



An
Bord
Pleanála

Inspector's Report
ABP 300490-17
ABP 300493-17

Development

N5 Ballaghaderreen to Scramoge
Road Project and Compulsory
Purchase Order 2017

Applicant

Roscommon County Council

Dates of Site Inspection

18th, 19th & 20th September & 8th
October, 2018

Dates of Oral Hearing

9th and 10th October, 2018

Inspector

Pauline Fitzpatrick

Contents

1.0 Introduction	5
2.0 Proposed Development	5
2.1. The Scheme.....	6
2.2. The Routing of the Scheme	8
2.3. The Need for the Development	9
2.4. Route Selection.....	11
2.5. Predicted Outcome	12
3.0 Submissions from Prescribed Bodies on Proposed Road Development	14
3.1. Inland Fisheries Ireland.....	14
3.2. Department of Culture, Heritage and the Gaeltacht	15
3.3. Northern and Western Regional Assembly	17
3.4. Transport Infrastructure Ireland.....	17
4.0 Objections / Submissions relating to Proposed Road Development.....	18
4.1. The following submissions are in support of the PRD:.....	18
4.2. Brendan White	19
4.3. Eamon Mitchell.....	19
5.0 Compulsory Purchase Order	20
5.1. Documentation Submitted.....	20
5.2. Objections to Compulsory Purchase Order.....	21
6.0 Oral Hearing	26
7.0 Planning Assessment	27
7.1. Policy Considerations.....	27
7.2. Need and Justification for Proposed Road Development.....	29

7.3.	Alternatives	34
7.4.	Socio Economic Impacts	36
7.5.	Hydrology and Hydrogeology	40
7.6.	Landscape and Visual Impact	48
8.0	Environmental Impact Assessment.....	52
8.1.	Introduction	52
8.2.	Population and Human Health	54
8.3.	Biodiversity.....	61
8.4.	Land and Soil	70
8.5.	Water	74
8.6.	Air and Climate.....	78
8.7.	Material Assets.....	80
8.8.	Cultural Heritage	83
8.9.	Landscape.....	88
8.10.	Interaction of the Above and Cumulative Impacts.....	90
8.11.	Reasoned Conclusion on the Significant Effects	91
9.0	Appropriate Assessment.....	93
9.2.	Stage 1 – Screening.....	93
9.3.	Appropriate Assessment	96
9.4.	Appropriate Assessment – Conclusion	101
10.0	Compulsory Purchase Order.....	101
10.2.	Site Specific CPO Issues	104
11.0	Recommendation	113
11.1.	The Compulsory Purchase Order	113
11.2.	Application for Approval of Proposed Road Development	115

Appendix 1 – Consulting Hydrogeologist/Hydrologist’s Report 122

Appendix 2 – Summary of Oral Hearing..... 138

Appendix 3 – Documents Received at the Oral Hearing 9th and 10th October, 2018
143

1.0 Introduction

- 1.1. Roscommon County Council is seeking confirmation of a compulsory purchase order authorising compulsory acquisition of lands entitled *Roscommon County Council Compulsory Purchase Order (No.1) 2017 N5 Ballaghaderreen to Scramoge Road Project*. The Order was made pursuant to the powers conferred on the local authority by section 76 of the Housing Act, 1966, and the Third Schedule thereto, as extended by section 10 of the Local Government (No. 2) Act, 1960 (as substituted by section 86 of the Housing Act 1966) and amended by section 6 and the Second Schedule of the Roads Acts, 1993-2015, and the Planning and Development Act, 2000 as amended.
- 1.2. In addition, Roscommon County Council is seeking approval from An Bord Pleanála under section 51 of the Roads Act 1993, as amended, in accordance with plans and particulars, including an environmental impact assessment report and natura impact statement, lodged with An Bord Pleanála on 20th day of December, 2017 with further plans and details received by the Board on the 7th June 2018 following a request for further information dated 10th May, 2018.
- 1.3. The Board retained the services of Mr. J. Keohane to advise on matters relating to hydrology and hydrogeology. His report is attached to this report in Appendix 1.

2.0 Proposed Development

The existing N5 National Primary route is a single carriageway road c.134km in length that connects Westport in Co Mayo to Longford Town, where it joins the N4-M4 east to Dublin. With the exception of the planned Type 2 Dual Carriageway between Westport and Turlough, all of the projects which have been carried out to date have consisted of upgrading the existing N5 to a Type 1 single carriageway cross-section, or the equivalent at the time of construction. 72% of the overall length of the N5 has either been improved or is in the process of being improved. The section currently under consideration extends from Ballaghaderreen to Scramoge in County Roscommon and is the last rural section that has yet to be upgraded.

2.1. The Scheme

2.1.1. The proposed road development (PRD) comprises the following major elements:

- 33.4km of National Primary Road to Type 1 Single Carriageway standard;
- 15.4km of realignment of existing roads;
- Five roundabouts;
 - Frenchpark Roundabout (R361 south of Frenchpark);
 - N61 Roundabout (between Tulsk and Elphin);
 - Shankill Roundabout (N61/R369);
 - Strokestown Roundabout (LP-1405);
 - Kildallogh Roundabout (R368/LP-1405);
- At grade mainline T junctions;
 - 16 T Junctions, of which 5 are staggered;
- Reconfiguration of a crossroads between the existing N5 and R361 in Frenchpark;
- 3 road underbridges and 1 road overbridge;
- 4 river bridges and 14 culverts;
- Approximately 290m approx. of retaining walls at three locations;
- Provision of 9 accommodation underpasses, access roads and accesses;
- Associated earthworks including excavation of peat and unacceptable material, excavation and processing of rock and other material, provision of material deposition areas, and deposition and recovery of unacceptable material for use in the works;
- Temporary site compounds;
- Drainage works;
- Landscaping works;

- Utilities and services diversion works including the diversion of high voltage electricity lines at 3 locations and the provision of associated support towers/ poles;
- Safety barrier, public lighting, fencing and accommodation works; and
- Environmental measures and all other ancillary works.

2.1.2. The PRD has been designed with a Type 1 single carriageway cross section with 2no. 3.65m lanes and associated hard shoulders, road verges and drainage ditches. The paved width is generally 12.3m with local widening to accommodate specific road features such as junctions, etc. The total width of the road including verges and associated features will be approximately 19 – 20m as a minimum where it is at grade with the local topography. However, over much of the route, the local topography is such that cut and fill will be required. This will extend the width of the road footprint in sections.

2.1.3. From the traffic predictions (Chapter 05 of this EIAR), the provision of a Type 1 single carriageway cross-section would provide a Level of Service (LoS) C throughout its length.

2.1.4. No formal cycle or pedestrian facilities exist within the extent of the proposed road development, other than at the tie-in to the north of Strokestown.

Nature and extent of the land acquisition

2.1.5. Approx. 357 hectares of land is included in the CPO. Approx. 259.1 hectares are classified as land (including agricultural land and facilities, bogs and access tracks). 78.4 hectares are classified as forestry, 1.1 hectares as residential or commercial land and the remaining 18.5 hectares classified as road bed. The 40 non-agricultural properties directly affected by the proposed project include 35 residential properties, 1 development site and 4 community properties.

Construction phase

The PRD will be a Design and Build Contract. Construction is anticipated to take 2.5-3 years and will be progressed as a single contract or as multiple contracts running concurrently.

2.1.6. 6 potential construction compound locations have been identified.

2.1.7. Earthwork volumes assuming full extraction and replacement of soft ground are as follows:

- Total general cut volume 2,909,942m³
- Total general fill required 2,405,890m³

2.1.8. 17 material deposition areas have been included in the design and the land acquisition boundary for the proposed road development. In total these areas can accommodate 988,000m³ of material.

2.2. The Routing of the Scheme

Route corridor

2.2.1. The mainline alignment has been divided into four sections A to D

Section	Segment	Chainage
A	N5 between the tie-in to the N5 Ballaghaderreen By-Pass (East) and Frenchpark Roundabout on the R361 (Junction 5)	1+000 – 5+697
B	N5 between the Frenchpark Roundabout (Junction 5) and the N61 Roundabout at Gortnacranagh (Junction 14) including N61 Upgrade to Shankill Roundabout	10+000 – 24+200
C	N5 between the N61 Roundabout (Junction 14) and the Strokestown Roundabout at Lavally (Junction 19)	30+000 – 40+542
D	N5 between the Strokestown Roundabout (Junction 19) and the tie-in to the existing N5 in the townland of Scramoge	50+000 – 53+970

2.2.2. The proposed alignment commences east of Ballaghaderreen at a tie-in with the newly constructed N5 Ballaghaderreen By-Pass in the townland of Rathkeery c. 5km west of Frenchpark, where it departs to the south of the existing N5 before crossing

the R361 Castlerea Road approximately 1km southwest of Frenchpark. Between this point and the crossing of the existing N5 between Frenchpark and Bellanagare the proposed road passes to the north of Bellanagare Bog cSAC/SPA. Following the crossing of the existing N5 at Cashel the proposed road largely follows the line of the R369 Elphin to Bellanagare Road to the north of Bellanagare and Tulsk. It will cross the N61 at Gortnacranagh. A new roundabout at the junction of the N61 and R369 at Shankill Cross is proposed as part of the project. In the townland of Lugboy the route swings in a south easterly direction running largely parallel to the R368 and to the east of Strokestown. Through this section the route will cross the Scramoge River, pass to the rear of Strokestown House and through the old Strokestown House Demesne. A junction will be provided on the Kiltrustan Road at Lavally which will act as the main access to Strokestown. The route will connect with the existing N5 in the townland of Scramoge providing an upgrade of the existing N5/R371 junction.

- 2.2.3. The proposed road development crosses a generally rural low-lying to rolling drumlin landscape which is predominantly in agricultural use but interspersed with small areas of semi-natural woodland; areas of peat / bogland; scrub; wetlands; lakes; and coniferous plantations. Residential properties are a common feature along sections of the corridor, particularly east and north of Strokestown.

2.3. The Need for the Development

- 2.3.1. The existing N5 Ballaghaderreen to Scramoge road is a single carriageway road with a varying cross section. Traffic flows on the various sections of the N5 between Ballaghaderreen and Scramoge are generally in the range of 4,600 to 6,800 AADT with Heavy Commercial Vehicles (HCV) comprising between 7.7% and 10%.
- 2.3.2. The existing road cross section is sub-standard with approximately 47% of the road having a paved width less than or equal to 7.3m. 14%, only, meets the Type 1 Single carriageway width requirement of 12.3m. The horizontal and vertical alignment are also substandard and do not complement each other (eg. long straights with sharp crests in the vertical alignment).
- 2.3.3. Along the rural sections of the existing N5 between Ballaghaderreen and Scramoge there are a total of 546 junctions and direct accesses including 74 public road

junctions, 262 field accesses and 210 dwelling/commercial accesses. This junction frequency is approx. 9 junctions and accesses per kilometre outside the speed restricted sections and is categorised as 'High' in accordance with the design standard NRA TD 9, Clause 1.4. Many of these junctions and accesses do not provide sufficient visibility to meet safety standards. Fifteen of the local, regional and National Secondary roads intersected by the existing N5 form crossroad junctions, which are not permitted under the current design standards due to the high accident rates associated with this junction type.

- 2.3.4. With regard to overtaking opportunities on the existing N5, 9% of the eastbound 35km length has overtaking visibility while there is 10% in the westbound direction. Current design standards for a Type 1 Single Carriageway road require a minimum of 30% of the total length of the PRD to have overtaking sight distance.
- 2.3.5. The minimal overtaking opportunities, in combination with frequent junctions and accesses, many of which have restricted visibility, is substandard and is detrimental to both road safety and average journey times, with platoons forming behind slower moving vehicles. The limited lengths of hard shoulder and verge along this length, coupled with the agricultural activities, further limit the opportunities for vehicles to overtake slow moving vehicles. Journey times are poor and unpredictable with average speeds of c.66km/hr, well below the TII minimum target of 80km/hr for inter-urban journeys on national routes.
- 2.3.6. The road passes through the settlements of Frenchpark, Bellanagare, Tulsk and Strokestown. It also traverses the Rathcroghan Archaeological complex which, as part of the Royal Sites of Ireland, is on the tentative list submitted for consideration as a UNESCO World Heritage Site. The existence of these numerous constraints has greatly restricted any previous attempts to upgrade the existing N5 which bisects the complex.
- 2.3.7. The road currently has a poor safety record with numerous sections of the N5 corridor between Ballaghaderreen and Scramoge having a collision rate above or twice above the national average rate. Over the period from 1996 to 2012 there have been eleven fatalities and an estimated 689 injuries along the relevant section. An analysis of the locations of these accidents identifies that many are within the 9km east of Bellanagare, through Rathcroghan and west of Tulsk.

2.4. Route Selection

- 2.4.1. The road project dates back to 1998 where the National Road Needs Study 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 PRD and major constraints following public consultation. The study area measured approx. 329km³ and generally extended approx. 35 km in an east-west direction and approx. 11.5km in a north-south direction. 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 PRD (copy accompanies the EIAR).
- 2.4.2. 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.
- 2.4.3. As part of the route selection process, seven route corridors were identified (route options 1, 1A, 2, 2A, 2B, 3 and 4 see Figure 3.2 Volume 3). Each corridor was typically 500 m. wide. Option 3 represents an online upgrade and was considered as the Do Minimum option with minimal local improvements. The options were assessed in accordance with the NRA National Roads Project Management Guidelines (2010) under the criteria of engineering, environment and economics. The selected corridor 1A was identified as the emerging preferred option having ranked first under all three of the headings. Further public consultation was undertaken as part of the route corridor selection process.
- 2.4.4. When studies recommenced in 2014 the findings of the Constraints Study and Route Corridor Selection Study were reviewed in the light of the time that had elapsed since their publication to identify any potential changes that may require re-consideration of the preferred corridor. The 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. Further consideration was given to the potential to upgrade sections of the existing N5 with local by-passes in addition to an online option with local bypasses and bypass of the Rathcroghan RMP. (EIAR sections 3.10 – 3.11).

- 2.4.5. Following confirmation of the Preferred Route Corridor targeted studies and surveys were undertaken in accordance with current guidelines and best practice to identify any potential local constraints which would need to be taken into consideration when developing the specific route alignment. From same an initial route alignment was developed. Consequent to same further public consultation was undertaken in 2015. Where possible, amended proposals were developed to address the issues raised with further meetings scheduled with affected land and property owners in December 2015 in addition to a public information event. Following this some localised amendments were made. The emerging route alignment was submitted for Peer Review in accordance with TII/NRA Project Management Guidelines 2010. It recommended that further efforts should be made to reduce the number of junctions and to simplify the proposed re-alignments of the local roads. Further changes were undertaken in response to this and further feedback from landowner consultations. Landowners directly affected by the changes were invited to meet the Design Team in August 2016. All other 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.

2.5. **Predicted Outcome**

The implementation of the Proposed Road Development is so as to achieve the following:

- It will complete the missing link in previous investments and improvements on the N5 corridor allowing realisation of the benefits from the accumulated development on the N5 corridor.

- The proposed road development will meet the requirements of a TEN-T road network and facilitate the overall improvement of the N5 corridor to TEN-T standard.
- The proposed road development will integrate with the wider investment in the national road network, in particular between Dublin and Westport, and also improve connectivity to Ireland West Airport Knock, thereby supporting initiatives to bring investment into the Western Region.
- It will provide a road that is fit for purpose and which is designed and constructed in accordance with current design standards with a consistent cross section with full stopping sight distances along its length and appropriate junctions and accesses with visibility in accordance with current design standards. The number of junctions is proposed to be reduced from 546 to 33 (rural sections of PRD). It will also provide appropriate safe overtaking opportunities. It will be of a higher safety standard and will therefore contribute to a network wide reduction in collisions.
- It will improve the average end to end journey time from approximately 32 minutes to 22 minutes. It will assist in reducing journey times and improve journey time reliability between Ballaghaderreen and Scramoge, especially for long distance trips between the West Region, the linked hubs of Castlebar and Ballina and the Midlands and Dublin gateways. It will also reduce the cost of travel for business and tourism and assist in reducing the overall cost of production thereby improving competitiveness. The economic return of the scheme would deliver a benefit to cost ratio of 1.36
- The proposed road development will improve road based public transport at local, regional and national level, by reducing travel costs along this section of the N5 corridor.
- It will improve the environments of the towns and villages along the existing N5 and reduce levels of severance.
- It will divert traffic from the Rathcroghan Archaeological complex.
- The diversion of 75% of the traffic away from the existing N5 and onto a new road that incorporates the collection and treatment of run-off prior to

discharging to existing watercourses will assist in terms of water quality improvement.

3.0 Submissions from Prescribed Bodies on Proposed Road Development

3.1. Inland Fisheries Ireland

- Culvert requirements
- Sequencing of works for watercourse diversion, details of same, and mitigation measures to be agreed with IFI.
- Watercourse diversions will require channel stabilisation works and may also require fisheries development works to suit the individual watercourse's fishery status.
- Petrol interceptors will be required at all outfall locations.
- Specific details will be required on the design, planting or retention time for all settlement ponds proposed.
- With regard to the Hawrat analysis IFI are more concerned with the maximum rather than average annual figure, as to the potential toxicity to fish is directly related to the maximum value. It cannot comment on the ability of the proposed design to adequately treat runoff without a Hawrat analysis based on maximum concentrations.
- It has concerns about the assimilative capacity of the watercourse at outfall 34.01 and require that its assimilative capacity be calculated.
- Surface water outfalls should be designed to prevent erosion.
- A number of outfalls from the scheme are discharging to the same watercourses or their tributaries. The cumulative impacts of these discharges and the availability of assimilative capacity and dilution within these catchments as a whole must be considered.
- Access for anglers may be required at Scramoge, Owennaforeesha and Carricknabraher Rivers. Signposting may also be required.

- Consultation on the final design and peat stability of the peat storage areas required. Piles should be sited at least 20 metres from the nearest watercourse.
- Any lighting at bridges to be cowled and directed upwards.
- 12 rather than 6 months of background water monitoring regime for baseline sampling is recommended to account for seasonal variation.
- Turbidity monitoring recommended on the inflow and outflow of settlement ponds during the construction phase.
- pH monitoring required in the vicinity of works of a nature that are likely to impact on watercourse pH.
- Consideration should be given to IFI's requirements for water quality protection when setting conditions for pre-construction contracts.
- In relation to potential spread of aquatic invasive species a detailed biosecurity plan is required to be agreed with IFI and County Council.
- Restrictions will apply to instream works and works with high risk of pollution through mobilisation of suspended solids in the vicinity of watercourses. These works will not be permitted between 1st October and 30th April. Scramoge, Strokestown, Owennaforeesha, Carricknabraher and Owenur are salmonid catchments.
- IFI requires consultation and agreement of the CMP, EOP, CESC, WMP and of detailed works method statements for certain high-risk activities.

Note: The submission is accompanied by a copy of Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters.

3.2. Department of Culture, Heritage and the Gaeltacht

The 1st submission received can be summarised as follows:

3.2.1. Nature Conservation

- It is noted that the NIS identified potential impacts on qualifying interests of a number of European Sites. These impacts are stated to be, in the main,

hydrological. The Board must be satisfied that sufficient robust scientific evidence is provided so that the conclusions in the NIS are fully supported.

- No significant details of the project and of the mitigation measures that will apply should be deferred to be developed at the post consent stage as this may mean that there are gaps or uncertainties in the environmental assessments that are carried out prior to the grant of consent. The Board should consider whether it has been demonstrated within the documentation provided that the mitigation measures listed can be delivered in the locations necessary, sequenced as required, and will be effective in ameliorating adverse effects, or risks of adverse effects, at all stages of development, from site set up to operation.
- There appears to be an absence of certain data from the EIAR Biodiversity Chapter. Reference is made to Appendices 9 and 10 (detailed information on Winter and Breeding Birds Surveys). No such appendices are attached.

3.2.2. Archaeological Heritage

- A condition requiring the archaeological mitigation measures being implemented in full should be attached. All accessible areas of proposed construction works shall be subject to archaeological test excavations and/or archaeological monitoring.

The 2nd submission following the further information received by the Board can be summarised as follows:

3.2.3. Architectural Heritage

- It concurs with the preferred route option.
- As it traverses largely open agricultural land it appears to follow that there will be minimal significant direct impact on structures of architectural heritage merit.
- The detailed design stage is of critical importance in terms of ensuring an appropriate interface and design between 'old and new' at a local level and to guide best conservation practice for the repair and modification. Of particular importance are the existing historical features of former 18th century

landscaped estates, their planting schemes and landscape features, demesne boundary walls and entrances, field boundary walls and historic hedgerows. The Board should consider the appointment of a conservation architect with landscape design expertise and technical conservation skills to input into the next stage of the scheme development.

- Where profound impact is indicated to sites of architectural significance, detailed design information is to be provided to the Architectural Heritage Unit of the Department regarding the scope and specification of all proposed intervention/mitigation measures. Advice may then issue with regard to the relevant permission(s) required to carry out the work.

3.3. Northern and Western Regional Assembly

- The PRD is consistent with the Regional Planning Guidelines for the West Region.
- The route is included in the National Development Plan 2018-2027.
- The gap in road quality is less than desirable in relation to the needs of business and residents. It is seen as a deterrent to inward investment due to road safety and transportation concerns and is an obstacle to the future development of Roscommon, Mayo and the wider North West.
- The route improvement is of particular importance regionally since enhancement of the capacity for the movement of people, goods, energy and information between different places and consequent improvements in terms of time and cost can reduce the disadvantages of distance.

3.4. Transport Infrastructure Ireland

- It fully supports the proposed development and has been approved by TII and its Board.
- The scheme's development has been progressed in accordance with the NRA's Project Management Guidelines (2010).

4.0 Objections / Submissions relating to Proposed Road Development

4.1. The following submissions are in support of the PRD:

- Irish West Airport Knock
- Erris Chamber of Commerce
- Ballina Chamber of Commerce
- Westport Chamber of Commerce
- Sligo Chamber of Commerce
- IRD Kiltimagh CLG
- Mayo County Council

The submissions can be summarised as follows:

- The project is included in the National Development Plan 2018-2027.
- It will complement and complete the recent investment in the N5 national primary corridor between Castlebar and Longford.
- It will improve accessibility to the north-western region, reducing journey times and improving the reliability and safety of the route.
- The problems arising from the deficient and substandard road network has resulted in millions of euro worth of product lost from locally based multi-national and smaller industries.
- It will reduce the cost of travel for business and tourism and the overall cost of production thereby improving competitiveness. It will give access between the Greater Dublin Area and the Wild Atlantic Way. It will also be the primary access to the Wild Atlantic Way for visitors to Centre Parcs Ireland who may wish to visit.
- The PRD will encourage and support investment and employment in the region and represents a positive step toward improved regional sustainability, growth and social inclusion.

- The socio-economic effects as discussed in the EIAR are understated. The somewhat negative results of the analysis pertain to the local area rather than encompassing the wider region.
- The route provides one of the main links to Ireland West Airport. Improvements to the airport are included in the National Development Plan and its designation as a SDZ will contribute to the long term development of both the airport and the regional economy.
- The preconstruction and construction phases will provide a boost to the local economy.

4.2. **Brendan White**

- The route would make little difference to road traffic between Scramoge and Ballaghaderreen.
- Traffic from Roscommon to the new N5 must still use several kilometres of narrow, unsuitable road between Clashaganny and Tulsk crossroads. From Tulsk crossroads for a distance of 5km traffic would have to traverse a partially floating bog road with a wide supporting drain each side which is unsuitable for the level of traffic. These conditions demonstrate that the PRD fails in the objective to increase and enhance road safety. For road users this results in a longer journey with greater costs, air and noise pollution. The upgrading of these roads will result in further costs to the exchequer.
- A more suitable route should be sought.

4.3. **Eamon Mitchell**

His property is located at Peake Bellanagare. The PRD is to the south of his property.

- They will be adversely affected during the construction phase as they will be surrounded on 3 sides by site works. Noise and air emissions will have a major impact.

- It will result in overlooking and loss of privacy. The proposed planting scheme is insufficient.
- The access road will be used by farmers to move livestock which would conflict with pedestrians/cyclists.
- During the clearing of the large section of forestry to the south-west of his dwelling and the construction of the road there will be disturbance of vermin which will pose a health risk and risk to the public water supply with the Peak Mantua group water scheme treatment plant nearby.

5.0 Compulsory Purchase Order

5.1. Documentation Submitted

The CPO submitted to the Board on the 20/12/18 is titled *Roscommon County Council Compulsory Purchase Order (No.1) 2017, N5 Ballaghaderreen to Scramoge Road Project*. It is accompanied by:-

- Chief Executive's Order No. R/152/17 signed 11/12/17
- Certificate dated 01/12/17 and signed by Senior Executive Planner and Acting Director of Planning and Enterprise
- Certificate dated 06/12/17 signed by Project Engineer and Senior Engineer
- Copies of newspaper notices dated 14/12/17, 15/12/17 & 19/12/17
- Schedule which consists of two parts, the first details the lands being permanently acquired and the second details the public rights of way proposed to be extinguished.
- 25 no. officially sealed deposit maps (Maps RN1411218-15-254425 (Sheets 1 to 25)).

The full extent of the lands required for the scheme are shown outlined in red and coloured grey on the deposited maps. The location of the public rights of way proposed to be extinguished as part of the scheme are indicated between the lines coloured green.

- Record of registered post regarding service of notices on landowners, lessees and occupiers.
- Copy of notice to landowners re. making of the CPO.

The report by the Project Engineer certifies that the maps are a true and accurate description of the proposed road development, the lands to be acquired and the public rights of way to be extinguished. The Schedule to the CPO is a true and accurate description of the lands which will be affected, and which are suitable and necessary for the PRD.

The report by the Senior Executive Planner certifies that the PRD is in conformity with the proper planning and sustainable development objectives of the area under the Planning and Development Acts, the NSS, the RPGs for the West Region and the Roscommon County Development Plan 2014-2020: Variation No.1.

The Chief Executive's Order details the documentation in connection with the making of the CPO, the above certificates from the Project Engineer and Senior Executive Planner and notes that an EIAR and NIS are to be prepared and directs an application be made to the Board for approval of the proposed development.

5.2. Objections to Compulsory Purchase Order

68 no. written objections to the CPO were received by the Board. At the time of the writing of this report 7 no. remain. The following gives a summary of the written submissions made in the said cases:

5.2.1. Brendan Cooney - CPO No. 120

The submission made on his behalf by James Kilcoyne Auctioneers and Valuers can be summarised as follows:

- The PRD will sever his lands at a huge cost and convenience. His farm will be totally devalued.
- There will be time and inconvenience involved in accessing the severed lands as he will have to use alternative routes to same which is not acceptable.

5.2.2. **Michael Carney - CPO No. 125**

The submission made on his behalf by James Kilcoyne Auctioneers and Valuers can be summarised as follows:

- He runs a monumental sculpture business and sales yard on the existing N5. He employs a number of staff. It will be bypassed thereby losing the passing trade element of his business.
- There is the potential for him to go out of business which would be a huge loss both to himself and the local economy.
- His lands which he farms will be severed at financial loss and inconvenience.
- He will be denied direct access to part of his lands and will be greatly inconvenienced.
- He will find it difficult to replace the lands being acquired with lands conveniently located to his existing lands.

5.2.3. **Anthony Callaghan - CPO No. 135**

The submission made on his behalf by James Kilcoyne Auctioneers and Valuers can be summarised as follows:

- The PRD will sever his lands at a huge cost and convenience. His farm will be totally devalued.
- An accommodation road to access his lands is not satisfactory. An underpass has been sought.

5.2.4. **Patrick & Bridie Hanily - CPO NO. 270**

Their original objection is supplemented by a further submission following the further information received by the Board. The submissions can be summarised as follows:

- Their property is located at the point where the PRD and the existing N5 will intersect.
- There are no clear details of the exact line and height of the realigned N5 past the Hanily owned dwelling, farm yard and buildings.

- The proposal will have serious negative impacts on the viability of the farm operation. An access from the PRD to the western extremity of the landholding near location Ch12+400 is required. It is too far from the new access point proposed at location Ch12+800. Cattle crushes are required at both accesses.
- The PRD will mean that turf banks and lands to the west will be on the opposite side. Access from the road is essential.
- Due to the complexity of the proposed roads/junctions and heights of embankments there will be greater potential for accidents. Suitable amelioration solutions are required.
- There are concerns about safe exit and entrance from the family dwellings.
- It will detract from the rural character, setting and context by virtue of its proposed height and close proximity to the family homes and farm. There will be significant overlooking, noise and fumes from traffic coming off the PRD. The road is to have 2100 vehicles per day. At night there will be impacts from vehicle head lights.
- The lack of certainty and clarity is impacting on their decision to advance a proposed extension to the 2-storey dwelling.
- The proposal will be visually obtrusive given its height and the significant re-alignment and alterations to the existing road at Junction 7. Between Ch12+500 and Ch12+700 the heights above the existing ground profile will range between 3.431 metres and 3.088 metres respectively. The proposed N5 will be approx. 2.8 metres higher than the existing N5 at the location where they will cross. It will dissect the family homes from Bellanagare and neighbouring houses to the south.
- It is not clear why the proposal has to be raised by such a significant height between Ch12+150 and Ch12+900. The extent of embankments does not seem necessary where it is considered that the existing landscape further east starting at location Ch13+000 will be severely cut.
- Reconsideration how the height can be reduced to no more than the current height of the N5 in proximity to their holding is requested.

