A38 Derby Junctions

TR010022

Volume 6

6.3 Environmental Statement Appendices

Appendix 2.2(a): Environmental Mitigation Schedule

Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

June 2020

Infrastructure Planning

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

A38 Derby Junctions Development Consent Order 202[ ]

6.3 Environmental Statement Appendices
Appendix 2.2(a): Environmental Mitigation Schedule

Regulation Number	Regulation 5(2)(a)
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Appendix 2.2: Environmental Mitigation Schedule

1 Introduction

1.1.1 As detailed in the Environmental Statement [**TR010022/APP/6.1**], a wide range of environmental mitigation features have been included within the Scheme design as illustrated in the Environmental Masterplans (Figures 2.12a to 2.12h [**TR010022/APP/6.2**]). Table 1 herein provides a summary of these environmental mitigation features (and replicates Table 3.2c in the Outline Environmental Management Plan (OEMP) (refer to Appendix 2.1 [**TR010022/APP/6.3**] and [**TR010022/APP/6.12**]).

2 Environmental mitigation schedule (mitigation measures included in the Scheme design as illustrated in the Environmental Masterplans - Figures 2.12a to 2.12h) [**TR010022/APP/6.2**]

As detailed in dDCO Requirement 12, the Scheme must be designed in detail and carried out so that it is compatible with the preliminary scheme design shown on the works plans and the engineering section drawings, unless otherwise agreed in writing by the Secretary of State following consultation with the relevant planning authority and local highway authority on matters related to their functions and provided that the Secretary of State is satisfied that any amendments to the works plans and the engineering section drawings showing departures from the preliminary design will not give rise to any materially new or materially worse adverse environmental effects in comparison with those reported in the Environmental Statement.

Ref.	Source [TR010022/APP/6.1] [TR010022/APP/6.2]	Mitigation/commitment	Objective	Assumption on which the action is based	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented
CULTURAL HERITAGE						
D-CH1	ES Chapter 6, Section 6.14 (Environmental Masterplan ES Figure 2.12c) – refer to Appendix C	Existing access to Markeaton Park to be closed and the existing exit on the A51 Ashbourne Road made into a combined access and exit (signalised). Consultation with DCiC.	To provide landscape integration and to create a new park entrance that is sympathetic to the significance of the park.	Re-designed park entrance.	Effective design and construction of a new park entrance.	DCO Requirement 12.
D-CH2	ES Chapter 6, Section 6.14 (Environmental Masterplan ES Figure 2.12c) – refer to Appendix C	Removal of the closed toilet facilities block within Markeaton Park. Consultation with DCiC.	To remove an adverse impact upon the park entrance setting.	Re-designed park entrance.	Area restoration in keeping with park environment.	DCO Requirement 12.
D-CH3	ES Chapter 6, Section 6.14 (Environmental Masterplan ES Figure 2.12c) – refer to Appendix C	Dismantling a section of the Markeaton Park boundary wall and rebuilding it on a new alignment. Consultation with DCiC.	To provide landscape integration and to ensure that the rebuilt wall is sympathetic to the significance of Markeaton Park.	Re-designed park entrance.	Effective design and construction of a new park boundary wall.	. DCO Requirement 12.
D-CH4	ES Chapter 6, Section 6.14 (Environmental Masterplan ES Figure 2.12e) – refer to Appendix C	Naturalistic profile for the floodplain compensation area at Little Eaton junction to ensure that it blends in with the surrounding valley profile as well as enabling the land to be returned to agricultural use. EA, DCiC, DCC and the DVMWHSP to be consulted regarding the detailed layout and design of the floodplain compensation area in order to ensure that it has a naturalistic profile. No residual spoil heaps will be left at the site.	To reduce the visual intrusion of the floodplain compensation area within the World Heritage Site (WHS) and to blend it into the existing landscape.	Integration of floodplain compensation area into surrounding landscape.	Effective design and construction of the floodplain compensation area.	DCO Requirement 12.

Ref.	Source [TR010022/APP/6.1] [TR010022/APP/6.2]	Mitigation/commitment	Objective	Assumption on which the action is based	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented
D-CH5	ES Chapter 6, Section 6.14 (Environmental Masterplan ES Figure 2.12e) – refer to Appendix C	Scheme provided with an appropriate lighting design – includes no lighting columns along A38 mainline at Little Eaton junction. DVMWHSP, DCC and DCiC to be consulted during the detailed design of the Scheme lighting proposals at Little Eaton junction.	To minimise light impacts upon the WHS.	To minimise light impacts upon the WHS.	Effective design and minimisation of lighting effects upon the WHS.	DCO Requirement 12.
LANDSCAPE AND VISUAL						
D-L1	ES Chapter 7, Landscape design ES Figures 7.8a, b (Environmental Masterplan ES Figures 2.12a – c) – refer to Appendix C	New A38 in underpasses at Kingsway junction and Markeaton junction to reduce visual intrusion.	For landscape integration.	Impacts on local landscape character and visual amenity.	Effective design.	DCO Requirement 12.
D-L2	ES Chapter 7 (Environmental Masterplan Figure 2.12f/g) – refer to Appendix C	Combined noise and visual screening barriers approximately 2.5m high along the northbound mainline A38 in the vicinity of the Ford Farm Mobile Home Park, and along the southbound mainline A38 and associated diverge slip-road as the Scheme passes Breadsall village. Consultation with EBC.	For landscape integration and habitat connectivity along the Scheme.	Impacts on local landscape character and visual amenity.	Effective design.	DCO Requirement 15.
D-L3	ES Chapter 7, Landscape design ES Figures 7.8a – c (Environmental Masterplan Figures 2.12a – 2.12h) – refer to Appendix C	Provision of a landscape design that include areas of amenity grassland, grassland with bulbs, species rich grassland, and native planting/Planting will include: individual trees, woodland, woodland edge, shrubs with intermittent trees, shrubs, hedgerows, hedgerows with trees, ornamental shrubs and wetland plants. Refer to landscape design Figures 7.8a – 7.8c [**TR010022/APP/6.2**]. Key elements of the landscape design are detailed below. The relevant local authorities will be consulted during the detailed design of the landscaping works – DCO Requirement 5. The DVMWHSP will also be consulted regarding the proposed landscape design at Little Eaton junction. At present the landscape design specifies that the tree belt on the east side of Little Eaton junction will comprise 10% evergreen species. Highways England will view the proportion of evergreen mix in this woodland planting during the detailed design stage to determine if additional evergreens can be added, as well as investigate whether the tree belt near the highway runoff attenuation	For landscape integration and habitat connectivity along the Scheme.	Impacts on local landscape character and visual amenity.	Effective design and landscape integration.	DCO Requirement 5 and 6.

