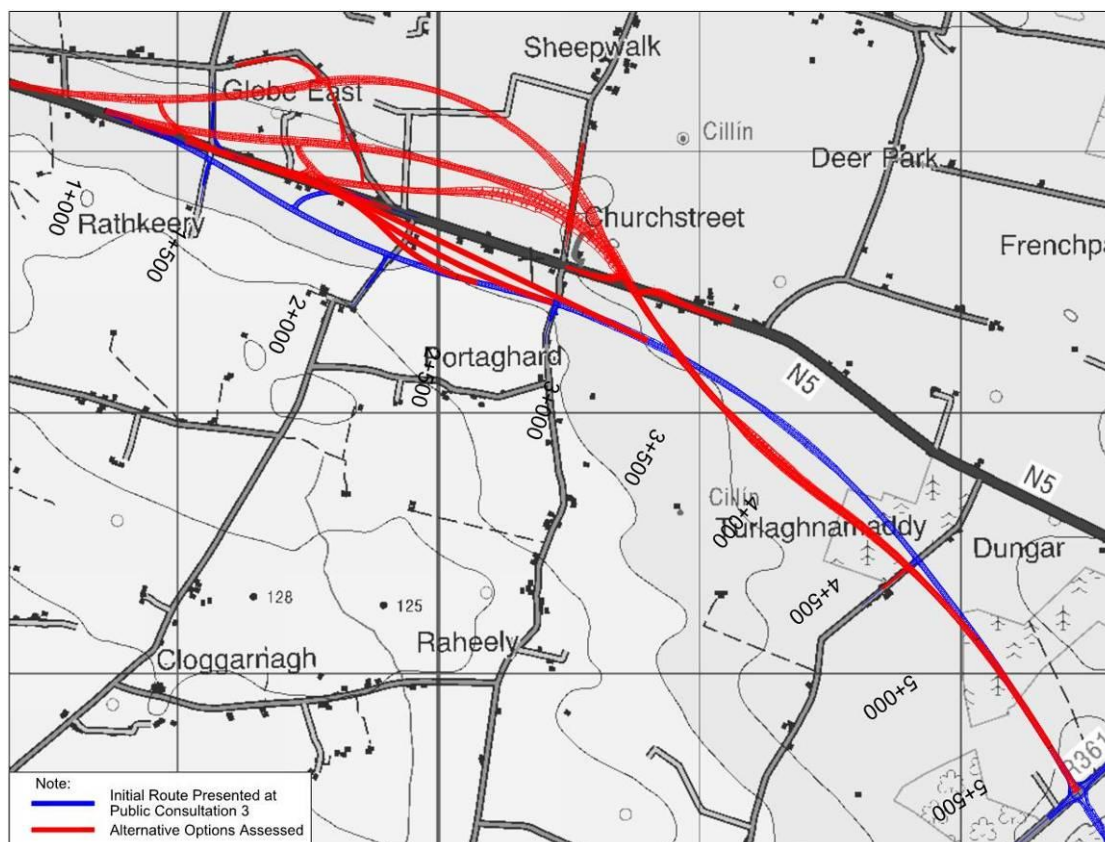
#### 3.13.1.2 Ch. 3+450 – Junction 3B

Provision of a new local road connection to the existing N5 from the proposed N5 at Ch. 3+450 to facilitate landowner accommodation access to surrounding lands via

grouped access points to minimise the number of direct access provisions on the proposed N5 (see Plate 3.16).

### 3.13.1.3 Ch. 4+250 – Ch. 5+600

Vertical alignment raised by 1m to accommodate drainage and facilitate an outfall following receipt of detailed topographical survey of the watercourses (see Plate 3.16).



**Plate 3.17 Alternative Options Assessed in Response to Submissions Made During PC3 for Section A**

Various alternative options involving remaining on the line of the existing N5 before heading south, or heading north of the existing N5 were developed in response to suggestions made at PC3 and subsequent landowner consultations, as illustrated in Plate 3.17. Each option was assessed under the Common Appraisal headings of Safety, Environment, Economy, Accessibility & Social Inclusion and Integration.

Under Safety, the options developed were assessed for alignment geometry, the number of junctions and number of direct accesses onto the proposed N5. The initial route option displayed at PC3 provided the desirable geometry, whilst minimising the number of direct accesses and was ranked equal first under the heading of safety.

The environmental appraisal of each option was carried out under the headings of impact on property, impact on commercial property, impact on lands, air quality, noise, archaeology, visual impact and ecology. The alignment presented at PC3 has the lowest archaeological impact and direct impact on commercial properties of all the options and also scored well in terms of air quality and noise. All options were assessed as being equal in terms of ecology. The initial alignment displayed at PC3, was ranked first under the heading of environment.

The economic assessment for each alignment option was assessed in terms of the benefit or dis-benefit that each option would provide. The northern options are all longer than the alignment displayed at PC3 and as such give an economic dis-benefit of €1.72m for every 100m of additional length over the 30 year appraisal period. This, in conjunction with the increase in construction cost meant that the northern options did not provide the same economic return as that for the southern options. The alignment displayed at PC3 was ranked equal first, together with the three alternative southern route options.

Under the headings of Accessibility and Social Inclusion and Integration, all options were ranked equally, as whilst all options impact on the surrounding communities, all options would provide connectivity to the local road network, minimising the community severance.

This assessment confirmed that the alignment displayed at PC3 is preferred under the headings of Safety, Environment and Economy and should continue to form the basis for the design (see Plate 3.17).

### 3.13.2 Section B

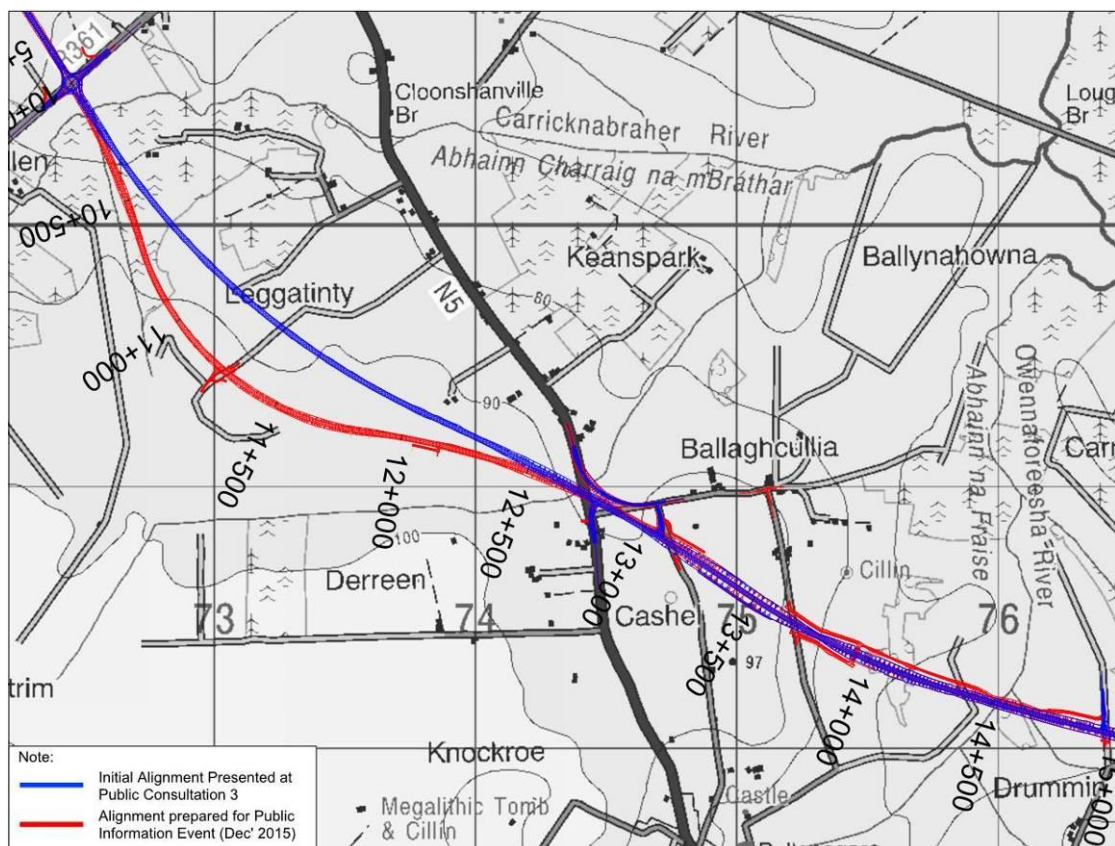


Plate 3.18 Alignment Development Section B – Ch. 10+000 to Ch. 15+000

#### 3.13.2.1 Ch. 10+000 – Ch.12+800

The horizontal alignment from the R361 roundabout at Ch. 10+000 to the crossing of the existing N5 in the townland of Leggatinty has been realigned southwards by a maximum of 265m to avoid a direct impact on Annex 1 habitat identified during detailed botanical surveys. As a result, the section between Ch. 11+000 and Ch. 11+300 comes slightly south of the preferred route corridor.

