



**METRO NORTH
ORAL HEARING**

PROOF OF EVIDENCE

Andy Coates

Ecology

Wednesday 15th April 2009



Metro North Oral Hearing

Proof of Evidence

Ecology

Andy Coates

1.0 NAME, QUALIFICATIONS AND ROLE IN PROJECT

- 1.1 My name is Andy Coates. I hold a BSc (Hons) in Zoology from the University of Aberdeen and an MSc in Environmental Technology from Imperial College, London. I am a Member of the Institute of Ecology and Environmental Management (MIEEM).
- 1.2 I am a Technical Director with ERM. In that capacity I am responsible for directing the ecological work undertaken by ERM and ensuring that it is fit for purpose.
- 1.3 My role on the Metro North project has been to oversee the assessment of the likely impacts to ecology from the construction and operation of the scheme, and to advise the RPA on appropriate mitigation measures. I have also overseen the work undertaken to inform the consideration of the Metro North project against the requirements of the Habitats Regulations.

2.0 EXPERIENCE

- 2.1 I have assessed the ecological impacts arising from proposed development for approaching 20 years including a range of rail projects for example Edinburgh Tram Line One, the Waverley Scottish Borders railway scheme, Edinburgh Airport Rail Link (EARL) and South Hampshire Rapid Transit (SHRT).
- 2.2 I also have considerable experience in assessing ecological impacts from development in a range of other sectors including power stations, renewable energy schemes, business parks, housing schemes, waste developments, water and waste water treatment plants, oil, gas and water pipelines, mineral developments, other transport schemes, ports and other coastal developments, and ornithological assessments associated with offshore development schemes.

3.0 GENERAL INTRODUCTION

Scope

- 3.1 My evidence addresses ecological impacts during construction and operation of the project. Impacts associated with permanent loss of habitats and species are addressed within the operational impacts. I also refer to the

report undertaken to inform the Appropriate Assessment which assesses the impacts of the proposals on European sites designated for their nature conservation importance.

- 3.2 The ecological baseline is described across the route focusing on key habitats and species based on the survey findings and information from consultees. The assessment is influenced heavily by the way in which the proposals cross the area. For example, much of the northern part of the route is above ground or in tunnel created by cut and cover methods and hence entails habitat loss. The exception to this is the section which tunnels below the airport. In contrast the southern part of the route within the city centre is in tunnel and has little impact on ecology except where there are above ground structures such as ventilation shafts and stops, and temporary construction areas.

4.0 RECEIVING ENVIRONMENT

- 4.1 The most frequently occurring habitats within the study area are cultivated land, built land and improved agricultural grassland. Several watercourses are also located within the study area. The majority of the habitats recorded have been modified by human activity and do not represent natural or semi-natural habitats.
- 4.2 A number of rivers, ponds and ditches are either crossed by the route or lie in close proximity to it. Important rivers include the Broad Meadow and the Ward River which joins the Broad Meadow River before it flows into the Broadmeadow / Swords Estuary SPA and the Malahide Estuary SAC and pNHA. Further south lie the Sluice River which flows into the Baldoyle Bay cSAC and the Santry River which flows into the Santry Demesne pNHA. In the city centre the scheme crosses the River Liffey, which is a tidal river flowing into Dublin Bay, an area which supports a number of sites of international nature conservation importance.
- 4.3 A number of drainage ditches occur along the boundaries of the agricultural fields in the northern part of the study area. Their species diversity varies but many contain stagnant water especially where they are shaded and some near Lissenhall show signs of contamination. Several artificial ponds are located in the study area along the alignment. However, the only ones likely

