

A38 Derby Junctions

TR010022

Volume 6

**6.3 Environmental Statement
Appendices**

**Appendix 8.16: Consultation Meeting
Minutes**

Regulation 5(2)(a)

Planning Act 2008

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

April 2019

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 8.16: Consultation Meeting Minutes**

Regulation Number	Regulation 5(2)(a)
Planning Inspectorate Scheme Reference	TR010022
Application Document Reference	6.3
Author	A38 Derby Junctions Project Team, Highways England

Version	Date	Status of Version
1	April 2019	DCO Application

Contract:	A38 Derby Junctions	Contract No:	PO1268/69
Subject:	Environment Meeting with Aone+	Date:	26/11/2014
Place:	Aone+ Offices, Evo Park, Sherwood Business Park		

	Name
Present:	Simon Wild (SRW) Marlene Segre (MS) Oliver Barnett (OB) Gareth Wilson (Aone+) (GW) Richard Carline (Aone+) (RC) Joseph Barrow (Aone+) (JB)
Absent:	na
Distribution:	As Above plus: Mark Hartharn (MH)

ITEM	DESCRIPTION	DATE	ACTION
1.0	<p>Introductions & Purpose of the Meeting</p> <p>To provide Aone+ with details of the A38 Derby improvement scheme and enable environmental data transfer to the A38 environmental team.</p>	-	-
2.0	<p>Little Eaton</p> <p>Aone+ highlighted the following:</p> <ul style="list-style-type: none"> • Ditch located near the A61 was being re-profiled when white clawed crayfish were discovered. The site walkover did not identify crayfish so emergency relocation of crayfish to Dan Brook (upstream) was put in place. These have the potential to recolonize the re-profiled stream. • Derbyshire County Council requested a water vole survey, but none found. • A Japanese Knotweed Management Plan is available: ESRI shape files of invasive species is available and can be provided to URS. • No GCN survey was done for the Pinch Point Scheme. • Slow worms were located further up the A38. • Bat roost found on the Derwent River Bridge (whiskered bats) - has potential for maternity and hibernating bats. Also a bat box present. • Otter prints found. • Badgers use the area but no setts located. • Traffic management is no longer at Little Eaton but re-landscaping of the roundabout is still going on. 		Aone+
3.0	<p>Markeaton</p> <p>Aone+ highlighted the following:</p> <ul style="list-style-type: none"> • Derby Univeristy undertake crayfish surveys each year - contact is Karen Vahed or Graeme Roe. • A number of ponds within Markeaton Park but they are unlikely to be a habit for GCN - also no record of GCN to date. • Mature oaks along the verge which were surveyed some time ago (4yrs) for bats (no roosts found). Mature oaks also have Tree Protection Orders. • Bat activity recorded in the park • Markeaton Lake outfalls into Mill Pond. • Japanese knotweed located at Markeaton. • Culvert cleansing and tech survey work to be carried out after completion of Markeaton Pinch Point scheme which will require traffic management. 		
4.0	<p>Kingsway</p> <p>Aone+ highlighted the following:</p> <ul style="list-style-type: none"> • Local Wildlife Site "Grand Canyon" refers to the small river running though the broad leaf woodland. • Site for orchids. • Semi-neutral grassland in central reservation. • Knotweed is present. 		
5.0	<p>Other Issues</p>		

	<ul style="list-style-type: none">• Ecological records can be provided to URS – including GIS shape files.• No records of deer on the A38 through derby or deer-related accidents.• Key local contact is the Little Eaton caravan park – potential use for a construction compound.• Cultural heritage asset management plan available that can be provided to URS.• No ground contamination encountered during the works at Markeaton.• Pinch Point works used site compound near council depot at Little Eaton.		Aone+ Aone+
--	--	--	----------------------------------

Minutes prepared by: Marlene Segre

Minutes Reviewed by: Simon Wild

Issued By: Marlene Segre

From: Barnett, Oliver
Sent: 08 December 2014 11:22
To: Teresa Hughes (THughes@derbyshirewt.co.uk); rebecca.brunt@environment-agency.gov.uk
Cc: Bardsley, Gaelle; Segre, Marlene; Walker, Jayne; Robinson, Stuart D.; Wild, Simon; Sharp, Darran
Subject: A38 Derby Junctions Improvements_Record of Ecology meeting_031214

Dear Teresa and Rebeca,

Thanks again for taking the time to meet with myself and Gaelle last week. I've jotted down a few notes from our meeting which I hope will help us all to focus on achieving the best outcome from the scheme with regard to biodiversity and conservation. We are certainly keen to pre-empt all potential protected species and habitat mitigation requirements, and your input in this regard was a great help. Hopefully we can maintain ongoing discussions throughout the pre-construction phase. If you could please have a quick look through the records below and check I've not left anything out, that would be great.

Many thanks,

Oliver

Notes from meeting with Teresa Hughes (Derbyshire Wildlife Trust) and Rebecca Brunt (Environment Agency) on 3rd of Dec, 2014.

Crayfish:

- DWT were unaware whether monitoring had been undertaken of the crayfish population previously translocated from Bramble Brook where it flows adjacent to the Little Eaton Pinch Point Scheme. However, it is considered likely crayfish will have recolonized this stretch of Bramble Brook, hence OB asked if DWT and EA could help in considering and identifying receptor areas for future translocations which may be required.
- Discussions considered the potential for identification of two crayfish translocation receptor areas (if surveys identify these as being required): one either upstream or downstream of the Bramble Brook donor site, and a second located within a separate watercourse (with a view to enhancing the local conservation status of this species and creating an additional population). DWT & EA agreed to consider identification of a second receptor site (if translocations are identified as necessary).
- OB advised that crayfish surveys are likely to be undertaken in 2015 along all water courses/within all water bodies which flow/are located within or adjacent to the scheme boundaries. Where surveys are to be undertaken along watercourses, these will extend to a minimum of 50m beyond the extent of the scheme boundaries, and potentially up to 100m beyond the scheme boundaries.
- DWT highlighted the existence of crayfish records from Markeaton Brook, to either side of the A38, as well as from the network of water bodies within Markeaton Park.

Water vole:

- DWT highlighted the existence of water vole records from various locations along Markeaton Brook.

Invertebrates:

- DWT highlighted the need to undertake terrestrial invertebrate surveys where appropriate habitats exist within the scheme boundaries, and particularly within Markeaton Park, where there are a number of veteran oak trees as well as large amounts of dead wood, and within A38 Roundabout LWS which supports areas of semi-improved natural grassland. DWT advised of desk study records for stag beetle within and around Derby City.

Mitigation/Receptor Areas:

- OB asked if DWT could help in the early identification of ecological mitigation and receptor areas which may potentially be required for future species and habitat translocations, as well as to mitigate for any potential residual impacts the scheme may have. Ideally, these would be located alongside of the A38, and not excessively far from the scheme, as this would greatly help in the reducing logistical constraints associated with ecological mitigation. However, it is appreciated that this may not be possible, in which case other locations within reasonable distance from the scheme, and ideally with access via the existing the road network, would represent good alternatives.
- DWT & EA identified potential for undertaking off-site mitigation within the old hospital site (which is scheduled for residential redevelopment) as this would provide additional benefits through the linking of retained/reinstated habitats therein. This site should therefore be considered for future offsite mitigation requirements, if these are identified as necessary and if areas of the site are available for this purpose.

Next meeting and delivery of reports:

- OB proposed a second meeting toward the end of April 2015 to update DWT and EA on early season survey findings, and also to discuss progress in identifying potential off-site receptor and mitigation areas.
- OB agreed that, subject to client approval, protected species survey reports would be forwarded on to DWT and EA as and when these are produced rather than in a single batch at the end of the 2015 survey season.