- They do not agree with the conclusions of the landscape and visual analysis that the impact of the PRD on the two storey dwelling would be imperceptible. The images provided by way of further information show trees at the height of their summer foliage when they would provide maximum visual protection. At other times of the year the trees would have limited/no foliage to provide visual screening, protection from noise, traffic head lights and protecting residential outlook.
- The location of construction compound No.2 is a significant health and safety concern. As the project is to be built in one phase there will be construction impacts for the duration. There will be a significant increase in traffic during construction. Traffic management will be challenging due to the large quantum of vehicles. A specific traffic management plan and construction management plan should be prepared for the Hanily dwellings and farm.
- Whilst an underpass is to be provided at Ch13+700 to facilitate the existing Bellanagare cycling and walking route this will add a considerable distance to Bellanagare Village and is a significant distance east from the Hanily dwellings. There is no provision for safe passage of pedestrians and cyclists from the proposed access road Junction 7B and C leading east to Ballaghcullia and Hermitage House. An allocated cycle/pedestrian path should be provided as part of this access road.
- There are concerns that the works, including embankments, will create serious issues with waterlogging of land and impact on the current drainage patterns. Of particular note is the triangular area of land located between the new access road to Frenchpark and north of the proposed N5.
- Solutions to prevent dumping are required.
- There will be an attenuation pond and access to the proposed Junction 7C on their land. It would have a visually negative impact and other long term impacts including potential to attract rodents. Ameliorative solutions required. Landscaping is required for screening.
- The Council should clarify that reference to a 1-year storm event in section 5.2.4 actually refers to 100-year storm event.

- It is understood that there will be an excess of rock to be quarried across the entire road scheme. They are concerned that this excess of rock has influenced the design solution. Specific reference is had to the height of the proposed embanked roads through their lands and that it may have been designed at these heights to accommodate surplus rock from other parts of the road scheme.

5.2.5. Robert Brady - CPO No. 440

The submission by Martin & Rea on his behalf can be summarised as follows:

- Land take is excessive.
- Agricultural assessment is incorrect
- Part of plot 431 (west side) is owned by plot no. 420. Landownership map sheet 4 of 10 plot 420/431 is not in conformity with the CPO map.
- The design of road from Ch14+900-Ch15+600 is inadequate. An accommodation road or new road should be provided.
- The design of the road between Ch15+500 and Ch15+800 is dangerous in terms of traffic movements and increased accident potential.
- The livestock underpass at Ch15+600 should be moved west and become an underpass that can accommodate vehicle traffic and so improve safety. On such provision the access at Ch15+800 north could be eliminated which would contribute to safety
- No consideration given to possible unauthorised parking and dumping of rubbish on the proposed accommodation roads.
- Noise mitigation is required to ensure that the road design complies with WHO standards.
- Noise monitoring proposals are inadequate.
- Dust mitigation and monitoring proposals during the construction phase are inadequate.
- Suitably designed safety barriers should be provided where there is an accommodation road on top of road in cut.

- The EIAR is deficient in certain areas and is lacking in legal commitment. It is not legally binding in relation to the final levels.
- The CPO fence is insufficient
- The final design should be the same as set out in the EIS. Should there be a change the affected property owners should be independently advised and the costs for same covered. Any changes that occur should be agreed in writing with the affected property owners.
- The drainage design is deficient.

5.2.6. **John Nerney - CPO No. 659**

The submission made on his behalf by James Kilcoyne Auctioneers and Valuers can be summarised as follows:

- The PRD will have a negative impact on his farming business. His farming activity will be greatly inconvenienced during the construction and operational phases.
- It is queried why the road was not located to the north of his lands.

5.2.7. **Pawel & Aleksandra Szawernoga - CPO No. 758**

Submission made on their behalf by Pdraig Kelly Solicitor

- They have recently purchased the property and reside there.
- The reduction in the size of the site will have an adverse effect on the current value of the property and reduce the load to value ratio of the property to the extent that the equity value of the property will be significantly reduced. It will negatively impact the future marketability and the attainment of the optimal sale price.
- The proposed works could be completed without the necessity of the CPO of any part of their home.

6.0 **Oral Hearing**

An oral hearing was held over two days from the 9th October, 2018 at the Percy French Hotel, Strokestown. A recording of the hearing is attached to the file. A brief

summary of the proceedings is provided in Appendix 2 to this report. Reference is made throughout the following assessments to information and detail provided at the hearing.

7.0 Planning Assessment

I consider that the key issues that arise for consideration by the Board in this case are as follows:

- Policy Considerations
- Need and Justification for the Proposed Road Development
- Alternatives
- Socio-Economic Impacts
- Hydrology and Hydrogeology
- Landscape and Visual Impact

As there is a degree of overlap between the topics covered in this section and the EIA of the project I recommend that it should be read in conjunction with section 8 of this report.

7.1. Policy Considerations

- 7.1.1. There is a suite of documents to which reference has been made by the applicant in setting the policy context of the PRD.

European Policy

- 7.1.2. In a European context and as detailed in the oral hearing submissions by Mr. Thorpe and Ms. Davis the TEN-T policy which pertains to transport sets out the framework for policy development in transport up to 2030/2050 with the aim being to close the gaps between Member States' transport networks. The objective is to ensure that progressively, throughout the entire EU, the TEN-T will contribute to enhancing internal markets, strengthening territorial, economic and social cohesion and reducing greenhouse gas emissions. The TEN-T consists of two planning layers, namely the Core and Comprehensive transport networks. The N5 national primary

route forms part of the TEN-T comprehensive road network which feeds into the core network at regional and national level.

- 7.1.3. Regulation (EU) No. 1315/2013 sets out the requirements for high quality roads that shall form part of the TEN-T road network, both Core and Comprehensive. As per Article 17(3) high quality roads shall be specially designed and built for motor traffic and shall be motorways, express roads or conventional strategic roads. I would concur with the applicant's view that the PRD, entailing a Type 1 Single Carriageway, complies with the provision of a conventional strategic road specially designed and built for motor traffic rather than following a legacy alignment that is unsuitable for long distance freight and passenger traffic and therefore is in compliance with the TEN-T requirements for a strategic road forming part of the Comprehensive Road Network.

National Policy

- 7.1.4. Subsequent to the preparation of the EIAR and submission of the application to the Board the National Planning Framework (NPF) was published jointly with the National Development Plan 2018-2027 Infrastructure Investment Programme under the umbrella of Project Ireland 2040. The NPF supersedes the National Spatial Strategy. The N5 Ballaghaderreen to Scramoge PRD is detailed in the list of projects identified to improve accessibility to the north-west in the National Development Plan. The plan states that the objective is to complete linkages so that every region and all the major urban areas, particularly those in the north-west, which have been comparatively neglected until recently, are linked to Dublin by a high quality road network. Concurrently the upgrading of the N5 National Primary Road is a specific objective of the NPF.
- 7.1.5. The document *Investing in our Transport Future: Strategic Investment Framework for Land Transport (Department of Transport, Tourism and Sport) 2015* established high level priorities for future investment in land transport and key principles to which transport investment proposals will be required to adhere to. The PRD would be in accordance with the priorities which seek to 'achieve steady state maintenance' which includes keeping the system in an adequate condition including meeting EU standards requirements and to maximise the contribution of land transport networks to national development achieved through targeted investments that enhance the

efficiency of the existing network, improving access to the north-west, addressing safety issues and supporting identified national and regional spatial planning priorities.

- 7.1.6. In terms of *Smarter Travel – A Sustainable Transport Future* the proposal would be consistent with one of the key goals which seek to improve economic competitiveness through maximising the efficiency of the transport system and alleviating congestion and infrastructural bottlenecks. The road network is also an important element in providing for improved public transport such as the services provided by the CIE Group and private operators.

Regional Policy

- 7.1.7. The improvement of the N5 from Westport to Roscommon/Longford borders, minimising environment impact, is a specific objective (IO5) of the Regional Planning Guidelines for the West Region 2010. The listed projects are identified to promote balanced regional development.

Local Policy Context

- 7.1.8. The Roscommon County Development Plan 2014-2020 notes the importance of the N5 corridor for the promotion of regional development and, by way of objective 4.22, prioritises the completion of planned works as set out in Table 4.1 which includes the N5 Strategic Corridor (Ballaghaderreen to Scramoge).
- 7.1.9. I propose to address the PRD's compliance with other development plan policies and objectives under the relevant sections below.

Conclusion

- 7.1.10. In conclusion, therefore, I submit that the project has support at national, regional and local policy levels with the proposal being fully in accordance with and would advance specific objectives as set out in the National Development Plan, Regional Planning Guidelines and the current County Development Plan.

7.2. Need and Justification for Proposed Road Development

- 7.2.1. The background and need for the scheme is set out in Chapter 2 of the EIAR and in Mr. Thorpe's and Mr. Spencer's submissions to the oral hearing

Existing N5

- 7.2.2. The N5 corridor which extends from Westport in County Mayo through to Longford where it joins the N4 and continues to Dublin, has been the subject of successive investments to improve journey times and safety since the 1970's. With the exception of the section between Westport and Castlebar which is currently being improved to Type 2 Dual Carriageway standard, all earlier improvements have been to Type 1 Single Carriageway with hard shoulders.
- 7.2.3. Traffic flows on the various sections of the N5 between Ballaghaderreen and Scramoge are generally in the range of 4,600 to 6,800 AADT with Heavy Commercial Vehicles (HCV) equating to between 7.7% and 10%. In the absence of the PRD traffic flows on the various sections of the existing N5 under consideration are predicted to increase by 17% to 22% by the design year 2035 with traffic ranging from 7100 AADT west of Frenchpark, 5600 at Tulsk and 7000 at Strokestown. Of these HCVs of 10% to 12.6% are predicted. These modest flows do not, of themselves, indicate a significant traffic capacity deficiency. The key issues are the effects of the poor standard of the N5 on journey times and level of service.
- 7.2.4. The section of the N5 between the end of the Ballaghaderreen By-Pass and Scramoge to the south-east of Strokestown is the only length that remains substantially unimproved. It carries both inter urban and local traffic and passes through the villages of Frenchpark, Bellanagare and Tulsk and through the town of Strokestown where the 50kph applies. Outside of these settlements the rural sections of the road, whilst having a 100kph speed limit, have largely a poor alignment and narrow cross section with very limited opportunities for overtaking thereby resulting in significantly lower speeds and regular platoons of vehicles forming behind slow moving commercial and agricultural vehicles. In addition, there are 74 public road junctions and 210 private accesses to dwellings and commercial premises with a further 262 field accesses.
- 7.2.5. In addition, the existing N5 traverses the Rathcroghan Archaeological Complex which is included in the UNESCO World Heritage Tentative list as part of The Royal Sites of Ireland. It also traverses the Tulsk Medieval Borough, the 18th century planned settlement of Strokestown and is in close proximity to the archaeological sites of Ardakillin and Cloonfree.

- 7.2.6. The observed average speed over the stretch of road is in the region of 66kph which is materially below (1) the TII's target minimum of 80kph as set in the National Road Needs Study 1998, (2) the findings of the Road Safety Authority's Average Free Speed Survey for national primary single carriageways, being 90kph and (c) the NPF objective for improving average journey times on inter-urban roads, targeting an average inter-urban speed of 90kph.
- 7.2.7. The lack of overtaking opportunities and stopping sight distances, in combination with frequent junctions and accesses, many of which have restricted visibility, and the frequency of slow moving vehicles associated with agricultural activities along its length, gives rise to issues in terms of safety. Numerous sections of the corridor between Ballaghaderreen and Scramoge have a collision rate above or twice above the national average rate. Over the period from 1996 to 2012 there have been eleven fatalities and an estimated 689 injuries along the relevant section.
- 7.2.8. I consider that the detail provided clearly shows that the road is materially substandard giving rise to serious safety issues. This is borne out when travelling along the length of the road in question. The series of photographs in Chapter 2 of the EIAR and in Mr. Thorpe's submission to the oral hearing detailing various sections of the existing N5 are, in my opinion, a fair representation of prevailing conditions.

Proposed Cross Section

- 7.2.9. The 1998 National Road Needs Study recommended upgrading of the N5 to a Standard Single Carriageway now termed Type 1 Single Carriageway. Subsequently all the upgrades along the N5 corridor have adopted this cross section with the exception of the section between Westport to Turlough which is currently being upgraded to Type 2 Dual Carriageway.
- 7.2.10. A Type 1 single carriageway consists of two 3.65 m wide lanes, one in each direction, two 2.5m wide hard shoulders and grass verges of 3m minimum width.
- 7.2.11. The predicted traffic flows for the PRD in the design year of 2035 range from 4300 AADT to 7400 AADT. The PRD would result in an overall reduction in traffic along the existing N5 between Rathkeery and Scramoge in the region of 70% because of traffic transferring onto the PRD and will attract significant volumes of trips from a number of less attractive regional routes including the R368 between Elphin and

Strokestown and the R369 between the N5 and N61. Compared with 2035 Do Minimum Scenario the PRD will reduce average journey times by 10 minutes or 31% of the overall journey time over this section.

7.2.12. As noted in Mr. Thorpe's submission to the oral hearing the recently published NPF includes revised population growth figures derived by the ESRI that are significantly greater than the previous Recovery Scenario upon which the National Traffic Model and TII Project Appraisal Guidelines are based. The NPF makes a further allowance to account for the possibility of higher net in-migration than that predicted by the ESRI. In the absence of published updates to the national traffic model and TII Project Appraisal Guidelines a sensitivity analysis for the Local Area Model was undertaken. This has indicated the potential for the predicted 2035 traffic levels on the N5 corridor to further increase by another 18%. This percentage increase would give AADT figures of between 5074 and 8732.

7.2.13. Comparing these flows with the capacity for rural road layouts as set out in Table 6/1 of Design Standard TII/NRA DN-GEO-03031 indicates that a Type 2 Single Carriageway would be capable of achieving the minimum Level of Service (LoS) D. Whilst the proposed Type 1 single carriageway which has a capacity of 11600 could be considered an over provision of infrastructure, I would accept that to improve a road to only just meet a LoS D standard would be inconsistent with the carriageway provided on the remainder of the N5 between Longford and Castlebar and would not provide any future proofing of capacity to accommodate increases in traffic demand along the N5. It would provide for full overtaking visibility over 50% of its length and would facilitate the NPF objective of an average inter-urban speed of 90kph. I note that an incremental analysis to compare the options was undertaken in accordance with the TII/NRA Project Appraisal Guidelines which identified the Type 1 Single Carriageway as the preferred option (see section 3.9 of the EIAR).

7.2.14. In response to the submissions made to the Board regarding the use of a dual carriageway cross section as developed at Mullingar and being developed at Turlough the traffic volumes at these locations, which are considerably higher than this section of the N5, dictate such provision. Similarly, the section of the N4 between Mullingar and Longford that is proposed to be upgraded to motorway in the National Development Plan carries the combined traffic of the N4 and N5 which merge at Longford. In addition, the full grade separation of the local road network

would restrict the transfer of regional traffic onto the new road and would also require the construction of more bridges, leading to an increase in embankments, cuttings and location road diversions which would add both to the cost and, potentially, the environmental impacts of the project.

- 7.2.15. I would therefore accept the view that the continuation of the Type 1 Single Carriageway of the adjoining N5 Ballaghaderreen Bypass and N5 Scramoge-Cloonmore upgrade would provide for a consistency of standard.

Junction Strategy and Design

- 7.2.16. Working within the design standards for a Type 1 Single Carriageway the number of junctions has been optimised in order to secure a balance between access needs and safety benefits. The 33.4km stretch of new road will have 15 T- junctions, 3 roundabouts and 6 direct accesses.
- 7.2.17. The Frenchpark roundabout on the R361 will form the main access point to Frenchpark from the new N5. This will change the traffic patterns at the junction between the R361 and the existing N5 increasing traffic entering Frenchpark on the R361 and reducing the traffic on the existing N5 to approx. 300 vehicles per day. The existing crossroads in Frenchpark is to be reconfigured to give priority to the R361 which will carry the greater traffic flow (see Figure 3.34 of the EIAR).
- 7.2.18. A 2nd roundabout is proposed at the junction with the N61. Offline, a roundabout is proposed at Shankill to replace the existing staggered crossroad between the N61 and R369 which is noted as an accident blackspot.
- 7.2.19. A 3rd roundabout is proposed to facilitate access to Strokestown with an offline roundabout also proposed at Kildalloga to facilitate local access.
- 7.2.20. Save for the two compact grade separated junctions at Ballaghaderreen and Charlestown the proposed junction types are consistent with all of the sections of N5 that have been improved over a length of 100km. All junctions, roundabouts and accesses have been designed to ensure adequate capacity and visibility in accordance with current standards. A Stage F Road Safety Audit was undertaken at route selection stage with a Stage 1 audit on completion of preliminary design prior to land acquisition procedures. A supplementary Stage 1 Audit was completed following design changes arising from the Peer Review. Full agreement between

the design and audit teams was recorded. As a result no Exception Report was necessary (see submission 18 OH).

Need and Justification - Conclusions

7.2.21. I conclude I consider that the need for the project has been demonstrated and, having travelled the section of road between Ballaghaderreen and Scramoge, which is substandard in width and alignment along large stretches, this need is evident. I also consider that applicant has fully supported its case for the cross section and junction design proposed.

7.3. Alternatives

- 7.3.1. The consideration of alternatives is set out in Chapter 3 of the EIAR and Mr. Thorpe's submission to the oral hearing, which also details the background to the proposed development dating back to the recognition of the need for improvements to the alignment and road cross section through this 33km section of road in the National Road Needs Study of 1998. In my opinion the assessment undertaken in terms of route alternatives, in addition to alternative modes of transport and management options, is detailed and robust and allows for a reasonable and balanced comparative analysis. I also note the details of the public consultation conducted throughout the process. The following gives a brief synopsis.
- 7.3.2. Firstly, in terms of alternative modes of transport the N5 corridor between Longford and Swinford is not served by the rail network, although Westport and Castlebar are served by a line that goes to Dublin via Athlone. Improvement to rail services are of no benefit to most of the centres served by this section of the N5. While a modal shift to rail from Westport and Castlebar could reduce the volume of long distance car traffic, the distances involved are too short for rail freight to be economic. Reduced car volumes from Westport and Castlebar would not address the deficiencies of the N5 between Ballaghaderreen and Scramoge which are related to poor road standard rather than congestion. Improved bus services would be hampered by the poor standard of the existing N5 and require journey time improvements in order to become more attractive.
- 7.3.3. In view of the extent of cross section and junction deficiencies along its length small scale or targeted improvements would not assist in improving journey times or

safety. In addition, local improvements have been constrained by the sites of archaeological, cultural and ecological value in close proximity. The available management options have been implemented but, as evidenced, the overall problems remain.

- 7.3.4. A Constraints Study was published by Roscommon County Council in 2006 that identified a broad study area measuring approx. 329km³. As part of the route selection process 7no. route corridors, including an online upgrade minimal local improvements considered as the Do Minimum Option (No. 3), were identified as indicated in Plate 3.3 and Figure 3.2 Volume 3 of the EIAR. A synopsis of the route corridors is given in Section 3.7.2 of the EIAR. Each route commenced in Ratra/Teevnacreeva townlands and terminated in Scramoge/Treanaceeve connecting the recently completed N5 Ballaghaderreen Bypass with the previously improved N5 Scramoge to Cloonmore scheme. A standard single carriageway cross section, now termed Type 1 Single carriageway, was considered during the selection stage. Each route was assessed and ranked under the criteria of Engineering, Environment and Economics. Corridor 1A was identified as the emerging preferred option and was identified as such in the Route Corridor Selection Report published in 2010.
- 7.3.5. Due to budgetary constraints the further development of the project was suspended for a number of years. The project was reactivated in 2014 and following a review of the earlier work, concluded that no major changes in traffic patterns were identified which would compromise the original route corridor selection process. At this time further consideration was given to the potential for the upgrade of sections of the existing N5 with local by-passes in addition to an online option with local bypasses and bypass of the Rathcroghan archaeological complex (sections 3.10 – 3.11) so as to maximise the use of the existing infrastructure.
- 7.3.6. Following confirmation of the Preferred Route Corridor targeted studies and surveys were undertaken in accordance with current guidelines and best practice to identify any potential local constraints which would need to be taken into consideration when developing the specific route alignment. From same an initial route alignment was developed. Consequent to this further public consultation was undertaken in 2015. Where possible amended proposals were developed to address the issues raised with further meetings scheduled with affected land and property owners in December

2015 in addition to a public information event. Following same some localised amendments were made. The emerging route alignment was submitted for Peer Review in accordance with TII/NRA Project Management Guidelines 2010. It recommended that further efforts should be made to reduce the number of junctions and to simplify the proposed re-alignments of the local roads. Further changes were undertaken in response to same and to further feedback from landowner consultations. Landowners directly affected by the changes were invited to meet the Design Team in August 2016. All other 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.

- 7.3.7. With regard to the written submission made by Mr. Brendan White I note that the alternatives included a southern option through Clashaganny (corridor 4) and that it scored poorly in each of the overall assessment criteria. Mr. Thorpe also noted in his submission to the oral hearing that traffic heading north from Roscommon town on the N61 will continue to use the existing N5 whether for local access to Strokestown, Tulsk and Bellanagare or to continue further east or west.
- 7.3.8. In view of the above and having regard to the characteristics of the proposed development, I consider that the applicant has adequately identified and described reasonable alternatives which are relevant to the project and the main reasons for the option chosen.

7.4. **Socio Economic Impacts**

- 7.4.1. As outlined in section 7.2 above, the PRD will have significant benefits for the wider community by substantially reducing traffic hazard and improving access to the north-west.

Impact on Land Holdings

- 7.4.2. Due to the extent of the off-line development the PRD will undoubtedly have a material impact on established farm enterprises. The main agricultural enterprises are beef (71.1%), mixed grazing livestock (12.4%) sheep (7.4%), mixed field crops (6.6%) and dairy (1.4%). The area to be removed from agricultural production is approx. 350 hectares and will affect 170 agricultural holdings either by sub-dividing

them or reducing the area of the farm. Impacts also arise in terms of drainage and supply of services and alterations to boundaries.

- 7.4.3. As per Table 16.7 of the EIAR the magnitude of residual impact is calculated to be profound for 1 farm enterprise (0.6%) due to the individual or combined impact of landtake. The holding in question is at Lavally (CPO No. 960) where a dwelling and farm buildings are to be acquired. A further two holdings will have a significant residual impact (CPO Nos. 565 & 855). One is a mixed livestock farm where the primary farming operation is a dairy enterprise with the main residual impact being the level of landtake involved. The second farm is a beef farm enterprise and the main residual impact is the level of landtake due to the proposed road alignment and an associated material deposition area.

Significance of Impact	No. of Farms	% of Total
Profound	1	0.6%
Significant	2	1.2%
Moderate	82	48.2%
Slight	74	43.5%
Imperceptible	11	6.5%
	170	100%

- 7.4.4. The severance of agricultural properties will undoubtedly result in increased inconvenience. Severance of land is an unavoidable consequence of the off-line development and alterations to individual properties will occur. Whilst not wishing to undermine or underestimate the concerns expressed regarding the inconvenience and disruption that will be generated, I consider that the improvements will benefit the community at large. Whilst I accept that all the impacts cannot be completely eliminated this has to be balanced against the identified need to provide a national primary road to an acceptable standard and, provided the land take is reasonable and proportional, these impacts are considered acceptable. Increased management input and/or operational changes due to land take are effectively matters for compensation should the CPO be confirmed by the Board.

- 7.4.5. There are 40 non-agricultural properties directly impacted by the PRD (See Figure 16.1 to 16.25 in Volume 3) including 35 residential properties, one commercial property, one development site and three community properties. The PRD will involve the permanent acquisition of approximately 7.791ha from 40 non-agricultural properties.
- 7.4.6. Of the 40 properties 1 is to be acquired which is a single storey dwelling at Corry East. As confirmed at the oral hearing the dwelling, whilst not occupied on a permanent basis, is used by family members. A development site on which permission has been secured at Ballaghcullia will also be profoundly impacted. Following mitigation 3 no. properties (2 no. Gortnacranagh near the N61 roundabout and 1 no. at Cregga), will continue to have a significant impact, although the continued use of each of the residential properties will be possible.
- 7.4.7. Of the remaining residential properties land take will result in the reduction in the area of the property, impact on property entrance and/or boundary and public road. The TII/NRA's Code of Practice Guide to Process and Code of Practice for National Road Project Planning and Acquisition of Property for National Roads will be adhered to with respect to all lands potentially impacted by the proposed works. The general mitigation measures proposed include maintenance of access, generally replacement of boundaries on a like for like basis (or it will be treated as a compensation issue), property condition surveys of buildings / structures in use located within 50m of the extent of the CPO boundary and repair/replacement of any services that are interfered with. Further mitigation specific to individual properties for other impacts are detailed and described in Chapter 11 Landscape and Visual, Chapter 12 Noise and Vibration and Chapter 13 Air Quality and Climate of this EIAR.
- 7.4.8. The issues arising with regard to the outstanding CPO objections are addressed in full in section 10.2 below.

Severance

- 7.4.9. Although the study area is lightly populated, much of the local population is concentrated along the N5 corridor and in the settlements of Frenchpark, Bellanagare, Tulsk and Strokestown. Access to community facilities such as schools, pre-school and after school facilities, churches, shops etc. is significantly impacted by severance in each settlement and particularly near crossroads or

junctions. This severance imposed by road traffic has implications for physical movement and social interaction.

- 7.4.10. I also note that the N5 has the effect of severing the historic landscape of Rathcroghan to an extent that its integrity, its relevance to local people and tourism appeal, is diminished.
- 7.4.11. The PRD will assist in reducing severance in the settlements. There will also be a positive impact on their general amenity due to the transference of much of the traffic to the PRD and the cumulative effect of reduced noise, visual intrusion, improved local air quality and improved pedestrian and cyclist environment. This positive impact will extend to the Rathcroghan archaeological complex for the same reasons and the benefit this will have in terms of the ambience of the locality for local visitors and tourists.
- 7.4.12. However, there are likely to be significant impacts on local businesses in the study area that rely on passing trade. Reductions in traffic on the existing N5 will average 68%. Service stations, in particular, will be significantly affected. Cafes, accommodation (i.e. hotels, B&Bs) and other businesses are also vulnerable to loss of passing trade and the associated familiarity provided by road frontage. With the opportunity to leave and re-join the proposed road development, there is potential to reduce the significance of these impacts in Frenchpark and Strokestown in combination with appropriate signage. However, this option is not available for Bellanagare or Tulsk.
- 7.4.13. The comments regarding loss of passing trade are pertinent in terms of the monumental sculpture business operated by Mr. Carney at Sheepwalk who is an objector to the CPO. He informed the hearing that a significant proportion of his business, approx. 50%, is from passing trade and that the PRD may result in him going out of business. The applicant in response stated that the presence of the business is not very obvious and that much business is likely to be derived from local knowledge. On balance I must accept Mr. Carney's assertion in terms of the passing trade he benefits from and acknowledge that his business may be negatively impacted as a consequence of the PRD. In response to Mr. Carney's query as to why a junction could not be provided where the existing and proposed N5 deviate in the vicinity of Rathkeery, Mr. Thorpe informed the hearing that in order to form a safe

junction a certain level of separation needs to be available which is not attainable at this location. Following detailed study, the safest and correct location is considered to be that adjacent to the Douglas Hyde centre (Junction 4A).

- 7.4.14. A slight negative amenity impact will apply to the Douglas Hyde Centre as most traffic will be transferred to the new road development and the facility will not be visible to people using the proposed road development. However, access will be possible immediately adjacent to the west (Junction 4A) and the impact can be reduced with appropriate signage.
- 7.4.15. The transfer of traffic to the proposed road development could have an impact on the number of visits to the Strokestown Park House and the Rathcroghan complex, but this can be mitigated through marketing and signage in line with TII policy guidance
- 7.4.16. The PRD will sever and impact negatively on the circular local amenity walk route of Bellanagare and which is referenced in the CPO objection by Patrick and Bridie Hanily. The PRD will cut two minor roads at LS 5640 and LS 5641 at Ch. 13+150 and Ch. 13+700. In mitigation a segregated pedestrian cycle facility through an underpass at Ch13+950 is proposed which will retain the connectivity of the walking route at LS 5641. New footpaths are proposed within the proposed road boundary linking the severed sections of the LS 5640 and LS 5641 via the underpass forming a figure of eight. This will result in two walking routes; a longer route of 5.77km which utilises the underpass and a shorter route staying south of the PRD which is 2.95km in length. The visual impact will be mitigated by the proposed road being with a cutting between these points.
- 7.4.17. In conclusion, whilst not wishing to undermine or underestimate the concerns expressed regarding the inconvenience and disruption that will be generated by the PRD and noting that all of the impacts cannot be completely eliminated, this has to be balanced against the identified need to provide a national primary road to an acceptable standard and the exigencies of the common good. In that context, therefore, the impacts are considered acceptable.