- to be affected are those in St. Stephen's Green which are manmade concrete lined and set in intensively managed amenity parkland.
- 4.4 Areas of ungrazed or irregularly grazed grasslands occur at Lissenhall and to the north of Dublin Airport which are more species rich than the agriculturally improved grasslands. However, an absence of grazing in the long term will result in a decline in the species richness.
- 4.5 There are no extensive areas of woodlands, but small stands are present outside the city centre. Most are linear immature, or semi-mature, broadleaved woodlands associated with established parks, old estate houses and landscaping associated with former road schemes. Some more mature trees occur along the Broad Meadow and Ward River corridors.
- 4.6 Hedgerows occur largely north of the M50 where they are the dominant field boundary type, often associated with ditches and occasionally with mature broad-leaved trees. Treelines are located throughout the area and comprise common species of both broad-leaved and conifer species.
- 4.7 A range of fauna species was recorded in the study area along and adjacent to the route including protected species. Otters are known to be present along the rivers including the Broad Meadow, Ward and Sluice Rivers, although no signs were recorded during surveys as part of this project and no holts were identified in areas likely to be directly affected.
- 4.8 Bat activity was recorded along the route with common Pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), Daubenton's bats (*Myotis daubentoni*) and Leisler's bat (*Nyctalus leisleri*) recorded. No roosts were confirmed on the route alignment, although some buildings and trees had potential to support roosts, and the survey findings suggested bats were roosting in trees in St Stephen's Green, although it was not possible to identify any specific locations. Foraging bats were recorded including in St Stephen's Green, Blessington Street Park, Broad Meadow / Ward Rivers and hedgerows to the north of Swords.
- 4.9 There was little evidence of badger activity, with only one small active sett recorded north of Dublin Airport.
- 4.10 Common frogs are known to occur in a number of locations in Dublin City and there are ponds in the surrounding area and field ditches along the route.

Only one pond lies along the route in St Stephen's Green, however, no amphibians were recorded in these ponds. Frog spawn was recorded in a ditch in the Balheary area.

- 4.11 Small areas of semi-natural grassland occur along the route, which could support Irish hare. One animal was recorded in such habitat to the north of the proposed depot site in June 2008.
- 4.12 A range of bird species were recorded in the study area including three species listed on Annex I of the EC Birds Directive (light-bellied brent goose, kingfisher and little egret). The geese, which winter on the nearby Broad Meadow / Swords Estuary SPA were recorded flying across the route alignment at heights of over 50m. However, there is little foraging habitat within the study area and large numbers are not predicted. Both little egret and kingfisher use the river corridors of the Broad Meadow and Ward Rivers. Little egret was recorded flying across the route alignment, where it crosses these rivers. The majority of the suitable foraging habitat for kingfisher was recorded east of the route alignment.
- 4.13 Three Red List species of conservation concern (black-headed gull, lapwing and yellowhammer) were recorded in the study area. Large flocks of black-headed gull and lapwing were observed flying across the route at Lissenhall, and the gulls also use the area for resting / foraging. Yellowhammer was recorded in lowland farmland habitat north of Swords.
- 4.14 A range of other, more common bird species were recorded in habitats along the route and immediate surrounds.
- 4.15 Five rivers within the study area are known to support salmonids (Broad Meadow, Ward, Sluice, Tolka and Liffey), although none are currently designated under the European Freshwater Fish Directive.

5.0 CHARACTERISTICS OF THE PROPOSAL WITH RESPECT TO ECOLOGICAL IMPACTS

- 5.1 Sources of impact on ecology during the construction phase include the following:
- Temporary landtake

- Construction compounds
- Working areas
- Cut and cover tunnel
- Construction activities

5.2 These sources of impact will result in the following impact types:

- Permanent or temporary loss of habitat or species
- Fragmentation of habitat or severance of wildlife corridors between isolated habitats of ecological importance
- Creation of barriers to the movement of animals especially mammals, amphibians and plants with limited powers of dispersal
- Impacts on designated sites
- Damage or alteration to adjacent habitats
- Disturbance to species in the vicinity of the proposed scheme
- Introduction of invasive species

5.3 Sources of impact on ecology during the operational phase include the following:

- Permanent landtake
- Operation of rolling stock and maintenance of the track

5.4 These sources of impact will result in the following impact types:

- Permanent loss of habitat or species
- Permanent alterations to existing habitats
- Fragmentation of habitat or severance of wildlife corridors between isolated habitats of ecological importance

