Appendix M

Traffic Assessment to inform Recreational Pressure Assessment

M.1 Traffic Assessment to inform Recreational Pressure Assessment

ARUP

Galway County Council

N6 Galway City Ring Road

Traffic Assessment to inform Recreational Pressure Assessment

Reference: GCRR-4.04-30.10-002

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Job number 233985

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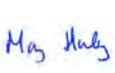
		Signature			
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1. Introduction

The proposed N6 GCRR, will generate operational traffic along the surrounding road network and there is an associated risk of a potential increase in recreational pressure on qualifying interest habitats/species or special conservation interest bird species as a result of increased visitor numbers to European sites.

The purpose of this report is to set out the traffic modelling undertaken to quantify the potential increase in operational traffic and what roads will see a significant increase which could result in increased visitor numbers to European sites and which European sites are at risk from increased recreational pressure.

2. Traffic Modelling Methodology

2.1 Overview

The traffic model developed for the proposed N6 GCRR has been utilised to inform the assessment of the potential impacts of increased vehicular travel in the region. An opening year of 2031 and a design year of 2046 has been assumed for the traffic model and the following tools were used in developing the model:

- The most recently available Western Regional Model (WRM) which sits within the National Transport Authority's (NTA) suite of Regional Models. The WRM was used to forecast the level of traffic growth in the study area, using land use assumptions (levels of population and jobs) for the opening and design years of the Project.
- A project specific road traffic model which has a base year of 2023, so is reflective of latest traffic conditions within Galway City. The model also incorporates Census 2022 Place of Work, School, College or Childcare - Census of Anonymised Records (POWSCCAR) data, so is reflective of latest travel movements within the city.

The full modelling approach used is detailed in Chapter 6 of the updated EIAR and is summarised as follows:

- Undertake a **baseline review** in relation to the existing traffic situation, including consultation with Galway City and County Councils, Transport Infrastructure Ireland (TII) and National Transport Authority (NTA)
- Undertake **traffic modelling** to assess future year scenarios, with the Project ('Do-Something'[1]) and without the Project ('Do-Minimum'[2]) in place
- **Evaluate the traffic modelling results** which forecast the impact of existing and future traffic on the road network
- **Identify any traffic impacts**, develop and test proposed **mitigation measures** to remove and/or reduce any identified negative traffic impacts of major significance
- **Determine any residual impacts** arising from the forecast traffic combined with the proposed mitigation measures

1 'Do-Something' relates to a situation where the Project is included.

2 'Do-Minimum' relates to a situation where the Project is not included.

2.2 Traffic Model Development

2.2.1 West Regional Model

The West Regional Model (WRM) is a strategic transport multi-modal model for the counties Galway, Mayo, Roscommon, Sligo, Leitrim and Donegal, with a focus on the city of Galway. It is part of a hierarchical multi-modal transport modelling system for Ireland (known as the 'Regional Modelling System' RMS) that allows the appraisal of a wide range of potential future transport and land use options. The regional models are focussed on the travel-to-work areas of major population centres (e.g. Dublin, Cork, Galway, Limerick, and Waterford). The WRM has 5 sub models which represent different times of an average work day (Monday – Friday): AM, Interpeak 1 (Lunchtime), Interpeak 2 (School Run), PM and Off-peak. These sub models are designed to represent an average workday across the year and are underpinned by Place of Work, School, College or Childcare Census of Anonymised Records (POWSCCAR) which gives a dataset for weekday travel.

2.2.2 Local Area Model

The WRM was used as a starting point in order to build the Local Area Model (LAM) which was developed for the Project and also to estimate the level of traffic growth in the study area, using estimates of population and jobs which were aligned to the National Planning Framework. For further details on this process, see Chapter 6 of the updated EIAR and Appendix A.6.1 of the updated EIAR in Part VI of the 2024 RFI Response.

The objective in developing the LAM was to develop a traffic model that accurately reflects existing traffic conditions in the study area at a sufficient level of detail to allow for an accurate traffic assessment. The model software used for the highway assignment element of the model is the SATURN (Simulation Assignment of Traffic to Urban Road Networks) suite of transportation modelling programs.