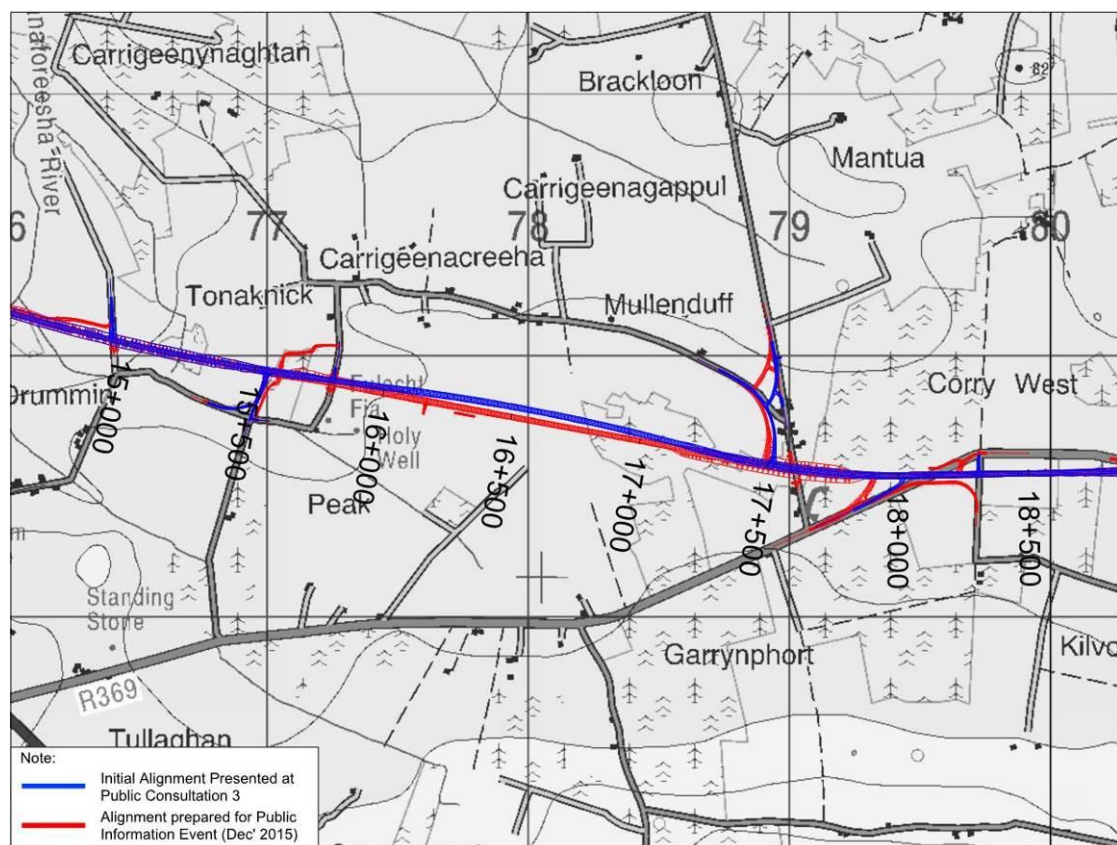
The revised alignment also responds to numerous landowner requests that were submitted during the public consultation to move the alignment south at this location closer to the poor ground further south and move further from farms, properties and the higher quality land. A new connection onto the unclassified Leggatinty Bog Road (at Ch. 11+260) was introduced to address concerns regarding access to Leggatinty bog (see Plate 3.18).

**3.13.2.2 Ch. 13+400 – Junction LS5640 & LS5641**

The existing junction between local roads LT-56411 & LS-5641 at Ballaghcullia was upgraded to accommodate HGV traffic following submissions by members of the public at Public Consultation 3 (see Plate 3.18).

**3.13.2.3 Ch. 13+950 – Shared Accommodation Works Underpass**

A shared underpass is now proposed to allow access to severed lands north of proposed N5 and provide access to Drummin Bog Road. During the Public Consultation a number of representations were made regarding the Bellanagare walking route which is being impacted by the proposed road development. The proposed underpass has been widened to accommodate a segregated footway/cycleway in order to reduce severance of the existing walking route (see Plate 3.18).



**Plate 3.19 Alignment Development Section B – Ch. 15+000 to Ch. 19+000**

**3.13.2.4 Ch. 14+950 – Drummin Access**

The direct access onto the proposed N5 at Drummin has been eliminated following requests from landowners. Drummin access is a cul-de-sac leading to Drummin bog, with concerns raised about vehicles entering/exiting the proposed N5 when loaded with peat.

The access track running parallel to the N5 from the shared underpass at Ch. 13+950 has been extended to provide access to the severed section of Drummin Bog road (see Plate 3.19).

#### **3.13.2.5 Ch. 15+600 to Ch. 17+500**

The horizontal alignment was amended to eliminate a reverse curve in the alignment and move the alignment further from properties and closer to the boundaries of landholdings, thereby minimising severance (see Plate 3.19).

#### **3.13.2.6 Ch. 15+600 Accommodation Works Underpass**

Provision of a farm underpass to address severance of a dairy farm and accommodate a segregated pedestrian crossing of the proposed N5 (see Plate 3.19).

#### **3.13.2.7 Ch. 17+500 LS-5601 Realignment**

Realigned local road LS-5601 at Mullenduff moved 25m west to provide greater separation to property and to run on the boundary of recently planted forestry. The connection from realigned LS-5601 to the existing LS-5601 moved 50m north following a change to the realigned LS-5601 to minimise impacts on landowners and to follow existing field boundaries (see Plate 3.19).

#### **3.13.2.8 Ch. 17+900 R369 Realignment**

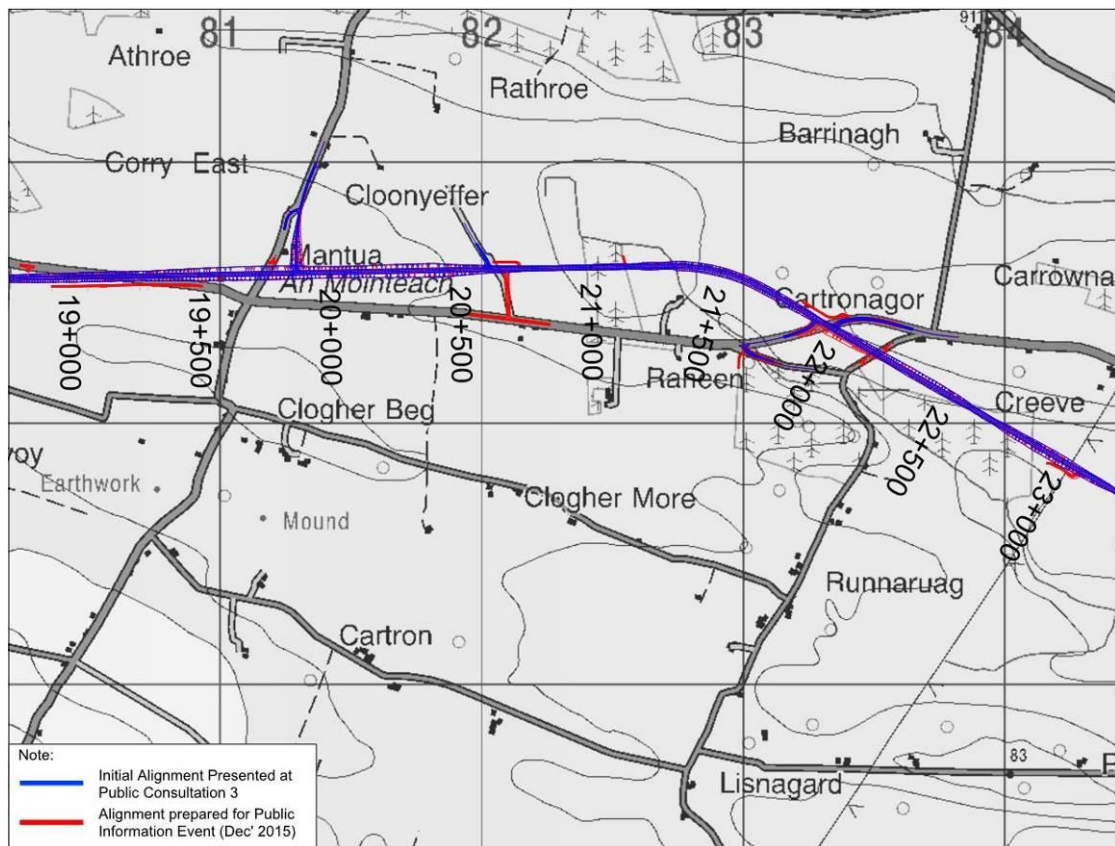
Regional road R369 alignment adjusted to minimise the skew angle of the junction at the connection with the proposed N5 alignment (see Plate 3.19).