Dr Oliver Barnett MCIEEM CEnv
Principal Ecologist
URS Infrastructure & Environment UK Limited

URS and AECOM have joined together as one company. [Learn more](#)

1st Floor, Victoria Square House, Victoria Square Birmingham, B2 4AJ, UK

Direct +44 (0)121 214 8167
Fax: +44 (0)121 212 1938
Mobile: [REDACTED]
oliver.barnett@urs.com
www.ursglobal.com

Project:	A38 Derby Junction Improvements	Job No/Ref:	47071390															
Purpose:	Ecology Progress Meeting with Consultees	Date held:	04/06/2015															
Held at:	Derbyshire County Council	Made by:																
Present:	<table border="0"> <tr> <td>Oliver Barnett (OB)</td> <td>AECOM</td> <td rowspan="7">Distribution: As above plus Mark Hartharn (AECOM) Simon Wild (AECOM) Jayne Walker (AECOM) Monica Corso Griffiths (HE)</td> </tr> <tr> <td>Gaëlle Bardsley (GB)</td> <td>AECOM</td> </tr> <tr> <td>Hannah Procter (HP)</td> <td>AECOM</td> </tr> <tr> <td>Tom French (TF)</td> <td>DCC</td> </tr> <tr> <td>Teresa Hughes (TH)</td> <td>DWT</td> </tr> <tr> <td>Rebecca Brunt (RB)</td> <td>EA</td> </tr> <tr> <td>Marlene Segre (MS)</td> <td>AECOM</td> </tr> </table>	Oliver Barnett (OB)	AECOM	Distribution: As above plus Mark Hartharn (AECOM) Simon Wild (AECOM) Jayne Walker (AECOM) Monica Corso Griffiths (HE)	Gaëlle Bardsley (GB)	AECOM	Hannah Procter (HP)	AECOM	Tom French (TF)	DCC	Teresa Hughes (TH)	DWT	Rebecca Brunt (RB)	EA	Marlene Segre (MS)	AECOM		
Oliver Barnett (OB)	AECOM	Distribution: As above plus Mark Hartharn (AECOM) Simon Wild (AECOM) Jayne Walker (AECOM) Monica Corso Griffiths (HE)																
Gaëlle Bardsley (GB)	AECOM																	
Hannah Procter (HP)	AECOM																	
Tom French (TF)	DCC																	
Teresa Hughes (TH)	DWT																	
Rebecca Brunt (RB)	EA																	
Marlene Segre (MS)	AECOM																	
Apologies:																		

No.	Item	Action By
1.	AECOM provided details on the species surveys that have been undertaken to date.	
2.	AECOM outlined the programme for the species surveys to be undertaken in the coming months.	
3.	AECOM provided an overview of early stage high level mitigation requirements for the scheme.	
4.	Discussed aspirations for net gains in biodiversity retention and enhancement of ecosystem services on site and enhancement of the current wildlife corridor function of the scheme.	
5.	Discussed the identification of potential reception sites for species and habitats translocations.	
6.	TH suggested that we consider the use of underpasses for badgers and otters throughout the scheme as opposed to fencing as this have proved to be more effective than fencing. Teresa also highlighted the consideration for the presence of toads (UK and Local BAP Species) when writing/summarising results for the great crested newt surveys.	
7.	RB highlighted the need to also check for the presence of American Mink, which is a predator of water voles. This could possibly explain the absence of water voles within the scheme extent even though the habitat is conducive for their existence.	
8.	RB identified the requirement for white-clawed crayfish traps to have an escape/exit hole for water voles (as per extractions from Third Edition Water Vole Conservation Handbook pg 91, providing details).	
9.	EA would like a copy of the eDNA results.	
10.	TH identified three areas, two near the scheme and one along Raynesway that	

may be considered for translocation sites. They are: 1a) the Old Hospital Manor Kingsway site (managed by the Land Trust) located to the east of the A38 (http://www.derby.gov.uk/media/derbycitycouncil/contentassets/documents/policiesandguidance/planning/Manor_Kingsway_SPD.pdf?bcsi_scan_E956BCBE8ADB_C89F=0&bcsi_scan_filename=Manor_Kingsway_SPD.pdf), 1b) proposed habitat and attenuation holding area to the west of the A38 (ownership of land needs to be determined – part owned by Derby City Council), 2) Land between A38 and Ford Lane, and 3) Raynesway (A5111 and A6 Junction, land owned by HE and managed by Smiths Gore). Refer to maps attached.

The proposed habitat and attenuation area to the west of the A38 (south of the disused railway), appears to be the most suitable and most likely area to pursue going forward re. Habitat translocation and enhancement of the green infrastructure corridor / ecosystem function of the scheme.

Derwent WISE is already planning some WFD work at the Ford Lane site so it was suggested that AECOM could collaborate with them to provide ecological mitigation at this location.

It was mentioned that there may be an opportunity to translocate veteran oak tree trunks into Markeaton Park or to the receptor site to the west of the A38 Kingsway roundabout and/or potentially consider this area for bat box installation.

11. AECOM received contact details for the following:

1) Green space and ecology at Markeaton Park
Duncan Cowie, Derby City Council (awaiting contact details from Teresa)

2) Derwent WISE project at Ford Lane
Dave Savage
DerwentWISE Community Engagement Officer
Derbyshire Wildlife Trust
07972 223 219 / 01773 881 188
dsavage@derbyshirewt.co.uk

RB at the EA is also the contact for this.

3) The open community area at Raynesway
Managed by Smiths Gore for Highways England
Samantha Davies 01543 251 221

12. Next meeting planned for September.

Minutes Produced by: Hannah Procter
Reviewed and Issued by: Marlene Segre

T +44 (0) 113 391 6290
F +44 (0)113 391 6899
E-mail: Hannah.Procter@aecom.com
www.aecom.com