- Creation of barriers to the movement of animals especially mammals, amphibians and plants with limited powers of dispersal
- Impacts on designated sites
- Creation of new habitats as a result of reinstatement works, habitat enhancement proposals and landscaping
- Disturbance to species in the vicinity of the proposed scheme
- Animal collisions

6.0 POTENTIAL IMPACTS OF THE PROPOSAL

Area MN101: Belinstown Depot to Swords Stop

Project Scenario: Construction Phase

- 6.1 The construction work will result in small areas of habitat loss within MN101 including small areas of woodland, scattered trees and parkland, trees, hedgerow, drainage ditch and grassland. All habitats affected are common both locally and nationally. Measures will be implemented to restore or replace habitat that is lost and to reduce the risk of pollution to them. Given the small areas affected and the measures that will be implemented, no significant impacts are predicted.
- 6.2 The construction works will result in impacts on fauna species including protected species such as bats and otters. Habitat removal will be undertaken outwith the breeding bird season wherever possible to avoid impacts to nesting birds. Some short term and localised disturbance will occur to birds due to noise and the presence of the construction workforce. No significant impacts are predicted to the Annex I bird species which are known to occur in this area. The works may affect amphibian species in the drainage ditches around the depot site, however, measures will be implemented to ensure their protection during the works.
- 6.3 Impacts on the integrity of designated sites are not predicted from the construction works.

Project Scenario: Operational Phase

- 6.4 The operation of the scheme will result in the permanent loss of small areas of woodland, scattered trees and parkland, hedgerow, drainage ditches, grassland and cultivated land. Significant impacts are not predicted.
- 6.5 Only a small number of hedgerows and other habitats used by bats will be affected. All the species affected are common and widespread in Ireland and measures will be implemented to reduce the risk of impacts to bats.
- 6.6 The permanent loss of freshwater habitat where the scheme crosses watercourses (mainly ditches) will not have significant impacts on amphibians and fish, given the poor quality of the ditches and / or the short lengths removed. Water flows will be maintained and culverts will be designed to allow passage of aquatic fauna including otters. Significant impacts are not predicted.
- 6.7 The areas of bird nesting and foraging habitat which will be lost is small and no significant impacts are predicted. Permanent increases in noise levels will occur, however, significant impacts to birds and other fauna are not predicted. The scheme design will include measures which will be agreed with NPWS to reduce the risk of collisions by little egret with the vehicles and overhead wires where the route crosses the Broad Meadow and Ward Rivers.
- 6.8 Impacts on the integrity of the designated sites surrounding Area MN 101 are not predicted as described in the Appropriate Assessment report in *Annex D* of the EIS.

Area MN102: Swords Stop to Dublin Airport North Portal

Project Scenario: Construction Phase

- 6.9 The northern tributary of the Sluice River is the only sizable watercourse affected in Area MN 102. It is narrow with a low flow, bordered by scrub and ruderals with agricultural fields beyond, and shows signs of eutrophication. The Forest Little Stream is also in poor condition and will not be significantly affected by its temporary diversion. There will be some loss of trees and hedgerows for the cut and cover tunnel sections, however, significant impacts

are not predicted. Areas of agricultural and amenity grassland and cultivated land to be temporarily lost will be restored.

- 6.10 Some temporary loss of commuting / foraging routes for bats will occur, but no significant impacts are predicted. Habitat loss will occur outwith the breeding bird season wherever possible and whilst some temporary disturbance effects are likely to occur significant impacts are not predicted. The temporary diversion of Forest Little Stream is not predicted to have significant effects on aquatic fauna species.
- 6.11 Impacts on designated sites are not predicted as a result of the construction works in Area MN 102.