Ref.	Source [TR010022/APP/6.1] [TR010022/APP/6.2]	Mitigation/commitment	Objective	Assumption on which the action is based	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented
		ponds/ ecology ponds adjacent to Dam Brook at Little Eaton junction can be increased in width to provide further screening.				
		• Wetland habitat creation at the flood storage areas located adjacent to Bramble Brook at Kingsway junction. • Species rich grassland to be located adjacent to the southbound merge slip road and the earthworks adjacent to the northbound diverge slip road at Kingsway junction. • Semi-mature tree planting between A38 southbound carriageway and southbound merge slip road at Kingsway junction to provide instant impact visual screening and landscape integration. • Native woodland and shrub planting between A38 southbound carriageway and southbound merge slip road at Kingsway junction to provide visual screening and landscape integration. • Habitat creation to be included as part of the highway runoff attenuation pond between the north and southbound carriageways to the south of Kingsway junction. • Native woodland planting between A38 southbound carriageway and southbound merge slip road at Kingsway junction to provide visual screening and landscape integration. • Native woodland planting and shrubs with intermittent trees between the A38 and Mackworth Park, at Kingsway junction to provide visual screening and landscape integration. • Native woodland planting and native shrub planting between the northbound carriageway and northbound diverge slip road at Kingsway junction. • Two dumbbell roundabouts at Kingsway junction to incorporate species rich grassland and native shrub planting to enhance biodiversity and landscape integration. • Woodland edge planting in front of existing woodland adjacent to the northbound merge slip road at Kingsway junction to provide visual screening and promote landscape integration. • Semi-mature tree planting, native woodland planting and native shrub planting between A38 northbound carriageway and northbound merge slip road at Kingsway junction to provide visual screening and landscape integration. • Native woodland planting between A38 northbound and southbound carriageways to the north of Kingsway junction to provide visual screening and landscape integration. • Native shrub planting adjacent to the new link road to Kingsway Park Close and Kingsway junction to promote visual amenity and landscape integration. • Native woodland planting adjacent to the northbound and southbound carriageways to the north of Brackensdale Avenue and Kingsway junction to provide visual screening and landscape integration. • 1.5m high noise barriers on both the northbound and southbound A38 mainline between Brackensdale Avenue underbridge and Markeaton junction to be planted with climbing/ screening plants to promote biodiversity and landscape integration. • Semi-mature tree planting adjacent to the southbound carriageway, to the south of Markeaton junction to provide instant impact, visual screening and landscape integration. • Native shrub planting adjacent to the northbound diverge slip road at Enfield Road and land at the ESSO petrol station site, Markeaton junction to promote landscape integration and visual amenity. • Native woodland planting adjacent to the southbound merge slip road at Markeaton junction for visual screening and landscape integration. • Reinstatement of planting at Markeaton Park boundary following works to the utilities corridor to include native tree and shrub planting and semi-mature avenue planting incorporating disease resistant Elm trees to promote biodiversity, provide instant visual screening and landscape integration. • Native scattered trees and shrubs to be planted within Markeaton junction for landscape integration and visual amenity.				

Ref.	Source [TR010022/APP/6.1] [TR010022/APP/6.2]	Mitigation/commitment	Objective	Assumption on which the action is based	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented
		• Native woodland planting adjacent to northbound carriageway and northbound merge slip road at Markeaton junction for visual screening and landscape integration. • 4m high noise barrier along the boundary of the Royal School for the Deaf at Markeaton junction to be planted with climbing/ screening plants to promote biodiversity and landscape integration. • Creation of public open space and combined cycleway and footpath link from A52 to the new footbridge, to the north of Markeaton junction. Public open space to incorporate areas of wildflower grassland, semi-mature tree planting and ornamental planting to promote biodiversity, provide instant screening and landscape integration. • Creation of new species rich grassland within Markeaton Park. • Native woodland planting to the south of the A38 at Little Eaton junction to provide visual screening and landscape integration. • Native woodland planting on the embankment adjacent to the southbound diverge slip road at Little Eaton junction for visual screening and landscape integration. • Native woodland planting on the embankment between the southbound merge slip road and southbound carriageway Little Eaton junction for visual screening and landscape integration. • Linear belts of shrubs and trees on the embankment between the northbound diverge slip road and northbound carriageway at Little Eaton junction for visual screening and landscape integration. • Native woodland planting on the cuttings adjacent to the southbound carriageway and southbound diverge slip road at Little Eaton junction to provide visual screening and landscape integration. • Scattered trees, native woodland and species rich grassland located adjacent to the northbound merge slip road at Little Eaton junction for visual screening and landscape integration.				
D-L4	ES Chapter 7, Landscape design ES Figure 7.8a (Environmental Masterplan ES Figure 2.12b) – refer to Appendix C	Access closure at Brackensdale Avenue to be reinstated and landscaped to integrate with existing area of open space. Consultation with DCiC.	For landscape integration along the Scheme.	Impacts on local landscape character and visual amenity.	Effective design and landscape integration.	DCO Requirement 5.
D-L5	ES Chapter 7, Landscape design ES Figure 7.8b (Environmental Masterplan ES Figure 2.12c/d) – refer to Appendix C	New semi-mature tree planting to replace trees to be removed along the boundary of Markeaton Park. Trees to include disease resistant Elms to promote biodiversity in the area. With regard to replacement tree planting in Markeaton Park, Highways England will deliver a landscape design that results in a net gain in trees within Markeaton Park. Consultation with DCiC.	For landscape integration and habitat connectivity along the Scheme.	Impacts on local landscape character and visual amenity.	Effective design and landscape integration.	DCO Requirement 5.
D-L6	ES Chapter 7, Landscape design ES Figure 7.8b	Reconfiguration of Markeaton Park entrance and associated landscaping. Consultation with DCiC.	For landscape integration and habitat connectivity along the Scheme.	Impacts on local landscape character and visual amenity.	Effective design and landscape integration.	DCO Requirement 5.