5th Floor
2 City Walk
Leeds
LS11 9AR
United Kingdom



Mackworth

Centre
Playground

Path

DE004

Path Dismantled Railway

Track
Allot Gdns

DY 116607

DE010

DY 434203

DY 24757

Darby City

Murray Park School

Amb HQ

UNIVERSITY

Playing Fields

Sewage Ppg Sta

DE014

Rough Heanor Farm

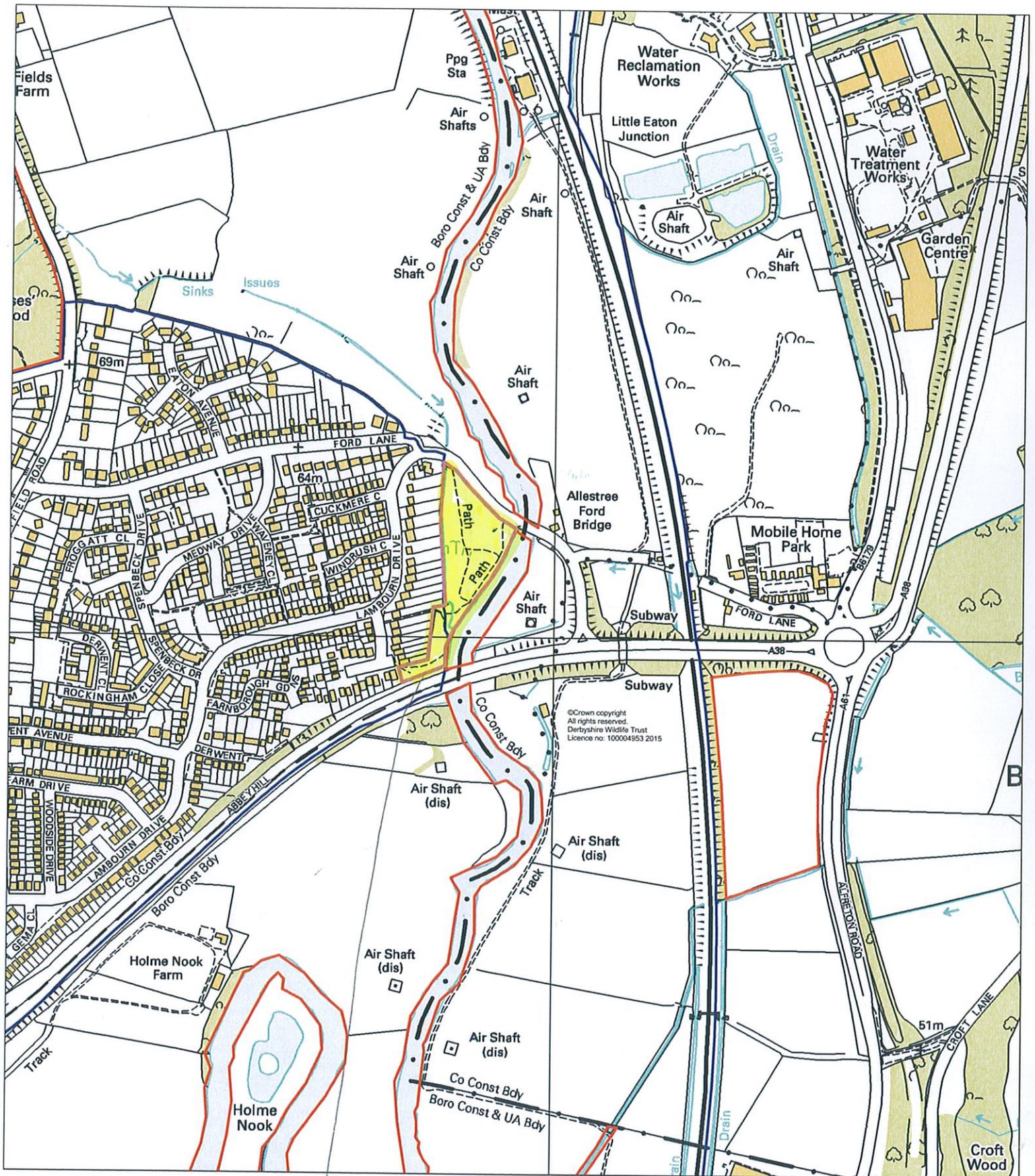
ownership transfer land reg

FARTRIDGE WAY

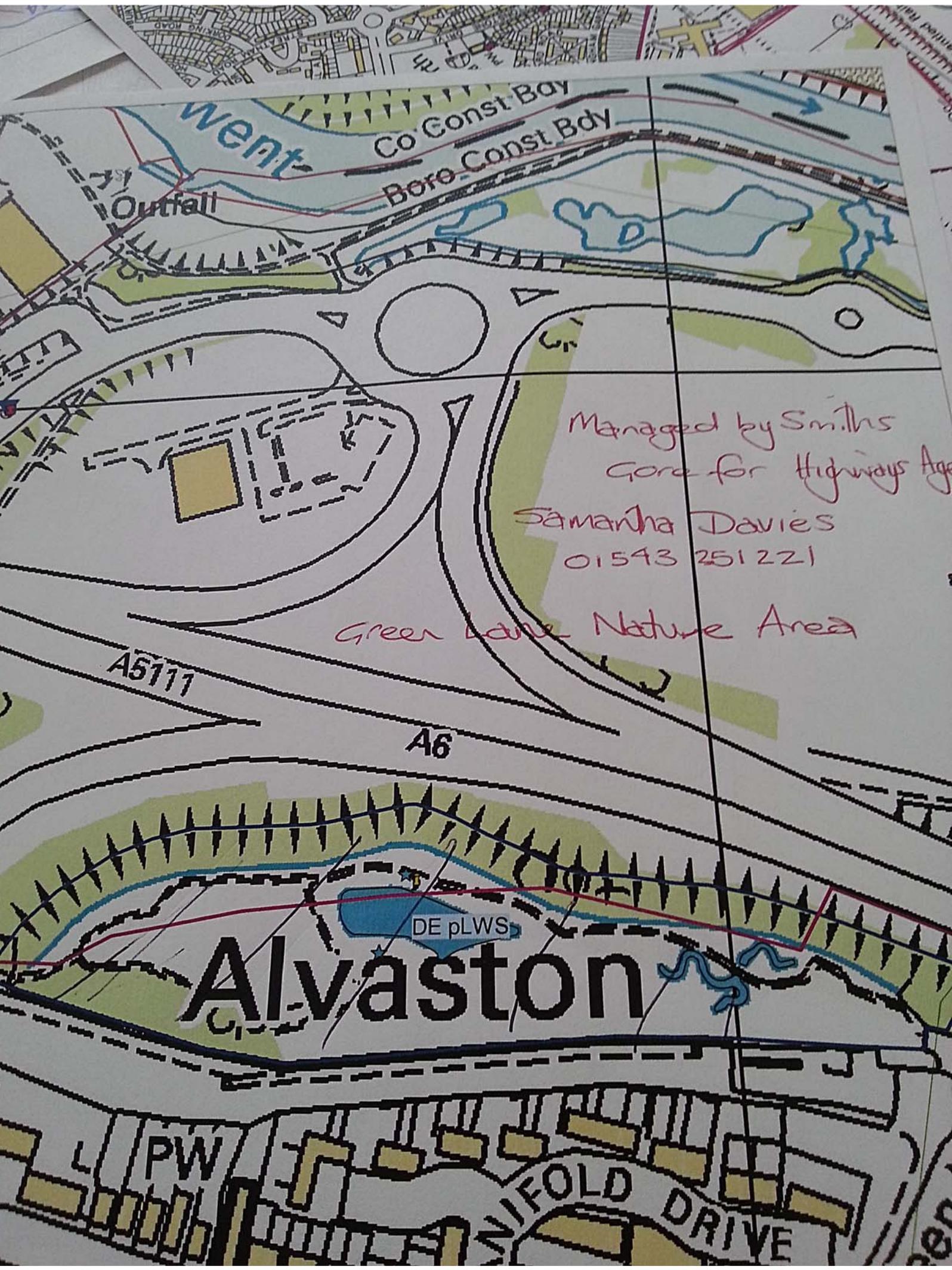
MANOR PARK ROAD

A516

A516



Land parcel adjacent to the River Derwent
 WFD → part of EA commitment to create 19 hectares of
 habitat ⇒ Rebecca Brunt (EA) contact



went

Co Const Bay

Bore Const Bdy

Outfall

Managed by Smiths

Gore for Highways Agency

Samantha Davies

01543 251221

Green Lane Nature Area

A5117

A6

DE pLWS

Alvaston

NIFOLD DRIVE

PW

L

Project:	A38 Derby Junction Improvements	Job No/Ref:	47071390
Purpose:	Ecology Progress Meeting with Consultees	Date held:	24/09/2015
Held at:	Derbyshire County Council	Made by:	
Present:	Oliver Barnett (OB) AECOM Gaelle Bardsley (GB) AECOM Hannah Procter (HP) AECOM Rebecca Brunt (RB) EA Marlene Segre (MS) AECOM Teresa Hughes (TH) DWT Hilary Nelmes (HN) DCiC	Distribution:	As above plus Mark Hartharn (AECOM) Simon Wild (AECOM) Jayne Walker (AECOM) Monica Corso Griffiths (HE) Tom French (TF) (DCC)
Apologies:	Tom French (TF) (DCC)		

No.	Item	Action By
1.	AECOM briefly reviewed the minutes from the last meeting.	
2.	AECOM provided details on the species surveys that have been undertaken to date (bats, water voles, otters, white clawed crayfish, breeding birds, invasive species, botanical survey, great crested newts, reptiles, badgers, terrestrial invertebrates and river corridor survey).	
3.	AECOM explained that at Little Eaton, bat trapping was undertaken as well as DNA analysis of bat droppings that identified whiskered bats as present and foraging in the area, although we currently have no data to confirm that this species is roosting within the rail bridge structure in this location, as previously reported by Aone+ ecologists.	
4.		
5.	Thermal imaging and sound data is being analysed and this will feed into the report.	
6.	AECOM reported that the bat roost at Markeaton Park was identified as brown long-eared bat.	
7.	AECOM presented maps showing the locations of protected species and key/notable habitats recorded during the course of the 2015 surveys.	
8.	OB confirmed that AECOM has sufficient reptile survey data to inform the Environmental Assessment report; therefore further surveys within the A38 Roundabout Local Wildlife Site are not necessary at this stage of the assessment. However it would be useful to find out the land owner.	
9.	AECOM to carry out a third site survey for aquatic invertebrate in October 2015. The ecology identified favourable habitats for overwintering birds south west of Little Eaton. Therefore, survey for overwintering birds are planned to take place between October 2015 and March 2016.	
10.	TH suggested that we liaise with the Badger Group regarding badger bait marking proposed for next spring.	

11. MS explained that submitting the ecological reports to statutory consultees would first have to be approved by Highways England.
12. Discussed the potential for achieving net gains in biodiversity and ecosystem services on site through the development and refinement of mitigation plans, the translocation of habitats, the enhancement of adjacent off-site habitats, and the retention and enhancement of the current wildlife corridor function of the scheme.
13. Discussed the identification of potential reception sites for species and habitats translocations. TH explained that there is consultation within DCiC to transfer land ownership to developers however fields owned by DCiC could be used for translocation. OB explained that there was potential to achieve significant biodiversity and ecosystem service gains for the scheme through the incorporation of adjacent off-site habitat areas within the scheme's Landscape and Ecological Mitigation Strategy. This would complement DCiC objectives for the area, whilst HE would similarly benefit from DCiC's contribution and input into the enhancement of these habitats which are connected to the existing HE Soft Estate.
14. HN presented maps showing DCiC land and suggested a site walkover at Mackworth to gain a better understanding of the proposed translocation sites.
15. HN to provide AECOM with red line boundaries of land ownership at the Kingsway junction – these would be used by AECOM to inform a future Designated Funds application.
16. OB requested an email from DCiC and DWT confirming that these are potential translocation/enhancement sites which could be incorporated into the scheme's Landscape and Ecological Mitigation Strategy.
17. HN explained that there is the potential; to enhance the ecology around Markeaton Lake and Mill Pond as part of the high level mitigation but AECOM needs to liaison with the Fishing Group that lease the lake and pond.
18. TH to find out the landowner for the Alfreton Local Wildlife Site which also has potential to be included within the scheme's Landscape and Ecological Mitigation Strategy.

