



BIODIVERSITY NO NET LOSS (NNL) REPORT

TEN-T Priority Route Improvement Project, Donegal



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Biodiversity No Net Loss Report

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- Appendix A Baseline Habitat Maps
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1 INTRODUCTION

This report details the provision of Biodiversity No Net Loss (hereafter NNL) within the design of the TEN-T Priority Route Improvement Project, Donegal (PRIPD), hereafter referred to as Proposed Development. This is as a result of a requirement for NNL incorporated into the Donegal County Development Plan 2024-2030 (DCDP).

Biodiversity policy BIO-P-3(d) states:

“BIO-P-3(d): d. Require that large-scale developments result in no net biodiversity loss and include a site-specific comprehensive Biodiversity Management Plan (BMP), as part of any planning proposal.

This policy will be implemented by the Council in so far as same can be practicably and reasonably achieved within the context of Strategic Infrastructure Projects including, but not restricted to, the TEN-T Priority Route Improvement Project, Donegal, the Bridgend to County border project scheme, the Buncrana Inner relief Road and Greenways.”

Similarly, in 2023 TII published their Biodiversity Plan (October 2023) that contains the following under “Objective 4 – Embrace biodiversity accounting methodologies and strive for net gain”:

Medium Term: Strive to achieve no net loss of biodiversity on all new projects by 2025.

Long Term: Strive to achieve a net gain for biodiversity on all new projects by 2030.

In England, BNG was mandatory from 12th February 2024. This is a result of the significant research and trials within the UK, since initial trials were implemented within six regions across the UK in 2012-2014. Various metrics were developed and revised from those trials which has culminated with the publication of the Department for Environment Food and Rural Affairs (DEFRA) Biodiversity Metric in the UK, which has been revised on numerous occasions to the current mandatory Statutory Biodiversity Metric. However, it should be noted that the DEFRA metric is England specific and uses the UK Habitats classification system to record habitat types and has specific criteria for various measures that would be England specific. Therefore, the DEFRA metric will not be entirely applicable in an Irish context and is unlikely to result in meaningful results.

RPS/ Barry Transportation JV has been developing a project specific NNL accounting metric that will take account of the Irish habitat classification system, *A Guide to Habitats in Ireland* (Fossitt, 2000).

The metric has been developed using information from various metrics that have already been developed but is based on the principals within the Statutory Biodiversity Metric.

This report should be read in conjunction with the Biodiversity Management Plan (BMP) contained within Appendix C4.03 in Volume C: Technical Appendices of the Environmental Impact Assessment Report (EIAR) for the Proposed Development. The BMP sets out an outline of how the habitats will be managed post establishment to ensure that they will reach the target habitat conditions in order to meet NNL.

2 METHODOLOGY

2.1 Pre-development Baseline Biodiversity Value

The Baseline Biodiversity Value is calculated using a simplified version as set out within the DEFRA metric by the following calculation:

$$\text{Habitat Area (ha)} \times \text{Distinctiveness} \times \text{Condition Score} = \text{Biodiversity Value Units}$$

2.1.1 Habitat Area (ha) and Length (km)

The area classification is taken from the habitat surveys undertaken and mapped using the Fossitt habitat classification system (Fossitt, 2000) and as shown within the Terrestrial Biodiversity Chapter of the EIAR. Where a mosaic of habitats was recorded the habitat with the highest distinctiveness has been used as the basis for the area calculation to ensure that undervaluation does not occur. The Baseline Habitat Maps are provided for each section in Appendix A.

2.1.2 Distinctiveness

Having reviewed the DEFRA approach for distinctiveness and the approaches used in Ireland by both SSE (SSE, 2022) and Uisce Éireann, RPS proposes to use a similar approach but by applying the ecological valuation of ecological receptors as defined by the NRA Guidelines (NRA 2009), which aligns with current methodologies used for EIAR assessment by RPS. The scoring system proposed by RPS uses a score from 1 to 5, with ecological receptors of international importance receiving the highest score of 5 (see Table 2-1). A high valuation score is considered to correspond with a high level of habitat distinctiveness.