7.5. Hydrology and Hydrogeology

- 7.5.1. The Board retained the services of Mr. J. Keohane to advise it on matters relating to hydrology and hydrogeology. Mr. Keohane's report is appended to this report. The

Board is also advised that there is an overlap with section 8.5 which addresses water in the EIA. I will deal with issues relating to impact or likely impact on ground and surface water dependent ecosystems of European Sites in more detail in the Appropriate Assessment in section 9 of this report.

7.5.2. Chapters 9 and 10 of the EIAR address hydrology and hydrogeology which are supplemented by further information submitted 07/06/28 following a request from the Board dated 10/05/18 which includes integrated hydrological and hydrogeological graphical models for the following areas:

- i. Bellanagare Bog and Cloonshanville Bog European Sites including karst area 2-Leggatinty, the associated Groundwater Bodies and the Carricknabraham and Owennaforeesha River system.
- ii. Zones of Contribution of Peak-Mantua, Cloonyquinn/Curracreigh and Polecat Group Water Schemes including the karst area 3 -Kilvoy, Corry East and Cloonyeffer.
- iii. Annaghmore Lough SAC including karst areas 4 -Tullyloyd and 5-Cregga and the Ovaun Stream.

The submission by Mr. Anthony Cawley to the oral hearing is also of relevance.

Receiving Environment

7.5.3. The PRD crosses several watercourses which are part of the Upper Shannon Catchment, the location of which are shown on Figure 10.1 in Volume 3 of the EIAR. There are 5 no. major watercourses (Carricknabraham, Owennaforeesha, Owenur, Strokestown, and Scramoge Rivers) in addition to a number of other crossings of minor watercourses, details of which are given in Table 10.1 of the EIAR

7.5.4. There are 3 aquifer classes traversed by the PRD the majority (89% of the road length) lying within a Regionally Important Karstified Aquifer, dominated by conduit flow (Rkc).

7.5.5. There are 5 separate hydrogeological groundwater bodies traversed by the PRD and are detailed in Table 9.7 of the EIAR. The PRD predominantly passes through the Carrick on Shannon GWB which is classified as having poor status and is assigned an overall risk result of 1A - At Risk. The objective is to restore the GWB to good status by 2021.

- 7.5.6. The groundwater vulnerability along much of the PRD is classified as High to Extreme due to the shallow depths of overburden and frequent rock outcropping.
- 7.5.7. The North Roscommon Regional Water Supply Scheme which is sourced from a surface abstraction from Lough Gara provides water in the vicinity of Ballaghaderreen, whilst a large proportion of domestic and commercial properties along the route have water supplies sourced from groundwater either through private wells and springs or Group Water Supply Schemes. The PRD passes in close proximity to the Peak Mantua GWS and Curracreigh GWS. The alignment is outside the estimated zone of contribution for both of these supplies.
- 7.5.8. The fact that the landscape in the vicinity of the PRD hosts a number of karst features such as swallow holes and turloughs is recognised in the EIAR and are detailed in section 9.3.5.3 of the EIAR. In summary
- (a) Leggatinty (Ch. 11+000 – 11+700) is identified as a significant karst area with a number of known karst features approximately 475m to the north of the proposed route. One of these features is an underground stream cave known as Pollnagran, which stretches underground for a distance of approximately 750m in a northwest direction away from the proposed route. The cave has an entrance in a shallow blind valley where a surface stream sinks underground. Another stream combines with this underground stream a short distance into the cave. Pollnagran Stream Cave is a geological heritage area.
 - (b) Kilvoy and Corry East (Ch. 18+400 – 19+300) with a number of surface karst features (swallow holes) identified in close proximity to the proposed route. One swallow hole is located within the footprint of the proposed route at Ch. 19+050.
 - (c) Cloonyeffery (Ch. 20,450m) there is a sinking stream approximately 65m to the south of the proposed route at this location.
 - (d) Portaghard (Ch. 3+450m – 4+100m) A number of surface karst drainage features, have been identified between 50 and 100 metres from the PRD.
 - (e) Tullyloyd (Ch. 34+350m) A swallow hole was identified c. 150m south of the proposed road.

- (f) Cregga turlough adjacent to a fill segment along Section C situated at the bottom of the steep sided slopes at Ch. 37+520m north of Annaghmore Lough.

Potential Impacts

- 7.5.9. In terms of works which have the potential to have an impact on hydrology and hydrogeology the following are noted:
- 7.5.10. There are a number of significant cut sections proposed along the route which are detailed in Table 9.25 of the EIAR ranging from 4.2 metres between Ch 22+000 – 22+600 to 33 metres between Ch 35+600 – 36+450.
- 7.5.11. Embankments are also required along the route and range in height from 1 metre up to 12.3 metres, details of which are set out in Table 9.27 of the EIAR. In areas of soft ground, the soft material will be excavated and replaced by suitable bearing material before the embankment is constructed.
- 7.5.12. Clear span bridges are proposed across the 5 rivers with the structures to be designed with a capacity to accommodate the estimated 100 year flood flow with appropriate allowances for statistical error and climate change.
- 7.5.13. The PRD is to have 22 no. storm outfall discharges, all of which are to discharge to surface watercourses.
- 7.5.14. 17 no. material deposition areas are proposed for the excess soft and unacceptable material along the route and details of their location and capacity are set out in Table 10.33 of the EIAR. The sites provide a storage capacity of 0.978million m³ which can accommodate the anticipated 0.96 million m³ of potentially excess unacceptable material which may be encountered.
- 7.5.15. I note and agree with Mr. Keohane that the potential impacts on hydrology and hydrogeology are identified in the EIAR and have been considered. In summary they are:
- Changes to groundwater levels creating instability in karst
 - Slope instability during cut formation
 - Increased groundwater vulnerability during cut formation
 - Instability in karst caused by blasting

- Mis-use of cut material
- Impact from ground improvement techniques
- Operational impacts on slope stability due to continued groundwater seepage.
- Impacts created by the formation of material deposition areas.
- Volumetric impacts on groundwater and surface water from road run off.
- Embankments creating artificial longitudinal drainage features.
- Embankments obstructing or diverting overland flow.
- Settlement creating compaction and interference with groundwater flow.
- Impacts on groundwater quality from construction and operation of the road.
- Hydraulic impacts on watercourses from poorly designed bridges, culverts, channel diversions and outfalls, creating changes in velocity, water depth and increased bank erosion.
- Increased flows or flooding in watercourses caused by uncontrolled run-off.
- Operational impacts on water quality from spillages or poor quality run-off.
- Removal of flood storage.
- Diversion of water between catchments.
- Interference with local drainage
- Elevated silt levels during construction
- Spillage of concrete and hydrocarbons during construction.
- Indirect impacts on sensitive habitats, ecological receptors, groundwater dependent features.

7.5.16. Following the further information request the key impacts related to the specified areas for examination (as detailed above) include:

- Interruption of flow to sinking karst features
- Blockage of karst features by uncontrolled run-off sediments during construction

- Compromised run-off entering karst features and, as a consequence, the aquifer
- Silts and sediments from construction or instream works entering SACs and SPAs
- Impact on Annex 1 ecological receptors by changes to the hydrological flow regime.
- Restriction and interception of sub-surface flows to public water supply spring sources.
- Physical damage to karst water supply spring sources
- Potential contaminated infiltration to groundwater
- Contamination of public water supply by road drainage.

7.5.17. The mitigation measures are set out in sections 9.5 and 10.5 of the EIAR and include site specific mitigation in Extreme Vulnerability Areas, Wetland and Ecologically Sensitive Areas, Deep Cut Sections, Karst features at Leggatinty, Blanket Bog, Wetland Grassland Areas, Fen wetland at Tullyloyd, Swallow hole and karst features at Kilvoy and Corry East, Cregga turlough and Ovaun Stream. The specific mitigation measures are set out in Tables 9.35 and 10.34 and in the amended Schedule of Commitments submitted to the oral hearing.

7.5.18. I note and agree with Mr. Keohane that appropriate mitigation measures are to be used to mitigate potential impacts associated with both the construction and operation of the road. These include:

- Stability assessment of cut slopes, use of slope stabilisation measures as appropriate, such as rock traps, rock anchors, netting, shotcrete on rock slopes, toe drains, sealed drains and liners on soil slopes, together with periodic inspections.
- Pumping to control groundwater ingress during construction,
- Interception of ditches and drains to keep work area dry.
- Maintenance of existing drainage lines as much as possible.
- Basal reinforcement to protect underlying karst where appropriate.

- Use of liners and sealed drainage system to protect karst where appropriate.
- Use of single and double silt fences, earthen berms, grass buffers, and filters to control sediment run-off.
- Appropriate storage of potential pollutants during construction.
- Construction of storm attenuation ponds, treatment wetlands and penstocks.
- Incorporation of bank erosion protection measures in streams.
- Water quality monitoring.
- Construction sequencing in sensitive areas.
- Use of longitudinal and transverse barriers.
- Use of infiltration blankets to maintain recharge where appropriate.
- Limiting any works within the mapped ZOC's of water supplies.
- Obtaining permits from OPW for instream works.
- Ongoing liaison with Inland Fisheries Ireland.

7.5.19. A detailed Construction Erosion and Sediment Erosion Control Plan (CESCP) has been prepared which sets out the principal avoidance measures, control measures and specific mitigation measures for general watercourse crossings and attenuation ponds, works near sensitive watercourses, and special locations such as the swallow holes at Mantua, Cregga Turlough and Material Deposition Areas. The plan also outlines monitoring and audit requirements and emergency response plans to be overseen by an independent Site Environmental Manager. The schedule of commitments also provides for the preparation of a Construction Management Plan prior to any demolition, excavation or construction.

7.5.20. The Board is advised that the local authority presented a response to the Inland Fisheries Ireland's written submission to the Board at the oral hearing. The said response is dated 30th August 2018. It includes design details for the culverts and bridges, detail of proposed watercourse diversions and cumulative impact assessment of combined outfalls. Additional HAWRAT analysis of the outfall discharges in respect to potential contamination of receiving surface watercourses was also carried out. The said analysis confirms that the proposed level of

treatment and the outfall discharges will not impact the water quality of the receiving watercourses in respect to fishery requirements. The IFI informed the hearing that it acknowledges the applicant's undertaking in respect of its requirements and is generally satisfied noting that it will be consulted at detailed design stage in relation to the final details of the plans and method statements as outlined and that its requirements shall be included.

7.5.21. I note and agree with the assessment and conclusions in Mr. Keohane's report. I note in particular the following:

- The investigations undertaken dating back to 2007 represent a comprehensive and structured approach to the establishment of a working conceptual hydrogeological and hydrological model (ground model).
- That the detail provided in the EIAR, supplemented by the further information submitted, is comprehensive and provides a satisfactory basis for the assessment of impacts.
- That the key attributes along the PRD have been identified.
- That the potential impacts are identified, adequately considered and characterised in the EIAR and further explained and clarified at the oral hearing.
- I note that Mr. Keohane is satisfied that the teams of experts had a satisfactory level of understanding of the existing environment together with an adequate understanding of the construction and operation of a road to enable a full and thorough assessment of the potential impacts including potential impacts on the following sensitive groundwater dependent features and Natura 2000 sites:
 - Karst Areas of Leggatinty, Kilvoy and Corry East, Cloonyeffer, Tullyloyd, Cregga Turlough
 - Groundwater Supply Sources for Peak Mantua GWS, Curracreigh GWS and Polecat GWS
 - Natura Sites at Bellanagare Bog, Cloonshanville Bog, Annaghmore Lough

- KER's

- Appropriate measures are to be used to mitigate potential impacts associated with the construction and operation of the road.

7.5.22. In view the above I am satisfied that the PRD can be carried out without having any unacceptable direct, indirect or cumulative impacts on hydrology and hydrogeology.

7.6. **Landscape and Visual Impact**

7.6.1. The potential landscape and visual impact of the scheme is considered in Chapter 11 of the EIAR which is supported by photomontages. This is supplemented by further photomontages submitted by way of further information taken at points in the vicinity of sensitive receptors. Following an inspection of the site from points in the immediate vicinity and further afield I submit that the said photomontages are reasonable and provide a useful aid in the assessment of the potential visual impact. I refer the Board to my assessment under section 8.9 which addresses landscape in the EIA and recommend that the sections be read in tandem.

7.6.2. The PRD is set within a gently rolling to undulating, relatively low-lying and visually open landscape of low ridges and broad valleys drained by small rivers and streams. The landscape includes a broad mix of agricultural grassland uses and marginalised grassland, interspersed with areas of peatland, coniferous plantations, scrub and semi-natural vegetation. Areas of coniferous plantation are prominent to the south of Frenchpark and through the central section of the route corridor. The presence of residential property is a significant feature within the landscape.

7.6.3. The PRD is not within an area designated as a landscape protection area or of scenic amenity in the current Roscommon County Development Plan.

7.6.4. The impact of the PRD on the landscape is acknowledged in the EIAR and is described in some detail. By reason of the majority of the alignment being off-line it will inevitably alter the character of the receiving environment.

7.6.5. The visual impact for 285 properties or property groups were assessed, the locations of which are detailed on Figures 11.1 to 11.25 of Volume 3. The anticipated significant visual impacts arising are dispersed along the proposed road development and are typically experienced where the PRD runs either at elevated

levels or in deep cuttings in close proximity to properties resulting in potential restrictions of views or overlooking. Summary details of visual impacts on property locations during all stages of assessment of the development are set out in Tables 11.7 and 11.8.

- 7.6.6. The Board is advised that due consideration is given to the increase in the height of proposed noise barriers as a consequence of the potential traffic increase arising from the NPF increased population growth figures. Mr. Burns in his submission to the oral hearing confirmed that the alterations will not give rise to any change to the landscape and visual impact assessment at the relevant locations or properties.
- 7.6.7. The proposed mitigation measures and planting proposals are based on the NRA publication *A Guide to Landscape Treatments for National Road Schemes in Ireland* (2006). Landscape and visual mitigation measures are predominantly in the form of roadside screen planting. Where areas are in cut or fill a grass or meadow sward will generally be established over the entire slope except in areas of cutting through stable rock. Stable rock slopes will be retained as an exposed face for natural colonisation and as a local landscape feature. Mitigation measures for specific properties are also detailed.
- 7.6.8. As landscape measures establish 32 locations will continue to experience varying degrees of profound (12) or significant (20) medium to long term negative visual impact and are shown on the respective maps referred to above. The majority of the properties are located along sections B and C where the PRD will traverse remote and rural areas, namely Mantua, Cartronagor/Creeve, Tullyloyd/Clooncullaan Lough and between Cregga Hill and Lavally north of Strokestown.
- 7.6.9. In terms of the written concerns of Bridget and Patrick James Hanily which were further ventilated by Mr. Michael Hanily at the oral hearing the dwellings within the landholding front onto the N5 in the vicinity of Cashel. The PRD is to cross the existing N5 to the south of the dwellings within their landholding (Junction 7) with access to minor local roads to be provided. An attenuation pond in proximity to the junction is also provided. The dwellings are referenced B12-004 to B12-007 on Figure 11.6. Whilst it is accepted that the PRD will be on embankment at this location reaching a maximum height of 3.7 metres, the height of the embankment is dictated by the combination of achieving the clearance to culvert WC12.01 and

providing full overtaking sight distance crest curve which is unable to follow the localised undulations in the ground. The PRD will be a minimum of 180 metres from the nearest property along which planting is proposed both within the layout of the new junction (No.7) and along the northern embankment and road tie-in facing the 3 properties. Although the CPO boundary commences adjacent to their property to allow for pavement and lining works to tie in to the existing N5, vertical realignment will not commence until beyond the entrance to the nearest dwelling. I note the photomontages as shown from receptors B12-007 and B12-008 and B13-001 on the vicinity of Junction 7 submitted by way of further information. Whilst I note that the planting post mitigation is shown during full foliage and would not represent the environment during winter months, I submit that the visual impact on the properties would not be material. I consider therefore that the assessment of the impact post establishment as imperceptible to be reasonable.

7.6.10. Mr. Eamon Mitchell's property at Peak Ch15+750 is assigned reference no. B15-005 with the PRD to run to the south of his property and an access track to the north and west (see Figure 11.8 and Table 11.1A of the EIAR). Mr. Burns in his submission to the oral hearing confirmed that the existing hedgerow on the northern side of Mr. Mitchell's property is to be retained and additional woodland planting and hedgerows are to be provided to the west and northwest of the property. In addition, a 0.45 hectare section of existing forestry is to be retained to the west and additional planting to be established on the road boundary and along the road embankment south of the property (see Figure 11.33). Such measures are considered reasonable so as to provide screening and ensure no loss of privacy. Notwithstanding I note that post mitigation the impact on his property will be profound.

7.6.11. Pawel and Aleksandra Szawernoga's dwelling is located to the south of proposed Junction 15 at Lugboy where the PRD crosses the R368 via an overbridge which would be approx. 50/60 metres from their gable wall. Their property is assigned reference number C35-002. In view of their proximity to the crossing point and notwithstanding the lowering of the R368 in the vicinity the PRD will be elevated to facilitate the regional road via an underbridge. Whilst a significant level of traffic currently on the R368 will be diverted onto the new road and thus further away from their property I consider that the conclusion that the impact post establishment would be significant to be reasonable.

7.6.12. With respect to the Rathcroghan Archaeological Complex it is development plan policy to protect and conserve the vulnerable archaeological and cultural landscape and to conserve and enhance views from and between the 12 key archaeological monuments and 4 key view points as identified in the Rathcroghan Archaeological Complex Conservation Study. Holistically the monuments of Rathcroghan present a well preserved and a largely intact complex incorporating many different monument types and phases retaining high visual landscape qualities which help to preserve the ancient character of the landscape. As previously noted the existing N5 bisects the Rathcroghan Complex and traffic on the national primary road detracts visually from the experience of appreciating and interpreting the significance of the monuments and the wider landscape setting. The avoidance of the complex constituted a material consideration in the assessment of alternative as discussed in Section 7.3 above.

7.6.13. The centre line of the PRD is located approx. 944 metres north of the 100m contour line which surrounds the Rathcroghan Complex and roughly corresponds with the edge of the plateau. Greater distances are maintained from identified monuments delineated therein ie. the PRD is over 3.5km to the north of the Rathcroghan Mound and 2km from Ballymurray Mound. It is considered to be sufficiently distant and integrated within the existing landscape including by means of ridges and valleys, forestry and vegetation so as not to give rise to any adverse landscape or visual impact on it or its setting. The proposed illumination at roundabout junctions will not have an adverse impact. Small areas of road illumination as well as more significant illumination from towns and villages including Bellanagare, Tulsk, Elphin and Strokestown are already visible in views from the complex. I consider that the photomontages prepared in support of the application are reasonable and reflect a minimal impact, if any, on same.

7.6.14. The PRD is to pass through the former demesne of Strokestown running in a north-west to south-east direction at a distance of approximately 1100m from the house at Strokestown Park. By reason of the intervening distance and proposed landscaping the PRD would have a minimal impact on views both from the house and the grounds. Again, I consider that the photomontages prepared in support of the applicant to be reasonable.

7.6.15. In conclusion whilst there is no doubt that the proposed development would change the local landscape from a visual perspective, in my view the established landscape is capable of absorbing change. In terms of residential property, I fully acknowledge that the PRD will have a material visual impact when viewed from certain receptors and that mitigation by means of landscaping, whilst assisting in terms of screening, will fundamentally alter their environment and setting and thereby the amenities currently enjoyed. Whilst not wishing to undermine or underestimate the concerns expressed regarding visual impact and alteration in context and setting which in turn impacts on residential amenity and noting that all of the impacts cannot be completely eliminated this has to be balanced against the identified need to provide a national primary road to an acceptable standard and the exigencies of the common good. In that context, therefore, the impacts are considered acceptable.

8.0 Environmental Impact Assessment

8.1. Introduction

- 8.1.1. This section of the report comprises an environmental impact assessment of the proposed development. A number of the matters to be considered have already been addressed in the Planning Assessment above. This section of the report should therefore be read, where necessary, in conjunction with relevant section of the Planning Assessment.
- 8.1.2. The application was submitted after 16th May 2017, the date for transposition of Directive 2014/52/EU amending the 2011 EIA Directive. The application is therefore supported by an EIAR. The Directive was transposed into Irish legislation on September 1st, 2018 under the European Union (Planning and Development) (Environmental Impact Assessment) Regulations, 2018.
- 8.1.3. Details of the consultations entered into by the applicant as part of the preparation of the project are set out in Chapter 3 of the EIAR and in section 7.3 of this assessment. I note that the PRD and the further information received following a request for same by the Board were subject to public notification with an oral hearing conducted over two days. A summary of the results of the submissions made by observers and prescribed bodies, including submissions made at the oral hearing,

has been set out at Sections 3, 4, 5 and Appendix 2 of this report. The main issues raised specific to EIA can be summarised as follows:

- the potential impact of the construction and operational phases of the PRD on *water*
- the potential effects of traffic during the construction and operational phases on air quality and noise and the impact of same on *human beings*
- The proposed land take and impact on *material assets*
- The potential impact on the *landscape* of the receiving environment and as viewed from sensitive receptors

8.1.4. I am satisfied that the EIAR has been prepared by competent experts to ensure its completeness and quality, and that the information contained in the EIAR and supplementary information provided by the developer is up to date, adequately identifies and describes the direct and indirect effects of the proposed development on the environment, and complies with article 94 of the Planning and Development Regulations 2000, as amended.

8.1.5. I refer the Board to section 6.1.3 of my report above which addresses the issue of alternatives considered. To avoid undue repetition, I do not propose to repeat my assessment. In view of the above and having regard to the characteristics of the proposed development, I consider that the applicant has adequately identified and described reasonable alternatives which are relevant to the project and the main reasons for the option chosen. I am also satisfied, therefore, that the requirements of the EIA Directive have been met.

8.1.6. With regard to the effects of the project on the environment arising from its vulnerability to risks of major accidents and/or disasters, this matter is addressed in section 18.4.10 of the EIAR and supplemented by further detail in the further information submitted to the Board on the 07/06/18. It is concluded that there are no significant risks from Seveso Sites, flooding, major traffic accidents requiring road closure, accidents involving spillage, spread of invasive species or ground stability.

8.1.7. In accordance with the requirements under Article 3(1)(a) to (e) of the EIA Directive my assessment of the environmental effects of the proposed development are considered under the following headings:

- Population and human health,
- Biodiversity, with particular attention to the species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC,
- Land, soil, water, air and climate,
- Material assets, cultural heritage and the landscape,
- The interaction between the factors above.

8.1.8. My assessment is based on the information provided by the applicant, including the EIAR, the response to further information and the additional material presented at the oral hearing in addition to the submissions made in the course of the application and during the oral hearing by the prescribed bodies and observers.

8.2. Population and Human Health

8.2.1. As would be expected the likely effects of the PRD on human beings and health are addressed under several of the headings of this environmental impact assessment and, as such, should be considered as a whole. Of particular relevance, in my opinion, are issues arising from severance, socio-economic impacts, noise, air quality, water and visual impact. I propose to address the latter four subjects in subsequent sections below.

8.2.2. Chapter 6 of the EIAR and the submissions made by Dr. Martin Hogan and Mr. Craig Bullock to the oral hearing refer to human health and socio-economic considerations. Chapter 12 of the EIAR and the submission by Dr. Stephen Smith to the oral hearing address noise and vibration.

8.2.3. The receiving environment is largely rural in character with farming the predominant land use. Population is dispersed with the town of Strokestown and the smaller settlements of Frenchpark, Bellanagare, Tulsk and Elphin in the study area.

Socio-Economic Considerations and Severance

8.2.4. The issues of severance and socio-economic impacts are addressed in section 7.4 of the planning assessment above and I do not propose to repeat the issues arising in detail at this juncture. In summary I accept that there will be both positive and negative effects on population. I note that positive impacts on population and human

health arise from employment associated with the construction period and the increased benefits in terms of shorter journey times and reduction in traffic hazard as detailed in section 6.2 above. The removal of through traffic from the towns and villages along the existing N5 will assist in the improvement of connectivity, noise, air and overall amenity. The removal of substantial levels of traffic along the N5 will also assist in improving the setting and context of Rathcroghan archaeological complex. Concurrently the removal of such traffic will have a negative impact on businesses which rely on such passing trade and could have a negative impact on the number of visits to Strokestown House, Douglas Hyde centre and the Rathcroghan Complex. This can be mitigated through marketing and signage in line with TII policy guidance

8.2.5. The PRD will sever and impact negatively on the circular local amenity walk route of Bellanagare. Alternative arrangements are proposed which will result in two walking routes.

8.2.6. I also acknowledge the potential for adverse health effects associated with stress and anxiety arising where property is being compulsorily acquired or by individuals where the environment in which they live is to be altered. I note that Dr. Martin Hogan in his submission states that there is no documented evidence linking such road projects to adverse outcomes in terms of psychological health both in Ireland and in other countries.

Noise

8.2.7. I note that the PRD follows the standard practice of adopting the traffic noise design goal contained in the NRA documents Guidelines for the Treatment of Noise and Vibration in National Road Schemes and Good Practice Guidelines for the Treatment of Noise during the Planning of National Road Schemes. The design goal is day-evening-night 60dB L_{den} (free field residential façade criterion). This is a well established standard which has been considered to be reasonable in previous road development projects, including those which have come before the Board.

8.2.8. The EIAR includes details of the existing noise climate along the route of the PRD. The survey methodology used followed that as detailed in the above guidelines with measurements taken by way of attended surveys at 85 no. locations and unattended surveys at 22 no. locations along the length of the PRD. I consider that the

locations of the survey points are acceptable and adequately cover the study area. The noise climate was observed to vary considerably across the proposed road development although for the most part, the baseline environment can be regarded as typical of rural locations in close proximity to local or regional roads (see Table 12.5 & 12.6). Noise levels at receptors in the vicinity of the offline sections of the proposed road development ranged from 40 to 59dB L_{den} with an average of 51dB L_{den} whilst receptors in the vicinity of the existing N5 ranged from 60 to 83dB L_{den} with an average of 79dB L_{den} with the higher values being measured at locations along the road edge. In certain instances, due to the proximity of the receptor to the roadside and the lack of any suitable proxy survey location, the sound level meter had to be placed in close proximity to the road. For approximately twenty nine of the locations surveyed, the actual L_{den} value at the receptors will be considerably lower than that outlined above.

- 8.2.9. Noise predictions were conducted using an acoustic modelling package which generates predicted noise levels for selected receiver points. The prediction methodology is based on the calculation of road traffic noise (CRTN) method which is the approved calculation method set by the TII and which is also prescribed in the *Irish Environmental Noise Regulations 2006*.
- 8.2.10. A total of 374 no. receiver locations have been considered in the assessment. The properties were selected on the basis of proximity to the existing and proposed road. All receptors within 400m of the centreline of the proposed N5 road have been modelled, whilst receptors along the section of the N61 at Shankill and the Strokestown Link Road have also been considered.
- 8.2.11. A worst case assessment was undertaken ie. using the high growth traffic forecast for opening year and the design year 2035. As noted previously subsequent to the preparation of the EIAR the NPF was published which includes revised population growth figures that exceed the CSO growth projections on which the National Transport Model and TII Project Appraisal Guideline are based. The sensitivity analysis of the traffic projections used within the EIAR has indicated the potential for the 2035 traffic volumes to increase by a further 18%. Noise levels at all receptor locations have been recalculated based on the increased traffic flow which concluded that traffic noise levels are in the order of 0.7dB higher compared to those

calculated within the EIAR. Appendix A to Dr. Stephen Smith's submission to the oral hearing details the 2035 traffic noise level with the 18% increased traffic flows.

8.2.12. Noise mitigation measures are deemed necessary whenever all of the following 3 conditions are satisfied:

- (a) The combined expected maximum traffic noise level ie. the relevant noise levels from the proposed scheme, together with other traffic in the vicinity, is greater than the design goal,
- (b) The relevant noise level is at least 1dB more than the expected traffic noise level without the proposed road scheme in place,
- (c) The contribution to the increase in the relevant noise levels from the proposed road scheme is at least 1dB.

8.2.13. The results of the modelled scenarios (do nothing and do something for opening and design years) indicate that a positive or neutral noise impact will be experienced at the majority of properties along the existing N5 as a result of traffic being diverted onto the proposed road alignment. There are a small number of properties in close proximity to the new road alignment which are predicted to experience an increase in traffic noise levels and are above the relevant traffic noise design goal of 60dB L_{den} .

8.2.14. The results of the modelling for 2020 show that the expected maximum traffic noise level is greater than 60dB L_{den} at 31 receptor positions. Noise mitigation measures will be required at 5 locations where the noise level is above 60dB L_{den} and is increased by 1dB or more as a result of the PRD. In terms of the amended results for the design year 2035 44 receptors will have levels in excess of 60dB L_{den} with 11 locations requiring noise mitigation measures. The locations are at Portaghard, Shankhill, Cherryfield, Tullyloyd, Cregga and Scramoge. The mitigation measures may be constructed as earth bunds, proprietary noise barriers or a combination of both. Consequent to the amended noise levels calculated as referred to above the height of the barriers range between 1 and 3.5 metres and an updated schedule is set out in Table 1 of Dr. Stephen Smith's submission to the oral hearing. The extent and location of these barriers are shown in Figures 12.2 to 12.26 in Volume 3 of the EIAR which have also been amended, where appropriate, to reflect the subsequent alterations (relevant drawings submitted to the oral hearing). Consequent to the said mitigation measures all but two achieve the 60dB L_{den} parameter in the design

year 2035. At both locations, receptor B24-008 at Shankill and receptor D53-13 at Scramoge, the proposed barriers are sufficient to reduce the variation in noise levels between the Do Minimum and Do Something Scenarios to equal to or less than 1dB, as such no further mitigation is required.