Minutes Produced by: Marlene Segre

Reviewed by: Oliver Barnett

Issued by: Marlene Segre

T +44 (0) 113 391 6290
F +44 (0)113 391 6899
E-mail: Hannah.Procter@aecom.com
www.aecom.com

5th Floor
2 City Walk
Leeds
LS11 9AR
United Kingdom

Project:	A38 Derby Junction	Job No/Ref:	60471077																		
Purpose:	Ecology Progress Meeting with Consultees (No. 5)	Date held:	22/09/2016																		
Held at:	Ecology Compensation Areas - Markeaton Park, Mill Pond, Mackworth Park and Ford Lane, Derby	Made by:	Hannah Procter																		
Present:	<table border="0"> <tr><td>Oliver Barnett (OB)</td><td>AECOM</td></tr> <tr><td>Gaelle Bardsley (GB)</td><td>AECOM</td></tr> <tr><td>Hannah Procter (HP)</td><td>AECOM</td></tr> <tr><td>Hilary Nelmes (HN)</td><td>DCiC</td></tr> <tr><td>David Winslow (DW)</td><td>DCiC</td></tr> <tr><td>Ceridwyn Jennings (CJ)</td><td>DWT</td></tr> <tr><td>Louise Hill (LH)</td><td>EA</td></tr> <tr><td>Richard Carline (RC)</td><td>HE</td></tr> <tr><td>Dave Savage (DS)</td><td>DerwentWISE</td></tr> </table>	Oliver Barnett (OB)	AECOM	Gaelle Bardsley (GB)	AECOM	Hannah Procter (HP)	AECOM	Hilary Nelmes (HN)	DCiC	David Winslow (DW)	DCiC	Ceridwyn Jennings (CJ)	DWT	Louise Hill (LH)	EA	Richard Carline (RC)	HE	Dave Savage (DS)	DerwentWISE	Distribution:	As above plus Mark Hartharn (AECOM) Simon Wild (AECOM) Jayne Walker (AECOM) Marlene Segre (AECOM) Andy Wilson (AECOM) Katy Leach (Highways England)
Oliver Barnett (OB)	AECOM																				
Gaelle Bardsley (GB)	AECOM																				
Hannah Procter (HP)	AECOM																				
Hilary Nelmes (HN)	DCiC																				
David Winslow (DW)	DCiC																				
Ceridwyn Jennings (CJ)	DWT																				
Louise Hill (LH)	EA																				
Richard Carline (RC)	HE																				
Dave Savage (DS)	DerwentWISE																				
Apologies:	Tom French	DCC																			

No.	Item	Action By
1.	Introductions	
2.	Outlined the aim and objectives of the site visit: Aim: <ul style="list-style-type: none"> The A38 proposed scheme aims to achieve no-net loss within the scheme boundary; however opportunities would be sort where possible for enhancement options within adjacent areas (i.e. Ecology Compensation Areas) to ensure no-net loss, and/or potentially net-gains, in biodiversity across the scheme. The aim of the visit is to collaboratively highlight potential enhancement options to consider as part of PCF Stage 3. Objectives: <ul style="list-style-type: none"> To visit the sites and discuss potential opportunities to enhance the sites; Consider and discuss broader initiatives e.g. green infrastructure and wider recreational / amenity benefits; and Seek input from consultees on <i>potential</i> enhancement ideas to take forward and obtain a list of actions / queries to take away. 	
3.	Health and safety brief	
4.	Outline of programme for the day	
5.	Markeaton Park and Mill Pond walkover: <ul style="list-style-type: none"> Discussed current National Lottery funding and work done at Markeaton Park by Derby City Council. http://www.derby.gov.uk/media/derbycitycouncil/contentassets/documents/leisure/Park%20Masterplan%20Board%20202%20final.pdf http://www.derby.gov.uk/media/derbycitycouncil/contentassets/documents/leisure/Markeaton%20Park%20Management%20and%20Maintenance% 	

T +44 (0) 113 391 6290
 F +44 (0)113 391 6899
 E-mail: Hannah.Procter@aecom.com
 www.aecom.com

5th Floor
 2 City Walk
 Leeds
 LS11 9AR
 United Kingdom

[20Plan%20Final%20Report%2030%20Aug%202012.pdf](#)

New buildings incl. mitigation of a known bat roost, new walkways/paths, and coir rolls at Markeaton Lake. Creation of meadow grassland, however unfortunately not been successful.

- *Potential* enhancement opportunities include:
 1. Wildflower grassland areas. CJ highlighted that DWT have suitable donor sites of local source – CJ to advise on the locations of these potential donor sites for the collection of local seed stocks;
 2. Translocation of semi-improved grassland habitats from the A38 Roundabout Local Wildlife Site (LWS) – HP advised that this area may require management if turf translocations are to be achievable and successful;
 3. Broader amenity recreational use in the woodland – opening up the woodland and creating walking platforms. Information boards; Bioblitz – a biodiversity action group, has collated data from an intense period of biological surveying at Markeaton Park;
 4. Enhancement of user inputs around Markeaton Lake, currently a formal open recreational space to the north of the Lake which is not widely used. Suggestions included paths to provide a circular loop round the lake, fishing platforms, plug planting, protective fencing round sensitive areas to prevent damage;
 5. Discussion on white-clawed crayfish in the Markeaton catchment and whether opportunities for enhancement. Historically white-clawed crayfish were present however none found during AECOM 2015 surveys – only American signals. RC offered to discuss with Graham Raw from the University of Derby any recent data on white-clawed crayfish within the wider catchment. Not considered that enhancement for white-clawed crayfish is possible given lack of identifiable source and no suitable ark site.
 6. Disused miniature railway – opportunity to be a cycle path/walkway, enhance embankments with log refuge piles & small ballast areas embedded with in south facing embankments;
 7. Bat boxes already present within the Park. Considered not suitable for any additional bat boxes to mitigate for any loss of potential bat roost trees as part of the scheme. However, CJ and OB highlighted that there would good opportunity for bird boxes e.g. on the buildings for swifts and swallows;
 8. Green footbridge, potential opportunity for Designated Funds. Viewing platforms, over the park and Mill Pond, for consideration from the footbridge/cycle route.
 9. LH highlighted that near Bridge Street there are desilting works to the weir, which is within the Markeaton catchment LWS. Baseline surveys are being undertaken; LH to send through copies to HP.

CJ

RC

LH

Queries:

- Are the waterbodies failing under the Water Framework Directive (WFD)? If so why – due to water quality, invertebrates, fish etc? LH offered to find out.
- Dredging work proposed at Markeaton Lake and Mill Pond however details unknown.
- Are the bat boxes being used? Do we know numbers and species? HP noted that it would be useful to see the monitoring data from the local bat group on the bat boxes installed at Markeaton Park / Mill Pond. CJ works with bat group and can look into obtaining data.

LH

ALL

CJ

DW/HP

T +44 (0) 113 391 6290
 F +44 (0)113 391 6899
 E-mail: Hannah.Procter@aecom.com
 www.aecom.com