The LAM was developed using surveys from November 2023 and is therefore representative of current traffic levels and conditions. Given the current available WRM has a base year of 2016 (aligned to the 2016 Census), Census 2022 Place of Work, School, College or Childcare - Census of Anonymised Records (POWSCCAR) data was also used to inform movements within the city and ensure the modelling is reflective of the latest available data.

Three time period models were developed in line with standard practice as follows:

- AM Morning peak hour model (08:00 – 09:00)
- Average hour Inter-peak model (Average hour model of 10:00 – 16:00)
- PM Evening peak period model (16:00 – 17:00)

While the existing available version of the WRM has a base year of 2016 and is based upon data from the 2016 Census, it is still the most appropriate tool to use currently, for modelling modes like public transport, walking and cycling, until the WRM is updated with data from the 2022 Census.

Further details of the modelling process are contained within the Traffic Modelling Report, contained in Appendix A.6.1 of the updated EIAR.

2.3 Traffic Assessment for recreational traffic

Following the completion of the LAM for the base year (2016), the LAM incorporated traffic growth from the WRM for the design year of 2046. This additional traffic growth was assigned in the LAM, which was used to inform the potential increase in traffic across the study area and its associated potential recreational pressures on European sites.

The model used this dataset to forecast traffic for a future scenario with and without the proposed N6 GCRR. The differences in traffic between both scenarios and each time period, were calculated and those figures were combined and expressed in terms of the annual average daily traffic (AADT). AADT is the number of vehicles expected on any road on an average day across the full year.

As mentioned above, the LAM incorporated data from the 2022 Census, specifically the Place of Work, School, College or Childcare - Census of Anonymised Records (POWSCCAR) dataset. This dataset provides information on the movements of people for commuting purposes i.e. travelling to work, school or college on an average workday. As such, this gives a dataset for weekday travel. However, recreational travel and travel to European sites would likely take place on a weekend. A dataset to inform weekend travel however does not exist as weekend travel is unpredictable i.e. what one person does this weekend can be unrelated to what they do the following weekend or the previous weekend. Therefore, the WRM and LAM above only include models which represent an average workday.

In the absence of a weekend model, the WRM and LAM mentioned above were used to estimate the potential increase in recreational travel to European sites in terms of the annual average daily traffic (AADT), which is the number of vehicles expected on any road on an average day across the full year. Therefore, the calculations relate weekday traffic levels to weekend levels and the final AADT value is expressed in terms of the average number of vehicles per day over a year. This will provide a conservative estimate of the weekend travel as it utilises an average daily traffic which takes an average of the five busier working day traffic levels plus the two weekend days.

As these AADT figures represent the differences in total traffic on any road i.e. it comprises many travel purposes like Commuting, Education, Shopping etc., and travel to European sites would be considered as recreational, they were broken down to predict the split of recreational traffic differences on the road. The NTA's National Household Travel Survey (2022) was used to provide an estimate on the split of recreational traffic. The National Household Travel Survey states that 15% of travel is for recreational and other reasons. As such, 15% of the total AADT differences were calculated and used to represent all recreational travel for this assessment. Traffic and Transport Assessment Guidelines use thresholds of 10% increases in traffic for determining whether an increase is significant and requires a Transport Assessment. These guidelines were also used here to determine potential recreational trip increases of significance on roads within the transport model. The AADTs identified on the roads modelled which shows an increase of 10% or greater for recreational trips are shown in Table 1 below (the numbers below are rounded to the nearest whole).

Table 1 Predicted change in AADTs on the road network

Road ID	Predicted ADDTs without the Project (A)	Predicted ADDTs with the Project (B)	Difference (A-B)	Recreational Traffic Increase 15% of (A-B)	% Increase in Recreational Traffic
6	2425	4199	1773	266	11.0%
7	1761	2953	1193	179	10.2%
72	769	1385	616	92	12.0%
114	4643	8329	3686	553	11.9%
116	4643	8329	3686	553	11.9%
119	4643	8329	3685	553	11.9%
292	2219	3702	1483	222	10.0%
438	469	946	477	72	15.3%
597	67	144	77	12	17.4%
622	2487	5405	2918	438	17.6%
683	6	13	7	1	18.1%
754	69	189	120	18	26.2%
778	149	254	105	16	10.6%
788	646	1544	898	135	20.9%