Project Scenario: Operational Phase

- 6.12 A large proportion of the scheme runs along the R132 and has no impacts on habitats. The works will result in the permanent loss of a section of a tributary of the Sluice River. The surrounding agricultural fields run to the edge of the watercourse which is bordered by species poor scrub and ruderals in the more open areas, has little marginal habitat, a low flow and shows signs of eutrophication. There will be a loss of some mature trees, all common species, from the road margins and a short section of heavily managed hedgerow from the central reservation of the existing R132. A longer section of more mature, but still species poor, hedgerow will be lost between the R132 and the Pavilions Shopping Centre, and one further hedgerow south severed for the access to the park and ride. The overall loss of hedgerow is small in comparison to that within Area MN 102 and new hedgerows will be planted as part of the landscaping strategy to replace those lost. Very small areas of grassland habitat will be lost, but significant impacts are not predicted.
- 6.13 The loss of hedgerows will result in the loss of commuting and foraging corridors for bats, however, considerable other corridors remain. The retention of the agricultural underpass adjacent to the tributary of the Sluice River will allow the continued movement of bats along this corridor. New hedgerows will be planted as part of the landscaping strategy to provide new foraging and commuting habitat, and other measures, for example to control lighting and provide additional roost sites through bat boxes will be

implemented. No significant impacts to bats are predicted as a result of the proposals.

- 6.14 Some common bird species will be affected by small losses of breeding habitat and disturbance but no significant impacts are predicted. No significant impacts are predicted to aquatic fauna in the tributary of the Sluice River or in the nearest pond which lies over 500m from the route alignment.
- 6.15 No designated sites will be affected by the operating scheme.

Area MN103: Dublin Airport

Project Scenario: Construction Phase

- 6.16 The works will result in the temporary loss of small areas of scrub habitat from along the Sluice River corridor, and species poor semi-natural grassland north of Dublin Airport for the construction of the tunnel portal and associated construction compound. Measures will be implemented to reduce the risk of impacts to adjacent habitats which remain including along the Sluice River.
- 6.17 It is likely that some increase in disturbance to birds will occur in the immediate vicinity of the works, especially as a result of the early stages of the tunnel boring. However, many of the bird species in this location including yellowhammer (a Red List species) are likely to be somewhat habituated to noise given the proximity to both a major road and the airport. Measures will be implemented to reduce the risk of disturbance including removal of habitat outwith the breeding bird season wherever possible. Measures will also be implemented to ensure that passage for mammal species is maintained during construction. Working methods will also minimise the generation and dispersal of suspended solids during construction works in the Sluice River.
- 6.18 No impacts are predicted on designated sites from the construction works.

Project Scenario: Operational Phase

- 6.19 The habitat which will be affected along the banks of the Sluice River is species poor the loss of a short section of scrub habitat will not affect the overall distribution and abundance of this habitat type in the local area. No significant impacts are predicted.

- 6.20 The loss of a small area of species poor semi-natural grassland is not significant in the context of what will remain in the local area, including the more species rich areas to the east.
- 6.21 The removal of habitat from the banks of the Sluice River will sever a commuting / foraging route for bats. Significant impacts are not, however, predicted as considerable other foraging habitat and commuting corridors remain in the surrounding area, and new corridors will be created in the longer term through the landscape planting. Badgers in the area will not be disturbed by the works, and measures will be implemented to maintain their passage through the area including ledges through the culvert along the Sluice River.
- 6.22 The loss of habitat will affect only a small range of common bird species, but only small areas will be affected. Disturbance to birds from the operating scheme is not predicted to be significant given its location here near a major road and the airport.
- 6.23 The Sluice River is a salmonid River and culvert design, which will be agreed with NPWS, ERFB and OPW, will maintain the free passage of salmonids.
- 6.24 No designated sites will be affected by the operating scheme.

Area MN104: Dublin Airport South Portal to Santry Avenue

Project Scenario: Construction Phase

- 6.25 Small areas of woodland habitat will be temporarily lost during construction including mixed and broadleaved woodland due to the temporary construction compound and other temporary works areas along the route. Overall the loss is small in comparison to that which is present in Area MN 104, and much of the broadleaved tree loss comprises landscape screening planted during the development of the M50. These habitats can be recreated. Other habitat types affected are amenity grassland, arable and built land. No significant impacts will result from the temporary loss of these habitat types. Measures will be implemented to avoid significant impacts to adjacent habitats during the construction works.