Ref.	Source [TR010022/APP/6.1] [TR010022/APP/6.2]	Mitigation/commitment	Objective	Assumption on which the action is based	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented
	(Environmental Masterplan ES Figure 2.12c) – refer to Appendix C					
D-L7	ES Chapter 7, Landscape design ES Figure 7.8b (Environmental Masterplan ES Figure 2.12c) – refer to Appendix C	New area of public open space at Queensway to incorporate a combined cyclepath and footpath, plus planting to promote local habitats. Consultation with DCiC.	For landscape integration along the Scheme.	Impacts on local landscape character and visual amenity.	Effective design and landscape integration.	Works contractor. DCO Requirement 5.
D-L8	ES Chapter 7, Landscape design ES Figure 7.8b (Environmental Masterplan ES Figure 2.12c/d) – refer to Appendix C	Landscaping around the replaced Markeaton footbridge. Consultation with DCiC.	For landscape integration along the Scheme.	Impacts on local landscape character and visual amenity.	Effective design and landscape integration.	DCO Requirement 5.
D-L9	ES Chapter 7, Landscape design Figure 7.7c (Environmental Masterplan Figure 2.12e) – refer to Appendix C	Naturalistic profile for the floodplain compensation area at Little Eaton junction to ensure that it blends in with the surrounding valley profile as well as enabling the land to be returned to agricultural use. No residual spoil heaps will be left at the site. EA, DCiC, DCC and the DVMWHSP to be consulted regarding the detailed layout and design of the floodplain compensation area in order to ensure that it has a naturalistic profile.	To reduce the visual intrusion of the floodplain compensation area within the World Heritage Site (WHS) and to blend it into the existing landscape.	Integration of floodplain compensation area into surrounding landscape.	Effective design and construction of the floodplain compensation area.	DCO Requirement 5.
D-L10	ES Chapter 7, Landscape design ES Figure 7.8c (Environmental Masterplan ES Figure 2.12e) – refer to Appendix C	Closure of Ford Lane access and reinstated as landscape area. Consultation with DCiC.	For landscape integration and habitat connectivity along the Scheme.	Impacts on local landscape character and visual amenity.	Effective design and landscape integration.	DCO Requirement 5.
D-L11	ES Chapter 7, Landscape design ES Figures 7.8b/c (Environmental	Landscaping of closed sections of A38 – includes existing northbound A38 from Markeaton junction and a section of existing A38 mainline carriageway located to the north of Little Eaton junction. Consultation with local authorities.	For landscape integration and habitat connectivity along the Scheme.	Impacts on local landscape character and visual amenity.	Effective design and landscape integration.	DCO Requirement 5.