#### **3.13.2.9 Ch. 18+300 LS6131 Realignment**

Local road LS-6131 was initially proposed to be severed as part of the works. Local road LS-6131 has now been realigned to connect to Regional road R369 to maintain access (see Plate 3.19).

#### **3.13.2.10 Ch. 18+300 Junction Arrangement and Access**

Access to the severed section of R369 Regional road has been realigned off the line of local road LS-6131 to avoid potential archaeological impacts (see Plate 3.19).



**Plate 3.20 Alignment Development Section B – Ch. 19+000 to Ch. 23+000**

**3.13.2.11 Ch. 19+900 LP-1218 Realignment**

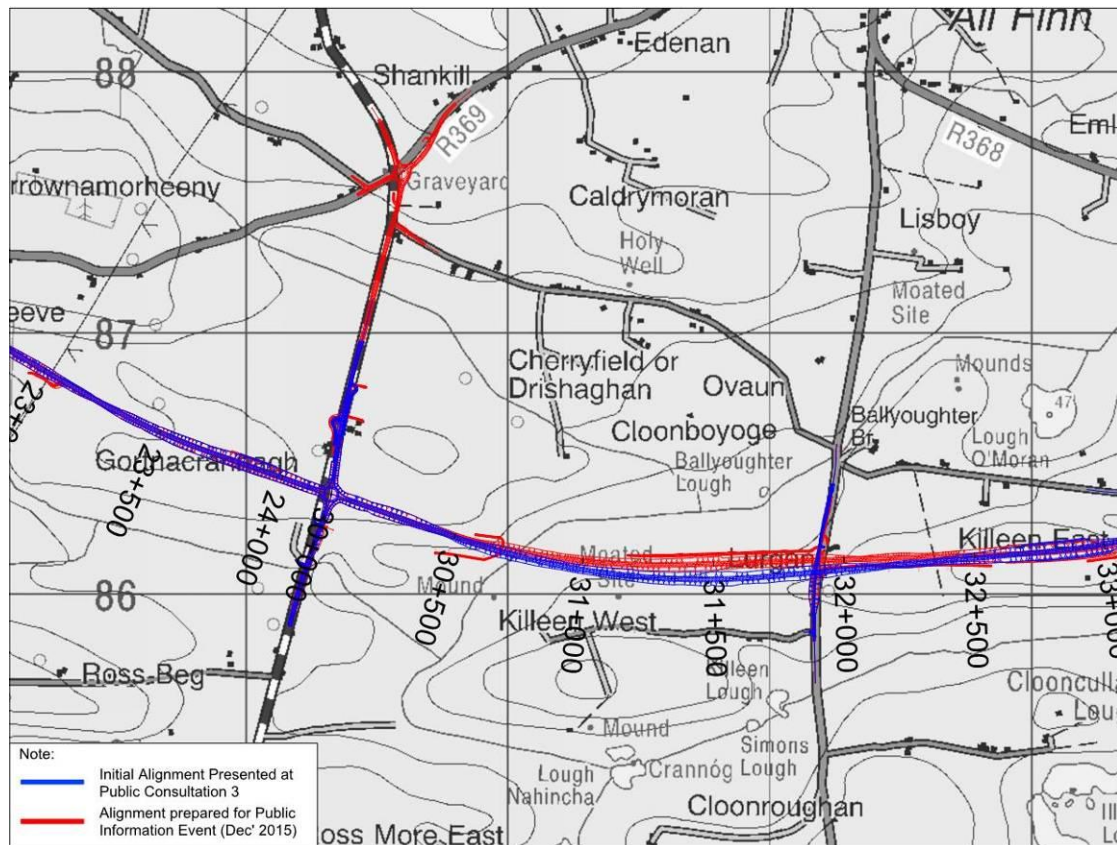
Local road LP-1218 moved 20m east to minimise the impact on adjacent property and to minimise land severance (see Plate 3.20).

**3.13.2.12 Ch. 20+700 LT-60232 Link**

Following the Public Consultation, a number of representations were made by elected representatives and members of the public that the connection to the proposed N5 at Ch. 21+900 represented a significant detour for the local community located at Yambo Cross who wanted to travel either north or west.

A new link road from the R369 regional road to the proposed N5 was incorporated in the design on the line of local road LT-60232 running along the landholding boundaries of two adjacent landowners to reduce the detour length (see Plate 3.20).

### 3.13.3 Section C



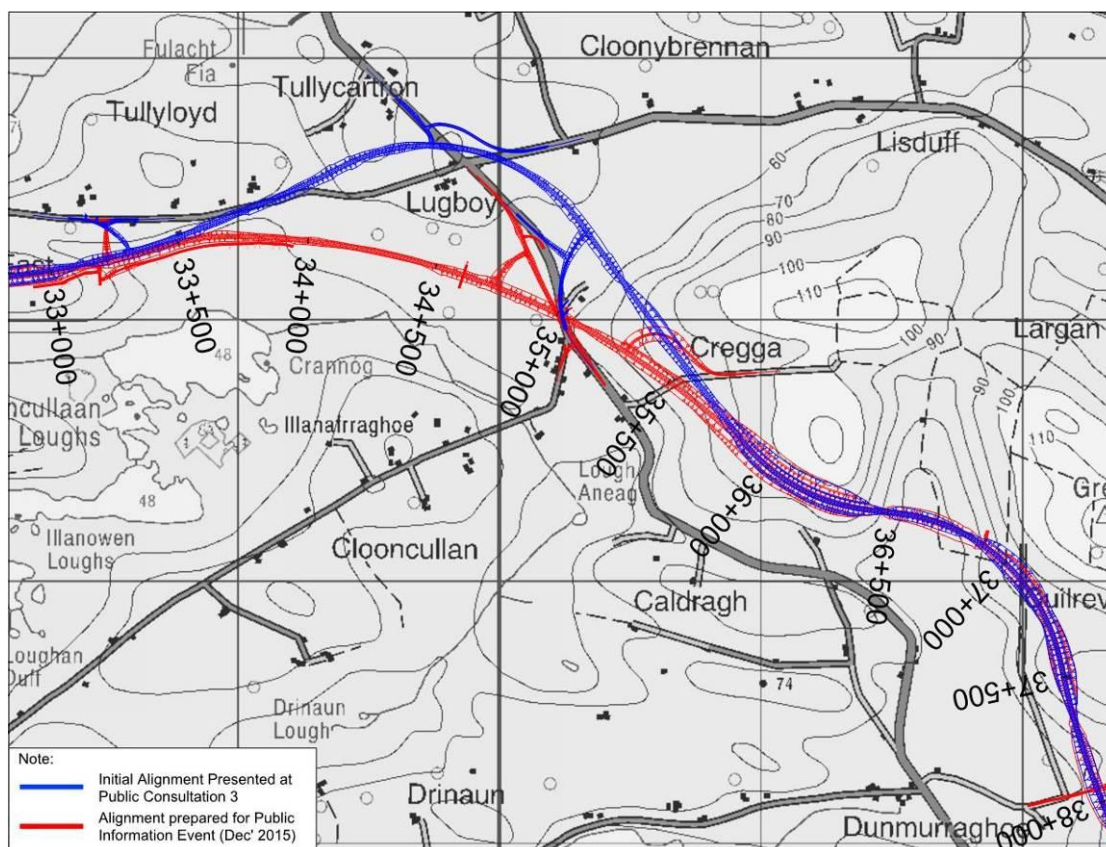
**Plate 3.21 Alignment Development Section C – Ch. 30+000 to Ch. 33+000**

#### 3.13.3.1 Ch. 30+000

The traffic modelling of the proposed road development detailed in Chapter 5 predicts that the upgrading and realignment of the proposed N5 is likely to result in increased traffic utilising the N5 and national secondary road N61 to access Boyle. The N61 passes through a particularly deficient junction, an accident blackspot, at Shankill located 1.2km north of the proposed N5/N61 roundabout. It is proposed to improve this junction as part of the proposed road development in the interests of road safety. Following extensive study of alternative measures to improve the junction, it was concluded that the most appropriate solution is to provide a new roundabout at this location. The proposed roundabout requires the realignment of the N61 and regional road R369 approaches. It is proposed to upgrade the vertical alignment and cross section of the section of N61 between the proposed roundabouts to provide continuous verges and an alignment that meets current standards (see Plate 3.21).