Road ID	Predicted ADDTs without the Project (A)	Predicted ADDTs with the Project (B)	Difference (A-B)	Recreational Traffic Increase 15% of (A-B)	% Increase in Recreational Traffic
796	77	196	120	18	23.4%
830	431	1504	1073	161	37.3%
916	147	309	161	24	16.4%
1005	3129	7161	4032	605	19.3%
1097	4494	8383	3890	583	13.0%
1196	2437	4701	2264	340	13.9%
1230	2419	4386	1967	295	12.2%
1244	1295	2406	1111	167	12.9%
1245	1761	3239	1478	222	12.6%
1278	2115	3925	1810	271	12.8%
1281	1295	2406	1111	167	12.9%
1282	1761	3239	1478	222	12.6%
1284	1761	3239	1478	222	12.6%
1323	769	1385	616	92	12.0%
1347	769	1385	616	92	12.0%
1374	5113	8874	3761	564	11.0%
1437	1504	5042	3538	531	35.3%
1467	2654	5626	2972	446	16.8%
1546	1504	5042	3538	531	35.3%
1558	4413	8004	3591	539	12.2%
1564	2437	4701	2264	340	13.9%
1574	147	309	161	24	16.4%
1593	5333	9007	3674	551	10.3%
1814	2442	5778	3337	501	20.5%
1824	747	3805	3058	459	61.4%
1895	4494	8383	3890	583	13.0%
1899	4413	8004	3591	539	12.2%
1901	4413	8004	3591	539	12.2%
1903	4494	8383	3890	583	13.0%
1909	4413	8004	3591	539	12.2%

Road ID	Predicted ADDTs without the Project (A)	Predicted ADDTs with the Project (B)	Difference (A-B)	Recreational Traffic Increase 15% of (A-B)	% Increase in Recreational Traffic
1913	340	1602	1262	189	55.6%
1915	1295	2406	1111	167	12.9%
1987	4643	8329	3685	553	11.9%
2016	4643	8329	3685	553	11.9%
2061	3171	7217	4047	607	19.1%
2084	2903	6026	3123	468	16.1%
2170	1106	2568	1461	219	19.8%
2207	769	1385	616	92	12.0%
2236	147	309	161	24	16.4%
2287	392	1012	620	93	23.7%
3090	35	59	24	4	10.2%
3601	187	332	145	22	11.7%
3638	187	332	145	22	11.7%
3825	187	332	145	22	11.7%

As can be seen from this table there are a number of roads which will have a 10% or greater increase in recreational trips as a result of the proposed N6 GCRR. These are shown on Figure 1 in Annex A and include the following that could create recreational pressure to European sites:

- An unnamed local road which forms the boundaries of the townlands of Shantallow, Furzypark, Ballyglass, Fiddaun, Monksfield and Lismoylan, in southern Co. Galway, which lies in proximity to Ardrahan Grassland SAC and Castletaylor Complex SAC
- An unnamed local road in the townlands of Liss, Ballycolgan, Skeaghbeg, Ballybaun, Ballycasey, Kilcoona and Mausrevagh, in northern Co. Galway, which lies in proximity to Lough Corrib SAC and SPA
- An unnamed local road on the eastern edge of Galway City and the townlands of Ardaun, Garraun North and Garraun South which lies in proximity to Inner Galway Bay SPA and Galway Bay Complex SAC
- An unnamed local road in the townlands of Forramoyle West and Forramoyle East which is in proximity to Galway Bay Complex SAC and Inner Galway Bay SPA
- Multiple local roads in and around Galway City, its suburbs and the River Corrib, with Lough Corrib SAC and SPA, Galway Bay Complex SAC and Inner Galway Bay SPA being in close proximity to most of these