- 8.2.15. The mitigation requirements for the proposed road development will be further progressed during the detailed design and construction phase of the project, should approval be granted, taking into account the available construction techniques and technologies at the time of development. It is possible, for example, that the vertical alignment may change during the final construction design which, in turn, could reduce or increase the requirements for noise mitigation. Any changes to the road design likely to result in the increase of noise at any noise sensitive receptor would require an updated noise assessment to ensure that the NRA design goals are complied with at all noise sensitive receivers.
- 8.2.16. I note that Mr. Mitchell's property at Peak (ref. B15-006) would experience an increase in noise levels arising from the PRD from 42 L_{den} (dB) to 54L_{den}(dB) in the 2035 design year taking into account the 18% increased traffic flows. Mitigation is not required. I note that an access track is to be constructed to the north and west of his property with the closest point being 20 metres from his boundary. Construction activities, which are temporary in nature, will be required to comply with construction noise limits and the contractor will be required to work within these limit values by incorporating mitigation techniques were required.
- 8.2.17. It is inevitable that due to the rural nature of the existing environment along the majority of the PRD there will be an increase in noise levels arising with the EIAR whilst there would be a reduction in noise levels along the existing N5 due to the diversion of traffic onto the new road. I consider that the information and analysis of the likely impact of noise contained in the EIAR is robust and that the stated conclusion that the operation of the road subject to the stated mitigation measures would result in the noise level being below the traffic noise design goal of 60dB L_{den} or below/equal to the *Do Minimum* noise level is accepted.
- 8.2.18. In terms of vibration a survey was not undertaken as levels associated with existing roads would not be expected to be of a magnitude sufficient to cause disturbance to people or structural damage to property. Vibration was not perceptible at any of the

noise survey locations. Problems attributable to road traffic vibration can largely be avoided by maintenance of the road surface.

- 8.2.19. In terms of construction noise, it is not possible to conduct detailed prediction calculations as the programme for the construction works has not been established in detail. Indicative calculations were undertaken assuming standard plant items for a range of typical construction phases and are set out in Table 12.7 to 12.11 of the EIAR.
- 8.2.20. There is no published Irish guidance relating to the maximum permissible noise level that may be generated during the construction phase. TII guidance suggests a range of recommendations and maximum noise levels for road schemes covering activity during the daytime, evening, Saturdays and weekends (Sundays/Bank holidays). The TII recommends a daytime noise limit of 70 dB $L_{Aeq(1hr)}$, during week days and 65 dB $L_{Aeq(1hr)}$ at weekends at 1m from the façade of any potentially affected sensitive properties. The calculations indicate that depending on the number and type of equipment used at any one time there is the potential for these limits to be exceeded. Whilst no specific requirements have been identified the contract documents will specify the obligation to take specific noise abatement measures and comply with the recommendations of *BS 5228 Code of Practice for Noise and Vibration Control on Construction and Open Sites, and European Communities (Noise Emissions by Equipment for Use Outdoors) Regulations, 2001*. These would typically include the use of screening, scheduling and sequencing of work and choice of plant with low noise emissions.
- 8.2.21. The potential impact of additional construction traffic was also assessed (see section 12.4.1 of EIAR) and it has been determined that the volume of additional traffic on public roads is negligible when compared to existing traffic flows and thus will not give rise to any significant increase in noise levels at properties along these road
- 8.2.22. The potential for elevated levels of vibration at neighbouring sensitive locations during construction is typically limited to excavation works, rock-breaking, blasting operations and lorry movements on uneven road surfaces. The more significant of these is the vibration from excavation and rock-breaking operations. The specific excavation and rock breaking method will be selected and controlled to ensure there is no likelihood of structural or even cosmetic damage to existing neighbouring

dwellings and structures. The proximity of a small number receptors to the proposed road development is such that construction vibration levels may be perceptible. Vibration control measures will be implemented to ensure that these levels do not reach levels that would be sufficient to result in human discomfort.

- 8.2.23. Subsequent to the preparation of the EIAR a review of potential vibration impacts arising at Urney Church, Strokestown was completed which concluded that due to the distance between standard earthwork construction (580m) piling activities (1.7km) and blasting (.4.5km) vibration levels at the structure will be orders of magnitude below the adopted peak particle velocity (PPV) limit value of 3mm/s for this structure. This limit has been set for particularly vulnerable structures in accordance with DIN-4150-3 (1999-02).
- 8.2.24. Ground Investigations have indicated that blasting will be required at a number of locations along the route, most notably through the Cregga area and potentially at Ballaghcullia. The Irish EPA Guidance Environmental Management in the extraction industry sets acceptable limits for air overpressure as 125dB (Lin) Peak Value and Peak Particle Velocity as 12mm/s. In addition, the EPA recommends blasting is only carried out during 09:00 – 18:00 Monday to Friday. Blasting outside these hours shall be restricted for emergency or safety reasons only. Residents will be notified in advance of all proposed blasting schedules. Detailed Mitigation Measures are included in Section 12.5. of the EIAR. Property condition surveys will be offered for all buildings within 50m of the development boundary and those within 150m of proposed blasting works along the proposed road development.
- 8.2.25. In conclusion I accept that an increase in noise levels is an evitable consequence of the construction activity, which has the potential to impact on the residential amenity of properties in close vicinity. This being said, the construction phase is temporary and due to the linear nature of the works, noise related impacts will be transient, which will limit the duration of exposure to individual properties. The restriction of noisy activity to daytime periods, only, together with standard mitigation methods for construction activity and noise control monitoring to ensure levels are not exceeded, will mitigate the potential for adverse impacts on sensitive receptors. In terms of the construction phase and vibration TII guidance recommends value limits not to be exceeded.

Conclusion – Population and Human Health

8.2.26. I have considered all of the written and oral submissions made in relation to population and human health. Notwithstanding the conclusion reached in respect of the inability of the proposed measures to fully mitigate the impact on existing businesses on the existing N5 and loss of passing trade it is considered that the impacts would not justify a refusal of approval having regard to overall benefits of the proposed development. I am satisfied that the noise impacts that are predicted to arise can be avoided, managed and mitigated by the measures which form part of the proposed development, the proposed mitigation measures and through suitable conditions.

8.3. Biodiversity

- 8.3.1. The Board is advised that the application is accompanied by a Natura Impact Statement with an Appropriate Assessment carried out in section 9 below. In summary the PRD, whilst not located within an area designated for nature conservation, is in close proximity to a number of sites giving rise to the potential for indirect impacts. I also note that the PRD has avoided all impacts on Key Ecological Receptors (KERs) designated as being of National or International importance.
- 8.3.2. The Board is advised that there is an overlap with the assessments on hydrology and hydrogeology and soil. I recommend that the relevant sections be read in conjunction with each other.
- 8.3.3. As noted in the location description above the general landscape of the study area is characterised by a mix of open agricultural landscape with hedges and tree lines marking the boundaries of fields of improved and wet grassland, coniferous forestry and bog.
- 8.3.4. Throughout 2014, 2015 & 2016, a range of specialist ecological survey work has been undertaken to provide information on the ecological aspects of the study area. These surveys include detailed analysis of potential protected habitats and species, watercourse assessment, ornithological surveys, Marsh Fritillary Butterfly surveys and Mammal surveys including Bat, Otter and Badger. The ecological baseline has been verified and updated following a series of surveys that were undertaken in

2018, details of which were presented to the oral hearing. They confirm the findings of the previous surveys save the identification of an additional badger sett at Corskeagh. The schedule of mitigation measures has been updated accordingly to include mammal fencing in this area. The scope of these surveys is noted and considered to be appropriate.

8.3.5. In addition to the six European sites identified as KER's which I propose to address in the Appropriate Assessment in section 6.5 below the following are noted within the Zone of Influence (ZOI) (see Tables 7.16 and 7.17).

8.3.6. Flora

8.3.7. 3 no. areas of species rich wet grassland that correspond to the Annex I habitat 'Molinia Meadows on Calcareous, Peaty or clayey silt laden soils' (Ch4+000 – Ch4+500, Ch 10+750 – Ch10+850, Ch11+600 – Ch12+150)). Molinia Meadows are hydrologically dependant habitats and are located a minimum of 30m from the footprint of the proposed road. Drainage effects associated with the construction of a road could cause the drying out of surrounding habitats or could result in wetting of surrounding habitats. Specific design measures to ensure that the effects on the hydrological regime are addressed are proposed in mitigation. These measures are detailed in Section 10.5.4.4. and Table 10.34 of the EIAR as amended by way of the Schedule of Commitments submitted to the oral hearing and include a longitudinal barrier running along the edge of the road formation, transverse barriers and incorporation of toe drains in check dams. A Construction Erosion and Sediment Control Plan has been prepared to manage the potential for any polluting effects of the PRD during construction. During operation the proposed road drainage is designed to avoid the potential for ongoing pollution.

8.3.8. Bog Woodland (Ch14+500 - Ch14+650, Ch15+150 - Ch15+300 & Ch16+700 – Ch17+200). The PRD will result in the loss of approximately 0.84 hectares of these broadleaved woodlands. This is considered to be a Permanent Significant/Moderate Negative Impact on a receptor of Local Importance (Higher Value) and will be an irreversible impact. The loss of the woodland will be compensated for with replanting of native woodland, treelines and hedgerows in the local areas.

- 8.3.9. Raised bog (Ch5+000 - Ch5+500, Ch10+900 – Ch12+350) was primarily encountered towards the western section of the proposed road development in the townlands of Leggatinty, Drummin and Mullen. Areas of Annex I habitat 'Degraded raised bogs still capable of natural regeneration' have been identified within Raised Bog habitat. No areas of Annex I peatland habitat occur within the land acquisition boundary. Indirect drainage effects associated with the construction and operation of the road could cause the drying out of surrounding habitats or could result in wetting of surrounding habitats. Specific design measures to ensure that the effects on the hydrological regime are proposed in mitigation. These measures are detailed in Section 10.5.4.4. and Table 10.34 of the EIAR as amended by the Schedule of Commitments submitted to the oral hearing and include a longitudinal barrier in the road formation adjacent to the KER and use of shallow toe drains with check dams as appropriate. A Construction Erosion and Sediment Control Plan has been prepared to manage the potential for any polluting effects of the PRD during construction. During operation the proposed road drainage is designed to avoid the potential for ongoing pollution.
- 8.3.10. Habitats surrounding Clooncullaan Lake in the townland of Tullyloyd (Ch33+350 – Ch34+350) include the Annex I Habitat Alkaline Fen though this is avoided by the PRD. The area within the land acquisition boundary was found to be heavily degraded with a severely altered hydrology through drainage and agricultural activity. The area within the land acquisition boundary does not conform to Annex I status. The proposed N5 land take will result in the loss of 0.8 Ha of this KER that does not represent Annex I habitat and is highly degraded. This area is classified as Local Importance (Higher Value). Indirect impacts on the Annex I Fen will not occur as the proposed road is separated from this area by a functioning and maintained drain. Indirect impacts may include the run off of silt and other pollutants during the construction phase of the development from the construction site to the drain and wider area downstream. Indirect impacts might also include, in the absence of mitigation, the interception of drainage paths by the permeable road formation resulting in diversion of waters and in a dewatering effect on adjacent soils and wetland areas. Specific design measures to ensure that the effects on the hydrological regime are addressed are proposed in mitigation. These measures are detailed in Section 10.5.4.4. and Table 10.34 of the EIAR and include transverse

barriers every 100 metres in the road formation and shallow toe drain with check dams if required. A Construction Erosion and Sediment Control Plan has been prepared to manage the potential for any polluting effects of the PRD during construction. During operation the proposed road drainage is designed to avoid the potential for ongoing pollution.

8.3.11. Cregga Turlough is located approximately 55m to the south of the proposed land acquisition boundary at Ch37+000. This habitat has links to the Annex I priority habitat Turlough and is considered to be of national importance. No direct impacts on this receptor will occur. Indirect impacts potentially include changes to the hydrological regime of the Turlough resulting from road construction, cut and fill located up gradient of the Turlough, whilst construction activity may include the run off of silt and other pollutants during the construction phase of the development. Other possible indirect impacts in the absence of mitigation include the interception of drainage paths by the permeable road formation resulting in diversion of waters and in a dewatering effect on adjacent soils and wetland areas. The deep cutting will intercept hill slope runoff, interflow and groundwater recharge and flow which will potentially impact on the flow regime, the water balance and the water chemistry of the Turlough. Such an impact is considered to represent a potential significant impact to the hydrological function of the Turlough Habitat. Changes to the hydrological regime represent a more permanent significant negative impact in that the proposed works have the potential to permanently alter the hydrological function of this Turlough habitat on an ongoing basis. It is considered that, in the absence of mitigation, the proposed road development has the potential to result in significant impacts on this KER at the National level. Specific design measures to ensure that the effects on the hydrological regime are addressed both at construction and operational phases are proposed in mitigation. These measures are detailed in Section 10.5.4.4 and Table 10.24 of the EIAR as amended by paragraph 1.10 of the EIAR Errata and Addenda No.2 submitted to the oral hearing. These measures include pre-construction water quality monitoring programme, interceptor ditches and filter drains to collect existing overland and interflow which would discharge to the Turlough in distribution galleries, excavation of existing ground to bedrock to be filled with free draining material to existing ground level to facilitate the dispersion/infiltration of overland drainage intercepted by the PRD and the provision

of transverse impermeable bunds at 50m intervals to prevent longitudinal flow of subsurface water. A Construction Erosion and Sediment Control Plan has been prepared to manage the potential for any polluting effects of the PRD during construction. During operation the proposed road drainage is designed to avoid the potential for ongoing pollution.

Watercourses

- 8.3.12. The Carricknabraher River (10+125 – 10+150) Owennaforeesha River 14+450 – 14+800 Upper Owenur River 30+550 31+950 and Scramoge River 52+850 - 53+250 are classified as being of Local Importance (Higher Value) at these locations. The Carricknabraher, Owennaforeesha and Scramoge Rivers are identified as having the greatest potential to support salmonids. The PRD will, in some instances, require the diversion and culverting of drainage ditches.
- 8.3.13. There is the potential for loss of aquatic habitat through shading, habitat fragmentation and barrier effect if Otter and other aquatic species are not able to migrate along the watercourses following the construction of the bridge. This impact could also affect birds and bats that may use sections of rivers as a commuting route. Fish and species that migrate in the water could potentially be prevented from doing so if the design of the proposed culvert does not provide for continued passage along the watercourse. Indirect impacts may include the run off of silt and other pollutants during the construction and operational phases of the development.
- 8.3.14. All works in proximity to watercourses shall follow the specific protection and mitigation measures described in the Construction Erosion and Sediment Control Plan and the best practice guidance outlined in the following documents:
- TII/NRA ‘Guidelines for the crossing of Watercourses During Construction of National Road Schemes (2008);
 - Shannon Regional Fisheries Board (SRFB) Protection and Conservation of Fisheries Habitat with Particular reference to Road Construction (2009);
 - Inland Fisheries Ireland requirements publication” Guidelines on protection of fisheries during construction works in and adjacent to waters” (2016)
- 8.3.15. Structures required include clear span bridges, box culverts and pipe culverts. The culverts have been designed so that velocities through them will be acceptable to

allow the passage of fish at any time. The inclusion of baffles, pools or weirs or similar mechanisms to reduce flow velocity and assist the passage of fish, may be required. The final design of watercourse diversions and new channel sections has incorporated best practice measures to enhance their fishery value and to ensure that there will be no significant impact on downstream aquatic habitat or on the upstream passage of fish during construction or operation.

- 8.3.16. Where watercourses are to be diverted dewatering will be required. Removal of fish will be undertaken by suitably qualified persons. To reduce the number of culverts and loss of fisheries habitat the construction of new river channels running parallel to the roads sections have been incorporated into the project design. They will be constructed following IFI best practice.
- 8.3.17. As noted in section 7.5 above Inland Fisheries Ireland in its submission to the oral hearing acknowledges the applicant's undertaking in respect of its requirements and is generally satisfied noting that it will be consulted at detailed design stage in relation to the final details of the plans and method statements as outlined and that its requirements shall be included.

Fauna

- 8.3.18. Badger and Otter activity was recorded throughout the study area. Badger activity is concentrated in Ballaghcullia/Bellanagare, Drummin, Mullenduff/Peak, Scramoge. A fifth location was recorded in the 2018 surveys at Corskeagh. No active main setts were recorded within the footprint of the PRD. The three active Main setts recorded are located in the townlands of Ballaghcullia, Mullenduff and Corskeagh, all of which were located a minimum distance of 50m from the proposed land take boundary.
- 8.3.19. Otter activity or visual accounts were recorded along three watercourses (Scramoge, Strokestown, and Owennaforeesha Rivers) and in two locations near smaller drainage ditches. No holts were observed during the dedicated surveys.
- 8.3.20. At a minimum the species will be subject to indirect temporary disturbance as a result of increased human presence, noise and vibration associated with construction. During operation initially, habitat severance will result in a significant impact at a local level but is predicted to reduce to a neutral impact in the short term as species habituate to using the mammal passage features, locations of which are set out in Table 7.17 of the EIAR. Adequate provision for Otters at affected

watercourse crossings is required to allow the species to retain continued access to their foraging areas. Ledges or underpasses will be required at all watercourse crossings. Mammal resistant fencing is to be installed.

- 8.3.21. In terms of Bats the surveys noted the dominance of Pipistrelle species within the ZOI. Other species recorded during the surveys included Leisler's Bat, Daubenton's Bat, Brown Long-eared Bat and un-identified Myotis sp. Bat activity was highest in areas with prominent and mature vegetative linear landscape features and watercourses. Bat activity throughout the remainder of the ZOI had a constant but patchy distribution and, where recorded, activity was positively associated with treelines and mature hedgerows. Very little activity was observed from the more open and exposed areas. Three main areas of particular importance for bats were identified during the survey namely Mantua, Corry East and Corry West (Ch15+500 to Ch20+050), Lurgan through Tullyloyd and as far as Lugboy (Ch31+650 to Ch35+400), and Strokestown, Bumlin & Scramoge (Ch50+000 to Ch54+250). In addition, all larger watercourses within the study corridor were identified as linear features of significance to bat species as they provide commuting corridors and an excellent potential source of prey items. No bat roosts were identified within the land acquisition boundary during the surveys undertaken. A number of roosts were identified during targeted surveys of buildings in the area surrounding the proposed road. The identified bat roosts will not be directly impacted by the proposed road.
- 8.3.22. It is considered impacts can be effectively avoided, remedied or reduced through appropriate design and mitigation including replacement of hedgerows and treelines to be lost and provision of bat flyovers in the form of tall planting on both sides of the road in areas where significant treelines are severed by the PRD such as at Mantua. Lighting is not proposed at any locations which were identified as being of significance for bats and impacts in this regard are not anticipated. No artificial lighting is proposed within or adjacent to habitats of significance for Bat species.

Avifauna

- 8.3.23. Four species listed under Annex I of the EU Birds Directive were recorded within the study area; Whooper Swan, Golden Plover, Hen Harrier and Kingfisher. Save for Whooper Swan the other three species were observed either once or infrequently. In addition, either no winter roosts, breeding evidence or suitable breeding habitat

were recorded. On this basis the species have not been included as KERs. On the basis of the evidence provided this is considered reasonable.

- 8.3.24. In terms of Whooper Swan a maximum of 81 individuals were recorded at Cregga Turlough and surrounding fields. The maximum number recorded equates to 10.8% of the Co. Roscommon population for this species. There will be a direct loss of 4 hectares of irregularly utilised foraging habitat, however the flock is known to use a variety of sites in the area and was not dependant on this area as a foraging habitat given the abundance of similar habitat in the surrounding landscape.
- 8.3.25. The road will create a potential barrier between the roosting site on the Turlough and the foraging areas to the north and east. The road is in cut over much of this area (where the majority of the flight paths have been recorded) but there is a high embankment in a section of this area (though very few birds were recorded flying in this area). The road also has the potential to disturb/displace the birds from using these foraging areas during the construction phase with extensive rock breaking and blasting activity undertaken during road construction. Fragmentation, barrier effect and disturbance / displacement are potential ongoing indirect impacts during the operational phase.
- 8.3.26. While the habitat loss is significant in a local context, it is noted that Whooper Swan are a mobile species that commute daily between roosting sites and foraging areas. They do not show strict fidelity to foraging areas and move around based on availability and quality of forage. Given that there is an abundance of suitable foraging habitat in the wider area the permanent loss of a small area consisting of 4ha is not considered significant and no mitigation is proposed. There is potential for disturbance/displacement related impacts during the construction and operational phase of the development. Where deep cut excavation is proposed, the natural topographic barrier arising from the deep excavations will act as visual/sound buffer reducing the potential for significant disturbance/displacement related impacts. Whooper Swans were not recorded foraging in the area to the north of the Turlough where the high embankment is proposed.
- 8.3.27. Whooper Swans in the area are likely to habituate to the proposed road over time and significant disturbance impacts are not anticipated. The dominant flight lines identified during the survey periods were located to the east of the turlough and were

utilised by birds moving from the turlough/turlough edge to improved pasture to the north-east. Whooper Swan in this area were recorded flying at a mean height of 8m-15m. Therefore, significant fragmentation/disruption to flight lines is not anticipated as Whooper Swan are likely to follow the natural contours of the landscape and fly over the proposed road development unhindered. In mitigation to offset the potential effect at the embankment location the landscape plan incorporates a tree line of semi-mature trees along the south of the proposed embankment. The treeline will encourage birds to increase their flight height and fly over the road thus reducing the potential for collision. It will also act as a visual barrier thereby reducing potential disturbance/displacement related effects during the operational phase.

Invasive Species

- 8.3.28. The non-native invasive species Japanese Knotweed (*Fallopia japonica*) was recorded on the proposed road development at one location in the townland of Vesnoy (Ch. 51+250). An IAS Management Plan will be prepared in relation to the treatment of the identified stand of Knotweed. I also note that an Invasive Species Biosecurity Plan is attached to the Council's response to the IFI's written submission to the Board presented to the oral hearing.

Conclusion – Biodiversity

- 8.3.29. Following the implementation of mitigation, the effects on each of the KERs would be reduced such that no significant residual effects remain. In terms of Whooper Swan an effect of moderate significance remains following mitigation, in the form of loss of foraging habitat that is intermittently used by the species. Given that there is an abundance of suitable foraging habitat in the wider area, the permanent loss of 4 hectares is not considered likely to significantly affect the use of Cregga Turlough by the swans. There is no potential for significant cumulative effect on any KER as a result of the PRD.
- 8.3.30. I have considered all of the written and oral submissions made in relation to biodiversity. Having regard to the above I am satisfied that the impacts that are predicted to arise are of local scale and can be avoided, managed and mitigated by the measures which form part of the proposed development, the proposed mitigation measures and through suitable conditions. I am, therefore, satisfied that the

proposed development would not have any unacceptable direct, indirect or cumulative impacts on biodiversity.

8.4. Land and Soil

In terms of land I submit that there is an overlap in detail with both section 8.7 below which addresses material assets and section 10 which addresses issues arising in terms of the CPO. Chapter 8 of the EIAR with accompanying appendices refer to soil and geology. In view of the inter-relationship with water I also recommend that this section be read in conjunction with the assessment of hydrology and hydrogeology in section 7.5 of the planning assessment and section 8.5 of this EIA.

Land

- 8.4.1. Following discussions with affected landowners subsequent to the lodgement of the application and CPO to the Board the lands included within the CPO so as to facilitate the PRD is 357.722 hectares, reduced by 0.885 hectares from that originally proposed.
- 8.4.2. The area of the land is determined by a number of related parameters including:
- Road construction
 - Construction of verges, embankments, cuttings, utilities/services, pedestrian/cycle facilities, junction realignments, drainage and associated facilities, landscaping, work space, boundary treatment, maintenance strip and ancillary road construction and operation requirements.
 - Accommodation works and access roads.
 - Acquisition of severed plots
 - Ground/soil conditions
 - Material deposition requirements, and
 - Other road engineering, safety and environmental considerations.
- 8.4.3. Approx. 259.1 hectares are classified as land (including agricultural land and facilities, bogs and access tracks). 78.4 hectares are classified as forestry, 1.1 hectares as residential or commercial land and the remaining 18.5 hectares classified as road bed. The 40 non-agricultural properties directly affected by the

proposed project include 35 residential properties, 1 development site and 4 community properties.

- 8.4.4. In the context of the wider environment it is considered that the impacts on land by virtue of land take is not considered to be significant.

Soil

- 8.4.5. Three separate ground investigations entailing boreholes, rotary drill holes, trial pits and probes and in-situ and laboratory test data dating back to 2007 in addition to geotechnical surveys inform the assessment. The location and results of the 2015/16 Investigation are presented on Fig.8.1 to 8.25 in Volume 3 of the EIAR.

- 8.4.6. Generally, sections A and B consist of a landscape that is gently undulating while sections C and D consist of a drumlin landscape. In Sections C and D an area of ribbed moraines exist which is known as the Mid Roscommon Ribbed Moraines, extending over an area of approximately 200km². This is a geological heritage site.

- 8.4.7. Much of the underlying bedrock of carboniferous limestone along the PRD is noted to be at risk of karst development and geological features associated with karstification. The following have been identified as potential risk areas of karstification:

(a) Leggatinty (Ch. 11+000 – 11+700) is identified as a significant karst area with a number of known karst features approximately 475m to the north of the proposed route. One of these features is an underground stream cave known as Pollnagran, which stretches underground for a distance of approximately 750m in a northwest direction away from the proposed route. The cave has an entrance in a shallow blind valley where a surface stream sinks underground. Another stream combines with this underground stream a short distance into the cave. Pollnagran Stream Cave is a geological heritage area.

(b) Kilvoy and Corry East (Ch. 18+400 – 19+300) have a number of surface karst features (swallow holes) identified in close proximity to the proposed route. One swallow hole is located within the footprint of the proposed route at Ch. 19+050.

- (c) Cloonyefferr (Ch. 20,450m) - there is a sinking stream approximately 65m to the south of the proposed route at this location.
- (d) Portaghard (Ch. 3+450m – 4+100m) - a number of surface karst drainage features, have been identified between 50 and 100 metres from the PRD.
- (e) Tullyloyd (Ch. 34+350m) - a swallow hole was identified c. 150m south of the proposed road.
- (f) Cregga turlough adjacent to a fill segment along Section C situated at the bottom of the steep sided slopes at Ch. 37+520m north of Annaghmore Lough.

- 8.4.8. Peat deposits have been identified along the route in numerous areas. They are situated mainly in bog areas in Sections A & B and in areas of low lying ground between drumlin peaks in Sections C & D. Site investigation information obtained indicates depths of peat encountered between 0.5m to 5.0m along sections of the proposed route.
- 8.4.9. The PRD will require excavation of materials from cuts and importation, deposition of materials for embankments and removal of excess unsuitable material into material deposition areas.
- 8.4.10. 11 deep cuttings are detailed in Tables 8.7 and 8.8 of the EIAR ranging from 4.2 metres over a distance of 600 metres at Cartronagor to 27 metres over a 370 metre distance at Cregga.
- 8.4.11. High embankments are detailed in Tables 8.9 and 8.10. ranging from 3.1 metres over a distance of 700 metres at Corskeagh, Mullen & Leggatinty to 12.3 metres over a distance of 400 metres at Cregga & Cuilrevagh.
- 8.4.12. Areas of soft, highly compressible or organic soil will not be suitable as foundations. In such circumstances consideration will be given to ground improvement measures. Table 8.6 presents the cumulative earthworks quantities for the entire project assuming full excavation and replacement of soft ground. Although a piled embankment option may be possible at three locations as presented in section 8.4, the earthworks quantities for full excavation and replacement have been presented in Table 8.6 as the worst case scenario in terms of material which would have to be disposed of. The total volume of cut material that is available for re-use as

acceptable fill for the road construction is 2,289,696m³. The total volume of fill required for the construction of the road embankments and fill is 2,305,266m³. This gives a scheme-wide deficit of 15,570m³.