#### 3.13.3.2 Ch. 30+500 to Ch. 32+800

The horizontal alignment has been moved north by up to 60m following representations made by landowners requesting that the route be moved to the north of their farm sheds and onto their poorer quality lands. Following consideration of all of the constraints it was concluded that the route could not be moved north of the farm sheds without compromising the horizontal alignment and moving the road into a large area identified as being prone to flooding. This flood susceptible area is also identified as an ecological area of local importance (higher value) and is underlain by deep peat and alluvium rendering it significantly less desirable than a route to the south (see Plate 3.21).



**Plate 3.22 Alignment Development Section C – Ch. 33+000 to Ch. 38+000**

### 3.13.3.3 Ch. 33+500 to Ch. 37+000

The horizontal alignment presented at Public Consultation 3 was developed to avoid an area of potential Annex 1 habitat identified in initial ecological assessments adjacent to Clooncullaan Lough at Ch. 33+700. This constraint, in conjunction with other archaeological and environmental constraints dictated the alignment to pass north of the R368/LP-1410/LP-1409 cross-roads at Lugboy. Subsequent detailed botanical surveys have identified the precise boundary of the Annex I habitat permitting greater scope to site the horizontal alignment within the preferred route corridor.

In addition, Roger Goodwillie, a National expert in turloughs, was engaged to undertake a survey and assessment of an area of seasonal flooding in the townland of Cregga, which displayed the characteristics of a potential Turlough. The survey resulted in the identification of the Cregga Turlough as being a good example of the Annex I Priority Habitat – Turlough (3180) which is rated as being of National importance. The Turlough is hydraulically connected to Annaghmore Lough, which is designated as a Special Area of Conservation (SAC).

The alignment presented at Public Consultation 3 provided for the discharge of the road surface water drainage to the area of seasonal flooding at Cregga at three locations by means of infiltration to groundwater. The subsequent classification of this as an Annex I Priority Habitat meant that this was no longer considered appropriate and the design was adjusted.

The revised design moves the alignment approximately 400m south and west of the PC3 alignment, passing to the north and east of the area identified as Annex I habitat at Clooncullaan Lough (see Plate 3.22). The alignment curves to connect to the



previous alignment to the north and east of the Turlough at Cregga. The change in the horizontal alignment has allowed an alternative vertical alignment to be developed, which does not require discharging carriageway drainage to the Turlough. The amended alignment for the proposed N5 also facilitates improvement of the R368 regional road in the vicinity of the crossing, providing in particular for improvements in the horizontal and vertical alignment of the regional road and the provision of appropriate sightlines.

### 3.13.3.4 Ch. 35+500 Cregga Lane

In response to access requirements off Cregga Lane raised at PC3, Cregga Lane was connected to the proposed N5 to provide access to otherwise severed lands (see Plate 3.22).

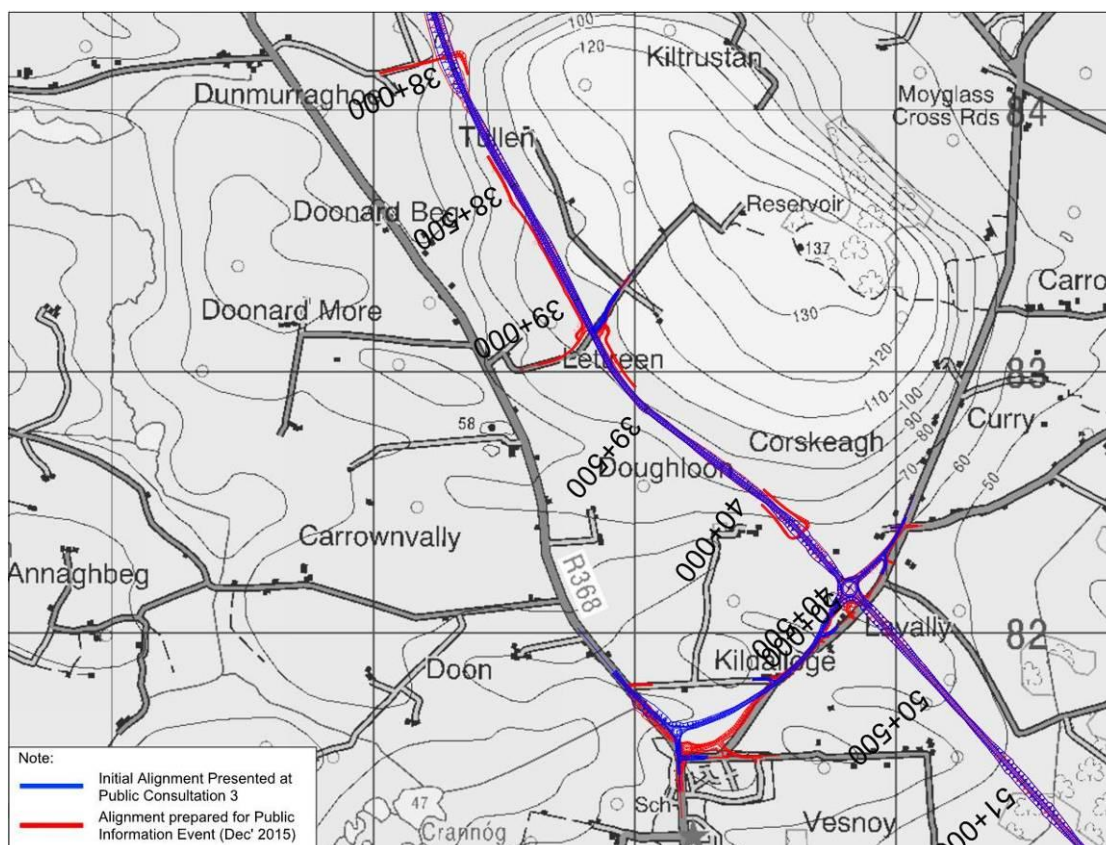


Plate 3.23 Alignment Development Section C – Ch. 38+000 to Ch. 41+000

### 3.13.3.5 Ch. 38+900 to Ch. 39+400

The vertical crest curve has been increased to ensure that sight distance on the approach to the Lettreen junction is maintained, which reduces the depth of the cutting to the north by approximately 1m (see Plate 3.23).

### 3.13.3.6 Ch. 39+100 Lettreen Junction

The junction of the northern connection to local road LT-60443 moved 25m south to facilitate the provision of a connection of the southern section of local road LT-60443 while achieving a 50m stagger distance between the arms as required in Standard TII/NRA DN-GEO-03043. This southern connection of local road LT-60443 is being provided in response to a number of submissions from the public, highlighting that its closure would lead to an excessive detour (see Plate 3.23).

### 3.13.3.7 Ch. 40+500 LP-1405 – Strokestown Link

Following submissions from landowners north of Strokestown, the roundabout at the junction of the regional road R368 and local road LP-1405 was repositioned closer to Strokestown to minimise the impact on landowners. The link road was re-designed to maximise the use of the existing road as much as possible and minimise the impact on properties (see Plate 3.23).