Table 2-1: Breakdown of the Distinctiveness Scores to be used against the NRA Valuation

NRA Ecological Valuation	Distinctiveness score	Description
International Importance	5	See pg. 16 of the NRA Guidelines
National Importance	4	See pg. 16 of the NRA Guidelines
County Importance	3	See pg. 17 of the NRA Guidelines
Local Importance (higher value)	2	See pg. 17 of the NRA Guidelines
Local Importance (lower value)	1	See pg. 17 of the NRA Guidelines

Certain habitats are regarded as having no biodiversity value and these habitats are given no distinctiveness value and a corresponding score of 0. These are habitats with the following Fossitt codes BL1 (stone walls and other stonework), BL2 (earth banks), BL3 (buildings and artificial surfaces), ED1 (exposed sand, gravel or till), ED2 (spoil and bare ground) and ED5 (refuse and other waste).

2.1.3 Condition

Condition of the habitat has been broken down into five categories which are poor/degraded, fairly poor, moderate, fairly high or high with corresponding multipliers of 1, 1.5, 2, 2.5 and 3 respectively.

The condition is subject to the ecologist appraiser's review of habitat descriptions. As condition assessments have not been undertaken at the time of survey these are based on the descriptions within the habitat baseline assessments as set out within the ecological baseline surveys and descriptions of the habitats within the Terrestrial and Aquatic Biodiversity Chapters.

Following the precautionary principle where condition is not easy to define from the description, a higher value has been assigned to ensure no under recording occurs.

2.1.4 Assumptions

The Baseline Habitat Values have been calculated using the proposed CPO boundary and the habitats that were recorded during the Habitat Surveys undertaken to inform the EIAR. The baseline habitat Maps are provided within Appendix A. Each habitat type is given a Distinctiveness score and Condition score as determined during the Habitat Surveys and outlined above. The baseline habitat values are determined by the following calculation:

$$\text{Habitat Area (ha)} \times \text{Distinctiveness} \times \text{Habitat Condition} = \text{Biodiversity Value Units}$$

The receiving environment (i.e. baseline condition) may naturally vary through seasons and between years (NRA, 2009a). All reasonable effort has been made to address this (e.g. combined use of desk and field survey data and completing update surveys periodically to identify any material changes) and the limitation is acknowledged.

Where a mosaic of habitats are recorded as present, as described above, the habitat with the highest distinctiveness score has been taken and the condition of that habitat applied.

2.2 Post Development Biodiversity Value Calculations

The Post Development Biodiversity Value is calculated using a similar calculation. The habitat areas are calculated that will exist on the completion of the Project. Those areas that are retained as part of the Proposed Development within the CPO boundary will be shown as retained and their initial value will be retained. Those created or restored habitats values are determined by the following calculation:

$$\text{Habitat Area (ha)} \times \text{Distinctiveness} \times \text{Target Habitat Condition} \times \frac{\text{Years to reach Target Condition}}{\text{Risk Multiplier}} = \text{Biodiversity Value Units}$$

2.2.1 Post Development Habitat Area (ha) and Length (km)

The post development Habitat Areas and lengths are taken from the Post Development Habitat Maps provided in Appendix B. These show the habitats to be retained, restored or created as part of the Proposed Development.

2.2.2 Distinctiveness

The post development distinctiveness is again determined by applying the ecological valuation of ecological receptors as defined by the NRA Guidelines (NRA 2009). This has been applied using professional judgment as to the value that would be awarded to those habitats that are created or restored when they have reached their target condition.

2.2.3 Target Habitat Condition

The time to target habitat condition is the number of years it is estimated to take before the restoration, enhancement or creation of a habitat reaches the pre-agreed target quality. The time to target condition will vary depending on the habitat type, habitat management and type of change (i.e., creation or enhancement).

The time applied for this metric has been applied using professional judgment, but with regard to guidelines set out within other biodiversity metrics, such as the information contained within the DEFRA Metric 3.1 Technical Supplement, that use a similar calculation.

2.2.4 The Time to Target Risk Multiplier

The time to target condition risk multipliers will use those set out within the SSE Renewables metric and the DEFRA 3.1 metric (a pre-cursor to the Statutory Biodiversity Metric). The table below gives a breakdown of the risk multipliers over a number of years. The full list is provided in Appendix C with a summary of change through years provided in Table 2-2 below.

Table 2-2: Time to target Condition Risk Multiplier

Years to target condition	Risk Multiplier
1	0.965
5	0.837
10	0.700
20	0.490
30	0.343

2.2.5 Post Development Biodiversity Value

The final Post Development Biodiversity Value score is the total of the values for the retained habitats, restored habitats and the created habitats.