- 8.4.13. Table 8.12 indicates quantities of earthworks disposal volumes to be utilised within the site boundary (assuming a full excavate and replace ground improvement solution) whilst Table 8.11 indicates the locations of 17 no. material deposition areas and these are shown on the Figures 4.1 – 4.25. They will have a capacity of 988,000m³. This is sufficient to accommodate the maximum volume of peat and alluvium that might be generated by the PRD and the unacceptable material that may not be able to be processed into Class 4 fill material eliminating the likelihood of having to remove materials offsite.
- 8.4.14. Table 8.13 sets out the predicted geological Impacts during the construction phase and details the mitigation measures required. In areas of significant cut temporary drainage will be required to allow excavation in a dry environment, locally lowering the ground water table. Based on the findings of the ground investigation it is not likely that construction dewatering will be required in any potential karst areas. It is noted that in areas of karstification any change in the normal groundwater patterns may cause potential instabilities. Should this occur during construction mitigation measures by application of appropriate engineering design controls are proposed, including the use of basal reinforcement, sealed drainage systems and providing liners to prevent changes in groundwater levels and patterns. There are no bridge or culvert structures directly underlain by observed karst in any of the six potential karst areas described above.
- 8.4.15. In areas of significant cut, rock will be encountered which requires removal. The method of removal can range from digging the material out to blasting, which can have significant noise and vibration impacts associated with it. Blasting is likely to be employed at the 27m deep cut at Cregga (Ch. 35+100m – 36+470m). Despite its proximity to the turlough, the rock at Cregga was not found to be karstified. The only other areas of rock blasting are anticipated to be limited to a small number of locations which are not in close proximity to known karst features and hence the temporary impacts are considered to be slight.

- 8.4.16. Where slopes become unstable due to high groundwater table and inflow during construction, pumping locations shall be constructed in order to drain the water table below the level of the granular material and/or cut level for the duration of the construction and the slope stability shall be monitored. This will prevent water from flowing from the slope surface causing erosion.
- 8.4.17. Importation of materials from outside the site will be minimised by ensuring that materials arising within the site are used to the greatest extent possible. Where necessary naturally occurring materials will be processed to reduce moisture content and/or improve grading in order to maximise suitability for re-use.
- 8.4.18. Potential impacts on soils and geology during the operational phase of the proposed road development could be due to increased flooding of low lying areas leading to possible erosion of soil, however this is avoided in the design of the drainage systems. Groundwater seepages into cuttings during the operational phase may result in some erosion and instability of the slope over time, requiring additional local drainage measures, the need for which may not have been immediately apparent at the time of construction.
- 8.4.19. The residual impacts are those that will occur after the proposed mitigation measures have taken effect and are shown in Table 8.13 and 8.14 and are considered to be slight.

Land and Soil- Conclusion

- 8.4.20. Having regard to the above, I am satisfied that potential impacts are predicted to arise in respect of land and soil would be avoided, managed and mitigated by measures which form part of the proposed development, the proposed mitigation measures and through suitable conditions. I am, therefore, satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative impacts on land and soil.

8.5. Water

- 8.5.1. I refer the Board to my assessment of hydrology and hydrogeology in section 7.5 above and to Mr. Keohane's report attached in Appendix 1. To avoid undue repetition I do not propose to repeat the above assessment in detail. In summary:

8.5.2. The existing receiving environment is as described previously.

8.5.3. The potential impacts on hydrology and hydrogeology are identified in the EIAR and have been considered. In summary they are:

- Changes to groundwater levels creating instability in karst
- Slope instability during cut formation
- Increased groundwater vulnerability during cut formation
- Instability in karst caused by blasting
- Mis-use of cut material, creating an impact
- Impact from ground improvement techniques
- Operational impacts on slope stability due to continued groundwater seepage.
- Impacts created by the formation of material deposition areas.
- Volumetric impacts on groundwater and surface water from road run off.
- Embankments creating artificial longitudinal drainage features.
- Embankments obstructing or diverting overland flow.
- Settlement creating compaction and interference with groundwater flow.
- Impacts on groundwater quality from construction and operation of the road.
- Hydraulic impacts on watercourses from poorly designed bridges, culverts, channel diversions and outfalls, creating changes in velocity, water depth and increased bank erosion.
- Increased flows or flooding in watercourses caused by uncontrolled run-off.
- Operational impacts on water quality from spillages or poor quality run-off.
- Removal of flood storage.
- Diversion of water between catchments.
- Interference with local drainage
- Elevated silt levels during construction
- Spillage of concrete and hydrocarbons during construction.

- Indirect impacts on sensitive habitats, ecological receptors, groundwater dependent features.

8.5.4. Following the further information request the key impacts related to the specified areas for examination included:

- Interruption of flow to sinking karst features
- Blockage of karst features by uncontrolled run-off sediments during construction
- Compromised run-off entering karst features and as a consequence the aquifer
- Silts and sediments from construction or instream works entering SACs and SPAs
- Impact on Annex 1 ecological receptors by changes to the hydrological flow regime.
- Restriction and interception of sub-surface flows to public water supply spring sourced
- Physical damage to karst water supply spring sources
- Potential contaminated infiltration to groundwater
- Contamination of public water supply by road drainage.

8.5.5. The mitigation measures are set out in sections 9.5 and 10.5 of the EIAR and include required site specific mitigation in Extreme Vulnerability Areas, Wetland and Ecologically Sensitive Areas, Deep Cut Sections, Karst features at Leggatinty, Blanket Bog, Wetland Grassland Areas, Fen wetland at Tullyloyd, Swallow hole and karst features at Kilvoy and Corry East, Cregga turlough and Ovaun Stream. The specific mitigation measures are set out in Tables 9.35 and 10.34 and in the updated Schedule of Commitments submitted to the oral hearing.

8.5.6. Appropriate mitigation measures are to be used to mitigate potential impacts associated with both the construction and operation of the road. These include:

- Stability assessment of cut slopes, use of slope stabilisation measures as appropriate, such as rock traps, rock anchors, netting, shotcrete on rock

slopes, toe drains, sealed drains and liners on soil slopes, together with periodic inspections.

- Pumping to control groundwater ingress during construction,
- Interception of ditches and drains to keep work area dry.
- Maintenance of existing drainage lines as much as possible.
- Basal reinforcement to protect underlying karst where appropriate.
- Use of liners and sealed drainage system to protect karst where appropriate.
- Use of single and double silt fences, earthen berms, grass buffers, and filters to control sediment run-off.
- Appropriate storage of potential pollutants during construction.
- Construction of storm attenuation ponds, treatment wetlands and penstocks.
- Incorporation of bank erosion protection measures in streams.
- Water quality monitoring.
- Construction sequencing in sensitive areas.
- Use of longitudinal and transverse barriers.
- Use of infiltration blankets to maintain recharge where appropriate.
- Limiting any works within the mapped ZOC's of water supplies.
- Obtaining permits from OPW for instream works.
- Ongoing- liaison with Inland Fisheries.

A detailed Construction Erosion and Sediment Erosion Control Plan (CESCP) has been prepared which sets out the principal avoidance measures, principal control measures and specific mitigation measures for general watercourse crossings and attenuation ponds, works near sensitive watercourses, and special locations such as the swallow holes at Mantua, Cregga Turlough and material deposition areas. The plan also outlines monitoring and audit requirements and emergency response plans. The schedule of commitments also provides for the preparation of a Construction Management Plan prior to any demolition, excavation or construction to be overseen by a suitably qualified person.

Conclusion – Water

I have considered all of the written and oral submissions made in relation to water. Having regard to the above I am satisfied that the impacts that are predicted to arise can be avoided, managed and mitigated by the measures which form part of the proposed development, the proposed mitigation measures and through suitable conditions. I am, therefore, satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative impacts on water.

8.6. Air and Climate

- 8.6.1. Chapter 13 of the EIAR and Ms. Avril Challoner's submission to the oral hearing refer
- 8.6.2. The baseline air quality along the route was assessed by means of air quality measurements at sensitive locations close to the PRD, by an analysis of representative EPA monitoring data for the region, and by air dispersion modelling. The results of the baseline air quality monitoring indicate that each of the pollutants was well below annual limits for the protection of human health and for protection of vegetation. In terms of the characterisation of the existing environment the baseline assessment concludes that the area in the vicinity experiences good air quality. This is consistent with its largely rural location where the predominant land use is agriculture and where there is an absence of industry of any significant pollutant generating activity.
- 8.6.3. Road traffic is expected to be the dominant source of emissions during the operational phase. Assessment was undertaken using the UK DMRB air dispersion model performed at 14 no. sensitive receptors (see Table 13.5 and Figure 13.1). The receptors were chosen to provide a representative view of impacts both on the current N5 alignment and the PRD. CO and Benzene, PM₁₀, PM_{2.5} and NO₂ modelled results for both the design years 2020 and 2035 are all well below the relevant ambient limit values.
- 8.6.4. NO_x is identified as of concern in relation to sensitive ecosystems, the nearest being Bellanagare Bog cSAC and SPA which is located 218 metres from the PRD. Although outside the 200 metre assessment zone as set out in TII/NRA Guidelines, it was subject of assessment. The predicted annual average NO_x levels at the

designated site is within the limit value of $30\mu\text{g}/\text{m}^3$ for both the opening and design years. The PRD would increase concentrations of, at most, $0.05\mu\text{g}/\text{m}^3$ which is materially below the $2\mu\text{g}/\text{m}^3$ threshold above which the sensitivity of the habitat to NO_x should be assessed. The road contribution to the NO_2 dry deposition rate at 218 metres was also calculated. The maximum NO_2 dry deposition rate is $0.0026\text{Kg}(\text{N})/\text{ha}/\text{yr}$ in 2020 and $0.0025\text{Kg}(\text{N})/\text{ha}/\text{yr}$ in 2035. This is 0.05% of the critical load of $5\text{-}10\text{Kg}(\text{N})/\text{ha}/\text{yr}$. This is a negligible impact within the designated site.

8.6.5. The predicted impact of the changes in AADT by 2035 is to increase NO_x levels by 0.005782% of the NO_x emissions ceiling and decrease VOC levels by 0.0009524% of the VOC emission ceiling. Thus, the impact of the PRD on Ireland's obligations under the targets set out by *Proposal for a Directive on the reduction of national emissions of certain atmospheric pollutants and amending Directive 2003/35/EC* are negligible.

8.6.6. The main impacts associated with the construction period relate to dust emissions. There are numerous activities that have the potential to generate dust and these include normal road building operations, movement of material etc. A dust minimisation plan will be formulated (see Appendix 13.3) with established practices to be put in place. Ms. Challoner in her submission to the oral hearing outlined the main mitigation measures and stated that dust monitoring is proposed for particular sensitive receptors across the scheme.

8.6.7. Mr. Mitchell in his written submission raised concerns with respect to air pollution and dust and impact on his property. I note that Air quality location AIR-14 is the closest to his property at Peak. As noted for both the construction and operational phases the impact of the PRD on NO_2 , PM_{10} , Particulate Matter and Benzene and CO concentrations are predicted to be between 'negligible' and 'small increase'. As per Ms. Challoner's submission to the hearing monitoring during the construction phase will be carried out at his property to confirm the dust mitigation measures during the construction phase are sufficient.

8.6.7.1. With regard to climate during the construction phase a significant amount of peat will be excavated estimated at c. $740,240\text{m}^3$. The greenhouse gas emissions associated with the peat excavation has been assessed using the 2006 Intergovernmental Panel on Climate Change Guidelines for National Greenhouse

Gas Inventories, Volume 4: Agriculture, Forestry and Other Land Uses, Chapter 7 Wetlands. The emissions from peat removal and disposal are 0.000465% of the estimated total GHG emissions in Ireland in 2013

- 8.6.7.2. EPA guidance states that a development may have an influence on global climate where it represents a significant proportion of the national contribution to greenhouse gases. The EIA concludes that based on an analysis of the increase in traffic resulting from the PRD CO₂ emissions resulting from the development would decrease marginally. I would therefore accept the conclusion that the impact of the PRD on national greenhouse gas emissions will be negligible in terms of Ireland's obligations under the Kyoto Protocol.

Conclusion – Air and Climate

- 8.6.8. I have considered all of the written and oral submissions made in relation to air and climate. Having regard to the above I am satisfied that the impacts that are predicted to arise can be avoided, managed and mitigated by the measures which form part of the proposed development, the proposed mitigation measures and through suitable conditions. I am, therefore, satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative impacts on air and climate.

8.7. **Material Assets**

Agricultural and Non-Agricultural Property

- 8.7.1. Chapters 16 and 17 of the EIA, in addition to the submission by Mr. Bligh to the oral hearing refer to agricultural and non-agricultural property. The Board is advised that there is an overlap with my assessment in section 7.4 above and I propose to avoid undue repetition. As outlined above, the PRD will have significant benefits for the wider community by improving access and reducing traffic hazard along the N5.
- 8.7.2. There are 170 agricultural properties directly impacted by the PRD and landtake will comprise of 335.5 ha of lands and 0.9ha of other property. Agricultural land cover consists primarily of improved grassland with areas of forestry and peat bog.
- 8.7.3. Due to the extent of the off-line development the PRD will undoubtedly have a material impact on established farm enterprises. As per Table 16.6 of the EIA the

magnitude of impact is calculated to be profound for 2 farm enterprises (1.2%) due to the individual or combined impact of landtake, land severance and / or the impact on essential farm buildings or facilities and significant for 30 farms with a moderate impact for 60 farms.

- 8.7.4. The impacts on individual farms are assessed on the basis of significance criteria and are detailed in Table 16.7. Mitigation measures where appropriate for each of the agricultural holdings are detailed. Following same the residual impact is calculated to be as following

Significance of Impact	No. of Farms	% of Total
Profound	1	0.6%
Significant	2	1.2%
Moderate	82	48.2%
Slight	74	43.5%
Imperceptible	11	6.5%
	170	100%

- 8.7.5. The severance of agricultural properties will undoubtedly result in increased inconvenience. Severance of land is an unavoidable consequence of the off-line development and alterations to individual properties will occur. Whilst not wishing to undermine or underestimate the concerns expressed regarding the inconvenience and disruption that will be generated, I consider that the improvements will benefit the community at large. Whilst I accept that all of the impacts cannot be completely eliminated this has to be balanced against the identified need to provide a national primary road to an acceptable standard and, provided the land take is reasonable and proportional, these impacts are considered acceptable. Increased management input and/or operational changes due to be land take are effectively matters for compensation should the CPO be confirmed by the Board.

- 8.7.6. There are 40 non-agricultural properties directly impacted by the PRD (See Figure 16.1 to 16.25 in Volume 3) which include 35 residential properties, one commercial

property, one development site and three community properties that also include public road, open space and lands owned by Roscommon County Council.

- 8.7.7. Table 17.6 sets out the impact of the PRD on the said properties and mitigation measures proposed. Of the 40 properties, 1 is to be acquired (CPO.550 Ref. No.12). Of the remaining residential properties land take will result in the reduction in the area of the property, impact on property entrance and/or boundary and public road. The residual impact on a 2nd (development site) is calculated as also being profound (CPO 350 ref. no. 8). 3 no. properties will continue to have a significant impact although the continued use of each of the residential properties will be possible.
- 8.7.8. The TII/NRA's Code of Practice Guide to Process and Code of Practice for National Road Project Planning and Acquisition of Property for National Roads will be adhered to with respect to all lands potentially impacted by the proposed works. The general mitigation measures proposed include maintenance of access, generally replacement of boundaries on a like for like basis, subject to safety considerations, (or it will be treated as a compensation issue), property condition surveys of buildings / structures in use located within 50m of the extents of the CPO boundary and repair/replacement of any services that are interfered. Further mitigation specific to individual properties for other impacts are detailed and described in Chapter 11 Landscape and Visual, Chapter 12 Noise and Vibration and Chapter 13 Air Quality and Climate of this EIAR. Mitigation measures during the construction phase addressing access, noise and vibration, dust, disturbance of drainage systems and disturbance of services are detailed and would generally accord with best practise measures utilised in such road projects.

Services/Utilities

- 8.7.9. The PRD crosses largely a greenfield rural environment encountering a minimal number of utilities requiring diversion or protection.
- 8.7.10. Eir customer service network is supplied largely by overhead cables with a number of underground cables of varying size which will require diversion. The network also includes underground fibre optic cables running along R361 through the proposed Frenchpark roundabout and along the existing R368 north of Strokestown.

- 8.7.11. A Vodafone mast located within recently felled forestry at Ch04+550, although not directly impacted upon, will be in close proximity to the road.
- 8.7.12. A number of diversions will be required on the existing electricity local distribution network in addition to the relocation of 3 high voltage lines which will include additional pylons at two locations are detailed in section 4.12.2 of the EIAR.
- 8.7.13. Wastewater services will be impacted upon at one location south of the proposed Kildalloge roundabout connection to Strokestown. A number of impacts on minor water supply mains are anticipated which will require diversion, details of which are provided in section 4.13.3 of the EIAR.

Material Assets – Conclusion

- 8.7.14. I have considered all of the written and oral submissions made in relation to material assets. Notwithstanding the conclusion reached in respect of the inability of proposed measures to fully mitigate the impact on farm holdings and acquisition of property it is considered that the residual impacts following mitigation would not justify a refusal of planning permission having regard to the overall benefits of the proposed development.

8.8. Cultural Heritage

- 8.8.1. Chapters 14 and 15 of the EIAR refer and the submissions by Ms. Lisa Courtney & Rob Goodbody to the oral hearing refer. The Board is advised that there is an overlap with section 7.6 of my assessment.

Archaeological Heritage

- 8.8.2. As noted previously the existing N5 traverses the Rathcroghan Archaeological Complex which is on the tentative list of UNESCO World Heritage Sites. Rathcroghan is one of six major royal sites is represented as an archaeological complex of over 100 monuments set in a rural pastoral landscape, located to the north-west of Tulsk. It consists of monuments scattered over an elevated limestone plateau. The current alignment detracts from the setting and context of the complex. The avoidance of the complex constituted a material consideration in the assessment of alternatives as discussed in Section 7.3 above.

- 8.8.3. The centre line of the PRD is located approx. 944 metres north of the 100m contour line which surrounds the Rathcroghan Complex and roughly corresponds with the edge of the plateau. Greater distances are maintained from identified monuments delineated therein ie. the PRD is over 3.5km to the north of the Rathcroghan Mound and 2km from Ballymurray mound. By reason of the intervening topography and screening as evidenced from the photomontages taken from a number of sites within the complex and the wider area (Figures 14.27 to 14.53) the PRD will have no discernible impact on the northern views from same. Consideration has also been given to the additional light in night time views in two instances. The PRD is sufficiently distant and well-integrated within the existing landscape, using the natural topography, plantation and general vegetation so as not to give rise to an adverse visual impact on the Rathcroghan complex or its setting. A secondary impact of a moderate positive nature as a result of the implementation of the N5 Ballaghaderreen to Scramoge Road Project is the reduction of traffic on the existing N5 and the future enhancement of the setting of the key constraint area especially in the immediate vicinity of a number of nationally significant monuments, for example, Rathcroghan Mound, Rathmore and Rathbeg. This will result in an overall direct improvement to the integrity of the complex and will be in accordance with policies 6.12. and 6.14 of the current County Development Plan.
- 8.8.4. In terms of the route of the PRD geophysical survey and investigative work (test excavation) were carried out to inform the EIAR and provide a greater level of certainty around areas considered to be of archaeological potential.
- 8.8.5. There are no sites or monuments under Preservation Order and no National Monuments within or in the vicinity of the PRD. There is one recorded archaeological monument, a pit field (RO015-151) (AH31) in Kilvoy townland (Figure 14.10) which will be partially impacted. In total 24 potential archaeological sites, five rivers and one area of bogland (areas of archaeological potential) will be impacted and will require mitigation. Of these 2 constitute RMPs impact levels of slight and moderate respectively. The remainder comprise of sites included in the SMR, newly identified site and sites or archaeological potential. The design of this proposed road development will enable one archaeological asset (AH70) to be preserved in situ.
- 8.8.6. There will be a visual change in the landscape of the PRD which can affect the setting of archaeological sites. Pre-mitigation there will be 9 indirect impacts on

recorded monuments as a result of a visual intrusion during the construction stage of the proposed road development and 1 indirect impact on a SMR site due to mitigation by design. The majority of upstanding sites within or extending into the constraint corridor (located 100m on either side of the centreline) are earthen in nature: ringforts, enclosures and a moated site, most of which are defined by trees or thorn bushes. While the proposed road development will open up views towards these monuments, many will be difficult to recognise from the road as, with their present vegetation and foliage, they blend into the natural mature and scrub boundaries in the wider landscape. While the visual aspect, and more specifically views in one direction from the affected monuments will be diminished, the monuments and their relationship with other sites will be largely maintained. Where views are affected there is little in the form of mitigation apart from screening. As a consequence changes in the setting of these sites will take place as a result of the road development (see Table 14.28). Visual impacts will be most pronounced during the construction and initial operation stages.

- 8.8.7. All direct archaeological and cultural heritage issues will be resolved at the pre-construction stage of the development. Mitigation measures shall be undertaken as directed by the Minister for Culture, Heritage and the Gaeltacht in compliance with national policy guidelines and statutory provisions for the protection of archaeology and cultural heritage. I note that the Department has no objection to the PRD subject to conditions.
- 8.8.8. The PRD will have a potentially direct and negative impact on 54 undesignated sites of cultural heritage interest identified through field survey and cartographic analysis. Many sites marked as cultural heritage were identified from the 1st edition six inch OS and do not have any above ground expression. Another consideration is the removal of sections of dry stone walls which characterise former demesne lands and field enclosures. Mitigation can take place in the form of avoidance, preservation in situ by design and preservation by record.
- 8.8.9. The following measures are proposed as a minimum; building survey, townland boundary surveys, investigation of rivers, screen planting, geophysical strategy, test excavation strategy, test excavation of wetland areas, protection of newly revealed archaeological remains.

8.8.10. It is anticipated that after mitigation measures have been applied there will be no significant residual archaeological and cultural heritage impacts as outlined in Tables 14.26-14.28. With excavation and planned recording, preservation by record will be achieved throughout the proposed road development at the pre-construction and construction stage of the development.

Architectural Heritage

8.8.11. The assessment undertaken examined each structure or group of structures to assess whether it is of special interest as built heritage, taking a distance of 50m on either side of the centre line of the proposed route, or an equivalent distance from junctions or realigned side roads. This is the distance recommended in the National Roads Authority's Guidelines for the Assessment of Architectural Heritage Impacts of National Road Schemes, paragraph 5.2. No sites of international or national architectural significance will be impacted by the proposal.

8.8.12. The PRD is to pass through the former demesne of Strokestown. The line of the proposed road through the demesne will run approximately north-west to south-east at a distance of approximately 1100m from the house at Strokestown Park. Map 15.4 shows the Demesne with the main line running through same. This line will run almost entirely within enclosed grassland fields, while most of the areas of trees or woodland that will be affected are not part of the surviving demesne landscape. The proposed road will lie outside the current demesne of Strokestown Park, managed by the Irish Historical Trust, which has been reduced significantly from its original extent. Replacement planting is to be undertaken to supplement the trees that remain and following this mitigation the impact will be slight.

8.8.13. The medieval church at Urney (BH-D01) which was originally within the Strokestown House demesne will be 580 metres from the PRD. As noted the fabric of the building is in very poor state at present and some parts of the walls are in danger of collapse. It will not have any adverse impact on church or its setting. The assessment in terms of vibration as set out in section 8.2 is also of relevance.

8.8.14. There are a number of features associated with Strokestown House Demesne such as stone walls, gates, stone stiles and a well at Lavalley and Kildalloge which would be impacted on by the PRD. As has been requested by the Department of Culture, Heritage and the Gaeltacht a conservation consultant with landscape design

expertise and technical conservation skills is to be retained to advise on the implementation of the mitigation measures on same.

- 8.8.15. The Dr Douglas Hyde Centre at Portaghard (BH-A03) which is a protected structure, will be 130m from centre line and 30m from the new link road . A slight visual intrusion to the rear and side is anticipated with a significant reduction in traffic passing on present N5 to the front of the building.
- 8.8.16. 3 dwellings are to be acquired and demolished to facilitate the PRD, one at Cregga (site BH-C09) and 2 at Kildallogge (sites BH-C14 & BH-C16). They are considered to be either of local significance or local heritage significance. The structures are to be recorded by means of measured drawings and written and photographic descriptions. Invariably with their demolition the impact will be significant.
- 8.8.17. Mantua House lies at a distance of approximately 850m to the north of the existing R369 and is well clear of the PRD. The mainline of the road will pass through part of the former demesne as will the realignment of the R369 Regional Road. These works will require the removal of a belt of planting. It will also result in the loss of an earth bank, a stone wall and two lines of trees. The margins of the new roads are to be replanted with broadleaf trees, with a new earthen bank and rebuilding of the stone wall proposed. Following mitigation, the impact will be slight.
- 8.8.18. Shankill Abbey and burial ground are located in the vicinity of the junction of N61 and R369. Boundaries are partly mass concrete plinth wall with wrought iron railing, and partly stone. There are no standing remains of the abbey building. The site will face on to the new roundabout at the junction. Works will not impinge on boundaries of grave yard.

Conclusion – Cultural Heritage

- 8.8.19. I have considered all of the written and oral submissions made in relation to cultural heritage. Having regard to the above I am satisfied that the impacts that are predicted to arise can be avoided, managed and mitigated by the measures which form part of the proposed development, the proposed mitigation measures and through suitable conditions. I am, therefore, satisfied that the proposed development would not have any unacceptable direct, indirect or cumulative impacts on cultural heritage.

8.9. Landscape

- 8.9.1. Chapter 11 of the EIAR and Mr. Thomas Burns submission to the oral hearing pertain. The Board is advised that there is an overlap with my assessment in section 7.6 above.
- 8.9.2. The PRD is set within a gently rolling to undulating, relatively low-lying and visually open landscape of low ridges and broad valleys drained by small rivers and streams. The landscape includes a broad mix of agricultural grassland uses and marginalised grassland, interspersed with areas of peatland, coniferous plantations, scrub and semi-natural vegetation. Areas of coniferous plantation are prominent to the south of Frenchpark and through the central section of the route corridor. The presence of residential property is a significant feature within the landscape. The PRD is not within an area designated as being of visual amenity in the current Roscommon Development Plan.
- 8.9.3. The impact of the PRD on the landscape is acknowledged in the EIAR and is described in some detail. By reason of the majority of the alignment being off-line it will inevitably alter the character of the receiving environment. The greatest adverse landscape impact will arise in the areas where cut and fill are proposed.
- 8.9.4. The visual impact for 285 properties or property groups were assessed, the locations of which are detailed on Figures 11.1 to 11.25 of Volume 3. The anticipated significant visual impacts arising are dispersed along the proposed road development and are typically experienced where the PRD runs either at elevated levels or in deep cuttings in close proximity to properties resulting in potential restrictions of views or overlooking. Summary details of visual impacts on property locations during all stages of assessment of the development are set out in Tables 11.7 and 11.8. Due consideration is given to the increase in the height of proposed noise barriers as a consequence of the potential traffic increase arising from the NPF increased population growth figures. Mr. Burns in his submission to the oral hearing confirmed that the alterations will not give rise to any change to the landscape and visual impact assessment at the relevant locations or properties.
- 8.9.5. The proposed mitigation measures and planting proposals are based on the NRA publication *A Guide to Landscape Treatments for National Road Schemes in Ireland* (2006). Landscape and visual mitigation measures are predominantly in the form of

roadside screen planting. Where areas are in cut or fill a grass or meadow sward will generally be established over the entire slope except in areas of cutting through stable rock. Stable rock slopes will be retained as an exposed face for natural colonisation and as a local landscape feature. Mitigation measures for specific properties are also detailed.

- 8.9.6. As landscape measures establish 32 locations will continue to experience varying degrees of significant (20) or profound (12) medium to long term negative visual impact and are shown on the respective maps referred to above. The majority of the properties are located along sections B and C where the PRD will traverse remote and rural areas. The principal significant impacts on landscape will be within the more remote landscapes near Mantua, Cartronagor/Creeve, Tullyloyd/Clooncullaan Lough and between Cregga Hill and Lavally north of Strokestown.
- 8.9.7. In terms of the Rathcroghan Archaeological Complex it is development plan policy to protect and conserve the vulnerable archaeological and cultural landscape and to conserve and enhance views from and between the 12 key archaeological monuments and 4 key view points as identified in the Rathcroghan Archaeological Complex Conservation Study. Holistically the monuments of Rathcroghan present a well preserved and largely intact complex incorporating many different monument types and phases retaining high visual landscape qualities which help to preserve the ancient character of the landscape. As previously noted the existing N5 bisects the Rathcroghan Complex and traffic on the national primary road detracts visually from the experience of appreciating and interpreting the significance of the monuments and the wider landscape setting. The removal of a substantial proportion of the existing traffic from the existing N5 will have a positive impact on the visual context and setting of the landscape.
- 8.9.8. It is considered that the PRD is sufficiently distant and integrated within the existing landscape including by means of ridges and valleys, forestry and vegetation so as not to give rise to any adverse landscape or visual impact on the Rathcroghan Complex or its setting. The proposed illumination at roundabout junctions will not have an adverse impact. Small areas of road illumination as well as more significant illumination at towns and villages including Bellanagare, Tulsk, Elphin and Strokestown are already visible in views from the complex. I consider that the

photomontages prepared in support of the application are reasonable and reflect a minimal impact if any on same.

- 8.9.9. The PRD is to pass through the former demesne of Strokestown running in a north-west to south-east direction at a distance of approximately 1100m from the house at Strokestown Park. By reason of the intervening distance and proposed landscaping the PRD would have a minimal impact on views both from the house and the grounds. Again, I consider that the photomontages prepared in support of the applicant are reasonable.