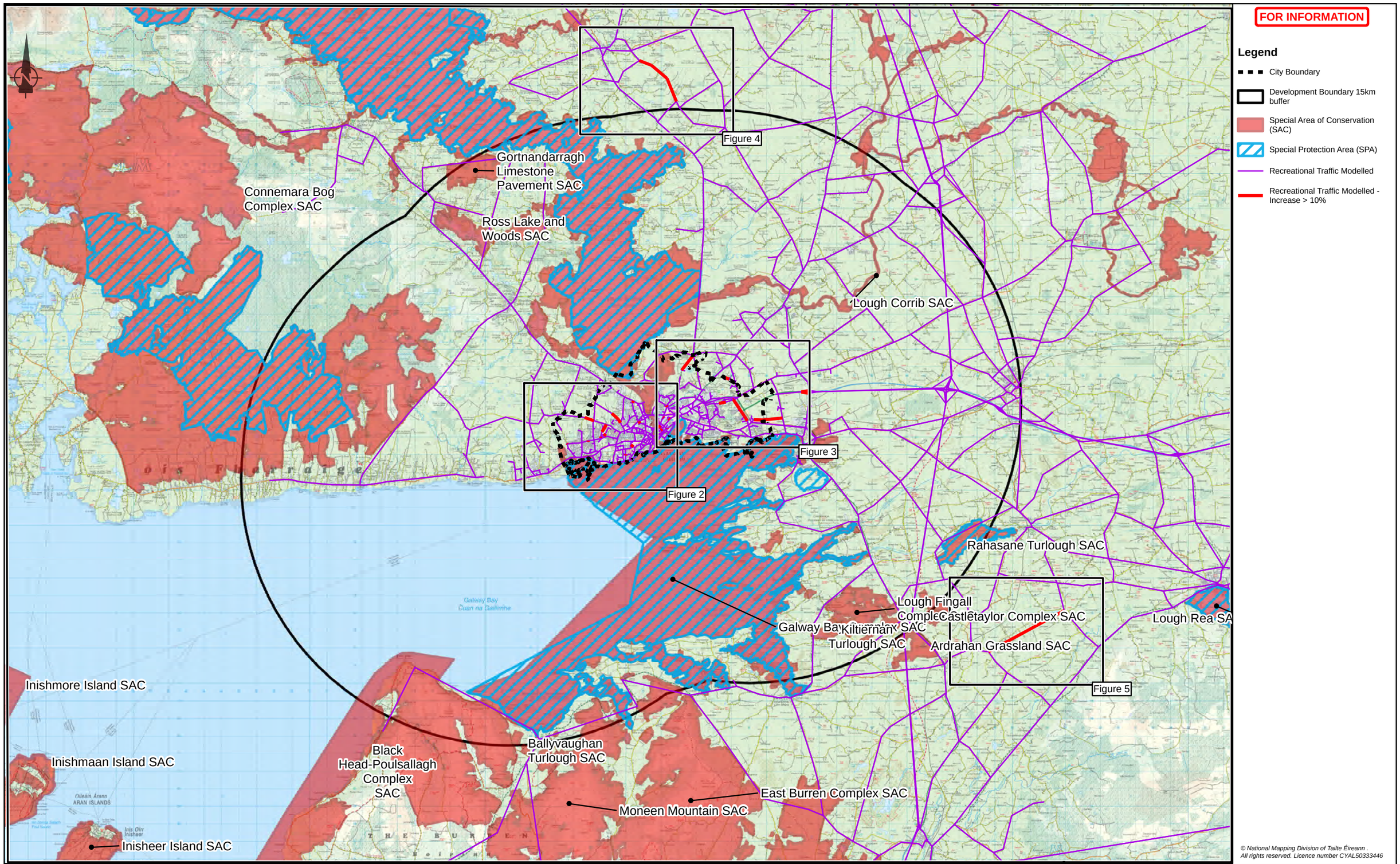
No other roads in proximity to European sites within the area of influence of the proposed N6 GCRR were modelled as having an increase of 10% or above in recreational traffic and as such do not need to be considered further.

Annex A

Figures

A.1

A3



FOR INFORMATION

Legend

- City Boundary
- Development Boundary 15km buffer
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- Recreational Traffic Modelled
- Recreational Traffic Modelled - Increase > 10%

Disclaimer Note:
The Study Area shown is draft only and subject to change. More detailed assessments, on-going studies and the information received from the public may result in changes to the Study Area.