Ref.	Source [TR010022/APP/6.1] [TR010022/APP/6.2]	Mitigation/commitment	Objective	Assumption on which the action is based	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented
	Masterplan ES Figures 2.12c and 2.12g) – refer to Appendix C					
BIODIVERSITY – consultation with the local authorities, Natural England, Environment Agency as applicable						
D-B1	ES Chapter 8, Section 8.9, Landscape design ES Figures 7.8a-c (Environmental Masterplan ES Figures 2.12a – 2.12h) – refer to Appendix C	Provision of native species-rich grassland habitat, wet woodland creation, woodland and scrub replacement within the Scheme boundary (order limits), including along the highway verges, cuttings, embankments etc. for landscape integration and ecological connectivity.	To provide habitat connectivity and provide landscape integration.	Maintaining habitat connectivity.	Habitat establishment. Habitat monitoring surveys to be undertaken yearly up to a maximum of 5 years post construction to inform management intervention.	DCO Requirement 5 and 12.
D-B2	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figures 2.12a – 2.12d) – refer to Appendix C	Incorporation of disease resistant elms near Mackworth Park and Markeaton Park to aim to assist the continued survival of white-letter hairstreak (*Satyrium w-album)* (although not recorded during surveys, this species is known in the area).	Planting of disease resistant elms to assist the continued survival of white-letter hairstreak.	Although not recorded during surveys white-letter hairstreak is known in the area.	Habitat establishment.	DCO Requirement 5 and 12.
D-B3	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figures 2.12d) – refer to Appendix C	Translocation of species-rich grassland soils from the A38 Roundabout LWS into Markeaton Park. If during detailed design stage translocation is not deemed suitable (for example, following detailed analysis of soil testing of the receptor site), then planting of a bespoke native seed mix will be undertaken instead to achieve the same ecological outcome.	To mitigate for the loss of the A38 Roundabout LWS species-rich grassland.	Complete loss of the A38 Roundabout LWS.	Habitat establishment. Habitat monitoring surveys to be undertaken yearly up to a maximum of 5 years post construction to inform management intervention.	DCO Requirement 5 and 12.
D-B4	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figure 2.12f) – refer to Appendix C	Area of Alfreton Road Rough Grassland LWS at Little Eaton junction lost during construction will be reinstated with species-rich grassland planting and non-native invasive plant species controlled in the vicinity.	Mitigate for loss of habitat within Alfreton Road Rough Grassland LWS to protect integrity.	Create grasslands for the mitigation of loss of Alfreton Road Rough Grassland LWS.	Habitat establishment. Habitat monitoring surveys to be undertaken yearly up to a maximum of 5 years post construction to inform management intervention.	DCO Requirement 5 and 12.
D-B5	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figure 2.12e) – refer to Appendix C	Section of woodland lost within the non-designated site of interest A38 Scrub Other Site of Interest DE05.03 at Little Eaton junction (to provide an access route to the proposed floodplain compensation area) to be reinstated.	Reinstate habitat lost within A38 Scrub Other Site of Interest DE05.03 to protect integrity.	Woodland lost to be reinstated and handed back to the landowner.	Habitat establishment.	DCO Requirement 5 and 12.

Ref.	Source [TR010022/APP/6.1] [TR010022/APP/6.2]	Mitigation/commitment	Objective	Assumption on which the action is based	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented
D-B6	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figure 2.12g) – refer to Appendix C	Area of species-rich grassland, marshy grassland and scrub of terrestrial invertebrate, bird and badger interest, located within the Little Eaton junction main construction compound to be reinstated post-construction.	Reinstate habitat within the main construction compound to pre-existing conditions.	Habitat reinstated and handed back to the landowner.	Habitat establishment.	DCO Requirement 5 and 12.
D-B7	ES Chapter 8, Section 8.9 (Environmental Masterplan Figures 2.12a – 2.12h) – refer to Appendix C	Planted native broadleaved woodland, with high-quality flora understory and timber from felled trees. Timber will be used to provide dead wood habitats for saproxylic (dead wood loving) species, placed in the understorey of woodland.	To mitigate for the loss of woodland and trees.	Habitat loss resulting in the loss of woodland and trees.	Habitat establishment. Habitat monitoring surveys to be undertaken yearly up to a maximum of 5 years post construction to inform management intervention.	DCO Requirement 5 and 12.
D-B8	ES Chapter 8, Section 8.9 (Environmental Masterplan Figure 2.12d) – refer to Appendix C	Timber from felled trees to provide suitable amphibian hibernacula and log piles near new ponds to be created, and within areas of public open space and soft estate near Markeaton Lake and Mill Pond at Markeaton junction.	To provide shelter and refugia for amphibians.	Impacts on toads due to terrestrial habitat loss.	Habitat establishment. Habitat monitoring surveys to be undertaken yearly up to a maximum of 5 years post construction to inform management intervention.	DCO Requirement 12.
D-B9	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figure 2.12c) – refer to Appendix C	The veteran tree to be lost by Markeaton footbridge (with its existing potential bat roost features retained) to be made into a totem pole feature and installed at the edge of Markeaton Park as part of the bat mitigation strategy. If the veteran tree can be retained (refer to PW-LAN4), a suitable alternative felled tree will selected and made into a totem pole.	Loss of veteran tree (or suitable alternative) to be utilised as part of bat mitigation.	Loss of veteran tree by Markeaton footbridge (noting that a suitable alternative tree will be used if the veteran tree can be retained).	Habitat establishment.	DCO Requirement 12.
D-B10	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figures 2.12a – 2.12h) – refer to Appendix C	Retained trees to be protected as per British Standard BS: 5837 Trees in relation to design, demolition and construction – Recommendations (BSI, 2012). This includes: • Veteran trees near floodplain compensation area and temporary soil storage area at Little Eaton junction. • Woodland blocks at Markeaton Park LWS and near Mill Pond at Markeaton junction; Mackworth Park and A38 southbound (adjacent to Kingsway hospital) at Kingsway junction; and west of the A38 northbound (near the Derby Garden Centre), north and south of the A38 at the River Derwent bridge, and to the	To protect trees (including veteran trees and woodland) to be retained.	Potential to damage retained habitat during construction activities.	Fencing to be approved by competent arborist or ecologist.	DCO Requirement 5 and 12.