Conclusion – Landscape

- 8.9.10. I have considered all of the written and oral submissions made in relation to landscape. Notwithstanding the conclusion reached in respect of the inability of proposed measures to fully mitigate the visual impact of the PRD on certain sensitive receptors it is considered that the residual impacts following mitigation would not justify a refusal of planning permission having regard to the overall benefits of the proposed development.

8.10. Interaction of the Above and Cumulative Impacts

- 8.10.1. I have considered the interrelationships between factors and whether these may, as a whole, affect the environment, even though the effects may be acceptable when considered on an individual basis. Table 18.1 of the EIAR provides a matrix of the impact interactions.
- 8.10.2. The potential arises for population and human health to interact with all of the other factors (biodiversity, land, soil, water, air and climate, material assets, cultural heritage and the landscape). Biodiversity could impact on land, soil, water, air and climate. The details of all other interrelationships are set out in Chapter 18 which I have considered.
- 8.10.3. Cumulative impacts were assessed by looking at all previous and current developments for which planning has been received within 10km of the proposed site location, notably the N5 Ballaghaderreen By Pass, N60 and N61 road improvement projects and wind farm developments. Consideration was also given to the objectives in the current development plans in the area. Positive cumulative impacts are likely to develop in terms of reduced journey time, improved road safety

standards and reduced traffic congestion in local towns. Consideration of any cumulative effects on ground and surface water quality shows a safeguarding of quality by reason of the introduction of appropriate protection measures and drainage systems. No cumulative impacts from the plans and projects giving rise to a larger more significant impact from the current scheme are anticipated.

8.10.4. I am satisfied that effects as a result of interactions, indirect and cumulative effects can be avoided, managed and / or mitigated by the measures which form part of the proposed development, the proposed mitigations measures detailed in the EIAR, and with suitable conditions. There is, therefore, nothing to prevent the approval for the development on the grounds of significant effects as a result of interactions between the environmental factors and as a result of cumulative impacts.

8.11. Reasoned Conclusion on the Significant Effects

Having regard to the examination of environmental information contained above, and in particular to the EIAR and supplementary information provided by the applicant, and the submission from prescribed bodies, objectors, and observers in the course of the application, including submissions made to the oral hearing, it is considered that the main significant direct and indirect effects of the proposed development on the environment are as follows. Where appropriate the relevant mitigation measures as referenced in the amended Schedule of Environmental Commitments submitted to the oral hearing are cited.

- Risk of pollution of ground and surface **water** during the construction and operational phases. The impacts would be mitigated by measures within a Construction Erosion and Sediment Control Plan and adherence to best practice construction measures and incorporation of appropriate drainage facilities as set out in mitigation measures 6.1-6.14 and mitigation measures 7.1 to 7.107.8 (sic).
- Impact on **population and human health** as a result of noise during the construction and operational phases of the development. The contractor will be obliged to take specific noise abatement measures and comply with the recommendations of BS 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Site – Noise and the

European Communities (Noise Emission by Equipment for Use Outdoors) Regulations 2001 as set out Mitigation No.9.1. The contractor will also be required to comply with specific requirements with respect to vibration and blasting as set out in Mitigations No. 9.2 – 9.5. In terms of the operational phase mitigation measures will be required at 11 properties in the form of acoustic barriers and/or earth bunds as detailed in Mitigation Nos. 9.9 & 9.10.

- **Landscape and Visual Impacts** will arise from the PRD. Landscape mitigation proposals shall take full account of the approaches and principles set out in A Guide to Landscape Treatments for National Road Schemes in Ireland with planting and landscaping to be carried out in accordance with mitigation nos. 8.1 to 8.18.
- The proposed development would give rise to significant impacts on **Material Assets and Land** including agricultural and non-agricultural land arising from the compulsory acquisition of land to allow for the development. Impact on businesses from loss of passing trade will also arise. The TII/NRA's Code of Practice Guide to Process and Code of Practice for National Road Project Planning and Acquisition of Property for National Roads will be adhered to and the mitigation measures with regard to timing of works, consultation with property owners, restoration of access, boundary treatment, drainage and services will be carried out in accordance with mitigation Nos 13.1 to 13.5 and 14.1 to 14.6.
- The proposed development would have potentially significant positive effects on **Population and Human Health** in terms of the increased benefits in terms of shorter journey times and reduction in traffic hazard. The removal of through traffic from the towns and villages along the existing N5 will assist in the improvement of connectivity, reduction of severance, and improvement in noise and air and overall amenity.
- The proposed development would have potentially significant positive effects on **Cultural Heritage** by the removal of substantial levels of traffic along the N5 which will also assist in improving the setting and context of Rathcroghan archaeological complex.

Notwithstanding the conclusion reached in respect of the inability of the proposed measures to fully mitigate the impact of loss of passing trade by businesses on the existing N5, on agricultural and non-agricultural property as a consequence of severance and visual impact on certain sensitive receptors, it is considered that the environmental effects would not justify a refusal of planning permission having regard to overall benefits of the proposed development.

9.0 **Appropriate Assessment**

- 9.1.1. This section of the report considers the likely significant effects of the proposal on the relevant European sites in view of their conservation objectives. A Natura Impact Statement accompanies the application.

Description of the Project and Site Characteristics

- 9.1.2. The lands of the proposed development and project are as described in section 2.

9.2. **Stage 1 – Screening**

- 9.2.1. Within a 15km radius 17 SACs and 4 SPAs are identified. The qualifying interests for the sites are set out in Table 3.1, Appendix 1 of the NIS. In summary:-
- 9.2.2. *Bellanagare Bog SAC (000592) and Bellanagare SPA (004105)* are c. 200 and 500 metres to the south respectively. Potential impacts on the qualifying interests may arise in the form of potential hydrological changes resulting from the construction of the PRD. In addition, the potential for habitat loss and impacts due to disturbance and fragmentation on the Greenland White Fronted Goose cannot be excluded. Thus, the potential for significant effects on these European Sites cannot be excluded at this stage.
- 9.2.3. *Annaghmore Lough (Roscommon) SAC (001626)* is c. 0.9km to the north. A potential hydrological pathway exists via Cregga Turlough. Downstream impacts on the designated site in flood conditions could arise. Thus, the potential for significant effects on this European Site cannot be excluded at this stage.
- 9.2.4. *Callow Bog SAC (000595)* c. 1.6km to the north west. Due to the absence of hydrological connection, the site will not be impacted indirectly by the proposed development by emissions or drainage effects of the proposed development.

Therefore, effects on the European Site resulting from the proposed development can be excluded.

- 9.2.5. *Cloonshanville Bog SAC (000614)* is c.1.7km to the north. Given the size and scale of the proposed road development, its proximity to the designated site, the potential for the proposed road development to result in hydrological changes resulting from road drainage and emissions to surface and groundwater, the potential for significant effects on this European Site cannot be excluded at this stage.
- 9.2.6. *Lough Gara SPA (004048)* c. 2.4km to the north-west. There is hydrological connectivity between the proposed road development and the SPA with the potential for hydrological change/pollution of the SPA. In addition, there is the potential for habitat loss and fragmentation outside the SPA but potentially impacting on the qualifying interest of the SPA, thus the potential for significant effects on this European Site, cannot be excluded at this stage
- 9.2.7. *Lough Forbes Complex SAC (001818)* c. 10.0km to the east. There is a hydrological connection via the Scramoge River. There is the potential for hydrological changes or groundwater pollution to aquatic habitats and for surface water pollution to impact negatively on the supporting habitat for bird species. Therefore the potential for significant effects on this European Site cannot be excluded at this stage.
- 9.2.8. *Ballykenny Fisherstown Bog SPA (004101)* is c.10.0km to the east. There is no hydrological or hydrogeological connectivity. Given the distance and foraging range of the qualifying interest of the European Site the effects on the European Site resulting from the proposed development can be excluded.
- 9.2.9. *Lough Ree SAC (000440) and Lough Ree SPA (004064)* c. 10.2km to the south-east. The Lough Ree SAC is considered to be sufficiently remote from the proposed road development as not to be impacted either by construction activities or operation of the proposed road development. The worst case scenario would be a major pollution incident towards the eastern end of the project which would have to travel a distance in excess of 50km discharging through Kilglass Lough, Lough Boderg, Lough Bofin and Lough Forbes. The buffering and dilution effect of these loughs will ensure imperceptible impact within the Lough Ree system. Significant Impacts can be excluded. Given the distance and foraging range of the qualifying interests of the SPA significant impacts can be excluded.

9.2.10. There is no hydrological or hydrogeological connectivity between the PRD and the designated sites below. Thus, the sites will not be impacted indirectly by emissions or drainage effects of the proposed development. Therefore, effects on the European Sites resulting from the proposed development can be excluded.

Tullaghanrock Bog SAC (002354) is c. 3.9km,

Mullygollan Turlough SAC (000612) c. 7.8km to the south

Corbo Bog SAC (002349) c. 9.8km to the south-east.

Clooneen Bog SAC (002348) c. 10.3km to the east,

Drumalough Bog SAC (002338) c. 11.6km to the to the south

Cloonchambers Bog SAC (000600) c. 12.3km to the south west,

Brown Bog SAC (002346) c. 12.9km to the east,

River Moy SAC (002298) c.13.1km to the west

Derrinea Bog SAC (000604) c. 14.4km to the south-west

Flughany Bog SAC (000497) c. 14.5km to the north-west

Corrowbehy/Caher Bog SAC (000597) c.14.5km to the south-west

Stage 1 – Screening Conclusion

9.2.11. It is reasonable to conclude on the basis of information on the file, which I consider to be adequate in order to issue a screening determination, that the proposed development, individually or in combination with other plans or projects would not be likely to have a significant effect on European sites:-

Callow Bog SAC (000595)

Ballykenny-Fisherstown Bog SPA (004101)

Brown Bog SAC (002346)

Cloonchambers Bog SAC (000600)

Clooneen Bog SAC (002348)

Corbo Bog SAC (002349)

Corrowbehy/Caher Bog SAC (000597)

Derrinea Bog SAC (000604)
Drumalough Bog SAC (002338)
Flughany Bog SAC (000497)
Lough Ree SAC (000440)
Lough Ree SPA (004064)
Moygollan Turlough SAC (000612)
River Moy SAC (002298)
Tullaghanrock Bog SAC (002354)

9.2.12. Potential for significant effects on the features of interests of the following European Sites as detailed below cannot be screened out:

Bellanagare Bog SAC (000592)
Bellanagare Bog SPA (004105) (004105)
Annaghmore Lough (Roscommon) SAC (001626)
Cloonshanville Bog SAC (000614)
Lough Forbes Complex SAC (001818)
Lough Gara SPA (004048)

9.2.13. Accordingly, a Stage 2 Appropriate Assessment is required to determine the potential of the proposed development to adversely affect the integrity of the said European Sites.

9.3. **Appropriate Assessment**

9.3.1. Bellanagare Bog SAC (000592) and Bellanagare SPA (004105) are c. 200 and 500 metres to the south respectively. The qualifying interests of the former are Active raised bogs, Degraded raised bogs still capable of natural regeneration, and Depressions on peat substrates of the Rhynchosporion. The qualifying interest of the latter is the Greenland White-fronted Goose. Detailed conservation objectives are available for the SAC with generic conservation objectives for the SPA, the overall aim being to maintain or restore the favorable conservation status of habitats and species of community interest.

- 9.3.2. As the PRD is not within the designated sites there will be no direct impacts. In terms of indirect impacts there is the potential for alteration of the groundwater regime and water pollution during construction and operation. Construction at this location will require the excavation of unacceptable peat and alluvial material beneath the road alignment at up to 4m excavation depth which could give rise to drainage impacts on the adjacent cutover bog and on the raised bog habitat to the south. Potential impacts would include the interception of drainage paths by the permeable road formation result in diversion of water with dewatering of adjacent soils/wetlands areas and an increase of drainage through the provision of toe and land drains. In terms of the SPA there is potential for impacts resulting from disturbance, loss of supporting habitat outside the European site and potential population fragmentation.
- 9.3.3. Best practice in terms of drainage design in accordance with the relevant TII guidelines are proposed. In order to mitigate the impact of the cutting through the peat material an impermeable longitudinal barrier is to be providing running inside the road formation. This will impede water from being drained into the permeable road formation and draining the adjacent soils. All transverse flow paths/ditches will be maintained through culverting/piping to ensure the water balance of the wetland area is maintained. The use of shallow toe drains with check dams at the base of the embankment will impede drainage of the area and maintain wet conditions. The measures outlined in the Construction Erosion and Sediment Control Plan (CESCP) will ensure no adverse impacts on water quality occur during the construction phase. The residual impact on the qualifying species would be negligible.
- 9.3.4. In terms of the qualifying interest of the SPA, Bellanagare Bog is not one of the 10 identified overwintering sites for the species. No Greenland White Fronted Goose were recorded during any of the surveys undertaken. It is thought that the species may have abandoned the SPA. The PRD is located c.500 metres from the SPA at its closest point with forestry plantations in between. The habitats within and adjacent to the PRD do not provide favourable, highly managed and fertile wet grasslands that are likely to be utilised by the species. The road would be close to grade at this location and would not present a barrier to commuting birds. It is reasonable to conclude, therefore, that the PRD is unlikely to result in any effect on

the long term population trend or number and distribution of birds on the site and that it would not prevent or discourage the species from returning to the SPA.

- 9.3.5. In conclusion the PRD will not adversely affect the integrity of the designated sites and no reasonable scientific doubt remains as to the absence of such effects.
- 9.3.6. Annaghmore Lough (Roscommon) SAC (001626) is c. 0.9km to the north. The qualifying interests are Alkaline fens and Geyer's Whorl Snail. To date generic conservation objectives apply the overall aim being to maintain or restore the favorable conservation status of habitats and species of community interest.
- 9.3.7. As the PRD is not within the designated site there will be no direct impacts. There is the potential for indirect impacts on the qualifying interests in the form of alteration of the groundwater regime and water pollution during construction and operational phases. There is a hydrological pathway between the PRD and Annaghmore Lough via Cregga Turlough. During flood conditions Cregga Turlough overflows via a surface drain to Annaghmore Lough and therefore contamination of Cregga Turlough which is adjacent to the PRD could cause downstream impacts at Annaghmore Lough in flood conditions.
- 9.3.8. No discharge of road pavement runoff to Cregga Turlough will occur which will avoid any potential pollution of the Turlough and its groundwater system and therefore protect Annaghmore Lough downstream. In the vicinity of Cregga Turlough the road pavement waters will be collected in a sealed drainage system passing through a treatment pond before being discharged to Ovaun Stream. A detailed mitigation plan has been drawn up to avoid temporary pollution of the turlough and are set out in the CЕССР and include measures such as the collection and treatment of all spoiled construction waters prior to discharge with a phased plan for advancing the deep rock cutting providing a gradient for outfall of the runoff waters. The residual impact on the qualifying interests would be imperceptible.
- 9.3.9. In conclusion the PRD will not adversely affect the integrity of the designated site and no reasonable scientific doubt remains as to the absence of such effects.
- 9.3.10. Cloonshanville Bog SAC (000614) is c.1.7km to the north. The qualifying interests are Active raised bogs, Degraded raised bogs still capable of natural regeneration, Depressions on peat substrates of the Rhynchosporion and Bog woodland. Detailed

conservation objectives apply, the overall aim being to maintain or restore the favorable conservation status of habitats and species of community interest.

- 9.3.11. As the PRD is not within the designated site there will be no direct impacts. There is hydrological connectivity between the PRD and the designated site via the Carricknabraher and Owennaforeesha Rivers, both of which are tributaries of the Breedoge River which passes along the eastern boundary of the SAC. The PRD will discharge road drainage to both rivers and therefore impacts on their water quality could potentially impact on the SAC. They may also be linked via groundwater given the large flush area in the centre of the bog dome.
- 9.3.12. A treatment pond is to be located upstream of each of the proposed outfalls to these rivers which will minimise the potential for impacts on water quality prior to discharge. An assessment of the watercourses and their capacity to receive such discharge was carried out which indicated that there would not be a deterioration in the classification status of the receiving waters. In addition, pollution control facilities in the form of penstock will be included at each pond which can contain any spillages should such an incident arise. The measures outlined in the CSECP will ensure no adverse impacts on water quality occur during the construction phase. No groundwater discharges are proposed thus there will be no perceptible change in groundwater quality in the vicinity of the SAC.
- 9.3.13. In conclusion the PRD will not adversely affect the integrity of the designated site and no reasonable scientific doubt remains as to the absence of such effects.
- 9.3.14. Lough Gara SPA (004048) is c. 2.4km to the north-west of the PRD. The qualifying interests are Whooper Swan and Greenland White-fronted Goose. Generic conservation objectives apply. There is potential for indirect impacts in that there is hydrological connectivity between the proposed road development and the SPA, therefore there is the potential for hydrological change/pollution of the SPA. In addition, there is the potential for habitat loss and fragmentation outside the SPA potentially impacting on bird populations associated with the SPA.
- 9.3.15. Proposed road drainage outfalls discharge to an unnamed stream, the Carricknabraher River, the Owennaforeesha River and the Mantua Stream all of which join the Breedoge River before outfalling into Lough Gara SPA. Lough Gara SPA is located c.2.6km from the proposed development at its closest point, however

most of the proposed outfalls are located much further upstream. Each of the road drainage outfalls includes attenuation pond treatment facilities and therefore impacts on water quality at Lough Gara from road drainage will be imperceptible. The main risk to Lough Gara would occur during in the event of a serious surface water contamination event. A spillage risk assessment has identified this as a very low probability and the inclusion of penstocks in the attenuation pond design will reduce the potential impacts to imperceptible. The measures outlined in the CSECP will ensure no adverse impacts on water quality occur during the construction phase of the proposed development.

- 9.3.16. No intensively managed wet grasslands or peatlands that would provide suitable habitat for the species were recorded within the core foraging range of 5km for the Whooper Swan and between 5 and 8km for the Greenland White Fronted Goose. It is considered unlikely that the PRD will impact on the present or future use of the site by the qualifying interests in terms of habitat loss, fragmentation or disturbance.
- 9.3.17. In conclusion the PRD will not adversely affect the integrity of the designated site and no reasonable scientific doubt remains as to the absence of such effects.
- 9.3.18. Lough Forbes Complex SAC (001818) is c. 10.0km to the east. The qualifying interests are Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation, Active raised bogs, Degraded raised bogs still capable of natural regeneration, Depressions on peat substrates of the Rhynchosporion and Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae). Generic conservation objectives apply, the overall aim being to maintain or restore the favorable conservation status of habitats and species of community interest
- 9.3.19. There is link between PRD and the designated site via the Scramoge River which is >30km hydrologically. In respect of a potential surface water spillage a spillage risk assessment has identified this as a very low probability and the inclusion of penstocks in the attenuation pond design will reduce the potential impacts to imperceptible. The measures outlined in the CSECP will ensure no adverse impacts on water quality occur during the construction phase of the proposed development
- 9.3.20. In conclusion the PRD will not adversely affect the integrity of the designated site and no reasonable scientific doubt remains as to the absence of such effects.

In combination effects

9.3.21. I note that the NIS assesses the potential cumulative impacts which could possibly arise with due cognisance had the Roscommon County Development Plan, Strokestown LAP, Shannon River Basin District Management Plan, Inland Fisheries Ireland Corporate Plan, Coillte Mid West BAU 4 Strategic Plans, Ballaghaderreen Landfill, Roscommon Landfill facility, Waste Transfer Station Ballaghaderreen, the N5 Ballaghaderreen By-Pass, the N5 Scramoge to Clonmore Road Project and the N5 Longford By-Pass. No potential for significant in-combination impacts are identified. I am satisfied that no in-combination effect will arise.

9.4. Appropriate Assessment – Conclusion

On the basis of the information provided with the application, including the Natura Impact Statement, which I consider adequate in order to carry out a Stage 2 Appropriate Assessment, the submissions received and the assessment carried out above, I am satisfied that the proposed development, individually or in combination with other plans or projects would not adversely affect the integrity of European Site Nos. Annaghmore Lough (Roscommon) SAC (001626), Bellanagare Bog SAC (000592), Bellanagare Bog SPA (004105), Cloonshanville Bog SAC (000614), Lough Forbes Complex SAC (001818), Lough Gara SPA (004048) or any other European site, in view of the sites' Conservation Objectives.

10.0 Compulsory Purchase Order

10.1.1. The statutory powers of the local authority to acquire land are contained in section 213 (2)(a) of the Planning and Development Act 2000- 2010. Under its provisions the planning authority may acquire land compulsorily for the purpose of performing any of its functions including giving effect to or facilitating the implementation of its development plan.

10.1.2. An Erratum to the CPO Schedule was presented to the oral hearing and provides for amendments and/or additions to the owners or reputed owners and occupiers. The amendments reflect information that the applicant obtained after the submission to the Board. Following consultations with land and property owners the land take on CPO Plot Nos 470, 545, 1025 and 1095 have been reduced which reduces the

proposed permanent land acquisition by 0.885 hectares. The revised overall CPO land acquisition will be 357.722 hectares. Confirmation of notification of parties was also presented which allowed for objections to be made. I consider that the proposed amendments to be reasonable and would not be likely to prejudice the position of any person.

10.1.3. It is accepted that there are four criteria that should be applied where it is proposed to use powers of compulsory purchase to acquire land or property namely:-

- There is a community need, which is met by the acquisition of the properties in question,
- The works to be carried out accord with the Development Plan,
- Alternative methods of meeting the community need have been considered but are not available,
- The suitability of the land to meet the community need.

The Board will note that a number of these issues have been raised in preceding sections of this assessment and therefore this section should be read in conjunction with same where relevant.

Community Need

10.1.4. The stated purpose of the CPO is to facilitate:

- Improve the N5 route to modern day standards including the provision of safe overtaking and appropriate road width;
- Provide a high quality road with reserve capacity for future demand;
- Reduce travel times and improve access to the north-west region;
- Assist in improving the competitiveness and efficiency of the economy both locally and nationally;
- Improve safety
- Reduce environmental and social impacts on the local residents and communities along the existing N5.

10.1.5. Following the assessment in section 7.2 above I would concur with same and that the PRD will contribute towards improved access in line with national, regional and

local planning policy, will improve journey times and provide a positive economic return on investment with improvements of safety being of particular importance. The improvement will result in a roadway that satisfies the standards and safety requirements for a national primary road established by the NRA.

10.1.6. I submit that the improved standard of the carriageway will benefit all road users and the CPO can be justified by the exigencies of the common good. I therefore consider that the community need for the scheme has been established.

Compliance with Development Plan

10.1.7. As detailed in section 7.1 of this assessment the PRD accords with European, National, Regional and Local policy. In light of same it is contended that the PRD has the potential to contribute to balanced regional development as envisaged in the National Planning Framework.

Alternatives

10.1.8. I refer to the consideration of alternatives and my assessment in section 7.3 above. I am of the opinion that the applicant has submitted sufficient details in terms of alternatives including alternative options considered and the reasons for the choice of the alignment proposed in the scheme and that the level of detail provided meets the requirements of section 50(2)(d) of the Roads Act, 1993 (as amended) and the EIA Directive. I would conclude that at this stage of the assessment the chosen option appears to be the most reasonable solution whilst minimising the impacts on the ecological, cultural heritage, visual and residential sensitivities of the area.

Objections submitted by landowners focus on the scheme having an adverse impact on property and lands. Such an impact is likely to arise no matter what route is selected. It is acknowledged that the preferred route presents burdens in relation to residential owners and agricultural operations. These impacts will, in many cases, be permanent impacts notwithstanding the mitigation measures proposed. Issues relating to severance and loss of lands arising are matters to be addressed by way of compensation.

Suitability of Lands to Meet Community Need

10.1.9. I refer to section 7.2 of this assessment and the conclusion that the proposed cross section and junction strategy are appropriate. The extent of the land that would be acquired under the order is determined by the specifications for same.

10.2. Site Specific CPO Issues

10.2.1. As noted previously 68 written objections to the order were received by the Board. At the time of the writing of this report 7 no. objections remain which have not been formally withdrawn. I propose to address the issues arising in each instance

Brendan Cooney CPO Plot Ref. 120 (represented by James Kilcoyne)

10.2.2. Mr. Cooney's property is within the townlands of Rathkeery and Glebe East at the eastern end of the PRD where it will tie into the existing N5. The holding will be affected by the mainline alignment in the vicinity of Ch1+500. He has a 36.4 ha mixed livestock farm holding. The area of land being acquired is 1.815 hectares of which 0.081ha is public road. The issue of severance of his lands north and south of the proposed mainline and inconvenience in terms of access are raised.

10.2.2.1. The EIAR acknowledges that the PRD will have a moderate impact on Mr. Cooney's farmholding following mitigation. The existing farm access from LS-12255 (Junction 1) will be reinstated and connected to the proposed N5 thereby providing access to his lands to the south. Access to the lands to the north of the PRD will be via a new link road at Ch2+700 connecting to the existing N5 at Sheepwalk. Thus access to all of Mr. Cooney's retained lands will be maintained. The EIAR notes that the overall enterprise can continue post construction.

10.2.2.2. I consider that the proposed CPO to be reasonable and necessary and the issue of how the agricultural enterprise may be affected by the resultant severance is a matter for arbitration.

Michael Carney CPO Plot Ref. 125 (represented by James Kilcoyne)

10.2.3. The area of land to be acquired is 0.83 hectares of which 0.021 ha is public road. He will be impacted by the proposed mainline alignment in the vicinity of Ch1+900. Mr. Carney operates a monumental sculpture business with access onto the exiting N5 which will be bypassed by the PRD. He also has an 8.1 ha beef farm holding and slatted shed at this location. The EIAR states that there will be a moderate

impact on Mr. Carney's farm holding following mitigation. Mr. Carney strongly refuted this conclusion and considers the impact would be significant.

10.2.4. It is acknowledged in section 7.4 above that his commercial enterprise will be impacted upon by the PRD with the removal of the majority of traffic from the existing N5. The extent of the CPO at this location does not require the acquisition of any part of the commercial premises.

10.2.5. In response to Mr. Carney's query as to why a junction could not be provided where the existing and proposed N5 deviate in the vicinity of Rathkeery Mr. Thorpe informed the hearing that in order to form a safe junction a certain level of separation needs to be available which is not possible at this location. Following detailed study the safest and correct location is considered to be located adjacent to the Douglas Hyde centre. Mr. Carney did not agree.

10.2.6. Access to the severed lands will be via a new access track that runs parallel to and south of the PRD from Junction 3. The lands adjacent to his monumental sculpture business will continue to be accessed from the existing N5 via the new N5 link road at Ch.2+700 (Junction 4A) which comprises a diversion of 1km. It was clarified at the hearing that access to his dwelling (to the south of the PRD at Portaghard) from his commercial premises would entail a journey eastwards along the existing N5 onto the new link road (Junction 4A) and then onto the new N5 travelling back westwards to its junction with local road LS-5632 (Junction 3).

10.2.7. Consideration of the provision of an underpass which would serve both his lands and those of Mr. Callaghan's adjoining is recommended. Mr. Thorpe in response informed the oral hearing that in view of the marginal elevational changes between the respective CPO plots and the PRD being at grade at this location the provision of such an underpass would require the mainline to be raised by 2m. to ensure that the underpass could be drained. This increase in height would also require the acquisition of a further 6 metres each side to provide for appropriate embankment construction. This would result in increased environmental impacts, notably the corresponding increase in the level of the realigned LS-5632 which would directly impact of the curtilage of a nearby property.

10.2.7.1. I consider that the applicant has provided sufficient detail to support its case against the provision of the underpass at this location, the need for the extent of the CPO

and the junction arrangements in the vicinity. The issue of how the landholding may be affected by the resultant severance is a matter for arbitration.

Anthony O’Callaghan CPO Plot Ref.135 (represented by Mr. James Kilcoyne)

- 10.2.8. Mr. O’Callaghan has a 30.4 hectare beef farm holding at Portaghard and is affected by the proposed mainline alignment in the vicinity of Ch2+100 and Junction 3 at Ch2+200. An accommodation access track is required to provide access to the adjoining landowner (CPO Plot 125). Access to lands off the existing N5 and LS-5632 will be made available via the proposed link road at CH 2+700 resulting in additional journey lengths of 0.3km and 1.1km respectively. Mr. O’Callaghan also stated that the PRD would have a material adverse impact on his dwelling which will be in close proximity.
- 10.2.9. The potential for the provision of an underpass was advanced both in the written objection and the submission to the oral hearing. Mr. O’Callaghan stated that there is a 1.2 metre differential between his and Mr. Carney’s plots and that the underpass could be constructed at plane with a sub to pump any additional water. Such a provision would limit some of the issues in terms of fragmentation of his farm. Mr. Thorpe informed the hearing that the existing ground level at Mr. Carney’s plot at Ch2+000 is 96.207 and at Mr. O’Callaghan’s at Ch2+100 is 95.813 giving a differential of 0.394 metres. As noted above Mr. Thorpe informed the oral hearing that in view of the marginal elevational changes between the respective CPO plot and the PRD being at grade at this location the provision of an underpass would require the mainline to be raised by 2m to ensure that the underpass could be drained. In this regard discharge to groundwater as mooted by Mr. O’Callaghan is not an optimum arrangement on environmental grounds. This increase in height would also require the acquisition of a further 6 metres each side to provide for appropriate embankment construction. This would result in increased environmental impacts, notably the corresponding increase in the level of the realigned LS-5632 which would directly impact on the curtilage of a nearby property. Such a provision would also result in increased construction costs.
- 10.2.10. I consider that the applicant has provided sufficient detail to support its case against the provision of the underpass and that the proposed CPO is reasonable and

necessary. The issues relating to property value and additional management or operational procedures are matters for arbitration.