5th Floor
 2 City Walk
 Leeds
 LS11 9AR
 United Kingdom

- Who owns the footbridge? DW and HP to investigate.
6. Mackworth Park walkover:
- Walked into the Mackworth Park 'Parkland area' and compared against the 'wild natural area'.
 - Vigorous cutting regime at present in the parkland area managed by DiCC – twice a week during the spring/summer to maintain amenity/recreational grassland.
 - Some mixed native planting already been undertaken to the south.
 - Open space for mobile aeroplane club.
 - *Potential* enhancement opportunities include:
 1. Enhancement of the cycle route proposed to the west of the A38 northbound;
 2. Diversion of Bramble Brook into Mackworth Park, which could provide ecological benefits, generally accepted by ALL as a good idea – the watercourse would be moved further away from the road minimising susceptibility to pollution from the road. Concern however raised of whether this may be susceptible to litter dropping;
 3. Incorporation of wet grassland, woodland, reed beds and potentially network of ditches to minimise flood risk in the catchment;
 4. CJ highlighted potential opportunity for pond creation to the south west of Mackworth to aim to increase great crested newt habitat range where known records exist further south. Pond creation close to the A38 would need to be considered carefully given potential risk of bird strikes from operational traffic; and
 5. Opportunity for embankments / earth mounds similar to those created within Mickelover meadows, of benefit to wildlife.
- Queries:
- How would landownership work for the Bramble Brook diversion? HP to ask Simon Wild. HP
 - Whereabouts is the proposed cycle route? HN to forward details. HN / DW
7. Ford Lane viewing point:
- The Ford Lane site is overgrown with tall ruderal vegetation. The site is of high nutrient status with limited species diversity.
 - DS highlighted that there is a pond within the site and a ditch, which can't currently be accessed. (This was not surveyed during AECOM baseline surveys). DS offered to forward HP details of baseline surveys undertaken at Ford Lane. DS
 - *Potential* enhancement opportunities include:
 1. Agreed by ALL that potential flooding in this area would be beneficial and potentially ecologically enhance the site. DerwentWISE would like to incorporate floodplain meadow into the site, with wet grassland, wet woodland and habitat mosaics of benefit to wildlife and of recreational use e.g. with bird hides. Increasing wet habitat in this area would be beneficial.
 2. Access routes to the site improved.
 3. Currently a potential LWS, with potential to meet LWS criteria.
8. AOB
HP to find out other EA contact involved in wider A38 consultation / project HP

	meetings and forward to LH.	
9.	Date of next meeting to be confirmed.	

Minutes Produced by: Hannah Procter
Reviewed by: Oliver Barnett
Issued by: Marlene Segre

T +44 (0) 113 391 6290
F +44 (0)113 391 6899
E-mail: Hannah.Procter@aecom.com
www.aecom.com

5th Floor
2 City Walk
Leeds
LS11 9AR
United Kingdom

Project: **A38 Derby Junction** Job No/Ref: **60533462**

Purpose: **Ecology Progress Meeting with Consultees (No. 6)** Date held: **03.03.17**

Held at: **Nottingham AECOM Office** Made by: **Hannah Procter**

Present:	Oliver Barnett (OB)	AECOM	Distribution: As above plus Mark Hartharn (AECOM) Katy Leach (Highways England)
	Gaelle Bardsley (GB)	AECOM	
	Hannah Procter (HP)	AECOM	
	Simon Wild (SW)	AECOM	
	Hilary Nelmes (HN)	DCiC	
	David Winslow (DW)	DCiC	
	Ceridwyn Adkins (CA)	DWT	
	Rebecca Brunt (RB)	EA	
	Richard Carline (RC)	HE	
	Roslyn Deeming (RD)	Natural England	
Apologies:	Tom French (TF)	DCC	
	Marlene Segre	AECOM	
	Alex Grundy	Highways England	
	Jonathan Merrills	Highways England	

No.	Item	Action By
1.	General Housekeeping / Introductions.	
2.	Objectives: <ul style="list-style-type: none"> - To update consultees on the Scheme; - To provide a brief summary of previous ecology baseline surveys and assessment; - To provide a project update re. the next stage of assessment and proposed ecology surveys for 2017; - Discussion on the surveys, and age of data, to support the Environmental Statement (as per our letter recently issued); - Discussion on the next steps on continued engagement with Natural England on the project; - Re-cap on the last consultation meeting held on site and update on potential off-site ecological mitigation areas; and - Any other business (AOB). 	
3.	Health and Safety Moment: <ul style="list-style-type: none"> - Use of mobile phones whilst driving and recognition of the recent penalties / law changes. 	
4.	Update on the Scheme: <ul style="list-style-type: none"> - Awaiting Preferred Route Announcement (PRA); - The Scheme is a Nationally Significant Infrastructure Project (NSIP) and aiming for Development Consent Order (DCO) submission by December 2017; - The project does not currently appear on any planning searches; - Environmental Statement (ES) is to be produced this year; and - There are a number of Additional Sites that are being considered for flood compensation, borrow pits, construction compounds, and ecological compensation located beyond the red line boundary previously assessed 	

T +44 (0) 113 391 6290
 F +44 (0)113 391 6899
 E-mail: Hannah.Procter@aecom.com
 www.aecom.com

5th Floor
 2 City Walk
 Leeds
 LS11 9AR
 United Kingdom

as part of the Environmental Assessment Report (EAR).

5. Brief summary of ecology baseline surveys:
- GB ran through a summary of the ecology baseline gathered to date which informed the EAR (refer to the full baseline report for details).
 - The EAR identified residual significant effects (taking into account additional mitigation measures) as a result of the loss of the A38 Kingsway Roundabout LWS and partial Loss of Alfreton Road Rough Grassland LWS. However, in the long term habitats which characterise those LWSs would look to be mitigated for through habitat creation across the scheme. The aim would be to achieve no net loss, or potentially net gains, in biodiversity.
6. The next stage of assessment and proposed ecology surveys for 2017:
- The recent letter issued to consultees was discussed in regards to date and scope of survey data to support the ES.
 - HN noted that DCiC would look to DWT, DCC and AECOM ecological specialists in regards to comment on date and scope of survey data.
 - General agreement was made on the following surveys for 2017 (refer to the Table within the consultation letter for details):
 - Ground truth of the Extended Phase 1 survey;
 - Updated badger survey and badger bait marking study (as recommended in the 2015 baseline report);
 - Ground truth of grassland areas of botanical interest; and
 - River habitat and river corridor survey update only where necessary/applicable (once further details known re. potential direct impacts to watercourses);
 - Great crested newt surveys – a Habitat Suitability Index Assessment (HSI) update (if a 20% increased change in habitat suitability then this would trigger an updated survey). It is considered that a full update of presence / absence surveys would not necessarily be required. Only new ponds, and those identified on/in proximity to the Additional Sites, would be surveyed. CA confirmed DWT agree with this approach. Also, TF commented that DCC would see this as a pragmatic approach, and a full update would not be necessary. CA highlighted that some great crested newt surveys may have been done last year in the vicinity of Mackworth Park. Derby City Pond Warden should have further details. **CA to forward HP/GB contact information.**
 - Bat surveys – external and internal bat assessments of buildings at Queensway (proposed to be demolished) and dusk emergence / dawn return surveys using Thermal Imaging (where applicable). Tree climbing and bat trapping and tracking proposed at Markeaton to identify roost locations, species and bat activity. Updated bat activity surveys proposed at Kingsway (to capture also the Additional Sites in that area which were not previously surveyed); and at Little Eaton (the habitat suitability for bats in that location has been increased to moderate based upon 2015 survey results and updated Bat Conservation Trust (BCT) best practice survey guidance, Additional Sites not previously surveyed are also to be included). Survey data on confirmed roost sites would be updated in 2017; however it is not intended to update potential roost feature assessments. TF highlighted that

CA

T +44 (0) 113 391 6290
 F +44 (0)113 391 6899
 E-mail: Hannah.Procter@aecom.com
 www.aecom.com

5th Floor
 2 City Walk
 Leeds
 LS11 9AR
 United Kingdom

- careful justification would be required here as this is open to risk/scrutiny; TF agreed it wasn't particularly necessary to do an updated potential roost feature assessment however needs to be carefully justified for example explaining the time delay between surveys and requirement for preconstruction surveys. CA stated that the local bat group had carried out bat boxes checks at Markeaton Park recently. **CA to forward HP/GB contact details.**
- White-clawed crayfish – updated surveys focusing on Dam Brook and the River Derwent. RB commented that the EA would look to surveys being targeted on Dam Brook. CA highlighted that EMEC had done recent survey work re. proposed desilting works near Mill Pond. **CA to forward HP/GB details.**
- General agreement was made on the following 2015 survey data to support the 2017 assessment (refer to the Table within the consultation letter for details):
 - Aquatic invertebrate survey;
 - Terrestrial invertebrate survey;
 - Water vole and otter survey; and
 - Reptile survey (note: it was acknowledged that the 2015 reptile survey was not fully completed in the A38 Roundabout at Kingsway due to health and safety reasons; however the area is encroached with scrub and considered unlikely to support this species group, therefore no further surveys are recommended).
 - The Additional Sites to be carried forward for assessment have had extended Phase 1 habitat surveys and detailed surveys are being undertaken this year (as recommended where applicable).
 - HP discussed the Additional Sites for ecological compensation and stated that at the moment Markeaton Park, Mill Ponds and Kingsway enhancement area by the hospital are currently included in the assessment to aim to ensure no net loss in biodiversity can be delivered for the proposed scheme. No further baseline surveys are however recommended in these areas. It is considered that the baseline information gathered to date and surveys already proposed for the next stage of assessment would be sufficient. Any mitigation/enhancement measures are considered to be localised / targeted and non-licensable. HN stated that surveys may have been done at Markeaton Park as part of the Heritage Lottery Fund application. **HN to forward HP/GB details.**
 - Bramble Brook is not proposed to be diverted into Mackworth Park. A solution that satisfies all parties to meet the Water Framework Directive (WFD) for Bramble Brook will be sort within the A38 Kingsway Roundabout. SW talked about a potential balancing pond being put in Mackworth Park and asked if this could be considered within areas of assigned Public Open space. HN and DW confirmed it is possible.
 - When the Queensway buildings are demolished there will be a green link and landscaping opportunities for potential ecological mitigation/enhancement measures within this area at Markeaton.
 - SW discussed the Additional Sites; which ones have been scoped out so far and which ones are currently confirmed to be carried forward for further survey. These may however become further refined as more baseline information is gathered / available; some of the confirmed sites may therefore be dropped from the assessment. This is all to be treated as confidential. A redline boundary (as part of the scoping report to send to the Planning Inspectorate (PINS)) will be issued to landowners in due course.