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Date: February 2025

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Issue	Date	By	Chkd	Appd
I1	28/02/2025	KW	MH	EMC

Drawing Title
Extent of Road Network with Induced Recreational Traffic
Sheet 1 of 5

Drawing Status
For Information

Job No	Drawing No	Issue
233985	Figure 1	I1

A3

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Sheet 2 of 5

Drawing Status
For Information

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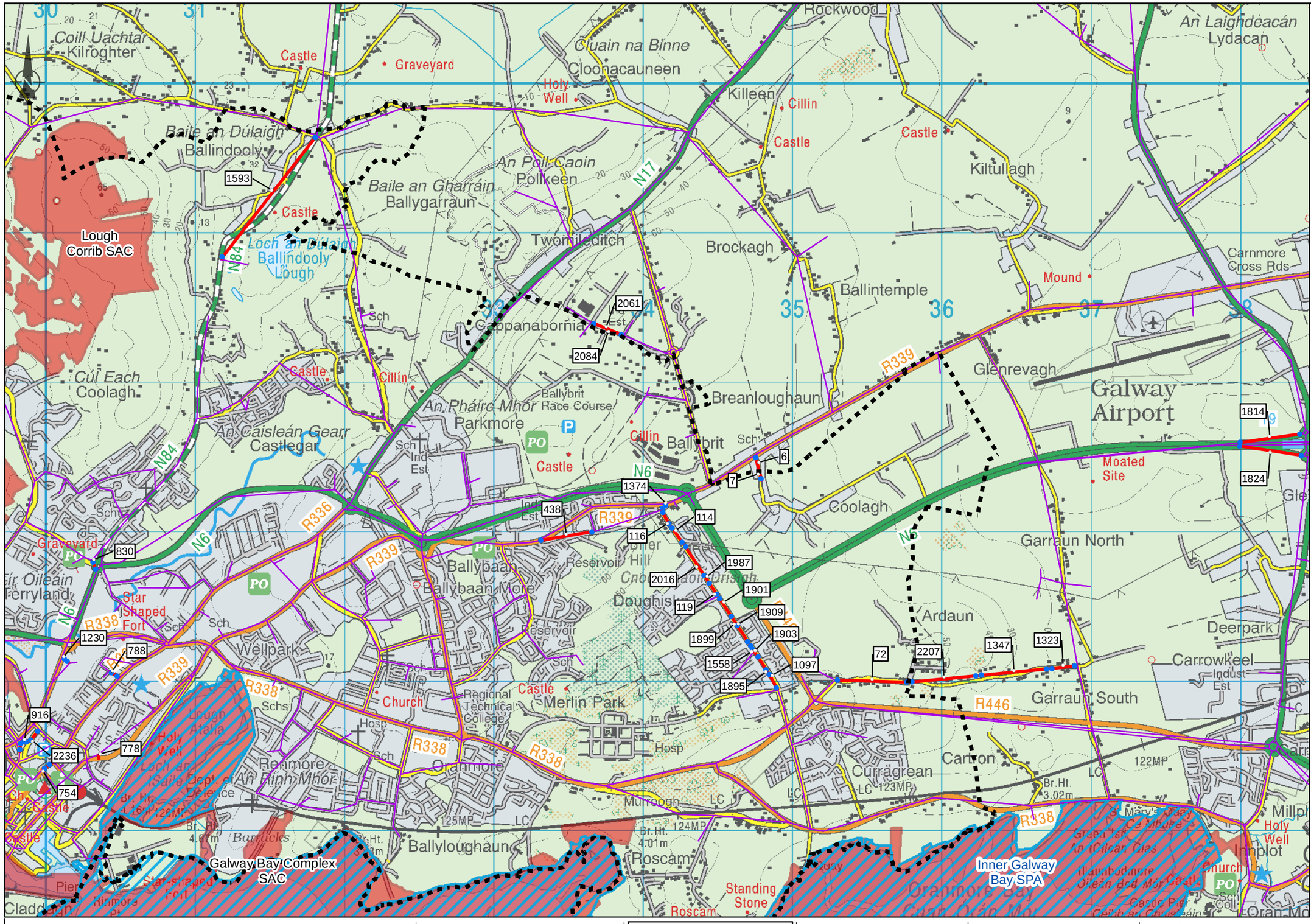