Ref.	Source [TR010022/APP/6.1] [TR010022/APP/6.2]	Mitigation/commitment	Objective	Assumption on which the action is based	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented
		north of the Flood Arch Bridge and Railway Bridge at Little Eaton junction.				
D-B11	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figure 2.12a) – refer to Appendix C	Design and build Bramble Brook realignment to include the following (consultation with DCiC): • A series of inset alternate berms to improve flow variation, help to reduce fine sediment deposition and provide suitable available habitat for in-channel macrophytes. • The base of the four flood storage areas located adjacent to Bramble Brook to be kept wet (to a depth of 100mm) to provide wetland habitat within the riparian corridor (with the wetland areas designed to prevent fish from becoming trapped).	To mitigate the loss of Bramble Brook; which supports aquatic invertebrates and riparian mammal habitat.	Impacts on Bramble Brook and associated aquatic invertebrate and riparian mammal habitat.	Habitat establishment. Habitat and species monitoring surveys to be undertaken yearly up to a maximum of 5 years post construction to inform management intervention.	DCO Requirement 12.
D-B12	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figure 2.12f) – refer to Appendix C	Design and build Dam Brook realignment, associated wildlife ponds and wetland habitat to include the following (Consultation with DCC): • Sinuous channel form within a vegetated corridor. • In-channel features, regularly wetted berm, inset berms and point bars, to improve bed and bank structure. • Where the bed of the watercourse is raised, encourage a more natural bed formation. • Backwaters (wildlife ponds) to improve the habitat for both coarse and salmonid fish and brook lamprey. • Flood alleviation channel planted to form a wet woodland connecting to the realigned Dam Brook. • Two attenuation ponds for collection and treatment of highway drainage, and new section of open swale.	To mitigate and enhance the loss of Dam Brook which supports fish, aquatic invertebrates, and riparian mammal habitat; and creates new wetland habitat of potential benefit to birds.	Impacts on Dam Brook and associated fish, aquatic invertebrate riparian mammal, and potentially wetland bird habitat.	Habitat establishment. Habitat and species monitoring surveys to be undertaken yearly up to a maximum of 5 years post construction to inform management intervention.	DCO Requirement 12.
D-B13	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figures 2.12e – 2.12g) – refer to Appendix C	Rank grassland incorporated into the landscape design adjacent to retained arable habitat linking the Scheme to the wider landscape at Little Eaton junction; however away from the road (to avoid potential attraction of barn owl).	To provide grassland field margins for lost arable habitat.	No notable field margins to be lost. Arable land however to be lost.	Habitat establishment.	DCO Requirement 5 and 12.
D-B14	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figures 2.12f/g) – refer to Appendix C	Planting of species-rich hedgerow to mitigate and enhance for species-poor hedgerow lost.	To mitigate and enhance for loss of species-poor hedgerow.	Loss of species-poor hedgerow.	Habitat establishment.	DCO Requirement 5 and 12.

Ref.	Source [TR010022/APP/6.1] [TR010022/APP/6.2]	Mitigation/commitment	Objective	Assumption on which the action is based	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented
D-B15	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figures 2.12a – 2.12h) – refer to Appendix C	Scheme design incorporates highway drainage system that includes one attenuation pond at Kingsway junction, a wet sedimentation pond at Markeaton junction, plus two highway runoff attenuation ponds at Little Eaton junction. In addition, the Scheme will provide two new ecology ponds at Little Eaton junction as part of the works to realign of Dam Brook.	Biodiversity enhancement/drainage strategy/landscape integration.	No ponds to be lost. Ponds to be created.	Habitat establishment. Habitat monitoring surveys to be undertaken yearly up to a maximum of 5 years post construction to inform management intervention.	DCO Requirement 12.
D-B16	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figure 2.12d) – refer to Appendix C	The culverts connecting Markeaton Lake and Mill Pond/Middle Brook to be retained thus ensuring habitat connectivity is maintained for amphibians (toads).	Maintain habitat connectivity for amphibians (toads) at Markeaton junction.	Culvert connecting Markeaton Lake and Mill Ponds/Middle Brook to be retained.	Culvert retention.	DCO Requirement 12.
D-B17	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figures 2.12d) – refer to Appendix C	Scheme kerb design at Markeaton junction will allow amphibians to bypass gully gratings minimising the risks of them getting trapped if they follow the kerb of the road.	To minimise killing and injury to amphibians during operation.	No amphibian crossing points to be severed.	Kerb design	DCO Requirement 12.
D-B18	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figures 2.12c – 2.12d) – refer to Appendix C	Mixed urban planting, including shrubs, scrub, trees and grassland incorporated into the landscape design at Markeaton junction for benefit of hedgehogs.	To provide shelter and food resource for hedgehogs.	Habitat loss at Markeaton junction.	Habitat establishment.	DCO Requirement 5 and 12.
D-B19	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figures 2.12e – 2.12g) – refer to Appendix C	Dense woodland shelterbelt to be created to the east, south and south-west of the A38 at Little Eaton junction to: • Encourage barn owls in the wider area to fly up and over the road. • Screen the new road from the notable farmland bird assemblage, nesting lapwing, potential nesting little ringed plover and oyster catcher and wintering birds in the pastoral and flooded fields.	To minimise visual disturbance to notable birds from operational traffic.	Existing shelterbelt to be lost.	Habitat establishment. Habitat and species monitoring surveys to be undertaken yearly up to a maximum of 5 years post construction to inform management intervention.	DCO Requirement 5 and 12.