6.26 No significant impacts to fauna are predicted during the construction works, although there will be some temporary disturbance to birds. Habitat will be removed outwith the breeding bird season wherever possible.

6.27 No designated sites will be affected by the proposals in Area MN104.

Project Scenario: Operational Phase

6.28 The permanent loss of a short section of the Turnapin Stream as a result of the proposed diversion will not be significant, given its current poor condition.

6.29 A small area of mixed woodland at Santry Lodge will be lost including semi-mature native and non-native tree species and scrub. The majority of the trees lost are non-native species. Approximately 20 mature and semi-mature trees will be lost for the widening of Ballystruan Lane, and a small area of mixed landscape planting will be lost to create a bridge parallel to the M50. Short sections of hedgerow will be lost, but no significant impacts are predicted and the habitats lost will be replaced by new planting as part of the landscape strategy.

6.30 The remaining habitat lost comprises small areas of arable, improved agricultural grassland, amenity grassland and built land. No significant impacts are predicted.

6.31 The proposals will not have significant effects on bats which occur in the area due to the areas affected, the measures which will be implemented to minimise habitat loss, reduce corridor severance and create new habitat. Many of the tree species lost in Santry Lodge are also non-native and of low interest for foraging bats. Small losses of nesting and foraging habitat for birds will be replaced by new planting which will increase the habitat diversity in an area dominated by arable fields. No significant increases in disturbance to birds are predicted once the vehicles are operating. The Turnapin Stream is in a poor condition and the diversion of a short section is not predicted to have significant impacts on aquatic fauna.

6.32 No designated sites will be affected by the proposals in Area MN104.

Area MN105: Santry Avenue to Albert College Park

Project Scenario: Construction Phase

- 6.33 The habitats affected are predominantly built land with small areas of amenity grassland from the central reservation at Ballymun Road and for Construction Compound 11A. Approximately 130 lime trees will be lost from the central reservation along Ballymun Road and the Ballymun Stop. These trees will be replaced by new planting as part of the landscaping strategy including at locations agreed with the Ballymun Regeneration Ltd. Significant impacts are not predicted.
- 6.34 Given the low nature conservation value of the habitats lost no significant impacts are predicted to fauna species during the construction works.
- 6.35 Designated sites will not be affected by the construction works in this area.

Project Scenario: Operational Phase

- 6.36 The majority of the scheme in Area MN105 is within the existing road corridor and permanent losses of habitat are small including approximately 35 mature street trees, all of which are common species. New trees will be replanted as part of the landscape strategy to replace those lost. No significant impacts are predicted to habitats and the loss of the trees will not be significant for wildlife.
- 6.37 No impacts to designated sites will result from works in this area.

Area MN106: Albert College Park to Mater Stop

Project Scenario: Construction Phase

- 6.38 The majority of this section of the route is in tunnel with only the above ground structures, construction compounds and short sections of cut and cover tunnel affecting habitats and species. Away from the areas of built land, habitat losses comprise largely arable fields and amenity grassland and a small area of scattered trees and parkland for the St. Patrick's Shaft Construction Compound (Number 14) and a tree line for the Griffith Stop Compound (Number 13). These habitat types will be recreated following completion of the construction works, and no significant impacts are predicted.
- 6.39 There will be temporary disturbance to a range of common bird species during the works, and it is likely that the birds here will be used to a degree of

disturbance due to their urban locations, especially those in Albert College Park. Habitat removal will be undertaken outwith the breeding bird season wherever possible.

6.40 No designated sites will be affected by the works in Area MN106.

Project Scenario: Operational Phase

6.41 The majority of the scheme is in tunnel. There will be little permanent landtake in Area MN 106 and hence few impacts are predicted on fauna species. Small areas of amenity grassland and woodland habitats will be lost including approximately 55 mature trees in Albert College Park, and a further 20 at the Mater Stop. There will be no loss of trees along Griffith Avenue. Several residential buildings will also be lost, and further bat surveys will be undertaken prior to construction and any necessary measures taken in agreement with NPWS. Similarly a further survey for badgers will also be undertaken prior to any work commencing in Albert College Park.