### 3.13.4 Section D

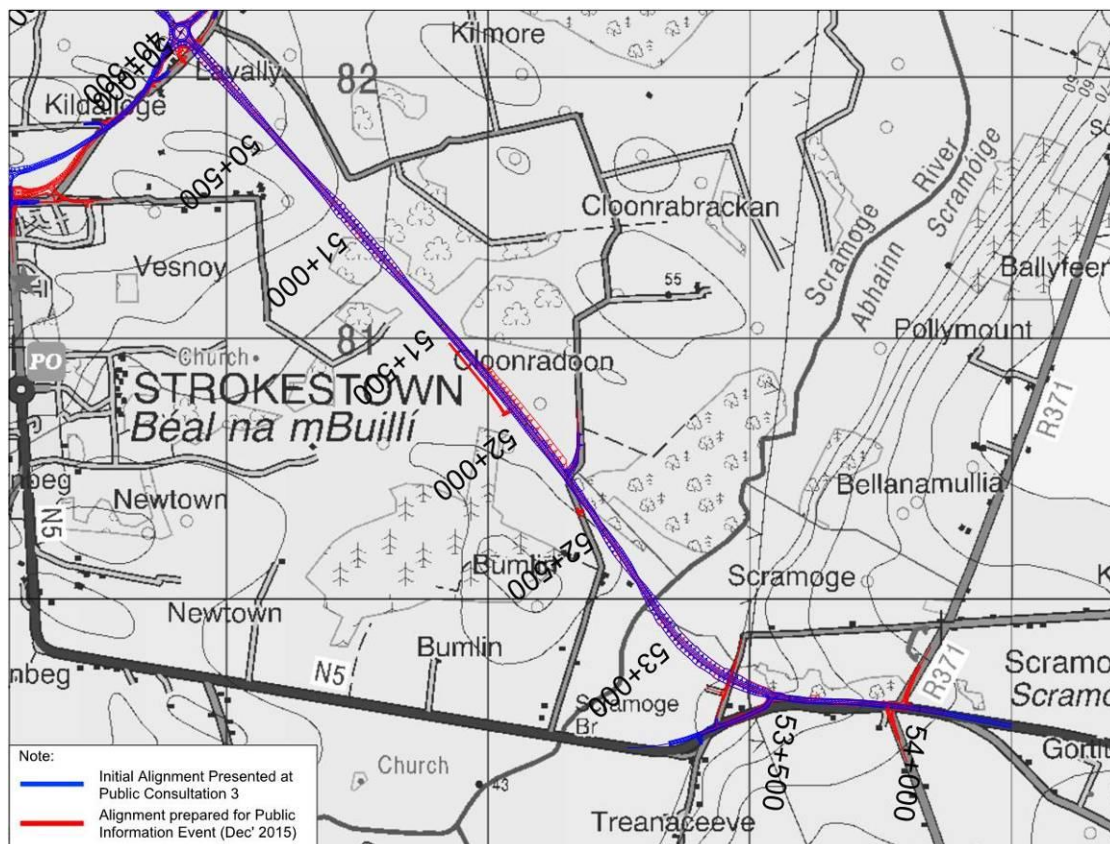


Plate 3.24 Alignment Development Section D – Ch. 50+000 to Ch. 53+900

#### 3.13.4.1 Ch. 53+250 LS-6144

Local road LS-6144, at Ch. 53+250, was initially proposed to be severed (PC3) (see Plate 3.24). During the public consultation a number of submissions were made that this road should remain open, as the alternative route was sub-standard and of insufficient width to accommodate machinery and other large vehicles that would otherwise use this route.

Options to upgrade the existing road were examined, however the junction between local road LS-6144 and the regional road R371 is considerably below standard and would have to be upgraded as part of these works. Scramoge church and graveyard are located in the north west corner of the junction, and their associated walls, in conjunction with sub-standard horizontal and vertical alignment of the R371 limit visibility. This in addition to the properties located on the R371 meant that extensive works would be required to bring the junction to an acceptable standard. It would not be possible to achieve TII/NRA DMRB standards for a left-right staggered junction without widening the R371 to provide right turning lanes, resulting in landtake from the gardens of three properties and setting back the wall of Scramoge Church and graveyard to allow for visibility from the junction. Due to the impacts on the church, graveyard and properties together with negative impacts on the community and

commercial activity this option was rejected and instead an underbridge is proposed to maintain access along the existing local road LS-6144.

#### **3.13.4.2 Ch. 53+900 R371**

The staggered junction of the R371 and existing N5 has been the location of a number of accidents. The northern arm of the regional road R371 has been realigned and moved 20m east to increase the stagger distance between the two arms of the R371.

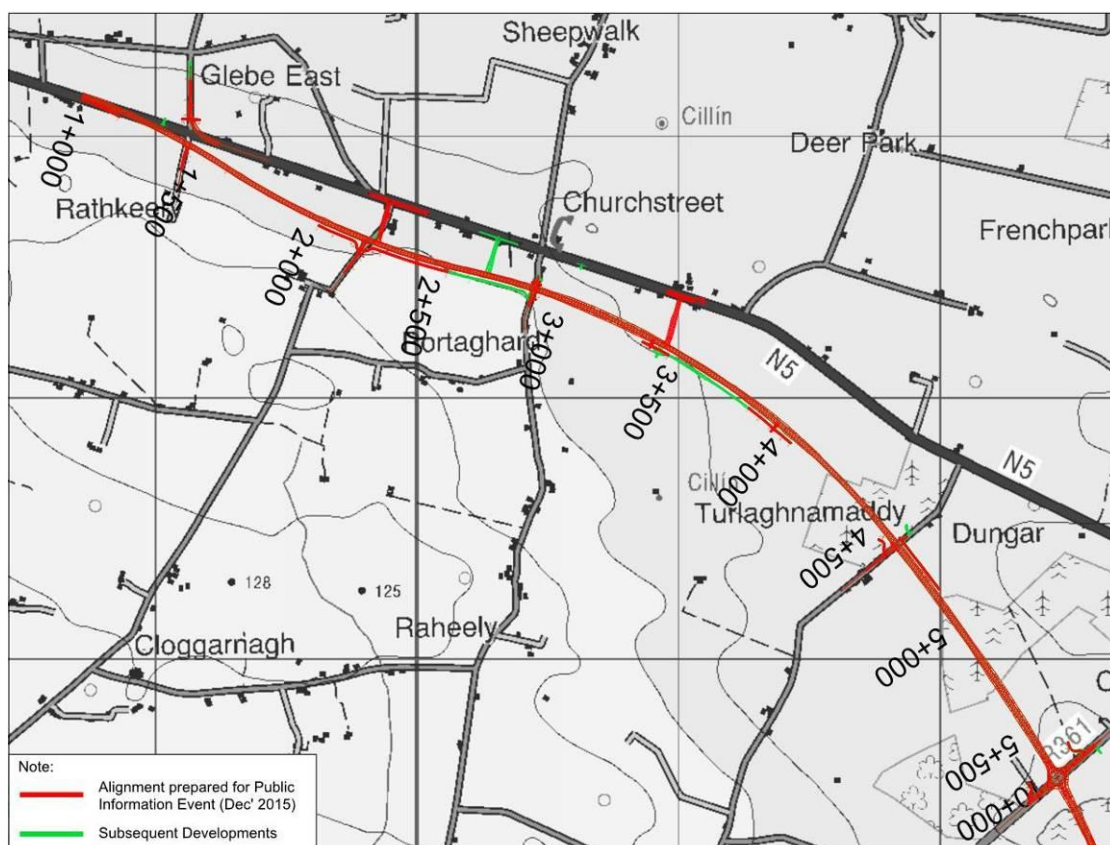
#### **3.13.5 Landowner Consultation and Public Information Event**

On 3<sup>rd</sup> December 2015, a series of landowner consultations were held with those affected by design changes subsequent to PC3, in the offices of Roscommon NRDO. Subsequently, over the period of 14<sup>th</sup> to 17<sup>th</sup> December 2015 inclusive, all landowners listed in the draft Compulsory Purchase Order for the proposed road development were invited to attend scheduled meetings with a member of Roscommon NRDO and the design team to discuss the draft compulsory purchase order and ongoing design proposals. Meetings were offered to those landowners on the western half of the proposed road development in Bellanagare Community Centre on 14<sup>th</sup> and 15<sup>th</sup> December 2015 and to those on the eastern half in the Percy French Hotel in Strokestown on 16<sup>th</sup> and 17<sup>th</sup> December 2015. These series of meetings culminated in a public information event, held in the Percy French Hotel on the afternoon and evening of 17<sup>th</sup> December 2015, where members of the general public were invited to view the proposed design and discuss any issues directly with members of the design team.

#### **3.14 Peer Review and Road Safety Audit**

Following the landowner consultations in December 2015 some further localised amendments were made to the design, which was then submitted to TII for Peer Review in accordance with the TII/NRA Project Management Guidelines 2010 (see Figure 3.6 in Volume 3). The main feedback from the peer review was that further efforts should be made to reduce the number of junctions and to simplify the proposed re-alignments of the local roads. In particular, the number of junctions in Section A were considered excessive, although the review team requested that this issue be considered throughout all four sections. Both the changes made in response to the further feedback from the landowner consultations and those made in response to the peer review comments are described below. The proposed development which is the subject of this EIAR is presented broadly on Figure 3.7 and in detail on Figures 3.8 to 3.34 inclusive in Volume 3.

### 3.14.1 Section A



**Plate 3.25 Alignment Development Section A**

#### 3.14.1.1 Junctions at Ch. 2+250 and Ch. 3+450

The peer review team were opposed to the provision of two junctions just 1.2km apart between the existing and proposed N5. Landowner and community feedback had also indicated dissatisfaction with the proposal to upgrade local road LS-5632 (north) at Ch. 2+250, particularly in relation to HCV traffic that may arise. Separately businesses in the vicinity of Sheepwalk crossroads at Ch. 2+900 expressed concern regarding potential commercial impacts as a result of the separation between the existing local road LS-5625 and the proposed connection to the existing N5 located at Ch. 3+450. This feedback has been addressed by combining the two connections into a single connection at Ch. 2+700 (see Plate 3.25). This change has the added benefits of removing the need for a local access road that was previously required to address local turning movements at three properties located opposite the now removed link at Ch. 3+450, and eliminating the impact of headlight shining directly into these properties.

Right turn lanes have been incorporated on the proposed N5 at this new junction and at the junction with the local road LS-5625 (South) at Ch. 2+900 to accommodate right turning traffic. A turning head has been incorporated on the severed section of local road LS-5632 and the access track which previously ran east from LS-5632 (south) has been moved to access from the LS-5625 (South) to minimise detour lengths for affected landowners.