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D-B20	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figure 2.12a) – refer to Appendix C	Installation of 20 No. bird boxes within Mackworth Park.	To replace common nesting bird habitat lost (primarily crevice dwelling species).	Impacts on birds due to habitat loss (trees and buildings).	Bird box use.	DCO Requirement 12.
D-B21	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figure 2.12c) – refer to Appendix C	Translocation of known roosting features from tree M2, noctule maternity roost (and potential hibernation roost), with sections of the tree M2 being strapped and attached to a nearby tree (G361*) under direction of a bat licence holder. An eco-rocket box also to be implemented within the same woodland parcel (G361*) as the noctule roost.	To mitigate for loss of maternity and hibernating noctule roost at Tree M2.	Tree M2 to be lost.	Habitat establishment. Monitoring as per Natural England EPSML.	Implemented through Natural England EPSML. DCO Requirement 12.
D-B22	ES Chapter 8, (Environmental Masterplan ES Figure 2.12c) – refer to Appendix C	Integration of bat roost features onto the 4m high noise barrier along the Scheme boundary with the Royal School for the Deaf. Sections of the noise barrier (facing away from the road) provided with a 2cm wooden cavity sectioned regularly to provide different lengths of cavities available to suit more than one bat species. Replacement roosting features will comprise approximately 6 no. along the length of noise barrier.	To mitigate for loss of roost at building B8-QW30.	B8-QW30 to be lost.	Bat roost use. Monitoring as per Natural England EPSML.	DCO Requirement 12.
D-B23	ES Chapter 8, (Environmental Masterplan ES Figure 2.12c) – refer to Appendix C	A bat box suitable for hibernation positioned within the woodland parcel (G361*) in the unlikely scenario that bats are encountered during licenced soft strip and demolition of building QW30. This will be a temporary feature if it was not utilised by bats during the construction period.	To mitigate for loss of roost at building B8-QW30.	B8-QW30 to be lost.	Bat box use. Monitoring as per Natural England EPSML.	DCO Requirement 12.
D-B24	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figure 2.12e) – refer to Appendix C	Three bat boxes will be installed as part of the bridge extension works at B2 Flood Arch Bridge within the bridge abutment to create replacement roosting locations.	To mitigate for loss of roost at B2 Flood Arch Bridge.	B2 Flood Arch Bridge to be extended.	Bat box use. Monitoring as per Natural England EPSML.	DCO Requirement 12.

Ref.	Source [TR010022/APP/6.1] [TR010022/APP/6.2]	Mitigation/commitment	Objective	Assumption on which the action is based	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented
D-B25	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figure 2.12d) – refer to Appendix C	Creating suitable roost features in approximately 10 retained trees within the Scheme boundary at Markeaton Park (proactive management to improve their habitat value by creating features including natural fracture pruning).	To mitigate for loss of potential roost features across the Scheme.	Impacts on potential roost features.	Bat roost use.	DCO Requirement 12.
D-B26	ES Chapter 8, Section 8.9 (Environmental Masterplan Figure 2.12c) – refer to Appendix C	Creation of three totem poles within Markeaton Park using trees with existing roost features retained that will be felled due to the Scheme.	To mitigate for loss of potential roost features across the Scheme.	Impacts on potential roost features.	Habitat establishment.	DCO Requirement 12.
D-B27	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figure 2.12a) – refer to Appendix C	Installation of 10 bat mitigation features within Mackworth Park, namely: bat boxes such as 4 x Schwegler 2F, 2 x Schwegler 1FF and 2 x Schwegler 1FS, and hibernation boxes 2 x Schwegler 1FW.	To mitigate for loss of potential roost features across the Scheme.	Impacts on potential roost features.	Bat feature use.	DCO Requirement 12.
D-B28	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figure 2.12d) – refer to Appendix C	Markeaton footbridge to be replaced to recreate navigational cue for bats at known flyway.	To replace existing footbridge.	ES assumes navigational cue for bats will be temporarily lost and then reinstated.	Bat crossing point survey to be undertaken yearly up to a maximum of 5 years post construction.	DCO Requirement 12.
D-B29	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figure 2.12e – 2.12g) – refer to Appendix C	Scheme provided with an appropriate lighting design – includes no lighting columns along A38 mainline at Little Eaton junction, plus taking account of guidance provided by IAN 116/08 (Highways England, 2008) and guidance provided by the Institute of Lighting (2018) regarding minimising lighting risks to bats.	To minimise light impacts upon bats.	ES assumes lighting designed to minimise impacts upon bats.	Effective lighting design.	DCO Requirement 12 and 16.
D-B30	ES Chapter 8, Section 8.9 (Environmental Masterplan ES Figures 2.12a/b, 2.12e – 2.12g) – refer to Appendix C	Install and maintain permanent badger fencing at Kingsway junction and Little Eaton junction to avoid badgers crossing the road and entering the highway.	Fencing to avoid badgers crossing over the road.	Impacts on badger territory/commuting.	Avoidance of badger kills. Provision of suitable mammal fencing, to be approved by competent ecologist. Annual checks to monitor state of fencing and check for breaches in the fence.	DCO Requirement 12.

Ref.	Source [TR010022/APP/6.1] [TR010022/APP/6.2]	Mitigation/commitment	Objective	Assumption on which the action is based	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented
D-B31	ES Chapter 8	Use of a biodiversity metric to assist with the detailed design of the Scheme landscaping proposals, and thereafter provide an evidence base for monitoring habitat management during the Scheme construction phase.	Effective management of Scheme habitats and maximising biodiversity potential.	Taking opportunities to maximise biodiversity potential.	Taking actions that improve biodiversity credentials of the Scheme design.	-
NOISE – consultation with the local authorities (DCO Requirement 15)						
D-N1	ES Chapter 9, Section 9.9 (Environmental Masterplan ES Figures 2.12a – 2.12g) – refer to Appendix C	Thin road surfacing installed on the mainline of the new A38 and its associated slip roads (low noise surface).	To reduce noise impacts from the Scheme, including on residential receptors.	Reduction of noise impacts upon nearby receptors.	Minimisation of noise effects. Details of the thin noise surfacing at detailed design.	DCO Requirement 15.
D-N2	ES Chapter 9, Section 9.9 (Environmental Masterplan ES Figures 2.12b – 12.12c) – refer to Appendix C	Approximate 1.5m absorptive barriers on both the northbound and southbound mainline between Brackensdale Avenue underbridge and Markeaton junction.	To reduce noise impacts within Mackworth and New Zealand.	Reduction of noise impacts upon nearby receptors.	Minimisation of noise effects. Details of the absorbent noise barriers at detailed design. Minimum specification category A3 and B3 as defined in accordance with BS EN 1793 part 1 and 2.	DCO Requirement 15.
D-N3	ES Chapter 9, Section 9.9 (Environmental Masterplan ES Figures 2.12b) – refer to Appendix C	Approximate 1.5m reflective noise barrier on the east side of Kingsway Park Close, which becomes an access link onto Kingsway junction.	To reduce noise impacts at properties on Cheviot Street, which back on to Kingsway Park Close.	Reduction of noise impacts upon nearby receptors.	Minimisation of noise effects. Details of the noise barriers at detailed design. Minimum specification category B3 as defined in accordance with BS EN 1793 part 1 and 2.	DCO Requirement 15.
D-N4	ES Chapter 9, Section 9.9 (Environmental Masterplan ES Figure 2.12c) – refer to Appendix C	Approximate 4.0m reflective noise barrier on the western boundary of the Royal School for the Deaf north of Markeaton junction. The Royal School for the Deaf to be consulted during the specification of the 4m high noise barrier details during the detailed design stage.	To reduce noise impacts within the Royal School for the Deaf.	Reduction of noise impacts upon nearby receptors.	Minimisation of noise effects. Details of the noise barriers at detailed design. Minimum specification category B3 as defined in accordance with BS EN 1793 part 1 and 2.	DCO Requirement 15.