6.42 No impacts on designated sites will result from the works in this area.

Area MN107: Mater Stop to St. Stephen's Green

Project Scenario: Construction Phase

6.43 The majority of this section of the route lies within tunnel and does not affect habitats above ground. The construction of the compound in St. Stephen's Green will result in the temporary loss of a manmade pond, and a range of trees including both common native broadleaved and ornamental species, a number of which are mature. A small number of semi-mature trees will also be lost as a result of the other construction compounds. New trees will be planted to replace those lost including semi-mature specimens and the island will be replaced on restoration. The restoration planting strategy will be agreed with OPW and habitat removal will be undertaken outwith the breeding bird season wherever possible.

6.44 A small area of tidal riverbed habitat will be lost due to the construction of a temporary bailey bridge across the River Liffey. This loss is not significant. Its temporary installation will not have significant effects on the river flows. Measures will be implemented to ensure that pollution of the river does not

occur during the construction works. The integrity of designated sites of European nature conservation importance downriver will not be affected.

6.45 Bats have been recorded foraging within St. Stephen's Green, and some are likely to roost. Further pre-check surveys will be undertaken and trees to be felled which have the potential to support bats will be felled in a manner which will avoid any injury to bats and under licence from NPWS. A licensed bat handler will be present during all tree felling in St Stephens's Green, and boxes will be erected to provide alternative roosts if any are to be lost. Only small numbers of bats were recorded during the surveys and significant effects are not predicted.

6.46 The construction works will result in some disturbance to common bird species within St. Stephens' Green, however, this is a busy city centre public park that is used heavily for recreational purposes and bird species present will already be accustomed to regular disturbance. Temporary nesting habitat for water birds will be provided in the remaining pond if this is considered necessary following the check surveys. Any aquatic fauna and flora if appropriate from within the pond in St. Stephen's Green will be translocated to the adjacent pond which will remain, or to a suitable location agreed with the relevant authorities. No significant impacts are predicted.

Project Scenario: Operational Phase

6.47 Once operational there will be no significant impacts to habitats or species within this area, or to designated sites in surrounding areas.

7.0 REMEDIAL OR MITIGATION MEASURES

7.1 A range of specific measures that will be implemented to help mitigate ecological impacts either fully or in part are set out in the ES. In general these include:

- Minimising habitat loss
- Following accepted guidance, for example in the design of culverts to help facilitate the movement of aquatic fauna and otters, bridge design to avoid

collision impacts of little egret with the vehicles and overhead wires, and best practice to avoid pollution to watercourses

- Where appropriate agreeing measures such as construction methods with relevant statutory agencies such as NPWS and ERFB
- Wherever possible development activities will be timed to avoid important seasonally constraints such as nesting birds
- Use of check surveys prior to construction work commencing to confirm any changes to the status of protected species on the site, agree any mitigation measures with NPWS as necessary, and to apply for any necessary licences to allow the works to proceed
- New planting to restore or replace lost habitats including wildlife corridors and where appropriate with species mixes selected to enhance the biodiversity value of the habitats
- Monitoring to ensure the mitigation is effective

8.0 PREDICTED, RESIDUAL IMPACTS AND SUMMARY

- 8.1 The residual impacts on ecology are assessed based on the assumption that all mitigation will be successfully implemented.

Project Scenario: Construction Phase

- 8.2 The proposed scheme will involve the temporary loss of habitat along the alignment for features of the scheme including the construction compounds. Some temporary disturbance to a range of common fauna species will occur, but the impacts are not predicted to be significant. The habitats affected are largely common and widespread including agricultural land and those typical in urban locations, such as amenity grassland, street trees, scattered trees

and parkland and areas of built land. These habitats will typically be replaced on completion of the works.