#### 3.14.1.2 Agricultural Accesses at Ch. 3+400 and Ch. 3+950

The shared agricultural accesses have been combined to reduce the number of direct accesses onto the proposed N5. A single direct access is incorporated at Ch.

3+420 and the associated parallel access track extended to provide access for all landowners previously served by the two direct accesses (see Plate 3.25).

### 3.14.2 Section B

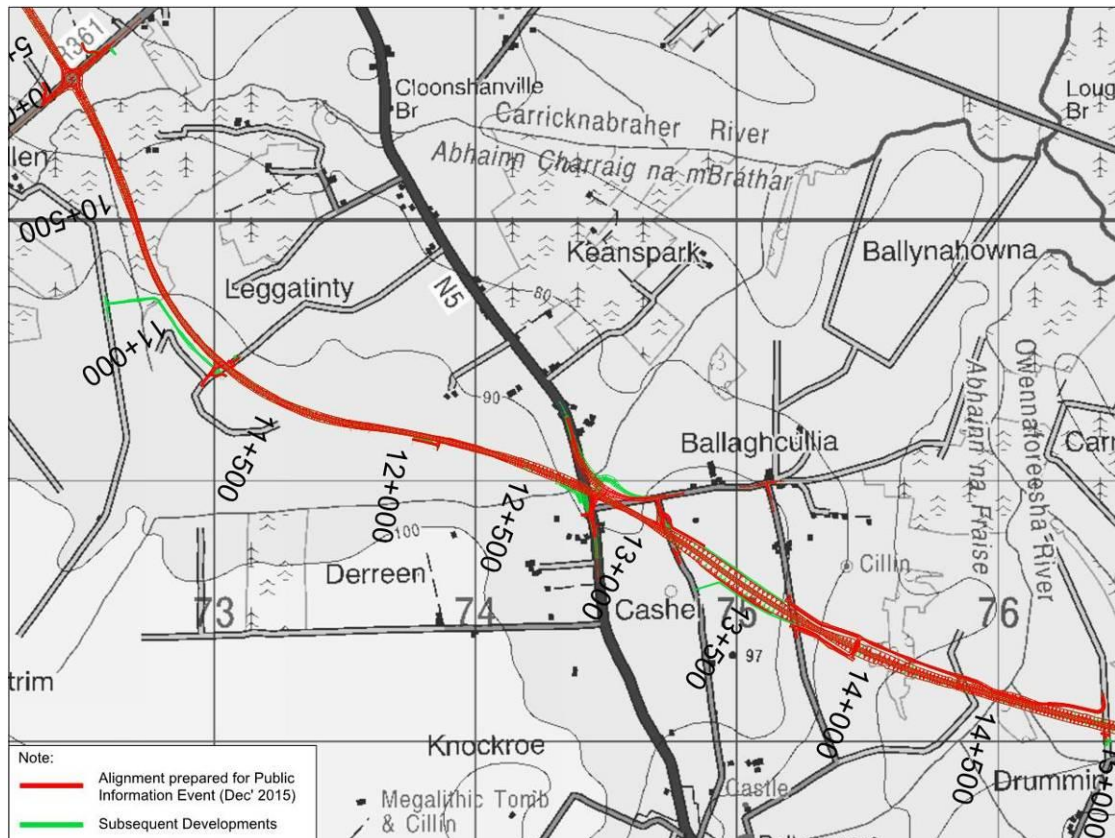


Plate 3.26 Alignment Development Section B – Ch. 10+000 to Ch. 15+000

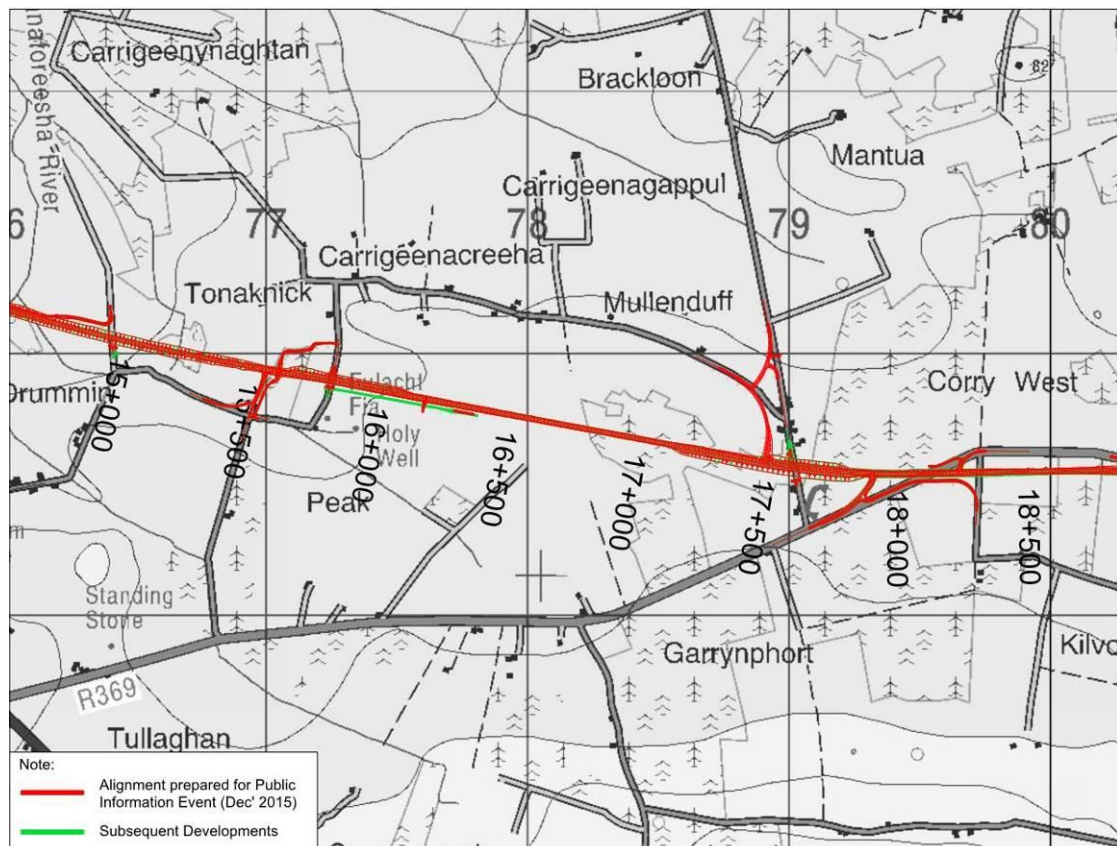
#### 3.14.2.1 Leggatinty Bog Access at Ch. 11+250

The connection to the unclassified Leggatinty Bog access road has been removed from the proposed N5 and is now connected to local road LT-56295 to reduce the number of accesses onto the national road and in particular at this location to avoid slow moving agricultural traffic having to use the proposed N5 (see Plate 3.26).

#### 3.14.2.2 Existing N5 and LS-5640/LS-5641 Junctions at Ch. 12+800 and Ch. 13+050

In response to the peer review request to simplify some of the side road realignments, the existing N5 north and south of the proposed N5 has been realigned to provide a ghost island left/right staggered junction arrangement directly between the realigned existing N5 and the proposed N5. The local road LS-5640 connection to the proposed N5 is replaced with the new connection to the existing N5 at Ch. 12+800. Local road LS5641 is proposed to be realigned to form a T junction with the realigned existing N5 (see Plate 3.26).

Local road LS-5640 is retained as an access to severed lands. In response to a road safety audit comment additional pedestrian links have been provided along both sides for the proposed N5 to maintain the Bellanagare walking route whilst avoiding the need for pedestrians to cross the proposed road development.



**Plate 3.27 Alignment Development Section B – Ch. 15+000 to Ch. 19+000**

**3.14.2.3 Direct Access at Ch. 16+150**

The direct access from the proposed N5 at Ch. 16+150 has been removed and replaced by a parallel access track on the south of the proposed N5 from local road LS-5642 at Ch. 15+800 to the severed lands located at Ch. 16+350 (see Plate 3.27).

**3.14.2.4 Junction of LS-5601 and LS-5642 at Ch. 17+480**

The junction arrangement and side roads connected to local roads LS-5601 and LS-5642 have been removed and replaced by a direct connection off local road LS-5601 at Ch. 17+600 to minimise the extent of side road construction required. This direct connection requires the provision of a driveway connection to a property adjacent to the realignment (see Plate 3.27).