Ref.	Source [TR010022/APP/6.1] [TR010022/APP/6.2]	Mitigation/commitment	Objective	Assumption on which the action is based	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented
D-N5	ES Chapter 9, Section 9.9 (Environmental Masterplan ES Figure 2.12e – 2.12g) – refer to Appendix C	Approximate 2.5m reflective noise barrier on the southbound diverge slip road at Little Eaton junction; approximate 2.5m reflective/absorptive noise barrier on the southbound mainline at Little Eaton junction; and approximate 2.5m reflective noise barrier on the northbound mainline at Little Eaton junction.	To reduce noise impacts within Breadsall village and Ford Farm Mobile Home Park.	Reduction of noise impacts upon nearby receptors.	Minimisation of noise effects. Details of the noise barriers at detailed design. Minimum specification category A3 (for absorbent section) and B3 as defined in accordance with BS EN 1793 part 1 and 2.	DCO Requirement 15.
PEOPLE AND COMMUNITIES						
D-PC1	ES Chapter 12: (Environmental Masterplan ES Figure 2.12a – 2.12g)	Provision of rights of way in accordance with the Streets, Rights of Way and Access Plans [**TR010022/APP/2.7**] and as detailed in Chapter 12: People and Communities (Section 12.9) [**TR010022/APP/6.1**]. Consultation with the local authorities.	To maintain and enhance footpath and cycleway connectivity.	Provision of suitable facilities for pedestrians and cyclists.	Provision of suitable facilities for pedestrians and cyclists.	DCO Requirement 12.
D-PC2	ES Chapter 12: (Environmental Masterplan ES Figure 2.12c) – refer to Appendix C	Provision of replacement public open space at Queensway, Markeaton Park and at the closed A38 Brackensdale Avenue access (refer to ES Figures 2.8 and 2.9 [**TR010022/APP/6.2**]). Consultation with DCiC.	To replace public open space lost to the Scheme.	Area of public open space equal to or greater than the area of public open space lost provided as part of Scheme.	Provision of replacement public open space for public use.	DCO Requirement 12.
D-PC3	ES Chapter 12: (Environmental Masterplan ES Figure 2.12c) – refer to Appendix C	Relocation of sensory garden within the Royal School for the Deaf – consultation and agreement of actions with the Royal School for the Deaf.	To replace the sensory lost to the Scheme.	Sensory garden to be relocated within the grounds of school as agreed with the school management team.	Agreement of actions with the Royal School for the Deaf.	DCO Requirement 12.
ROAD DRAINAGE AND FLOOD RISK						
D-RD1	ES Chapter 13, Section 13.9 – refer to ES Appendix 13.4 [**TR010022/APP/6.3**];	Highway drainage collection, attenuation and treatment system provided in accordance with ES Appendix 13.4 Road Drainage Strategy [**TR010022/APP/6.3**]. Consultation with the local authorities, in particular the applicable local authorities will be consulted with	Provision of flood and pollution control.	Refer to Road Drainage Strategy ES Appendix 13.4 [**TR010022/APP/6.3**].	Effective highway runoff collection, attenuation and treatment. In accordance with Road Drainage	DCO Requirement 13.