2.2.6 Assumptions

The post development habitats have been split into a number of categories for certain habitats as some habitats will be managed differently depending on their function and their location within the scheme.

Areas of created GA1 and GA2 have been given a target condition of fairly poor given that these areas are likely to be regularly managed as agricultural grassland and amenity grassland. They may achieve higher values but as a precautionary measure it has been lowered to ensure that an over-estimate of value is not given.

The areas of GS2 (dry meadow and grassy verge) have been split into two GS2 (H) and GS2 (L). The areas of GS2 (L) will be managed as a roadside verge and will be cut on a regular basis. This will lower its potential for ecological value and condition likely to be achieved, which has been reflected in the distinctiveness and target condition.

The attenuation areas have been inputted into the metric as GS4 (wet grassland). In reality these areas will have sections of permanent water and will have emergent and aquatic vegetation. However, at present the area of permanent water was unknown and therefore as a precaution these areas have been left as GS4. They have been split out from the other areas of GS4 given that they act as a function of attenuation and therefore could be affected by road runoff and therefore have been given a lower distinctiveness and target condition.

Areas of WD1 are proposed as screening woodland along the road corridors. These areas have been given a lower habitat condition score given that they are in closer proximity to potential inputs from the traffic and a fairly good condition may not be achieved.

2.3 Biodiversity NNL Calculation

To ascertain whether NNL has been achieved the Baseline Biodiversity Value should be subtracted from the Post Development Biodiversity Value. Where the Post Development Biodiversity Value is equal to or greater than the Baseline Biodiversity Value score, NNL has been achieved. The calculation will provide a Biodiversity Value unit change and will indicate if the Proposed Development would achieve Biodiversity Net Gain (BNG) (a positive unit change) or Biodiversity Net Loss (BNL) (a negative unit change). The Biodiversity Value change has been provided as a unit value and as % change in value from the Baseline to the Post Development Values.

2.4 Qualitative Measures

In addition to the mitigation measures that might be required as a result of any derogation licenses the Proposed Development will also deliver qualitative measures to ensure that positive green infrastructure and biodiversity gains at species level, but are delivered alongside the habitat measures set out above. These do not form a part of the NNL calculations, but do add benefit for the various species and species groups.

3 RESULTS

3.1 NNL Calculations Section by Section

3.1.1 Results

The NNL calculations following the methodology as set out above have been calculated for each section as a standalone figure to demonstrate that each section could achieve NNL, for both the habitat areas and for the habitat lengths, if the sections were to come forward in isolation to the other sections. The full NNL metric has been provided in Appendix D for each section.

The results of the NNL calculation for habitats are presented in Table 3-1 and for linear habitats in Table 3-2.

Table 3-1: NNL Calculations for Habitat Area

Section	Pre-construction Baseline Biodiversity Value	Post-construction Biodiversity Value	Change in Value	Percentage Change
Section 1	375.7	413.5	+37.8	+10.1 %
Section 2	327.3	357.05	+29.7	+9.1 %
Section 3	592.9	638.1	+45.3	+7.7 %

Table 3-2: NNL Calculations for Linear Habitats

Section	Pre-construction Baseline Biodiversity Value	Post-construction Biodiversity Value	Change in Value	Percentage Change
Section 1	126.2	151.8	+25.6	+20.3 %
Section 2	37.6	56.7	+19.1	+51.0 %
Section 3	140.7	162.50	+21.8	+15.5 %

3.2 Entire TEN-T PRIPD

The calculations for NNL for the individual sections include an area of overlap where Section 2 and Section 3 tie in together. To calculate the overall NNL calculation for the entire TEN-T PRIPD Project these overlaps have been removed.

3.2.1 Results

The NNL calculations for the entire Project as a single Project are presented in Table 3-3 for habitat areas and Table 3-4 for the linear habitats. The full NNL metric for the entire Proposed Development is provided at Appendix D.

Table 3-3: NNL Calculations for Habitat Area Entire Project

<i>Pre-construction Baseline Biodiversity Value</i>	<i>Post-construction Biodiversity Value</i>	<i>Change in Value</i>	<i>Percentage Change</i>
1291.1	1402.4	+111.3	+8.6 %

Table 3-4: NNL Calculations for Linear Habitats Entire Project

<i>Pre-construction Baseline Biodiversity Value</i>	<i>Post-construction Biodiversity Value</i>	<i>Change in Value</i>	<i>Percentage Change</i>
304.50	371.0	+66.5	+21.8 %

For the above calculations, any overlap between plots included in the individual calculations for Section 2 and Section 3 have been removed so there is no double counting in the NNL calculations.