CA

CA

HN

T +44 (0) 113 391 6290
 F +44 (0)113 391 6899
 E-mail: Hannah.Procter@aecom.com
 www.aecom.com

5th Floor
 2 City Walk
 Leeds
 LS11 9AR
 United Kingdom

- HN asked if the Additional Sites at Little Eaton junction would change potential flood risk as part of the Our City Our River works. SW confirmed that flood risk modelling (currently being reviewed by the EA – **SW to confirm who**) has shown no change in flood risk to the south of Little Eaton junction. To the north of Little Eaton junction there is potential for there to be ecological benefit where land becomes slightly wetter adjacent to the River Derwent. SW
7. Discussion on the next steps on continued engagement with Natural England on the project
- RD confirmed that Natural England no longer provides/produces a 'letter of comfort' in regards to age of survey data to support an assessment/application. Natural England offers the Discretionary Advice Service (DAS) – a paid service.
 - RD suggested that a justification report outlining the scope and timing of surveys could be reviewed by a Wildlife Advisor at Natural England (through DAS). This can provide certainty in the approach and use of data. OB asked if Natural England's response through DAS would be more defined than standing advice and what are the timescales. RD confirmed that the Wildlife Advisors response would be more detailed and we can flag the timescales in which Natural England can aim to respond.
 - The DAS can be a fixed price for a defined scope or a time charge basis for continued engagement.
 - HP stated that the DAS request is currently being put together (purchase order numbers are being discussed directly between Highways England and Natural England). Looking to Natural England for comment on the Assessment of Implications on European Sites (AIES) report, scope/date of data to support the ES, mitigation and protected species.
8. Re-cap on the last consultation meeting held on site and update on potential off-site ecological mitigation areas:
- CA confirmed that DWT do not have any local donor sites in Derbyshire for grassland habitats. Translocation of habitats rather than donor site use may need to be pursued.
 - HN asked if other sites beyond the proposed scheme boundary could be considered for ecological enhancement/mitigation opportunities. HP clarified that the aim of the scheme is to achieve no net loss in biodiversity within the proposed scheme boundary. If this cannot be achieved then we would be looking for other sites beyond the proposed scheme boundary to ensure no-net loss (or potentially net gains) in biodiversity. An exercise of identifying sites beyond the proposed scheme boundary was done as part of the previous stage of assessment (together with consultees) and it is considered that there is sufficient area now identified for potential ecological mitigation/enhancement. A contingency has been built in if additional land is needed for a mosaic of habitats to be created.
 - DW stated that he would keep everyone in the loop in terms of the proposed cycle path at Mackworth Park. HN advised on overhead service diversions currently being undertaken in the area. **HN to forward details.**
 - RC not been able to get hold of Graham Raw (University of Derby re. White-clawed crayfish within the wider catchment).
 - RB is following up on Bridge Street baseline surveys and waterbodies under the Water Framework Directive.
 - SW confirmed that Faye Bull has moved from AECOM flood risk team to
- HN

8.	AOB	the EA and a useful contact for RB.	HP/GB SW
		<ul style="list-style-type: none">- Baseline survey reports to send to local groups (e.g. bats).- Dam Brook details. SW to send RC details on the proposed diversion and culvert extension at Dam Brook.	
9.		Date of next meeting to be confirmed.	

Minutes Produced by: Hannah Procter
Reviewed by: Simon Wild
Issued by: Gaelle Bardsley

Project:	A38 Derby Junction	Job No/Ref:	60533462
Purpose:	Ecology Progress Meeting with Consultees (No. 7)	Date held:	23.03.18
Held at:	Nottingham AECOM Office	Made by:	Hannah Procter
Present:	Oliver Barnett (OB) AECOM Gaelle Bardsley (GB) AECOM Hannah Procter (HP) AECOM Simon Wild (SW) AECOM Hilary Nelmes (HN) DCiC Trevor Taylor (TT) DWT Louise Hill (LH) EA Richard Carline (RC) Highways England	Distribution:	As above plus Andy Wilson (AECOM) Osam Mudhesh (Highways England)
Apologies:	Marlene Segre (MS) AECOM Marcus Wainwright-Hicks (MWH) AECOM Jonathan Merrills (JM) Highways England David Winslow (DW) DCiC Tom French (TF) DCC Andrew Stubbs (AS) Natural England		

No.	Item	Action By
1.	General Housekeeping / Introductions.	
2.	Objectives: <ul style="list-style-type: none"> - To update consultees on the proposed scheme and next stage of assessment. - To provide a brief summary of previous ecology baseline surveys from 2017. - Discussion on the surveys proposed for 2018 and approach for draft licences to support the Environmental Statement. - Outline mitigation and proposed approach for the no-net loss assessment. - Re-cap on the last consultation meeting. - Any other business (AOB). 	
3.	Health and Safety Moment: <ul style="list-style-type: none"> - Reducing the risk of contracting salmonella infection during reptile surveys (government advice sheet: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/377731/Salmonella_in_reptiles_factsheet_2_.pdf). 	
4.	Update on the Scheme: <ul style="list-style-type: none"> - Preferred Route Announcement (PRA) made on 31st January 2018 (https://www.gov.uk/government/consultations/a38-derby-junctions-improvements) - The Scheme is a Nationally Significant Infrastructure Project (NSIP) and aiming for Development Consent Order (DCO) submission in spring 2019. - Scoping report has been written and issued to the Planning Inspectorate 	

- (PINS) who will send it to statutory consultees for comment.
- Preliminary Environmental Information Report (PEIR) to be produced. It presents a description of the proposed scheme, the likely significant environmental effects based on the preliminary environmental information available at the time of PEIR publication, measures to avoid or reduce such effects and the alternatives considered. This is to support consultees in developing an informed view of the likely significant environmental effects of the proposed scheme. To be issued prior to public consultation in summer 2018.
 - The proposed scheme boundary has developed to incorporate additional areas for flood compensation, construction compounds and ecology candidate sites. 2017 ecology surveys and reports were based on a larger proposed scheme boundary which has now been refined in 2018.
 - Scheme Figures and proposed scheme boundary attached FYI.
5. Brief summary of ecology baseline surveys and discussion on proposed surveys for 2018:
- GB and HP ran through a summary of the ecology baseline surveys gathered in 2017 and proposed surveys for 2018.
 - Refer to Tables attached for condensed summaries.
 - General agreement on the scope for the following surveys in 2018:
 - Selective updates to botanical survey data from 2015.
 - Further botanical survey of the restored landfill site at Little Eaton following the botanical survey in 2017.
 - River habitat survey of those watercourses to be directly impacted/ diverted by the proposed scheme (Dam Brook and Bramble Brook).
 - Complete reptile surveys at two discrete areas at Little Eaton which could not be completed in 2017 (TT confirmed absence of reptiles in the wider area and considered low risk to the proposed scheme).
 - Updated characterisation of setts potentially impacted by the scheme to inform licencing (TT highlighted that there is a new contact at the badger group so may be able to now get hold of desk study data).
 - Complete otter and water vole surveys at Little Eaton which could not be completed in 2017.
 - Update of 2015 bat survey data.
 - Complete bat surveys at Markeaton and Little Eaton junction (buildings and trees) which could not be completed in 2017.
 - Further updated characterisation surveys of identified bat roosts to support licences not considered to be required as surveyed in 2017 (to be confirmed with Natural England).
 - Further presence/ absence survey on Dam Brook upstream of the A38/ A61 roundabout to determine the likely impact of the proposed scheme on any remnant white-clawed crayfish populations which may be located upstream of the weir at this location.
 - Selective update of the 2015 terrestrial invertebrate survey data across the proposed scheme.
 - Terrestrial invertebrate survey (June, July and August) of the proposed construction compound at Little Eaton.
 - Update of 2015 aquatic macroinvertebrate survey data

(Markeaton Brook, Bramble Brook, River Derwent, Dam Brook).