Michael Hanily on behalf of Patrick James and Bridie Hanily CPO Plot Ref. 270

10.2.11. The Hanily property is in the vicinity of where the PRD will cross the existing N5 at Cashel in the vicinity of Ch10+500 and Ch 12+400. Their holding comprises of 34 hectares of beef farm and forestry and has three dwellings. It is already divided by the existing N5. The holding will be affected by the proposed main alignment, attenuation ponds and Junctions 7A and 7B. The PRD will also sever LS-5641 and LS-5640 in close proximity. A right-left staggered priority junction is proposed on the PRD. LS-5641 is to be realigned to connect to the northern realignment of the existing N5 and LS 5640 stopped up with turning heads. The area between the realigned LS 5641 and the new N5 is to be used as a construction compound. The proposal road alignment will impact on the main land plot severing it into two separate areas. Access to the severed area to the south will be via a field gate and an access track at Junction 7A (south) on the existing N5 with culvert WC12.01 extended to accommodate an access track to facilitate access to lands to the west. The residual impact on the holding is considered to be moderate as per the EIAR.

10.2.12. Mr. Hanily considers that the PRD will have a long term negative impact on the family farm and its viability and whilst in isolation the issues of noise, access, outlook, attenuation are addressed the cumulative impact would be significant and would have a material adverse impact on living standards.

10.2.13. The proposed N5 will be on an embankment through their lands reaching a maximum height of 3.7 metres. The height of the embankment is dictated by the combination of achieving the clearance to box culvert WC12.01 which is 2.7 metres high and achieving Full Overtaking Sight Distance crest curve which is unable to follow the localised undulations in the ground. Mr. Hanily contends that the box culvert appears to be over-engineered for what is a minor drain, taking into consideration the fact that the existing stone arch is 750mm where flooding does not arise. He considers that its height is driving the height of the road.

10.2.14. Mr. Spencer informed the hearing that flooding on lands to the south was noted in 2015 following a period of heavy rain with back up in the drain. He stated that the culvert size was calculated taking the catchment area for the culvert, stream

frequency and soil types so to derive flow in the watercourse which is then factored up to 1:100 flood flow. Allowance is also made for 20% increase for climate change. The culvert is to be buried 500mm into the stream in accordance with the requirements of Inland Fisheries Ireland and provides for 300mm spare capacity as required by the OPW. Thus, the increase in the culvert is from 750mm to 1.9 metres. To provide minimum cover for the road, the road level must be a minimum of 4m above the bed of the stream. It is confirmed that the height is not dictated by the need for deposition of rock to be excavated at Cregga. All culverts proposed in the PRD have Section 50 consent from the OPW.

- 10.2.15. The attenuation pond located at Ch 12+600 is 130 metres from the nearest of their dwellings and will be at or below existing ground level. It is to be fenced and landscaped. Mr. Thorpe informed the hearing that it is located so as to avoid the culvert referred above thereby keeping it as low as possible.
- 10.2.16. The existing road along the frontage of the dwellings is to be retained and the levels will not change allowing the existing access points to be retained. The PRD will remove the N5 traffic currently passing immediately in front of their properties to approx. 300 vehicles per day in 2035. Taking into account the 18% increase in the NPF this would increase to 346. 160 metre sight distances are to be attained at dwelling entrance. In the context that the existing N5 will most likely be reclassified as a regional road on realisation of the PRD these are well in excess of those required where an 80kph speed applies. Associated benefits in terms of noise reduction and air quality arising from the removal of traffic from the existing N5 are noted.
- 10.2.17. In terms of visual impact, the PRD is to be located a minimum of 180 metres from the nearest of the three dwellings within the landholding. New woodland planting and screen planting is proposed which will assist in screening the PRD from view. Whilst it is acknowledged that the photomontage submitted by way of further information shows a summer time view Mr. Burns noted that the immediate planting comprises a 5 metre deep belt of closely spaced planting which contains both deciduous and evergreen species with additional woodland planting around the proposed junction and mainline and tree lined boundary hedgerows along the boundary of the PRD. All landscape screening and mitigation is to be setback behind the visibility splays.

- 10.2.18. The preparation of a construction management plan will be required and during the works temporary traffic management will be installed in compliance with Chapter 8 of the Traffic Signs Manual.
- 10.2.19. In terms of the Bellanagare Walking route along LS 5640 and LS 5641 and the impact of the PRD on same I refer the Board to my assessment in section 7.4 above.
- 10.2.20. I consider that the applicant has provided sufficient detail to support its case for the sizing of the culvert which impacts on the height of the embankment and subsequent required landtake and that the proposed CPO is reasonable and necessary. The issues relating to property value, issues of severance and additional management and operational procedures are matters for arbitration.

Robert Brady CPO Plot Ref. 440 (represented by Martin & Rea)

- 10.2.21. Mr. Brady's holding in the vicinity of Ch15+530 is an 11.5 hectare equine farm holding. It will be affected by the proposed main alignment and material deposition area. The EIAR states that the residual impact following construction of the PRD would be moderate.
- 10.2.22. In terms of the potential for unauthorised parking and dumping of rubbish on accommodation roads Mr. Spencer in his submission to the oral hearing stated that where existing public roads are severed, turning head have been provided to allow vehicles to turn. The turning heads have been positioned at the location of the last entrance or access to ensure that the turning heads will be in regular use. All agricultural access accommodation roads whether shared or for a single landowner will be gated and locked with a key provide to landowner and Roscommon County Council to prevent unauthorised use.
- 10.2.23. In terms of noise the WHO standards are not applicable for road schemes. The most relevant guidelines for road development are the NRA Guidelines for the Treatment of Noise and Vibration in National Road Schemes (2004). Noise impact is considered in section 8.2 of this report with the EIAR setting out noise limits relating to the construction and operational phase of the scheme. The analysis of noise undertaken indicates that specific noise mitigation measures are required at 10 locations none of which are in the vicinity of his property. The use of noise monitoring will be employed during the construction phase to ensure the noise criteria are not exceeded.

- 10.2.24. In terms of concerns as to the adequacy of dust mitigation and monitoring proposal I refer the Board to my assessment in section 8.6 above.
- 10.2.25. No safety barriers are required at this location. Discussions between the applicant and objectors/property owners along the route relating to accommodation works is an issue that is between the parties and is not something for detailed consideration by the Board.
- 10.2.26. The scheme is likely to be constructed under a design and build form of contract and some variation in the road level and design may arise. The scheme post consent, is limited by the fact it requires an EIAR and EIA and, therefore, any modification to the scheme could only be undertaken if it is shown that the amendments would not lead to significant environmental effects. In the subject case any changes to the final design would have to satisfy the requirement that they would not result in a significant environmental effect and this determination would have to be supported by a screening process where appropriate.
- 10.2.27. An agricultural underpass is to be positioned at Ch 15+600. Moving the underpass further west would increase the length of diversion for a dairy herd which requires access to lands to the south of the PRD. Raising the alignment to accommodate a side road underbridge would increase the environmental impact, particularly visual impact.
- 10.2.28. As determined and accepted by Mr. Brady ownership and published compulsory acquisition documentation with respect to CPO Plot 435 is correct. The potential for Mr. Brady to acquire possessory title of the CPO Plot 435 is not relevant to the discussions at this time. He currently does not have title.
- 10.2.29. The proposed right left staggered junction is designed in accordance with TII design standards DN-GEO-03060 and DN-GEO-03031. The junctions will operate at just 1% and 2% of capacity in the design year 2035.
- 10.2.30. The substantive concern is that the plot of land to the south of the alignment and west of the realigned local road be returned to his ownership consequent to the proposed works on the basis of historical and family significance. It is requested that the Board does not confirm this section of the CPO and, as Mr. Brady has no objection to the PRD, the Council could be facilitated by means of a wayleave. Taking into consideration the proposed use of the immediately adjoining lands as material

deposition areas which could be up to a height of 2 metres and the need for the Council to ensure the proper control and maintenance of same, I consider that the lands to be acquired are necessary at this location.

10.2.31. The proposed access arrangements parallel to the proposed N5 between Ch13+750 and Ch14+950 is so as to provide alternative access arrangements severed by the PRD. Mr. Rea recommends that the proposed access be extended a further c.600 metres in an easterly direction, parallel to the main road and connecting to the proposed access and underpass, thereby facilitating landowners in the vicinity in accessing Drummin Bog. This would also reduce the potential for slow moving vehicles having to access the new N5. As noted the existing access arrangements at Junction 8 are being maintained via the staggered junction arrangement and thus access to the bog will be available albeit involving a greater distance. I would concur with the Council that the additional provision, although it may be via lands that the Council are proposing to acquire, would not be justified in terms of additional costs arising in its provision.

10.2.32. I consider that the applicant has provided sufficient detail to support its case against the provision of an additional access to Drummin Bog and the required landtake. I consider that the CPO is reasonable and necessary. The issues relating to property value, issues of severance and additional management and operational procedures are matters for arbitration.

John Nerney CPO Plot 659 (represented by James Kilcoyne)

10.2.33. Mr. Nerney has a 32.4 ha beef farm holding at Shankhill and considers that the road should have been designed differently specifically with regard to the proposed land take along the N61.

10.2.34. The acquisition of lands totalling 0.327 hectares is required to tie the existing N61 and R369 into the proposed Shankill roundabout the location of which is so as to avoid the graveyard and is along the road frontage. Such an arrangement will result in the removal of the existing junction arrangement which is a black spot. There will be no land severance and existing gates will be replaced. Following mitigation, the impact on his holding is considered to be slight

10.2.35. I consider that the applicant has put forward a sound basis for the need to acquire the lands in question and, as such, are considered necessary and appropriate. The issue of compensation will be a matter for arbitration.

Pawel and Aleksandra Szawernoga CPO Plot 758 (represented by Mary Rose McNally)

10.2.36. They purchased their dwelling in 2017 and, whilst aware of the PRD, were not aware that it would impact on their home. They are concerned about the impact on the quiet enjoyment and value of their property. The proposed bridge is close to the gable of the house. The Board is requested to consider the relocation of the bridge further from their property.

10.2.37. The area being acquired is 0.033 hectares and comprises of road bed only. There is no acquisition of curtilage of their property. The roadbed of the LS 6030 in front of their dwelling has been included in the CPO and is necessitated by the proposed realignment of the road away from their property to improve the existing skewed junction with the R368 and to allow to reconnect their vehicular access and break up and landscape the redundant area of road pavement.

10.2.38. I have noted previously that the PRD will have an impact in landscape terms at this location but I submit that the impact has to be balanced against the wider benefits that will accrue from the project.

10.2.39. The acquisition of the lands for the regrading proposal is considered reasonable. In terms of devaluation of property the issue of compensation will be a matter for arbitration.

11.0 Recommendation

On the basis of the above assessment I recommend as follows:

11.1. The Compulsory Purchase Order

It is considered that the land take is reasonable and proportional to the stated purpose of the N5 Ballaghaderreen to Scramoge proposed road development. The Board is satisfied that the process and procedures undertaken by Roscommon County Council have been fair and reasonable and it has demonstrated the need for the lands and that all the lands being acquired are both necessary and suitable. The Board considers that the proposed acquisition of the lands would be in the public interest and the common good and would be consistent with the policies and objectives of the National Planning Framework, the Regional Planning Guidelines for the West Region, 2010 and the Roscommon County Development Plan 2014.

DECISION

CONFIRM the compulsory purchase order for the reasons and considerations set out below subject to the modifications set out in the Schedule.

REASONS AND CONSIDERATIONS

Having considered the objections made to the compulsory purchase order, the report of the person who conducted the oral hearing into the objections, the purpose of the compulsory purchase order and also having regard to:

- (a) The need to provide a road that is designed and constructed in accordance with current design standards with a consistent cross section with full stopping sight distances along its length and appropriate junction and accesses with visibility in accordance with current design standards,

- (b) the community need, and public interest served and overall benefits, including benefits to a range of road users to be achieved from use of the acquired lands, and
- (c) the provisions of the National Planning Framework and Roscommon County Development Plan and the policies and objectives stated therein, which specifically identify the proposed road development
- (d) the proportionate design response to the identified need,
- (e) the submissions and observations made at the oral hearing, and
- (f) the report and recommendation of the Inspector,

it is considered that, subject to the modifications to the order as set out in the Schedule below, the acquisition by the local authority of the lands in question, and the extinguishment of public rights of way, as set out in the compulsory purchase order and on the deposited maps, are necessary for the purpose stated, and that the objections cannot be sustained having regard to the said necessity.

SCHEDULE

The compulsory purchase order shall be modified in accordance with details provided in the document titled CPO Amendments October 2018 submitted to the Board at the Oral Hearing on the 9th day of October, 2018 as follows:

- i. the reduction in area of the following plots
 - No.470b.201,
 - No.545b.201,
 - No. 1025a.201a
 - No. 1025a.201b
 - No. 1095b.201a
- ii. removal of the following plot
 - No. 1095b.201b
- iii. the inclusion of Mr. Dermot McDermott as occupier of Plot No. 1070a.201
- iv. the inclusion of Ms. Eileen Callaghan as owner or reputed owner of Plot No.135g.201

- v. Revised address details of Mr. David O'Neill and Ms. Cathy Burke as owners or reputed owners of Plot Nos. 220.201 and 220b.201.
- vi. Revised address details of Ms. Maura MacCarthy, Legal Affairs Manager, Coillte of Plot Nos. 245, 470 and 505
- vii. The inclusion of Ms. Bridget Hanily as owner or reputed owner of Plot Nos. 270a.201, 270b.201, 270c.201, 270c.202, 270d.201, 270e.201, 270f.201, 270g.201
- viii. The inclusion of Ms. Josephine McDermott as owner or reputed owner of Plot No. 306.201
- ix. The subdivision of Plot No. 311a.201 and inclusion of Plot No. 311a.202 with Ms. Mary McGarry as owner or reputed owner.
- x. The inclusion of Mr. Anthony Keaveney as occupier of Plot No. 320b.202
- xi. The inclusion of Forais Growth Limited as owner or reputed owner of Plots Nos. 430a.201, 430b.201, 430c.201, 430d.201
- xii. The inclusion of Pawel Szawernoga and Aleksandra Szawernoga as owners or reputed owners of Plot No.758b.201

Reason: To take account of updated information in respect of land ownership and reduction in area of plots to be acquired.

11.2. Application for Approval of Proposed Road Development

APPROVE the above proposed road development in accordance with the said documentation based on the following reasons and considerations and subject to the condition set out below.

REASONS AND CONSIDERATIONS

In coming to its decision, the Board had regard to the following:

- (a) The relevant provisions of EU Directive 2014/52/EU amending Directive 2011/92/EU (EIA Directive) on the assessment of the effects of certain public and private projects on the environment, Directive 92/43/EEC (Habitats Directive) and Directive 79/409/EEC as amended by 2009/147/EC (Birds

Directives) which set the requirements for Conservation of Natural Habitats and of Wild Fauna and Flora throughout the European Union.

- (b) the national, regional and local strategic road policies and objectives, inclusive of those set out in National Planning Framework, Smarter Travel – A Sustainable Transport Future, the Regional Planning Guidelines for the Northern and Western Regional Assembly Region 2010-2022 and the Roscommon County development
- (c) the scheme constituting a key transportation element for the improvement of the N5 National Primary Road
- (d) the design, layout and alignment of the proposed road development,
- (e) the range of proposed mitigation measures set out in the submitted environmental impact assessment report, Natura impact statement, and Schedule of Commitments and
- (f) the submissions made in relation to the application and the report and recommendation of the Inspector including the report of its appointed consultant hydrogeologist.

Proper Planning and Sustainable Development

It is considered that the proposed road development would accord with European, national, regional and local planning and that it is acceptable in respect of its likely effects on the environment and its likely consequences for the proper planning and sustainable development of the area.

Appropriate Assessment:

The Board agreed with and adopted the screening assessment and conclusions carried out in the Inspector's report that Annaghmore Lough (Roscommon) SAC (site code 001626)

Bellanagare Bog SAC (site code 000592), Bellanagare Bog SPA (site code 004105) (site code 004105), Cloonshanville Bog SAC (site code 000614), Lough Forbes Complex SAC (site code 001818) and Lough Gara SPA (site code 004048) are the only European Sites in respect of which the proposed road development has the potential to have a significant effect.

The Board considered the Natura Impact Statement and associated documentation submitted with the application for approval, the mitigation measures contained therein, the submissions and observations on file, and the Inspector's assessment including the report of its appointed hydrogeologist. The Board completed an appropriate assessment of the implications of the proposed road development for the affected European Sites, namely Annaghmore Lough (Roscommon) SAC (site code 001626), Bellanagare Bog SAC (site code 000592), Bellanagare Bog SPA (site code 004105) (site code 004105), Cloonshanville Bog SAC (site code 000614), Lough Forbes Complex SAC (site code 001818) and Lough Gara SPA (site code 004048) in view of the sites' conservation objectives. The Board considered that the information before it was adequate to allow the carrying out of an appropriate assessment.

In completing the appropriate assessment, the Board considered, in particular, the following:

- i. the likely direct and indirect impacts arising from the proposed road development both individually or in combination with other plans or projects,
- ii. the mitigation measures which are included as part of the current proposal, and
- iii. the conservation objectives for the European Sites.

In completing the appropriate assessment, the Board accepted and adopted the appropriate assessment carried out in the Inspector's report in respect of the potential effects of the proposed road development on the aforementioned European Sites, having regard to the sites' conservation objectives.

In overall conclusion, the Board was satisfied that the proposed road development, by itself or in combination with other plans or projects, would not adversely affect the integrity of the European Sites, in view of the sites' conservation objectives.

Environmental Impact Assessment:

The Board completed an environmental impact assessment of the proposed development, taking into account:

- (a) the nature, scale and extent of the proposed development;
- (b) the environmental impact assessment report and associated documentation submitted in support of the application;

(c) the submissions from the Planning Authority, the appellant and prescribed bodies in the course of the application and appeal

(d) the Inspector's report including the report of its appointed consultant hydrogeologist.

The Board agreed with the summary and examination set out in the Inspector's report, of the information contained in the environmental impact assessment report and associated documentation submitted by the applicant and submissions made in the course of the application. The Board is satisfied that the Inspector's report sets out how these were addressed in the examination and recommendation and are incorporated into the Board's decision.

The Board considered that the environmental impact assessment report, supported by the documentation submitted by the applicant, provided information which is reasonable and sufficient to allow the Board to reach a reasoned conclusion on the significant effects of the project on the environment, taking into account current knowledge and methods of assessment. The Board is satisfied that the information contained in the EIAR is up to date and complies with the provisions of EU Directive 2014/52/EU amending Directive 2011/92/EU. The Board considered that the main significant direct and indirect effects of the proposed development on the environment are, and would be mitigated as follows:

- Risk of pollution of ground and surface **water** during the construction and operational phases. The impacts would be mitigated by measures within a Construction Erosion and Sediment Control Plan and adherence to best practice construction measures and incorporation of appropriate drainage facilities as set out in mitigation measures 6.1-6.14 and mitigation measures 7.1 to 7.107.8 (sic).
- Impact on **population and human health** as a result of noise during the construction and operational phases of the development. The contractor will be obliged to take specific noise abatement measures and comply with the recommendations of BS 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Site – Noise and the European Communities (Noise Emission by Equipment for Use Outdoors) Regulations 2001 as set out Mitigation No.9.1. The contractor will also be

required to comply with specific requirements with respect to vibration and blasting as set out in Mitigations No. 9.2 – 9.5. In terms of the operational phase mitigation measures will be required at 11 properties in the form of acoustic barriers and/or earth bunds as detailed in Mitigation Nos. 9.9 & 9.10.

- **Landscape and Visual Impacts** will arise from the proposed road development. Landscape mitigation proposals shall take full account of the approaches and principles set out in A Guide to Landscape Treatments for National Road Schemes in Ireland with planting and landscaping to be carried out in accordance with mitigation nos. 8.1 to 8.18.
- The proposed development would give rise to significant impacts on **Material Assets and Land** including agricultural and non-agricultural land arising from the compulsory acquisition of land to allow for the development. Impact on businesses from loss of passing trade will also arise. The TII/NRA's Code of Practice Guide to Process and Code of Practice for National Road Project Planning and Acquisition of Property for National Roads will be adhered to and the mitigation measures with regard to timing of works, consultation with property owners, restoration of access, boundary treatment, drainage and services will be carried out in accordance with mitigation Nos. 13.1 to 13.5 and 14.1 to 14.6.
- The proposed development would have potentially significant positive effects on **Population and Human Health** in terms of the increased benefits in terms of shorter journey times and reduction in traffic hazard. The removal of through traffic from the towns and villages along the existing N5 will assist in the improvement of connectivity, reduction of severance, and improvement in noise, air and overall amenity.
- The proposed development would have potentially significant positive effects on **Cultural Heritage** by the removal of substantial levels of traffic along the N5 which will also assist in improving the setting and context of Rathcroghan archaeological complex.

The Board completed an environmental impact assessment in relation to the proposed development and concluded that, subject to the implementation of the mitigation measures referred to above, and other measures set out in the Schedule

of Commitments submitted to the oral hearing on the 10th day of October, 2018, including proposed monitoring as appropriate, subject to compliance with the conditions set out below, the effects on the environment of the proposed development, by itself and in combination with other development in the vicinity, would be acceptable. In doing so, the Board adopted the report and conclusions of the Inspector.

CONDITIONS

1. The proposed development shall be carried out and completed in accordance with the plans and particulars, including the mitigation measures specified in the EIAR, lodged with the application to An Bord Pleanála on 20th day of December, 2017, as amended by the plans and particulars lodged with An Board Pleanala on the 7th day of June 2018 and at the oral hearing held on the 9th and 10th days of October, 2018, except as may otherwise be required in order to comply with the following conditions. Where such conditions require details to be prepared by the local authority, these details shall be placed on file prior to commencement of development and retained as part of the public record.

Reason: In the interest of clarity and the proper planning and sustainable development of the area and to ensure the protection of the environment.

2. All mitigation measures identified in the EIAR and the Schedule of Environmental Commitments submitted by the local authority to the oral hearing on the 10th day of October 2018, shall be implemented in full as part of the proposed road development or as may be required in order to comply with the following conditions. The local authority or any agent acting on its behalf shall appoint a person with appropriate ecological and construction expertise as an environmental manager to ensure that the mitigation measures identified in the EIAR are implemented in full.

Reason: In the interest of clarity and to protect the environment during the construction and operational phases of the development.

3. Prior to commencement of development, the local authority, or any agent acting on its behalf, shall prepare a Construction Management Plan (CMP) generally in accordance with the commitments set out in the EIAR and the Schedule of Environmental Commitments submitted by the local authority to the oral hearing on the 10th day of October 2018. The CMP shall include specific proposals as to how the CMP will be measured and monitored for effectiveness, and it shall be on file prior to the commencement of development and retained as part of the public record.

Reason: In the interest of protecting the environment and in the interest of public health.

4. Prior to commencement of development, the local authority, or any agent acting on its behalf, shall prepare an Environmental Operating Plan (EOP) generally in accordance with the commitments set out in the EIAR and the Schedule of Environmental Commitments submitted by the local authority to the oral hearing on the 10th day of October 2018. The EOP shall include specific proposals as to how the EOP will be measured and monitored for effectiveness, and it shall be on file prior to the commencement of development and retained as part of the public record.

Reason: In the interest of protecting the environment and in the interest of public health.

Pauline Fitzpatrick

Senior Planning Inspector

December, 2018

Appendix 1 – Consulting Hydrogeologist/Hydrologist’s Report

1. BRIEF

I, Jerome Keohane Consulting Hydrogeologist/Hydrologist was engaged by An Bord Pleanála to advise the Inspector/Board on the likely hydrogeological/hydrological impacts of the proposed N5 Ballaghaderreen to Scramoge Road and associated Compulsory Purchase Order.

The brief provided to me by An Bord Pleanála, identified the following key responsibilities;

- 1) To provide a verbal review of the hydrogeological and hydrological information presented by the applicant, with a view to assessing the general adequacy of information available prior to an oral hearing. This will include advice on further information if this is deemed to be required.
- 2) Attend an oral hearing, to hear submissions and to ask questions of expert participants at the Inspector’s invitation and discretion on hydrogeological and hydrological aspects of the proposed development.
- 3) To provide a written report on hydrogeological and hydrological impacts of the proposed development.
 1. The report shall contain conclusions regarding the adequacy of information submitted by the applicant in terms of methodology, baseline information and assessment of likely impacts from a hydrological and hydrogeological viewpoint including if relevant any cumulative impacts.
 2. The report shall contain a conclusion on the suitability of the proposal in the context of current legislative requirements
- 4) This brief may be subject to amendment as required by the Inspector, and in agreement with the consultant as the case progresses.

2. TASKS COMPLETED

In order to perform my brief, I undertook the following actions;

- Review of documentation, provided to me by An Bord Pleanála, in both hard copy and digital format, together with the information available on the Roscommon County Council Website <http://www.roscommoncoco.ie/en/Services/Roads/Publications-and-Information/N5-Ballaghaderreen-to-Scramoge-Road-Project/> .
- Development of preliminary overview and identification of items requiring clarification.

- Preparation of request for further information and review of further information submitted.
- Site visit on 20 September 2018, to carry out a general visual assessment of the topography and setting of the proposed development, and to inspect key components of the hydrogeological and hydrological environment. This was mainly carried out by driving between locations and inspecting features on foot.
- Attendance at the Oral Hearing, held at the Percy French Hotel, Strokestown, Co. Roscommon 09/10 October 2018.
- Preparation of this report.

3. FORMAT OF REPORT

I have examined the information submitted by the applicant, the further information submitted following the RFI request, observations made during the site visit, submissions and responses to questions raised during the Oral Hearing to consider the following;

1. Has a satisfactory approach been taken by applicant to the investigation and establishment of a working hydrogeological and hydrological conceptual model?
2. Has the conceptual model allowed a comprehensive assessment of potential hydrogeological and hydrological impacts, including cumulative impacts resulting from the construction and operation of the proposed road?
3. Have adequate mitigation measures been proposed to the potential impacts been proposed?
4. Does the conceptual model provide enough information to rule out any potential impacts on the integrity of Natura 2000 sites beyond all scientific doubt?

4. Has a satisfactory approach been taken by applicant to the investigation and establishment of a working hydrogeological and hydrological model?

The following sequence of investigations were undertaken;

YEAR	DESCRIPTION	QUANTITY	REASON
2007	DYNAMIC PROBING	417	To inform the scope of the Ground investigation
2008	Ground investigation	61 Cable percussion boreholes 20 follow on rotary boreholes 156 trial pits	
2009	Earthworks Assessment report-AGL Geotechnical		To interpret the findings of the Ground Investigation
2015	Review by ROD/AECOM		Design of follow on Ground Investigation
2015-2016	Ground Investigation	124 cable percussion boreholes 98 Rotary boreholes 94 trial pits 145 dynamic/hand probes	
2016	Geophysics	13 locations	Provide more detail on karst, soft ground and ground conditions at deep cuts

2016	Supplemental Ground Investigation		To ground truth anomalies identified by geophysics
------	---	--	---

I am satisfied that this represents a comprehensive and structured approach to the establishment of a working conceptual ground model.

The findings from each stage were integrated and were used to inform the follow-on phase. Supplementary techniques such as geophysics were used appropriately, and anomalies identified by geophysical surveying were proven.

In addition, a walkover survey was undertaken along the length of the road scheme by the geotechnical team in March 2015 to assist in identification and assessment of the environmental impact of the scheme on the geomorphology and ground environment and on features of geological interest. Following changes to the proposed route alignment at Leggatinty and Lugboy additional site walkovers were undertaken in these areas during the ground investigation. The applicant states that the quality of information from the walkover survey was enhanced by identifying specific sites and features of interest from existing information sources and aerial photographs.

Although the ground investigation programme was not specifically tailored to investigation of hydrogeological conditions, the hydrogeological team undertook an extensive desk review of data sources such as the GSI, OSI, EPA, Roscommon County Council files and the NPWS, examined aerial survey and LIDAR data, and used detailed site walk-over surveys to confirm the desk study findings. The ground investigation data was then reviewed in the context of the hydrogeological model, and any knowledge gaps were further investigated. An example of this approach relates to the use of tracer surveys in conjunction with the GSI to better inform the understanding of the movement of groundwater in areas of karst near Mantua and Lugboy. In addition, the hydrogeological team used the ground

investigation findings to prepare a site-specific assessment of groundwater vulnerability along the road route.

The hydrological assessment was prepared by expanding and updating the desk study work carried out for the Constraints Study and Route Corridor Selection Reports. Site specific topographical information and aerial photography was reviewed to locate any potential features of hydrological interest, and these were investigated on the ground by walkover surveys. Consultation took place with relevant regulatory bodies including various departments of Roscommon County Council, the OPW, GSI and Inland Fisheries Ireland and the Peak Mantua Group Water Supply Group Scheme.