Ref.	Source [TR010022/APP/6.1] [TR010022/APP/6.2]	Mitigation/commitment	Objective	Assumption on which the action is based	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented
	(Environmental Masterplan ES Figures 2.12a – 2.12g) – refer to Appendix C	regard to highway runoff discharge rates, noting that Highways England will demonstrate that reasonable steps have been taken such that the total discharge rate from the Scheme surface water drainage system does not exceed the discharge rate of the existing surface water drainage system and that betterment will be provided where practicable. During the detailed design stage discharge rates will be further refined and appropriate treatment and attenuation will be applied accordingly. During this process Highways England will endeavour to achieve 30% betterment where it is practicable to do so. Highways England will consult with the applicable local authorities regarding the provision of Sustainable Drainage Systems (SuDS) included in the highway drainage system. Further SuDS may be included in the design, additional to those as identified in the Road Drainage Strategy ES Appendix 13.4 [**TR010022/APP/6.3**], provided that such solutions can be accommodated within the Order limits and do not compromise the provision of Public Open Space replacement land at Markeaton junction. The drainage design will include a pumping station at Markeaton junction which will pump highway runoff from the mainline of the Scheme where it will be in cutting. The pumping station will be designed to accommodate a 1 in 100 year storm event including climate change allowance. In accordance with ES Appendix 13.4 Road Drainage Strategy [**TR010022/APP/6.3**], the highway drainage system will make a 40% allowance for climate change.			Strategy ES Appendix 13.4 [**TR010022/APP/6.3**].	
D-RD2	ES Chapter 13, Section 13.9 (Environmental Masterplan ES Figure 2.12a) – refer to Appendix C	Realignment of Bramble Brook. Culvert base set below the channel bed to allow substrate conveyance, improved flow capacity and improved species passage. Berms within the realigned channel to improve flow variation, reduce fine sediment deposition and provide suitable habitat for in-channel macrophytes. Consultation with DCiC.	Provision of flood control and habitat creation.	Flood risk modelling as per ES Appendix 13.2A [**TR010022/APP/6.3**].	Flood management and habitat creation. Flood management and habitat creation – refer to ES Appendix 13.3A. [**TR010022/APP/6.3**].	DCO Requirement 12.
D-RD3	ES Chapter 13, Section 13.9 (Environmental Masterplan ES Figure 2.12a) – refer to Appendix C	Provision of four flood storage areas located adjacent to the realigned Bramble Brook at Kingsway junction. Base of flood storage areas to remain wet providing wetland habitat (water piped from Bramble Brook). Consultation with DCiC. Highways England will ensure that the flood storage areas at Kingsway junction (including	Provision of flood control.	Flood risk modelling as per ES Appendix 13.2A [**TR010022/APP/6.3**].	Flood management and habitat creation. Flood management in accordance with ES	DCO Requirement 14.

Ref.	Source [TR010022/APP/6.1] [TR010022/APP/6.2]	Mitigation/commitment	Objective	Assumption on which the action is based	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented
		those installed within the Kingsway hospital site) are appropriately maintained and fulfil their flood risk mitigation function.			Appendix 13.2A [**TR010022/APP/6.3**].	
D-RD4	ES Chapter 13, Section 13.9 (Environmental Masterplan ES Figure 2.12c) – refer to Appendix C	Secant retaining walls along each side of the cutting, combined with a reinforced concrete base slab to exclude groundwater from the cuttings and avoid post-construction groundwater pumping.	Prevention of impacts upon groundwater flows.	Prevention of impacts upon groundwater flows.	Groundwater flows as detailed in ES Chapter 13: Road Drainage and the Water Environment.	DCO Requirement 12.
D-RD5	ES Chapter 13, Section 13.9 (Environmental Masterplan ES Figure 2.12e) – refer to Appendix C	Provision of floodplain compensation area to the west of the River Derwent (and south of the A38). EA, DCiC, DCC and the DVMWHSP to be consulted regarding the detailed layout and design of the floodplain compensation area in order to ensure that it has a naturalistic profile.	Provision of flood control.	Flood risk modelling as per ES Appendix 13.2C [**TR010022/APP/6.3**].	Effective flood management. Flood risk modelling as per ES Appendix 13.2C [**TR010022/APP/6.3**].	DCO Requirement 14.
D-RD6	ES Chapter 13, Section 13.9 (Environmental Masterplan ES Figure 2.12a) – refer to Appendix C	Realignment of Dam Brook to create a more sinuous channel form with a vegetated corridor. Consultation with DCC.	Provision of flood control and habitat creation.	Flood risk modelling as per Appendix 13.2C [**TR010022/APP/6.3**].	Flood management and habitat creation – refer to Appendix 13.3B [**TR010022/APP/6.3**].	DCO Requirement 12.
D-RD7	ES Chapter 13, Section 13.9 (Environmental Masterplan ES Figure 2.12f) – refer to Appendix C	Creation of a multi-stage flood alleviation channel within a wet woodland to connect unnamed stream emanating from Breadsall Manor to the realigned Dam Brook.	Provision of flood control and habitat creation.	Flood risk modelling as per ES Appendix 13.2C [**TR010022/APP/6.3**].	Monitoring to be undertaken to ensure that the flood alleviation channel is performing as designed, followed by ongoing maintenance in accordance with the HEMP. Flood management and habitat creation – refer to ES Appendix 13.3B [**TR010022/APP/6.3**].	DCO Requirement 12.
D-RD8	ES Appendix 13.2B [**TR010022/APP/6.3**].	At detailed design stage, a re-review of the proposed road elevation profile at Markeaton junction (based on final design drawings) will be undertaken to ensure that the mainline lateral high point remains beyond the boundary of the 0.1% AEP surface water flood risk extent.	Ensure the risk of lateral overtopping of surface water flooding into the mainline cutting at Markeaton junction remains low, and to instigate appropriate	Details as per ES Appendix 13.2B [**TR010022/APP/6.3**].	Appropriate management of lateral over-topping potential into the mainline cutting at Markeaton junction.	DCO Requirement 12.

Ref.	Source [TR010022/APP/6.1] [TR010022/APP/6.2]	Mitigation/commitment	Objective	Assumption on which the action is based	Achievement criteria and reporting requirements (if applicable)	How the action is to be implemented
			design changes or alternative mitigation strategies to manage the risk should it be concluded that the risk level may increase.			
SCHEME MAINTENANCE						
D-M1	-	During the detailed design stage Highways England will prepare a Maintenance and Repair Strategy Statement (MRSS) in consultation with the applicable local authorities regarding maintenance and repair responsibilities as associated with the Scheme.	To assign appropriate maintenance and repair responsibilities.	Develop proposals for Scheme maintenance and repairs with relevant Organisations.	Successful Scheme maintenance and repair.	DCO Requirement 3.