- HP highlighted the issue of dense scrub in 2017 which inhibited safe survey access within the Kingsway Roundabout. HP recalled RC getting in touch with AECOM in 2017 to advise that Highways England Area 7 was undertaking habitat maintenance at that location and enquired re. existing botanical survey data. Information was sent through by GB. HP asked if the habitat maintenance / scrub clearance took place in 2017. **RC stated that it should have taken place – RC will confirm.**
- HN enquired re. the proposed construction compound at Little Eaton and its potential future use (located in green belt). SW confirmed that the scheme is not facilitating future development of it. The scheme will use it temporarily and return it to the land own.
- RC mentioned that there is bat monitoring survey data for the River Derwent bridge. **RC to send through details.**

RC

RC

6. Approach for draft licences to support the Environmental Statement:
- At the moment it is considered that Natural England draft licences (and supporting letters of no impediment LoNI) are required for bats and badgers only.
 - Discussion and separate meeting to be had with Natural England under Discretionary Advice Service (DAS) re. LoNI and timescales.
 - Also, plan to discuss with Natural England Assessment of Implications on European Sites Report (AIES).

7. Outline mitigation and proposed approach for the no-net loss assessment:
- High level mitigation at this stage; to facilitate a joint up approach.
 - Plan to align WFD objectives with ecological survey work (i.e. River Habitat and Aquatic Invertebrate survey).
 - Licences will include mitigation re. bats. Thoughts about potential bat box locations to be considered with DCiC.
 - Areas within the red line boundary include candidate sites for potential ecological enhancement.
 - No-net loss assessment currently to be based on the DEFRA metric. Candidate sites for ecological enhancement will assist.
 - HN confirmed that the Heritage lottery fund work at Markeaton Park is completed.
 - The National Trust has commissioned a 3 to 4 year project re. the crayfish at Kedleston Lake. Aiming to find an ark site to restrict spread of signals.
 - LH mentioned Environment Agency (EA) aquatic invertebrate/ water monitoring sites along watercourses. Results to be shared. **LH will forward. HP to send through map of aquatic invertebrate survey locations (if required).**
 - Air shaft and tunnels will have protection zones in place. They are 9ft deep beneath the ground and filled with sediment.
 - Cycle path down Mackworth Park from Mickleover. **HN to forward recent plans.**

LH / HP

HN

8.	Re-cap of last meeting minutes: <ul style="list-style-type: none">- Actions outstanding:<ul style="list-style-type: none">• HN advised on overhead services diversions currently being conducted in the area of Mackworth Park. Details on this considered not to be required for now.	
9.	Any other business: <ul style="list-style-type: none">- AECOM are putting together landowner reports, where these have been requested, summarising details of surveys from 2017.- Designated Fund applications still in progress (1) green footbridge at Markeaton(2) Enhancement of habitats adjacent to the strategic road network).- LH mentioned Water Environment Grant Scheme (involving the Environment Agency, Trent River Trust and Derwent Catchment Partnership) and LH will forward details.	LH
10.	Date of next meeting to be confirmed.	

Minutes Produced by: Hannah Procter
Reviewed by: Gaele Bardsley/ Simon Wild
Issued by: Marlene Segre

Table 1: Summary of ecological studies and surveys carried out up to the end of 2017

Study / Survey	Survey Date	Study Area	Description	Report Reference
Desk Study	January 2015	International statutory designated sites up to 30 km from the 2015 proposed scheme boundary for sites designated at an international level for bats. All other statutory and non-statutory designated sites and non-designated sites of interest, and protected / notable species records up to 2km from the 2015 proposed scheme boundary.	A desk-based study with Derbyshire Wildlife Trust and other specialist groups, to identify international, national and other statutory designated sites, non-statutory local sites and non-designated sites of interest within proximity to the proposed scheme. Online resources also reviewed.	47071319-URS-05-RP-EN-003
Extended Phase 1	January/February 2015	Up to 50m from the 2015 proposed scheme boundary	Extended Phase 1 habitat survey to map habitat types, and assess the potential for protected species and/or habitats or species groups of nature conservation importance to occur on and within close proximity to the 2015 proposed scheme. Included an assessment of features on and adjacent to the 2015 proposed scheme site for bat roost potential. The location and extent of invasive plant species was also recorded as part of these vegetation surveys.	47071319-URS-05-RP-EN-003
Breeding bird surveys	April, May and June 2015	Up to 500m from the 2015 proposed scheme boundary (although habitats within 50m of the 2015 proposed scheme were given greater emphasis)	Breeding bird surveys to specifically identify any notable / Schedule 1 bird species or assemblages of bird species within the extent or immediate vicinity of the 2015 proposed scheme.	47071319-URS-05-RP-EN-008
Great crested newt surveys	mid-April to May 2015	Up to 500m from the 2015 proposed scheme boundary	Great crested newt survey of ponds located within 500m of the 2015 proposed scheme to determine the presence/likely absence of great crested newts.	47071319-URS-05-RP-EN-009
Reptile surveys	June 2015	Up to 50m from the 2015 proposed scheme boundary	Reptile surveys at discrete locations that were considered to be potentially suitable to support this species group.	47071319-URS-05-RP-EN-010
Botanical survey	June 2015	Up to 50m from the 2015 proposed scheme boundary	Botanical survey of selected areas of grassland, hedgerows and other habitats comprising broadleaved woodland, plantation, scrub, ditch and standing water.	47071319-URS-05-RP-EN011
Badger surveys	January 2015	Up to 50m from the 2015 proposed scheme boundary (extended up to 500 m from the proposed scheme boundary (where access allowed) to check those badger records identified from the desk study data search).	Badger survey also included ongoing monitoring in the 2015 ecology survey season to determine the presence of badger setts, and other badger field signs, across the proposed scheme.	47071319-URS-05-RP-EN-012
Terrestrial invertebrate surveys	June and August 2015	Up to 50m from the 2015 proposed scheme boundary for terrestrial invertebrates	Terrestrial invertebrate survey of selective areas of suitable habitat within and adjacent to the proposed scheme.	47071319-URS-05-RP-EN-013
Water vole and otter surveys	March and May 2015	Up to 250m from the 2015 proposed scheme boundary	Water vole and otter surveys on watercourses within and adjacent to the proposed scheme considered suitable to support these species groups.	47071319-URS-05-RP-EN-014
River habitat and river corridor survey	May 2015	Up 500m from the 2015 proposed scheme boundary	River habitat and river corridor survey of watercourses that may be crossed or potentially directly impacted by the proposed scheme.	47071319-URS-05-RP-EN-015
White-clawed crayfish surveys	July and August 2015	At least 50m from the 2015 proposed scheme boundary (extended further where necessary to take into account a 100 - 200 m sampling site within a 500 m section of watercourse)	White-clawed crayfish surveys on watercourses identified as potentially suitable to support this species group.	47071319-URS-05-RP-EN-017
Aquatic macro-invertebrate survey	Spring, Summer and Autumn 2015	Up to 250m from the 2015 proposed scheme boundary for aquatic macroinvertebrates	Aquatic macro-invertebrate survey on watercourses that would be most likely affected by the proposed scheme.	47071319-URS-05-RP-EN-018
Bat surveys	May to September 2015	Up to 50m from the 2015 proposed scheme boundary	Bat surveys on trees and structures, which were identified as having potential to support roosting bats during the Extended Phase 1, to determine the presence/likely absence of bats roosting. Bat activity surveys, comprising walked transect and static detector surveys, and	47071319-URS-05-RP-EN-020