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I1	28/02/2025	KW	MH	EMC

Drawing Title
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Sheet 3 of 5

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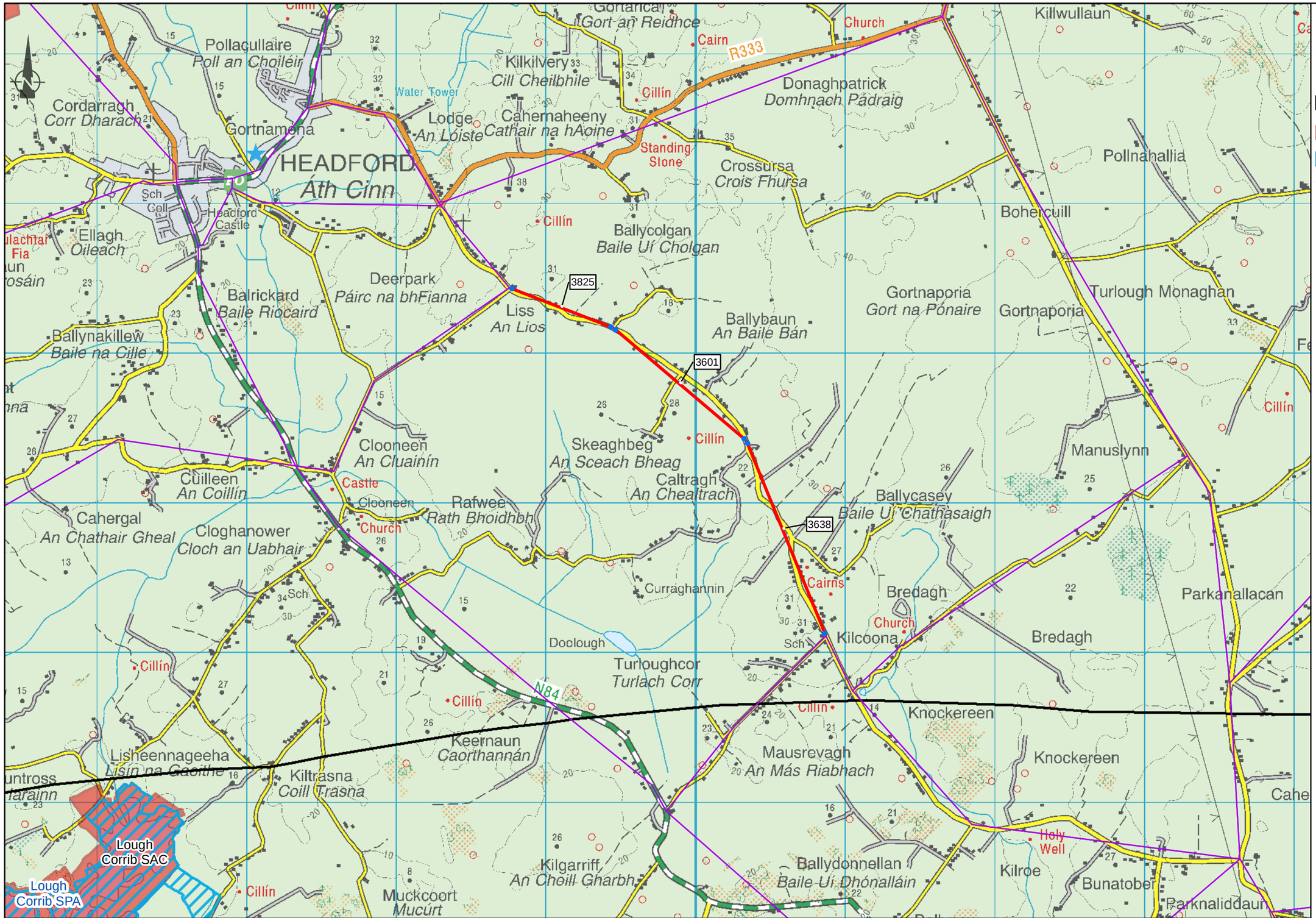