- 8.3 The construction compounds are to be largely located in habitats of low nature conservation value. Some temporary loss of habitat will occur in St. Stephen's Green, although this location is more important for its social value than its nature conservation value. The proposed scheme alignment crosses several major watercourses and in-stream works will occur in the Sluice River and in the River Liffey.
- 8.4 Measures will be implemented to reduce the risk of significant pollution to the watercourses during the construction, and also to ensure that significant impacts to fauna species such as otters and fish do not occur. An area of semi-improved grassland north of the airport will be temporarily affected, although it is largely species poor. It will be restored on completion of the works by replacing the topsoil and the seedbank it supports.
- 8.5 The timing of development activities will wherever possible avoid the removal of habitat outside the period of 1 March to 31 August to avoid impacts to nesting birds. Pre-construction surveys will be undertaken to determine whether there has been any change in the status of protected species along the proposed scheme. The findings will be discussed with relevant bodies such as the National Parks and Wildlife Service (NPWS) and any necessary mitigation measures implemented.
- 8.6 There will be no effects on the integrity of designated sites as a result of the construction works.

Project Scenario: Operational Phase

- 8.7 The majority of the southern part of the proposed scheme between Albert College Park and St. Stephen's Green is in tunnel and will not have any effect on habitats and species. Small areas of permanent habitat loss will occur to accommodate above ground structures such as air vents and emergency accesses, however, the effects on habitats and species are not significant. The remaining sections of the alignment will result in the loss of largely intensively managed agricultural land or urban habitats of low nature conservation value. Only small areas of semi-natural habitat will be permanently lost and this loss is not deemed to be significant. The

landscaping strategy includes provisions for considerable new planting along the alignment, particularly of trees and shrubs to replace trees and hedgerows permanently lost to the proposals.

8.8 The only permanent in-river work associated with the proposed scheme is the culverting of a section of the Sluice River and its northern tributary. This watercourse is steep sided and has species-poor vegetation along its margins. Design measures will be included to ensure that fauna species such as fish and otter can still pass along the river. Significant impacts are not predicted to occur.

8.9 The habitats which will be permanently lost support a range of predominantly common fauna species. Some loss of foraging/commuting routes for bats will occur, and some roost loss may occur in St Stephen's Green, although the effects are not predicted to be significant. The landscape strategy includes for considerable areas of new planting which will replace that lost and which provides new habitat for wildlife including foraging and commuting bats. Once operational, the proposed scheme will have no significant impacts on habitats and surrounding wildlife. Little egret was recorded flying along the Broad Meadow River across the proposed alignment. Bird deflectors will be used on wires where the route crosses the Lissenhall, Balheary and Ward River Bridges to reduce the risk of birds colliding with the LMVs and overhead lines.

8.10 There will be no effects on the integrity of designated sites as a result of the operating scheme.

9.0 RESPONSE TO SUBMISSIONS MADE

Area MN 101 - Belinstown Depot to Swords Stop

9.1 Submissions have raised some concerns about the effects of the proposals in this route section including the loss of garden habitat to accommodate temporary works and the effects on the wildlife it supports, and effects on the Malahide Estuary cSAC from the new bridge construction over the Ward River.

- 9.2 The EIS includes a commitment to reinstate trees lost to the proposals. RPA has re-affirmed this commitment and also offered to discuss and agree the reinstatement plans with the landowners.
- 9.3 The assessment in the EIS acknowledges that there will be effects on a range of common bird species due to habitat loss along the route, however, significant impacts are not predicted. RPA is committed to restoring areas temporarily affected and creating new habitats which will include species favoured by typical nesting and foraging garden bird species. Large areas of suitable habitat for common bird species will remain in the surrounding area and this will allow them to re-colonise affected areas once they are restored.
- 9.4 The proposals will result in the loss of a short section of an existing drain in this area, however, only limited aquatic and terrestrial habitat for amphibians will be lost as a result.
- 9.5 The assessment found the integrity of the Malahide Estuary cSAC would not be affected by the new bridge across the Ward River. The assessment findings are reported in the EIS.