Available topographical and hydrometric information (field and desk based) was used to perform hydrological impact assessments of all culvert crossings and proposed outfall locations. All watercourses and water bodies which could be affected directly (i.e. crossed or realigned/ diverted) or indirectly (i.e. generally those that lie within 250m of the road development boundary or would receive storm runoff from the proposed road development) were assessed through a series of initial walkover visits followed up by a more detailed survey and hydrological assessment.

While the generalised geological conditions did not vary from the published data, localised variations in soils, subsoils and rock conditions were encountered and accounted for in the working ground model.

Upon first reading the working ground model and the hydrogeological and hydrological elements did not appear to be sufficiently integrated, although the information was provided in the separate chapters. I therefore decided to advise the board to seek further information requesting the presentation of an integrated geology-groundwater-surface water model.

The wording of the RFI included the following;

The Board requests the applicant provide detailed integrated conceptual hydrological and hydrogeological graphical models for three specific areas comprising the interpreted areas of interaction between the proposed N5 and;

1. *Ballangare Bog and Cloonshanville Bog Protected sites including karst area 2-Legatinny, the associated Groundwater Bodies and the Carricknabrahar and Owenaforeesha River system.*
2. *Zones of Contribution of Peak-Mantua, Cloonyquinn/Curraclareigh and Polecat Group Water Schemes including the karst area 3-Kilvoy, Corry East and Cloonyeffe.*
3. *Annaghmore Lough SAC including karst areas 4-Tulyroyd and 5-Cregga and the Ovaun Stream.*

The model in plan should show the proportion of the road, within the catchment of the feature, showing all proposed road infrastructure elements including cut and fill sections, drainage outfalls, significant watercourse catchments and channels upstream and downstream of the proposed road, with flow directions clearly shown, proposed watercourse diversions and culverts, removal of flood storage, material deposition areas, known karst features, significant existing landuse features, public water abstractions. Lines of section should be clearly marked. In sections the model should demonstrate proposed cut/fill sections, the known subsoil, and bedrock profile, groundwater flow direction, postulated flowpaths and conduits and any surface-groundwater interactions or dependency.

In my opinion, the response to this request was satisfactory and comprehensive and provided a sufficient basis for the assessment of impacts, discussed below.

In his brief of evidence, Anthony Cawley (Hydrology and Hydrogeology Expert) stated that the hydrogeology assessment included a review of ground investigation data in respect to water table levels, nature and depth of overburden and bedrock, and the nature of the aquifers including karst features. I asked Mr. Cawley what seasonal water level variations were measured, and he replied that in general the fluctuations were found to be low in the 1m-2m range, which I would consider to be a low range, and not significant in the overall context.

He also stated that there had been significant interaction with the project Ecologists to obtain relevant information on any sites of ecological importance and sensitivity in respect to the water environment and he noted that feedback from consultations with statutory consultee's, interested organisations and affected third parties was taken into account;

In summary I am satisfied that a professional team was established in 2015, that built on the previous findings to establish a robust integrated hydrological and hydrogeological model.

5. Has the conceptual model allowed a comprehensive assessment of potential hydrogeological and hydrological impacts, including cumulative impacts resulting from the construction and operation of the proposed road?

The legislation and guidelines referenced in the EIAR chapters 8,9,10 include the following

- Section 50 Sub-section (2 and 3) of the Roads Act 1993 as amended, Directive 2011/92/EU (as amended by Directive 2014/52/EU), and with the following guidance:
- S.I. No. 349 of 1989, European Communities (Environmental Impact Assessment) Regulations, and subsequent amendments (S.I. No. 84 of 1994, S.I. No. 352 of 1998, S.I. No. 93 of 1999, S.I. No. 450 of 2000 and S.I. No. 538 of 2001).
- S.I. No. 473 of 2011, European Union (Environmental Impact Assessment and Habitats) Regulations 2011.
- The Planning and Development Act, 2000, as amended,
- S.I. 600 of 2001 Planning and Development Regulations as amended.
- European Communities Environmental Objectives (Groundwater) Regulations 2010-2012.
- S.I. No. 122 of 2014 European Union (Drinking water) Regulations
- Directive 2011/92/EU (as amended by Directive 2014/52/EU)
- DoEHLG, 2010. Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities;
- Environmental Protection Agency, 2002. Guidelines on the information to be contained in Environmental Impact Statements;
- Environmental Protection Agency, 2003. Advice Notes on current practice (in the preparation of Environmental Impact Statements);
- Institute of Geologists of Ireland, 2002. Geology in Environmental Impact Statements, A Guide;
- National Roads Authority (NRA 2008) Environmental Impact Assessment of National Road Schemes – A Practical Guide,
- National Roads Authority (NRA 2008) Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes;
- EPA, Guidelines on the Information to be contained in Environmental Impact Statements, 2002;
- EPA, Advice notes on Current Practice (in the preparation of Environmental Impact Statements), 2003.
- The following Draft Guidance documents which are currently on consultation were also referenced:

- Guidelines on the Information to be contained in Environmental Impact Assessment Reports, Draft May 2017;
- Advice Notes for Preparing Environmental Impact Statements, Draft September 2015.

In my opinion this represents a comprehensive list of legislation and good practice guidelines. The impacts were described using a consistent Impact Assessment Methodology, which takes into account, the importance of the attributes, the quantification of the magnitude of any impacts, the duration of impacts and the type and nature of impacts. The impacts were assessed as being direct or indirect, and in addition all the impacts were considered either as cumulative, or residual and either related to construction or operation or both.

The key hydrological/hydrogeological attributes identified include;

- Agricultural soils,
- Natural subsoils and bedrock,
- Mineral aggregate resources,
- Geological heritage areas,
- High yielding springs and wells used for groundwater supply and their surrounding Source Protection Zones (SPZs);
- Low-yielding wells used mainly for domestic and farm water supply;
- Any significant natural hydrogeological features (including large springs or groundwater dependent habitats);
- The dominant hydrogeological characteristics (aquifer classification) of the underlying strata;
- Sensitive karst features and groundwater systems,
- European Designated Sites including: Bellanagare Bog SAC (000592) SPA (004105), Annaghmore Lough (Roscommon) SAC (001626), Cloonshanville Bog SAC (000614), Lough Forbes Complex SAC (001818), Lough Gara SPA (004048) and Callow Bog SAC.
- Nationally Important Annex 1 habitats such as a Turlough at Cregga, raised bog at Bellanagare and Leggatinty, Alkaline Fen at Tullyloyd, wet grassland at Leggatinty and raised bog at Corskeagh.
- Surface drinking water supply abstraction source at Lough Gara
- Ecologically sensitive surface water features and catchment systems, fishery streams either locally or downstream, Fens, flushes and wetlands.
- Flood Risk Areas;
- Any other Key Ecological Receptors (KER's) not included above

I am satisfied that these constitute a comprehensive list of the attributes along the roadway.

Potential impacts include

- Changes to groundwater levels creating instability in karst
- Slope instability during cut formation.
- Increased groundwater vulnerability during cut formation.
- Impact on groundwater quality during cut formation.
- Instability in karst caused by blasting.
- Mis-use of cut material, creating an impact.
- Impact from ground improvement techniques.
- Operational impacts on slope stability due to continued groundwater seepage.
- Impacts created by the formation of material deposition areas.
- Volumetric impacts on groundwater and surface water from road run-off.
- Embankments creating artificial longitudinal drainage features.
- Embankments obstructing or diverting overland flow.
- Settlement creating compaction and interference with groundwater flow.
- Impacts on groundwater quality from construction and operation of the road.
- Hydraulic impacts on watercourses from poorly designed bridges, culverts, channel diversions and outfalls, creating changes in velocity, water depth, and increased bank erosion.
- Increased flows or flooding in watercourses caused by un-controlled run-off.
- Operational Impacts on water quality from spillages or poor-quality run-off
- Removal of flood storage.
- Diversion of water between catchments.
- Interference with local drainage.
- Elevated silt levels during construction.
- Spillage of concrete during construction.
- Spillage of hydrocarbon during construction
- Indirect impacts on sensitive habitats, ecological receptors, groundwater dependent features.

I am satisfied, that these potential impacts have been considered in the EIA process, and are identified in the EIAR.

As part of the Request for further information and with regard to specific areas it was requested that;

A text box should summarise in tabular format, the integrated assessment of potential impacts, and demonstrate how the conclusions drawn are fully supported by the scientific evidence provided in the EIAR

I am satisfied that this was provided in each of the 12 A0 posters. The key impacts related to these specific areas included;

- Interruption of flow to sinking karst features
- Blockage of karst features by uncontrolled run-off sediments during construction
- Compromised run-off entering karst features and as a consequence the aquifer

- Silts and sediments from construction or instream works entering SAC's and SPA's
- Impact on Annex 1 ecological receptors by changes to the hydrological flow regime.
- Restriction and interception of sub-surface flows to public Water supply spring sources.
- Physical Damage to karst water supply spring sources.
- Potential contaminated infiltration to groundwater
- Contamination of public water supply by road drainage.

I am satisfied that all of these potential impacts were adequately considered and characterised in the EIAR process, and were further explained and clarified at the Oral hearing. I am satisfied that the teams of experts had a satisfactory level of understanding of the existing environment together with an adequate understanding of the construction and operation of a road to enable a full and thorough assessment of the potential impacts.

6 Have adequate mitigation measures to the potential impacts been proposed?

The EIAR has demonstrated the application of a wide range of mitigation measures where appropriate. These include;

- Stability assessment of cut slopes, use of slope stabilisation measures as appropriate, such as rock traps, rock anchors, netting, shotcrete on rock slopes, toe drains, sealed drains and liners on soil slopes, together with periodic inspections.
- Pumping to control groundwater ingress during construction,
- Interception of ditches and drains to keep work area dry.
- Maintenance of existing drainage lines as much as possible.
- Basal reinforcement to protect underlying karst where appropriate.
- Use of liners and sealed drainage system to protect karst where appropriate.
- Use of single and double silt fences, earthen berms, grass buffers, and filters to control sediment run-off.
- Appropriate storage of potential pollutants during construction.
- Construction of storm attenuation ponds, treatment wetlands and penstocks.
- Incorporation of bank erosion protection measures in streams.
- Water quality monitoring.
- Construction sequencing in sensitive areas.
- Use of longitudinal and transverse barriers.
- Use of infiltration blankets to maintain recharge where appropriate.
- Limiting any works within the mapped ZOC's of water supplies.
- Obtaining permits from OPW for instream works.
- Ongoing- liaison with Inland Fisheries.

In addition, more detail on mitigation measures at specific areas was provided as part of the request for further information, and these were further explained and clarified during the Oral hearing. In addition, a schedule of commitments arising from the EIAR was submitted during the Oral Hearing and has been found to be consistent with the EIAR and subsequent clarifications.

A detailed Construction Erosion and Sediment Erosion Control Plan (CESCP) has been prepared which fully characterises watercourses, waterbodies and groundwater receptors that could be affected by the development. The key sources of sediment laden run-off have been identified as; Earthworks, Structures and Concrete, watercourse crossings, Construction compounds. The plan sets out the principal avoidance measures, principal control measures and specific mitigation measures for general watercourse crossings and attenuation ponds, works near sensitive watercourses, and special locations such as the swallow holes at Mantua, Cregga Turlough and Material deposition areas. The plan also outlines monitoring and audit requirements and emergency response plans.

Finally, it is stated in the schedule of commitments that prior to any demolition, excavation or construction a Construction Management Plan (CMP) will be produced by the successful Contractor.

A CMP is prepared by the Contractor during the pre-construction phase, to ensure commitments included in the statutory approvals are adhered to and that it integrates the requirements of the Construction Sediment Erosion Control Plan (CSECP), Environmental Operating Plan (EOP) and the Waste Management Plan (WWP).

I am satisfied that appropriate mitigation measures have been used to mitigate potential impacts associated with the construction and operation of the road, and that there are adequate safeguards to ensure that this philosophy carries through to the construction and operational phases of the project.

7 Does this conceptual model provide sufficient information to rule out any potential hydrological impacts on the integrity of Sensitive groundwater dependent environments and Natura 2000 sites beyond all scientific doubt?

Special consideration has been attributed in the EIAR process to the following sensitive groundwater dependent features and Natura 2000 sites:

- Karst Areas of Leggantinty, Kilvoy and Corry East, Cloonyeffer, Tullyloyd, Cregga Turlough
- Groundwater Supply Sources for Peak Mantua GWS, Curracreigh GWS and Polecat GWS
- Natura Sites at Bellangare Bog, Cloonshanville Bog, Annaghmore Lough
- KER's

There was sufficient mention of all of these features in Chapters 8, 9 and 10 of the EIAR to acknowledge their importance, and the efforts taken to further investigate the characteristics of the features were well documented. However, it was felt that a number of these features were in close proximity to each other, and the integrated potential impacts had not been fully considered. I advised the Board therefore to request further information for the features in the context of their geographical location as follows;

The Board requests the applicant provide detailed integrated conceptual hydrological and hydrogeological graphical models for three specific areas comprising the interpreted areas of interaction between the proposed N5 and;

- 1. Ballangare Bog and Cloonshanville Bog Protected sites including karst area 2-Legatinty, the associated Groundwater Bodies and the Carricknabrahar and Owenafreesha River system.*
- 2. Zones of Contribution of Peak-Mantua, Cloonyquinn/Curracreigh and Polecat Group Water Schemes including the karst area 3-Kilvoy, Corry East and Cloonyeffer.*
- 3. Annaghmore Lough SAC including karst areas 4-Tullyloyd and 5-Cregga and the Ovaun Stream.*

The model in plan should show the proportion of the road, within the catchment of the feature, showing all proposed road infrastructure elements including cut and fill sections, drainage outfalls, significant watercourse catchments and channels upstream and downstream of the proposed road, with flow directions clearly shown, proposed watercourse diversions and culverts, removal of flood storage, material deposition areas, known karst features, significant existing landuse features, public water abstractions. Lines of section should be clearly marked.

Specific mitigation measures from the CЕСCP should be shown as a separate detailed view box on the plan.

In sections the model should demonstrate proposed cut/fill sections, the known subsoil, and bedrock profile, groundwater flow direction, postulated flowpaths and conduits and any surface-groundwater interactions or dependency.

Specific mitigation measures from the CЕСCP should be shown on the separate detailed view box.

Any existing uncertainties or data gaps should be identified on the plans and sections, and if necessary additional information should be provided to address these lacunae.

The model should provide a summary table of quantitative annualised water balance analysis of all inputs and outputs including rainfall, known flows and estimated drainage volumes from the roadway for each of the study areas.

A text box should summarise in tabular format, the integrated assessment of potential impacts, and demonstrate how the conclusions drawn are fully supported by the scientific evidence provided in the EIAR.

The elements should be presented on suitable A0 or A1 poster size prints (one sheet for each of the three study areas), that can be displayed if necessary.

The response to this comprised 12 A0 posters, which adequately integrated the information for the three interpreted areas of interaction

I will now examine each of these areas in turn:

7.1 Area 1 Bellangare Bog and Cloonshanville Bog including the karst area at Leggatinty, associated groundwater bodies and The Carricknabraher and Owennaforeesha River Systems.

In addition to the information provided on the posters, the findings were explained in detail and clarified where requested in the Oral hearing.

I am satisfied that the applicant has sufficiently demonstrated an understanding of the integrated nature of surface and groundwater interactions in this area and has adequately identified the potential impacts.

The proposed mitigation measures which include, no discharges to groundwater, treatment of road drainage before outfall to surface water features, use of grease traps to protect from hydrocarbons, flow control devices and penstocks on attenuation ponds for shut down in the event of an accidental spillage, use of longitudinal impermeable sub-surface barriers, transverse barriers to control drainage loss from the adjacent bog are all appropriate responses.

I am satisfied that there will be no impacts on the Natura sites as a result of the construction of the roadway.

With regard to the karst environment, feeder streams will be maintained to give a neutral water balance change. I am satisfied that no structural damage will occur to the karst system from the road construction.

In addition the CЕСSР will provide further protection during construction.

7.2 Zones of Contribution of Peak-Mantua, Cloonyquinn/Curracreigh and Polecat Group Water Schemes including the karst area 3-Kilvoy, Corry East and Cloonyeffer.

My opinion is that the applicant demonstrated an adequate understanding of the complexity of groundwater flow, and zones of contribution associated with group water scheme sources in karst. The use of tracers in conjunction with the GSI was a valuable support, particularly in relation to Peak Mantua, and the connection of

Polloweneen and the Polecat spring. In the oral hearing Mr Cawley stated that Polloweneen is often dry, but the Polecat spring has a year-round strong flow, suggesting that there are multiple sources for the spring.

Whilst some uncertainty on the ZOC's and the interconnectivity of swallow holes remains in the context of the road alignment, I am satisfied that sufficient safeguards are in place to limit any potential impacts.

In addition the CЕСCP will provide further protection during construction. Monitoring of the sources is proposed in advance and during construction and will be undertaken by a suitably qualified environmental person.

7.3 Annaghmore Lough SAC including karst areas 4-Tullyroyd and 5-Cregga and the Ovaun Stream.

Interception of seepages feeding an Annex 1 wetland complex in Tullyloyd were identified as potential impacts. As a result, it was decided to implement a drainage blanket to maintain a neutral water balance change.

Clarification was received during the Oral Hearing by putting a question to Mr. Cawley (the hydrology and hydrogeology expert). He stated that because of the sensitivity of Annaghmore Lough extra mitigations are incorporated for an outfall into the Ovaun Stream to polish the run-off to a high standard, even though no treatment would normally be required under the guidance because of the low risk of spillage (0.04%). The linkage from the swallow hole adjacent to the Ovaun stream was also assessed using tracing to see if it was linked to the Polecat supply.

I am satisfied that the applicant has mapped the catchment, understands the response of the Turlough at Cregga to rainfall, and they understand the fill and empty mechanisms, the maximum water levels, and the overflow conditions that transfers water to Annaghmore Lough.

I am satisfied that the maintenance of a water balance for the Turlough can be achieved by the mechanisms proposed, and I am satisfied that the proposed phased construction of the roadway in the Cregga cut, will allow the hydrological regime to be maintained.

8. CONCLUSIONS

Having assessed the information provided by the applicant in various forms, I am satisfied that the applicant has adequately investigated the existing environment, understands the hydrological and hydrogeological regime sufficiently that no lacunae exist, and has proposed mitigation measures that are both suitable and appropriate in the context of the proposed development. I am satisfied therefore that the proposal is suitable in the context of current legislative requirements.



Jerome Keohane

BSc, MSc, FCIWEM, C.Geol, C.WEM, MIEI

Appendix 2 – Summary of Oral Hearing

Percy French Hotel, Strokestown

Tuesday 9th and Wednesday 10th October, 2018

Local Authority	
Mr. Esmonde Keane	Senior Counsel
Mr. Jim Thorpe, Roughan & O'Donovan Ltd.	Project Director
Mr. Richard Spencer, Roughan & O'Donovan Ltd.	Design Engineer
Ms. Tracy Davis	Senior Executive Planner
Mr. Anthony Cawley	Hydrology & Hydrogeology
Ms. Lisa Courtney	Archaeology & Cultural Heritage
Mr. Rob Goodbody, Historic Building Consultants	Architectural Heritage
Dr. Martin Hogan	Human Health Issues
Mr. Pat Roberts	Biodiversity & NIS
Ms. Avril Challoner	Air Quality & Climate
Mr. Thomas Burns	Landscape & Visual Analysis
Mr. John Bligh	Material Assets & Land
Mr. Craig Bullock	Population

Prescribed Bodies	
Ms. Catherine Kerins	Inland Fisheries Ireland

Submissions on Proposed Road Development	
Ms. Helen Leahy	IBEC
Mr. Iain Douglas	Mayo County Council

Objectors to CPO	
Representative	
Mr. Richard Rea	Mr. Robert Brady CPO Ref.440
Mr. Michael Hanily	On behalf of himself and James & Bridget Hanily CPO Ref. No.270
Mr. James Kilcoyne	Mr. Brendan Cooney CPO Ref. 120 Mr. Anthony Callaghan CPO Ref. 132 Mr. Michael Carney CPO Ref.125 Mr. John Nerney CPO Ref. 659
Ms. Mary Rose McNally	Pawl & Alesksandra Szawernoga CPO Ref. 758

Note 1: All the proceedings of the Oral Hearing are recorded and the recording is on file. What follows below is a brief outline of the proceedings. This outline is proposed to function as an aid in following the recording.

Note 2: The assessment in my report makes reference to details submitted at the Oral Hearing.

Note 3: The list of prepared texts submitted to the hearing is detailed in Appendix 2 attached to the report.

Day 1 – Tuesday 9th October

I outlined the details of the proposal, the objections received by the Board and the order of proceedings as set out in the Agenda that was circulated in advance.

Furthermore I accepted the requests by IBEC to be permitted the opportunity to make a submission to the hearing.

Mr. Esmonde Keane gave an opening statement.

Mr. Jim Thorpe and Mr. Richard Spencer made a submission on the background and need for the project, alternatives considered, description of the proposed development including cross section chosen. The submission also responds to issues arising from written submissions received by the Board and includes details of Errata and Addenda to the EIAR and NIS and CPO amendments.

Ms. Tracy Davis made a submission on compliance of the PRD with national, regional and local planning policy.

Mr. Anthony Cawley made a submission on hydrology and hydrogeology addressing specifically the additional information requested by the Board on the three interpreted areas of interaction. He also responded to the issues arising in the submission by IFI.

Ms. Catherine Kerins, Inland Fisheries Ireland in her submission outlined IFI's observations and recommendations including watercourse diversion, method statements, bridge construction and piling or foundations for bridges and restriction to instream works.

Mr. Iain Douglas, Mayo County Council made a submission in favour of the PRD. He noted that the Northern and Western Regional Assembly Draft Regional Spatial and Economic Strategy is due to be published in November 2018.

Ms. Helen Leahy IBEC made a submission in favour of the PRD.

Ms. Lisa Courtney made a submission on archaeology and cultural heritage. She also responded to issues arising in the submission by Development Applications unit

Mr. Rob Goodbody made a submission on Architectural Heritage. He also responded to issues arising in the submission by the Department of Culture, Heritage and the Gaeltacht.

Dr. Martin Hogan made a submission on human health.

Day 2

Mr. Thomas Burns made a submission on landscape and visual analysis. He also responded to issues arising in the written submissions received by the Board

Mr. Pat Roberts made a submission on biodiversity and the natura impact statement. He also responded to issues raised in submissions including that from the Development Applications Unit in relation to nature conservation.

Dr. Stephen Smyth made a submission on noise and vibration and details the modifications to the proposed noise barriers arising from the sensitivity analysis of the future traffic projections consequent to the population growth figures provided in the NPF. Appendix A includes revised traffic noise levels for 2035 with 18% increased traffic flows. He also responded to issues arising in the written submissions received by the Board.

Mr. John Bligh made a submission on material assets and land. He also responded to issues arising in the written submissions received by the Board.

Ms. Avril Challoner made a submission on air quality and climate. She also responded to issues arising in the written submissions made to the Board.

Mr. Craig Bullock made a submission on population

Mr. Rea representing Mr. Robert Brady CPO Ref. No. 440 referred to the written objection made. Any changes to the proposed road development should be submitted to the Board for approval. It is considered that the landtake in this landholding is excessive. Mr. Brady is hoping to gain possessory title of the land referenced in CPO NO. 435 in the future. Following construction of the PRD the return of the plot of land to the south of the line to Mr. Brady is required. Alternative access to Drummin Bog is recommended. Mr. Rea gave a concluding statement at this time.

Mr. Hanily CPO 270 noted the complex junction arrangement in proximity to his family's lands. The cumulative effect of the proposed works is significant and will have impact on farm viability and will have a long term impact on the family enterprise over and above financial concerns. As to why the PRD is to be 3.7 metres above that existing is queried. He queried whether the proposed box culvert is overengineered. Flooding has not been an issue at this location. It would appear that the culvert for the minor stream is dictating the height of the road. It is queried whether a full overtaking provision should be provided at this location and whether it

could be sacrificed so as to allow for construction close to grade. It is considered that the landscaping exacerbates sightlines. The visual impact would be reduced were it kept closer to grade. Mr. Hanily requested that the Board Direct the local authority to cover professional fees for agricultural advisors.

Mr. Kilcoyne representing Anthony Callaghan CPO 132 notes the location of his dwelling and the impact the PRD would have on same. There is a need for an underpass to access his farm lands.

Mr. Kilcoyne representing Michael Carney CPO 125 noted that an alternative road design was originally proposed which routed the line north of Portagard. His commercial business, which is reliant on passing trade, will be adversely affected and its viability will be put into question. In terms of the lands to be acquired there are no alternative lands which can be sourced in the area to replace same. An underpass should be provided for access. Access to his dwelling is also queried. The safety of the PRD is questioned.

Mr. Kilcoyne representing Mr. Brendan Cooney CPO 120 stated that the issue of severance of his lands will result in significant disruption and inconvenience.

Mr. Kilcoyne representing Mr. John Nerney CPO 659 stated that he cannot lose any lands in his holding and the alignment at this location in the vicinity of the N61 is queried.

Ms. Mary Rose McNally representing Pawel & Alesksandra Szawernoga CPO 758 considers that the proposal would impact on the quiet enjoyment of the home in terms of noise, vibration and light pollution. The proposed bridge would be quite close to the their dwelling and the Board is requested to consider its relocation further away.

A schedule of commitments was presented by the applicant

A closing submission was made by:

Mr. Esmonde Keane, Roscommon County Council

**Appendix 3 – Documents Received at the Oral Hearing 9th & 10th
October, 2018**

DAY	No	Submitted by	Presenter	Topic
9 th Oct	1	Roscommon Co. Co	Jim Thorpe / Richard Spencer	Engineering , Traffic, Geotechnics
9 th Oct	1A	Roscommon Co. Co	Jim Thorpe / Richard Spencer	Brief of Evidence
9 th Oct	2	Roscommon Co. Co	Jim Thorpe / Richard Spencer	E.I.A.R – Errata & Addenda No. 2
9 th Oct	2A	Roscommon Co. Co	Jim Thorpe / Richard Spencer	2018 Ecological Updates
9 th Oct	2B	Roscommon Co. Co	Jim Thorpe / Richard Spencer	Breeding Birds 2015
9 th Oct	2C	Roscommon Co. Co	Jim Thorpe / Richard Spencer	Winter Birds 2014 - 2016
9 th Oct	2D	Roscommon Co. Co	Jim Thorpe / Richard Spencer	Map : Area 1 (iii) Annaghmore Lough / Cregga – Figure 6b-01
9 th Oct	2E	Roscommon Co. Co	Jim Thorpe / Richard Spencer	Maps – E.I.A.R.
9 th Oct	2F	Roscommon Co. Co	Jim Thorpe / Richard Spencer	N.I.S – Errata no. 3

DAY	No	Submitted by	Presenter	Topic
9 th Oct	2G	Roscommon Co. Co	Jim Thorpe / Richard Spencer	CPO Amendments – October 2018
9 th Oct	3	Roscommon Co. Co	Tracy Davis	Planning
9 th Oct	4	Roscommon Co. Co	Anthony Cawley	Hydrology & Hydrogeology
9 th Oct	4A	Roscommon Co. Co	-	Response to Inland Fisheries
9 th Oct	5	Inland Fisheries	Catherine Kerins	Brief of Evidence
9 th Oct	6	IBEC	Helen Leahy	Brief of Evidence
9 th Oct	7	Roscommon Co. Co	Lisa Courtney	Archaeology & Cultural Heritage
9 th Oct	8	Roscommon Co. Co	Rob Goodbody	Architectural Heritage
9 th Oct	9	Roscommon Co. Co	Dr. Martin Hogan	Human Health Issues
10 th Oct	10	Roscommon Co. Co	Pat Roberts	Biodiversity & N.I.S.
10 th Oct	11	Roscommon Co. Co	Avril Challoner	Air Quality & Climate
10 th Oct	12	Roscommon Co. Co	Dr. Stephen Smyth	Noise & Vibration

DAY	No	Submitted by	Presenter	Topic
10 th Oct	13	Roscommon Co. Co	Thomas Burns	Landscape & Visual Analysis
10th Oct	14	Roscommon Co. Co	John Bligh	Material Assets & Land
10th Oct	15	Roscommon Co. Co	Craig Bullock	Population
10th Oct	16	Roscommon Co. Co	Lisa Courtney	Archaeological Sites – Errata No. 4
10th Oct	17	Roscommon Co. Co	-	Map and Schedule – Plot 311a.201/311a.202 William Smyth & Mary McGarry
10th Oct	17A	Roscommon Co.Co.	-	Proof of Postage
10th Oct	18	Roscommon Co. Co	-	Road Safety Audit
10 th Oct	19	Roscommon Co. Co	Jim Thorpe	Summary of CPO Objection & Response – October 2018
10th Oct	20	Roscommon Co. Co	-	Photo N5 - x2
10th Oct	21	Roscommon Co. Co	-	E.I.AR – Schedule of Commitments