**Plate 3.28 Alignment Development Section B – Ch. 19+000 to Ch. 23+000**

### 3.14.2.5 Ch. 19+000 to Ch. 21+000 Realignment

The proposed N5 alignment has been moved 50m south to avoid directly impacting a previously unrecorded site of archaeological potential identified from LiDAR and geophysical surveys, now SMR RO016-172, located on the line of the previous alignment at Ch. 20+500 (see Plate 3.28 and Figure 14.10).

### 3.14.2.6 Junction of LP-1218 at Ch. 19+900

The local road realignment and junction with the proposed N5 has been removed and replaced with an overbridge crossing of the proposed N5 on the line of local road LP-1218. This will maintain connectivity to Mantua (Kilnamryall) Church and beyond for the surrounding community, minimising the conflict with long distance traffic on the proposed N5 (see Plate 3.28).

The junction priority at the junction of local roads LP-1218/LP-1432 and the regional road R369 has been reversed to provide the through priority to the LP-1218/LP-1432 and the severed section of the R369 will form a T junction with the LP-1218/LP-1432.

The access track from Ch. 18+950 to Ch. 19+600 has been extended to connect to the proposed LP-1218 and form a staggered junction with the existing R369. Landscape mitigation is proposed on the line of the existing R369 to minimise the “straight through” view when approaching the T-junction on the severed R369 from the east.

### 3.14.2.7 Junction of LT-60232 at Ch. 20+680

This connection from the severed regional road R369 to the proposed N5 and associated works on the R369 were initially considered instead of providing an overbridge for local road LP-1218. This has now been removed from the design

following the introduction of a bridge at Ch. 19+750 and the re-configuration of the local road network to provide connectivity (see Plate 3.28).

### 3.14.2.8 Direct Access at Ch. 20+740 and Maintenance Access at Ch. 21+150

The direct access at Ch. 20+740 and maintenance access at Ch. 21+150 have been joined to form a single access at Ch. 21+000. An additional length of parallel access track has been included to reconnect to the attenuation pond and existing track (see Plate 3.28).

### 3.14.2.9 Direct Access and Maintenance Access at Ch. 23+080

This direct access to severed lands and the proposed attenuation/treatment pond has been removed. Access to the attenuation/treatment pond is provided through the track network associated with the adjacent material deposition area. The severed lands have been incorporated within the land acquisition boundary (see Plate 3.28).

## 3.14.3 Section C

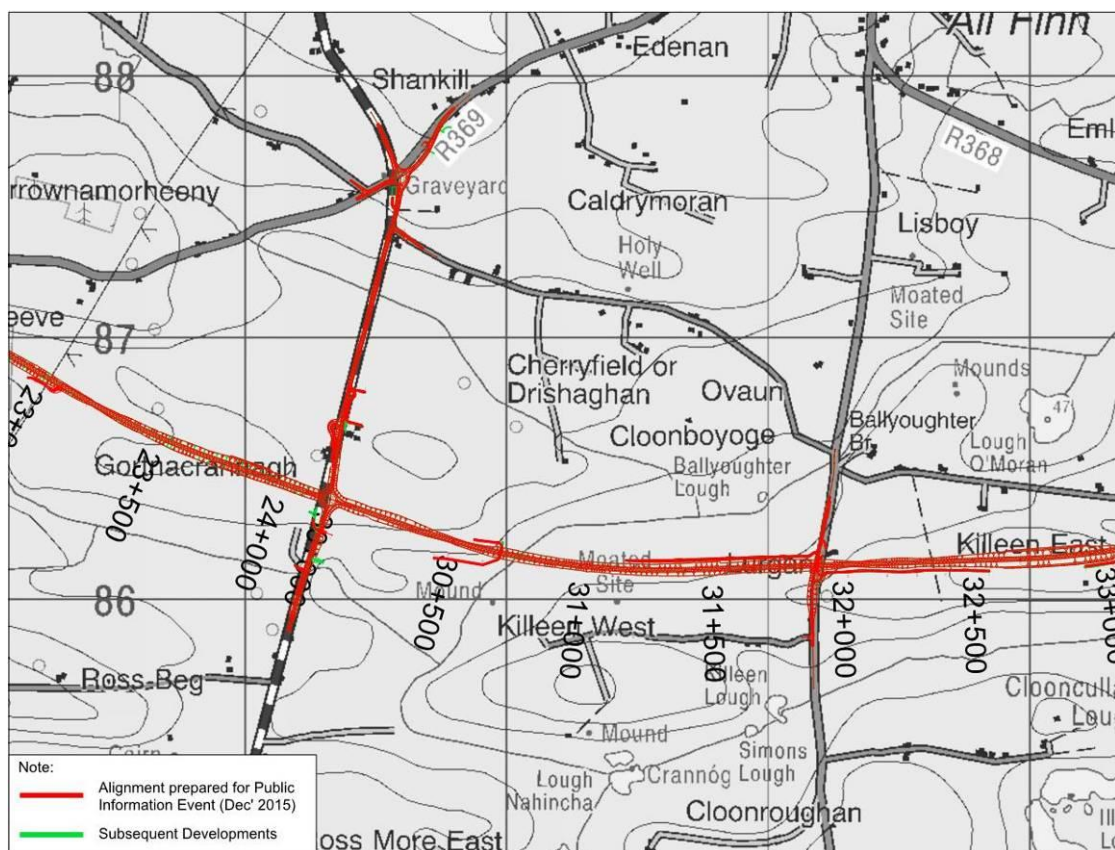
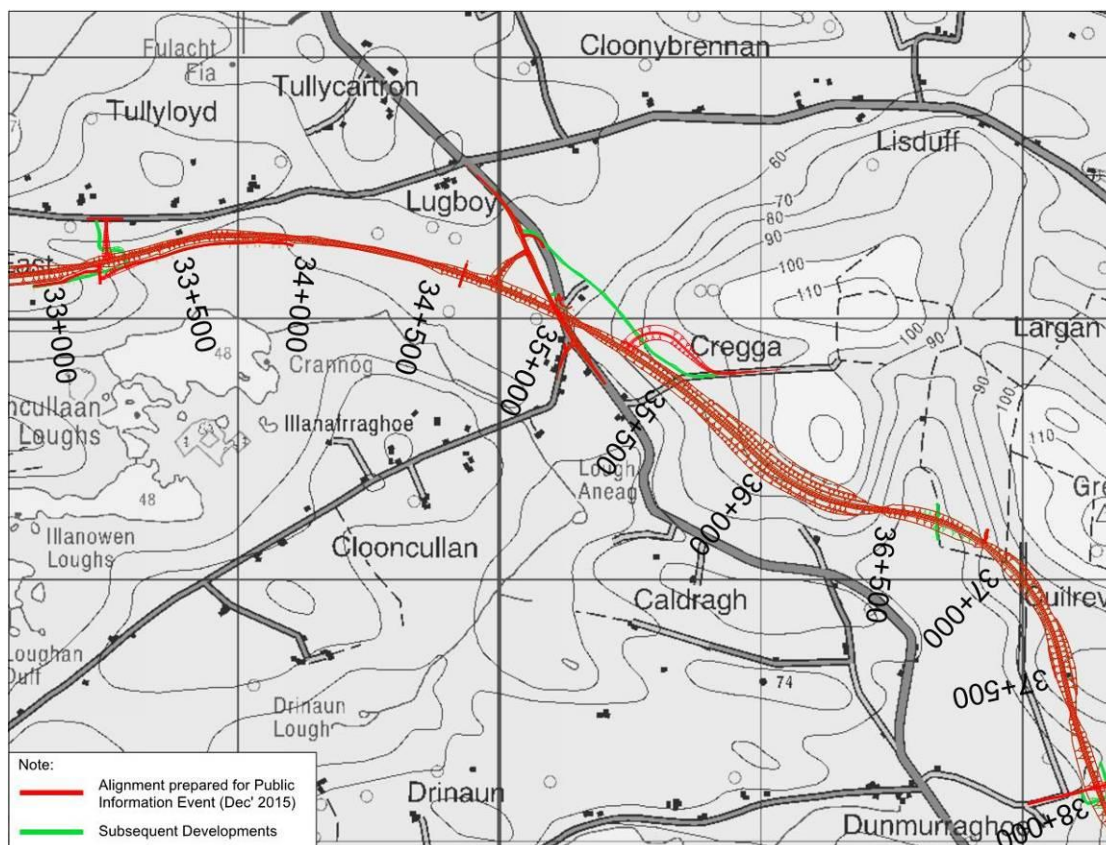


Plate 3.29 Alignment Development Section C – Ch. 30+000 to Ch. 33+000

### 3.14.3.1 Access Track at Ch. 30+680

The access track through the underpass at Ch. 30+680 is truncated to minimise works within the landholding (see Plate 3.29).