Area MN105 - Santry Avenue to Albert College Park

- 9.6 The need to protect two mature sycamore trees near the Silver Stream Nursing Home / St Pappin's Youth Club was raised by a submission in this route section. However, as RPA has already confirmed, these trees will not be lost as a result of the scheme, and measures will be implemented to protect them during the construction works. The measures will follow the *NRA Guidelines for Protection and Preservation of Trees, Hedgerows and Scrub for Roads*, as described in Volume 2 MN106 (Section 8.4.2) of the EIS and adhere to the requirements of *British Standard (BS)5837:2005* which considers trees in relation to construction. Such measures will be agreed in detail in advance with Dublin City Council.

Area MN106 - Albert College Park to Mater Stop

- 9.7 Submissions raised concerns about the effects of the station at Griffith Avenue on habitats including as a result of flooding due to the new infrastructure. Additional concerns were raised about the loss of mature trees, hedgerows, shrubs and grass verges along Griffith Avenue and in the

vicinity of Corpus Christi Church / School grounds, Albert College Park, DCU lands, St. Patrick's School / College and Griffith Park, and the effects on foxes and badgers.

- 9.8 The habitats which will be affected by the scheme in this area are described in the EIS. Some mature trees will be lost within the park for the footprint of the Griffith Avenue Station. The trees are all common species and include a combination of poplars, pines, cyprus species, ash, alder and sycamore.
- 9.9 RPA has committed to the replacement of lost habitat in the mitigation sections of the EIS, and habitats lost for temporary works areas will be replaced with new habitats that reflect the previous use.
- 9.10 The landscape strategy for the Griffith Avenue Station will be produced in agreement with Dublin County Council, and will include new tree and shrub planting around the station as illustrated in the Landscape Insertion Plans and discussed in the evidence of Mr Flannery. The species planted will be predominantly native species typical of the local area and the species mix will seek to enhance the biodiversity value of the local area. The RPA is committed to producing tree management plans in parks such as Albert College Park and an arboriculturalist will be present to advise on works close to trees.
- 9.11 The Metro Scheme will be designed to avoid additional flood risk, and the detailed design plans will be agreed with Dublin City Council Drainage Department.
- 9.12 The mature trees which line Griffith Avenue will not be lost as a result of the scheme and measures will be implemented to protect them during the construction works. This will include following the *NRA Guidelines for Protection and Preservation of Trees, Hedgerows and Scrub for Roads*, as described in Volume 2 MN106 (Section 8.4.2) of the EIS, and adherence with the requirements of *British Standard (BS)5837:2005* which considers trees in relation to construction. Such measures will be agreed in detail in advance with Dublin City Council.
- 9.13 The EIS refers to the existence of badgers in the wider area, however, there were no signs of badger activity within areas of land-take for the scheme including associated land for stations or other infrastructure. There will

therefore, be no disturbance to badgers as a result of the proposals and no significant effects on badger foraging habitat. Fox is a common species even in urban areas and is a very adaptable animal. This species will not be significantly affected by the proposals.

Railway Order Changes (ROCs)

- 9.14 Some changes to the scheme have been described in previous evidence. The main ecological effects of these changes are the additional losses of street trees such as in Ballymun Road or along the northern Quays. Trees lost will be replaced by new planting. None of these changes is predicted to result in significant ecological effects.

10.0 CLOSING STATEMENT

- 10.1 The impacts of the Metro North proposals on ecological impacts have been assessed, including a number of changes to the Railway Order. RPA has made commitments to implementing mitigation where this is required and addressing any ecological concerns made in submissions. As a result, I can confirm, that in my opinion there appear no ecological reasons to prevent permission being granted for this scheme.

Railway Procurement Agency
Ghníomhaireacht um Fháil Iamróid
Parkgate Business Centre,
Parkgate Street, Dublin 8, Ireland
Phone +353 1 646 3400
Fax +353 1 646 3401
www.rpa.ie

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