4 ADDITIONAL QUALITATIVE MEASURES

In addition to the mitigation measures that might be required as a result of any derogation licenses the Proposed Development will deliver the following qualitative measures to ensure that positive green infrastructure and biodiversity gains are delivered alongside the habitat measures set out above.

4.1 Bat Roosting

Artificial bat roosting structures will be erected at the end of the Construction Phase and in suitable locations to be determined by the appointed Environmental Clerk of Works (ECoW). Suitable locations will be determined based on locations available to erect the structures safely, and in the long-term, proximity to artificial lighting (no or little artificial light spillage areas to be favoured) and connectivity to optimal bat foraging and commuting habitats. Suitable locations could include existing mature trees or built-in to the fabric of new built structures. In the absence of suitable locations, the bat roosting structures will be pole-mounted.

10 no. bat boxes per 1 km of new carriageway will be erected in pairs at suitable locations. The bat boxes will be Schwegler (woodcrete) type boxes (or similar) and a range of different type boxes (e.g. 2F, 1FF, 3FF, 1FW, 1FE and 1FTH) will be used.

All bat boxes will be subject to annual inspection and maintenance. Any damaged or lost boxes will be replaced with same within two months of the annual inspection. The annual inspection should also record the effective uptake of boxes and be reported to the local authorities and biodiversity record centre.

These measures will be secured through the Environmental Operating Plan (EOP).

4.2 Bird Boxes

Artificial bird nesting structures will be erected at the end of the Construction Phase in suitable locations, as determined by the appointed ECoW. Suitable locations will be determined based on locations available to erect the structures safely, and in the long-term, proximity to artificial lighting (no or little artificial light spillage areas to be favoured) and connectivity to optimal nesting and foraging habitats. Suitable locations could include existing mature trees or built-in to the fabric of new built structures. In the absence of suitable locations, the bird nesting structures will be pole-mounted.

6 no. bird boxes per 1 km of new carriageway will be erected at suitable locations. The bird boxes will be Schwegler-type (woodcrete) type boxes (or similar) and a range of different type boxes (e.g. 1B, 2H, and 17C) will be used.

All bird boxes will be subject to annual inspection and maintenance. Any damaged or lost boxes will be replaced with same within two months of the annual inspection. The annual inspection should also record the effective uptake of boxes and be reported to the local authorities and biodiversity record centre.

These measures will be secured through the EOP.

5 CONCLUSIONS

The calculation for NNL shown above demonstrate, that through appropriate landscape design, that Section 1, Section 2 and Section 3 can achieve NNL for biodiversity.

The calculations show that for habitat areas section 1 can achieve a no net loss in biodiversity of +10.1%, Section 2 can achieve a no net loss in biodiversity of +9.1% and Section 3 can achieve a no net loss in biodiversity of +7.7%. They also show that for linear habitats Section 1 can achieve a no net loss in biodiversity of +20.3%, Section 2 can achieve a no net loss in biodiversity of +51.0% and Section 3 can achieve a no net loss in biodiversity of +15.5%.

When we look at the TEN-T PRIPD in its entirety the scheme can achieve the minimum NNL required. The calculations have shown that through the appropriate landscape design the Proposed Development can achieve a no net loss in biodiversity of +8.6 % for habitat areas and +21.8 % for linear habitats.

All three sections of the Proposed Development, both individually and collectively, achieve a no net loss in biodiversity for habitat areas and linear habitats, ensuring that the Proposed Development meets the requirements of Policy BIO-P-3(d) of the County Donegal Development Plan 2024-2030.

6 REFERENCES

Fossitt, J.A. (2000) *A Guide to Habitats in Ireland*. The Heritage Council, Kilkenny.

NRA (2009a) *Guidelines for Assessment of Ecological Impacts of National Road Schemes*.

SSE (2022) Biodiversity net gain. Toolkit users guide v2.2.

https://www.sserenewables.com/media/iz2jbehn/sse-bng-toolkit-user-guide_v2-2.pdf

Appendix A

Baseline Habitat Maps

Appendix B

Post Development Habitat Maps

Appendix C

Years to Habitat Condition Temporal Risk Multiplier Values

Appendix D

NNL Metrix