**Plate 3.30 Alignment Development Section C – Ch. 33+000 to Ch. 38+000**

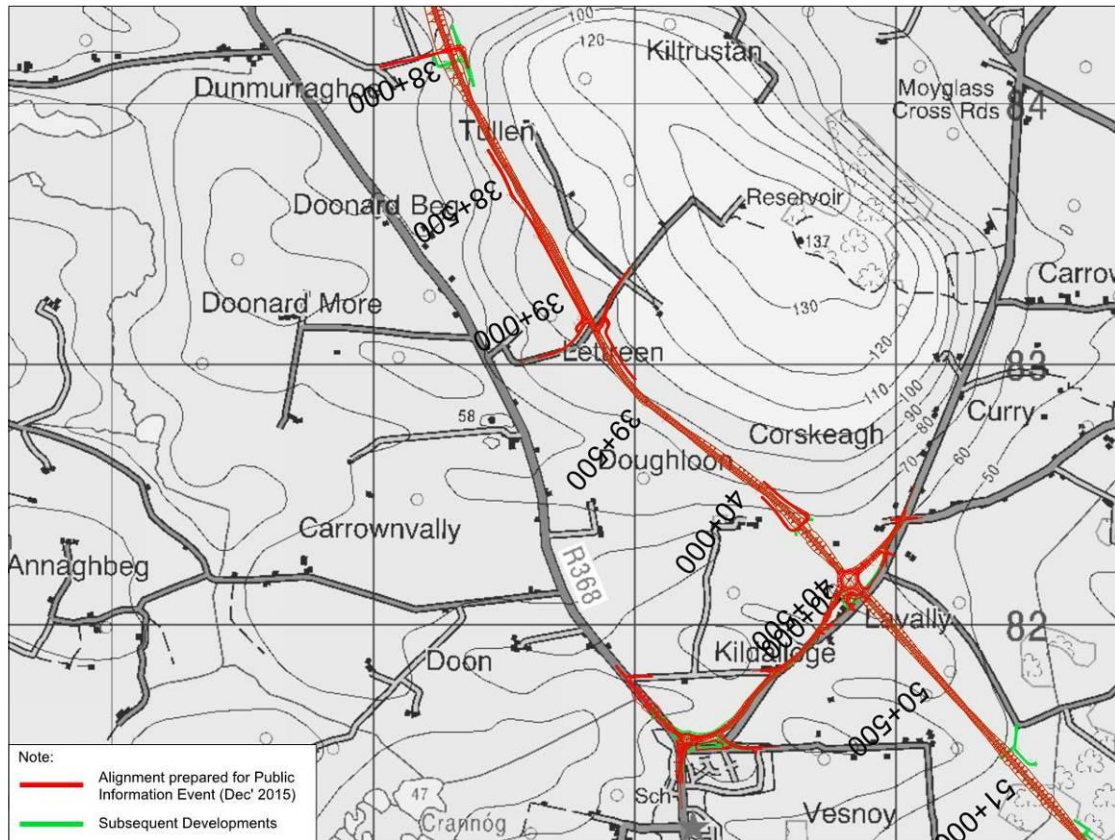
**3.14.3.2 Junction of LP-1409 at Ch. 33+220 and Direct Access at Ch. 33+180**

The link to local road LP-1409 at Ch. 33+220 and Direct Access at Ch. 33+180 have been removed. Access to local road LP-1409 is proposed at the junction with the R368 at Ch. 34+740.

An underpass (4.5m high) has been incorporated under the proposed N5 at Ch. 33+300 to provide access from local road LP-1409 to severed lands and the attenuation/treatment pond to the south of the proposed N5. This includes a reconfiguration of the access tracks south of the proposed N5 to accommodate the proposed underpass (see Plate 3.30).

**3.14.3.3 Ch. 35+500 Cregga Lane**

Following further landowner consultations held in December 2015 an alternative arrangement has been adopted, utilising a section of former regional road R368 to connect Cregga Lane and the R368 directly without requiring a connection to the proposed N5, allowing access for landowners without having to utilised the proposed N5 (see Plate 3.30).



**Plate 3.31 Alignment Development Section C – Ch. 38+000 to Ch. 41+000**

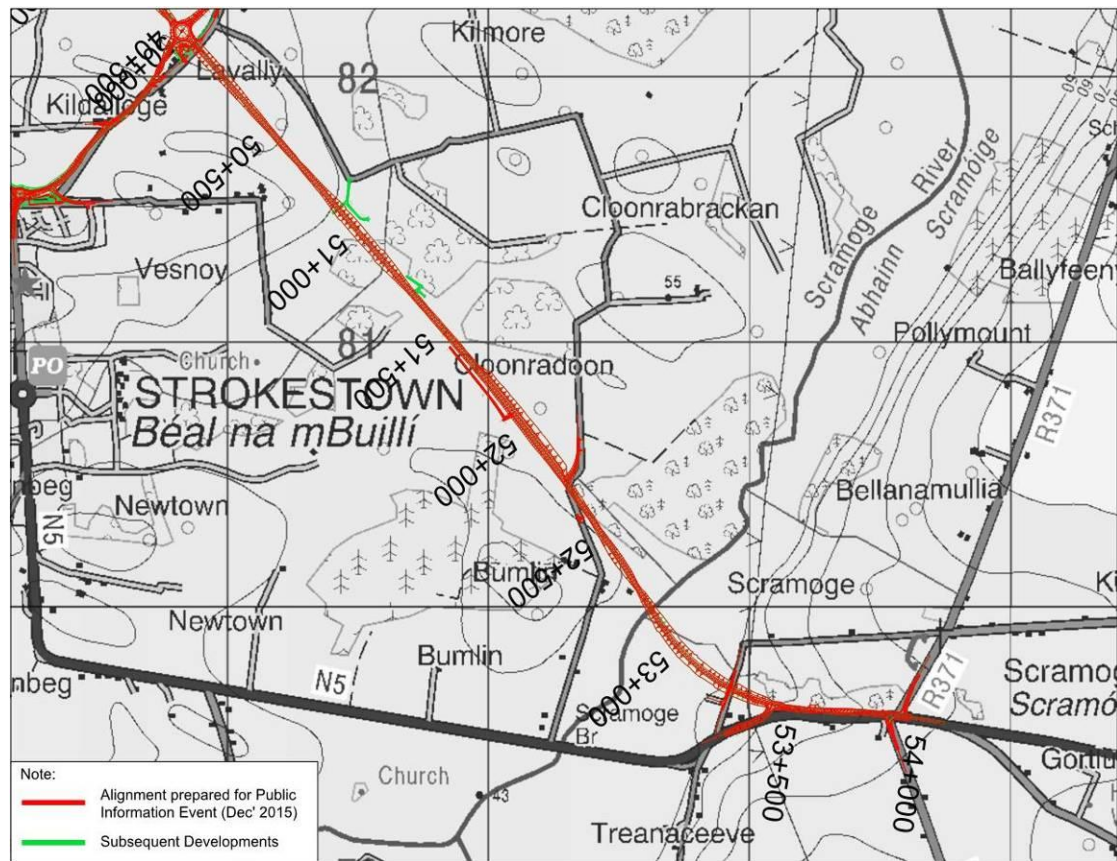
### 3.14.3.4 Junction of R368 and LP-1405 at Kildallogh Roundabout

The level of the proposed Kildallogh roundabout has been reduced by 3.1m and the vertical alignments of the approach roads lowered accordingly. This reduction in level allows the northern arm of the regional road R368 to tie-in to the existing R368 150m in advance of the previous tie-in location, minimising the extent of embankments and land take.

As part of these revisions, the Kildallogh Roundabout has been moved 6m north-east to allow the southern connection on the R368 into Strokestown to climb from the reduced level of the junction to meet the existing road levels, minimising the impact on the surrounding properties.

The link from the realigned local road LT-14054 to the graveyard and properties has been realigned to meet the reduced levels of the LP-1405 (see Plate 3.31).

### 3.14.4 Section D



**Plate 3.32 Alignment Development Section D – Ch. 50+000 to Ch. 53+900**

#### 3.14.4.1 Maintenance Access at Ch. 50+750

The maintenance access from the proposed N5 at Ch. 50+750 has been removed and relocated to provide access from the existing local road LS-6121 (see Plate 3.32).

#### 3.14.4.2 Maintenance & Landowner Access at Ch. 51+330

A new maintenance access to an attenuation/treatment pond off the proposed N5 has been incorporated at this location. This access also provides access to severed lands (see Plate 3.32).

#### 3.14.5 Landowner Information

Those landowners directly affected by changes made to the road alignment post December 2015 were invited to meet with the Design Team on 19<sup>th</sup> August 2016, when the changes were explained to them. Following these meeting very minor adjustments to the alignment of Cregga Lane and some field accesses were implemented to address severance issues. All other adjoining property owners with a potential interest in the changes were written to and provided with a drawing showing the final arrangement in relation to their property.