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I1	28/02/2025	KW	MH	EMC

Drawing Title
Extent of Road Network with Induced Recreational Traffic
Sheet 4 of 5

Drawing Status
For Information

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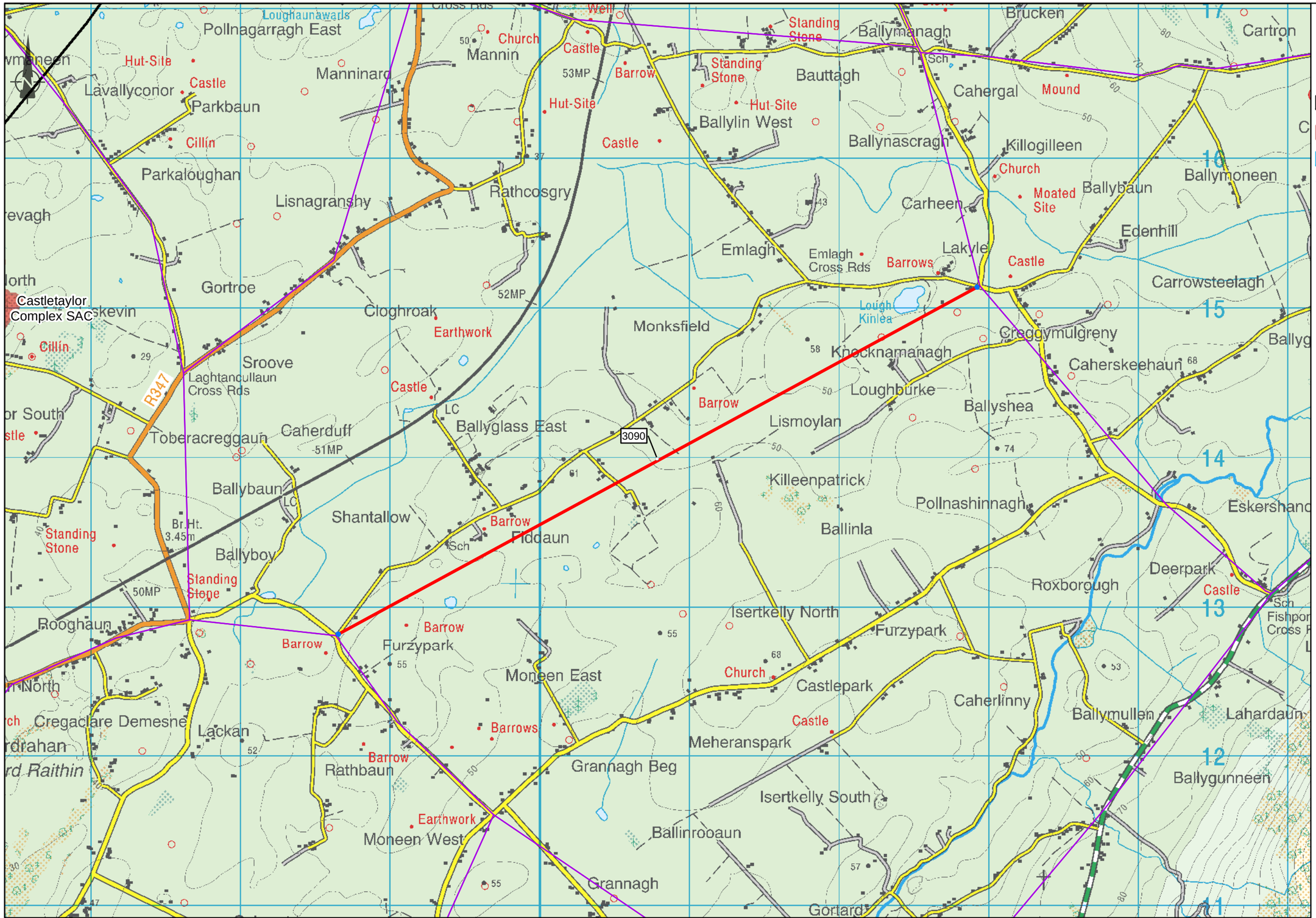

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Job No	Drawing No	Issue
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