Study / Survey	Survey Date	Study Area	Description	Report Reference
			bat trapping surveys, were also undertaken across the proposed scheme.	
Wintering bird surveys	September 2015 to March 2016	Targeted areas within and adjacent to the 2015 proposed scheme boundary only up to 100m	Wintering bird surveys to identify any notable wetland bird species or assemblages within the extent of the proposed scheme.	47071319-URS-05-RP-EN-022
Updated Desk Study	September 2016	Statutory and non-statutory designated sites and non-designated sites of interest 2km from the 2016 proposed scheme boundary.	An updated desk study was carried out for the proposed scheme, plus 19 Additional Sites identified as potential flood compensation; borrow pits; construction compounds; and/or ecological compensation areas.	47071319-URS-05-TN-EN-023
Extended Phase 1 Habitat Survey	September/October 2016	Up to 50m from the boundary of each of the 19 Additional Sites identified beyond the 2016 proposed scheme boundary.	Extended Phase 1 habitat surveys were carried out across 19 Additional Sites identified as potential flood compensation; borrow pits; construction compounds; and/or ecological compensation areas.	47071319-URS-05-TN-EN-023
Wintering Bird Survey	September 2016 to March 2017	Targeted areas within and adjacent to the 2016/17 proposed scheme boundary up to 100m.	Wintering bird surveys to identify any notable wetland bird species or assemblages within the extent of Additional Sites 7a, 7b, 10, 21, 19a, 19b and 19c, which were not previously surveyed.	To be published
Extended Phase 1 Habitat Survey	February to June 2017	Up to 50m from the 2017 proposed scheme boundary.	Extended Phase 1 habitat survey to resurvey the habitats previously surveyed in 2015 and 2016, and survey new areas identified in 2017 as a result of proposed scheme boundary changes. This defined the scope of surveys for 2017 (as listed below).	To be published
Breeding Bird Survey	March to July 2017	Up to 50m from the 2017 proposed scheme boundary (Only 50 m in comparison to 500m. The 2017 surveys were an update to the 2015 surveys. The surveys in 2015 were based on the road development (with potentially further ranging impacts). The additional sites, which concern storage areas, flood compensation/ecological compensation areas, were considered to not have as wider scale impacts. Schedule 1 species were however regarded adjacent to the sites).	As the 2015 breeding bird survey results were approaching 2 years old, those areas with the highest potential for breeding birds were resurveyed in 2017 to provide an update to determine whether the breeding bird assemblage remained comparable to that identified in 2015. Furthermore additional areas (for potential construction compounds, flood storage and ecological compensation) were added to the proposed scheme boundary, and required a full suite of breeding bird surveys in 2017.	To be published
Great Crested Newt Survey	Mid-April to May 2017	Up to 500m from the 2017 proposed scheme boundary	Great crested newt survey of ponds located within 500m of the 2017 proposed scheme to determine the presence/likely absence of great crested newts. New ponds identified which were not previously surveyed. Additionally, although a negative result in 2015, age of data was approaching 3 breeding seasons old and recommended to be updated.	To be published
Reptile Survey	September to October 2017	Targeted areas within and adjacent to the 2017 proposed scheme boundary up to 100m	Reptile surveys at discrete locations that were considered to be potentially suitable to support this species group which were not previously surveyed in 2015. The new grassland habitats within Sites 8, 10 and 19 were identified to have potential to support reptile populations.	To be published
Botanical Survey	July 2017	Targeted areas within and adjacent to the 2017 proposed scheme boundary up to 50m	Resurvey of A38 Roundabout LWS and Alfreton Road Grassland LWS given the data from 2015 was approaching 2 years old. Survey of the A38 Scrub Site of Interest, a new designated site and area of woodland identified in 2017 due to proposed scheme boundary changes. Updated vegetation survey of species-rich areas and seven new grassland areas identified in 2017 due to proposed scheme boundary changes. One new hedgerow H8 species-rich also identified for further survey.	To be published
Badger Territory Analysis	January to February 2017	Up to 50m from the 2017 proposed scheme boundary (extended up to 500 m from the proposed scheme boundary (where access allowed) to check those badger records identified from the desk study data search).	Updated badger survey and territory analysis based on the 2017 proposed scheme boundary.	To be published

Study / Survey	Survey Date	Study Area	Description	Report Reference
Water Vole and Otter Survey	May to September 2017	Up to 250m from the 2017 proposed scheme boundary.	<p>As the 2015 water voles survey results were approaching 2 years old, it was recommended that these waterbodies are re-surveyed.</p> <p>Lower reaches of Bramble Brook, upper and lower reaches of the River Derwent, lower reaches of Watermeadows Ditch, Bottle Brook and Pb1 were new watercourses / stretches of watercourse identified for survey as a result of proposed scheme boundary changes.</p>	To be published
White-clawed Crayfish Survey	July 2017	At least 50m from the 2017 proposed scheme boundary at Little Eaton only (extended further where necessary to take into account a 100 - 200 m sampling site within a 500 m section of watercourse)	<p>In 2015 AECOM recorded white-clawed crayfish on the Dam Brook. Potential for this species to be present within other watercourses and waterbodies which exist within or adjacent to the proposed scheme at Little Eaton Junction only. Data approaching 2 years old therefore updated survey recommended.</p> <p>As a result of the AECOM 2015 survey findings and the close proximity of signal crayfish further white-clawed crayfish surveys in the Markeaton and Kingsway junctions were not considered necessary and were discounted from further survey in 2017</p> <p>Bottle Brook was a new watercourse not previously surveyed in 2015.</p>	To be published
Aquatic Macroinvertebrate Survey	May and November 2017	Targeted areas from the 2017 proposed scheme boundary up to 250m	<p>Bottle Brook was a new watercourse identified as a result of proposed scheme boundary changes and subject to spring, summer and autumn aquatic macroinvertebrate surveys.</p>	To be published
Bat Trapping and Radio-tracking	June and September 2017	Targeted areas within and adjacent to the 2017 proposed scheme boundary at Markeaton.	<p>Targeted bat trapping and radio-tracking surveys on tree roosting bat species within and adjacent to the proposed scheme boundary at Markeaton (Markeaton Park and Mill Ponds).</p> <p>Also carried out to assist with determining population dynamics given high habitat valuation for bats at Markeaton.</p>	To be published
Tree Climbing Bat Assessment	March to July 2017	Up to 50m from the 2017 proposed scheme boundary	<p>PRF assessment on trees with potential to be impacted by the proposed scheme, and not previously surveyed in 2015.</p>	To be published
Bat Roost Survey – Buildings and Structures	February to September 2017	Up to 50m from the 2017 proposed scheme boundary (confirmed roosts only or new features not previously surveyed in 2015)	<p>External and internal survey assessments for the 17 residential properties at the Markeaton junction section of the proposed scheme, and subsequent dusk emergence and dawn re-entry surveys (where required).</p> <p>Bat roost presence / absence surveys for confirmed roost sites at buildings and structures identified from the 2015 and 2016. This was to aim to gain up to date and more detailed survey information to further characterise the roosts, to support the ecological impact assessment of the scheme and feed into any potential draft licence applications.</p> <p>Dusk emergence / dawn return surveys recommended for the new potential roost features identified during the 2017 PRF assessment with potential to be impacted by the proposed scheme, and not previously surveyed in 2015.</p>	To be published
Bat Activity Survey	April to October 2017	Up to 50m from the 2017 proposed scheme boundary.	<p>Significant change in habitat suitability for bats recorded in 2017; in comparison to 2015. This was based on the bat survey results from 2015, desk study data records, and updated survey guidance.</p> <ul style="list-style-type: none"> • Kingsway – Low (requiring spring, summer and autumn transects) • Markeaton – Moderate to High (recommended for bat trapping and radio tracking and transects alongside the Kingsway surveys) • Little Eaton – Moderate value (requiring monthly transect surveys April to October). 	To be published

Table 2: Designated and Non-Designated Sites Summary

Table 2(a): European Designated Sites within 30km of the proposed scheme

Site Name	Designation(s)	Primary Reason for Designation	Relationship to Scheme
Gang Milne	Special Area of Conservation (SAC)	The site contains the richest anthropogenic Calaminarian grasslands in the UK.	Approx. 18km to the north-west of the Kingsway and Markeaton junctions; and approx. 15 km to the north west of Little Eaton junction.
Bee Nest & Green Clay Pits	SAC	Great crested newts occur in a number of ponds on site, which vary in size, profile and vegetation cover.	Approx. 19km to the north-west of the Kingsway and Markeaton junctions; and approx. 18km to the north-west of Little Eaton junction.
Peak District	SAC	Semi-natural dry grassland and scrubland facies on calcareous substrates (important orchid site), tillo-acerion forests of slopes, screes and ravines. White-clawed crayfish.	A number of isolated stretches – the nearest located approx. 19km to the north-west of the Kingsway and Markeaton junctions; and approx. 17 km to the north-west of Little Eaton junction.
South Pennine Moors	SAC and Special Protection Area (SPA)	European dry heaths, blanket bogs, old sessile oak woods with Ilex and Belchnum in the British Isles. Internationally important assemblage of birds.	Approx. 28km to the north of the Kingsway and Markeaton junctions; and approx. 24 km to the north of Little Eaton junction.
River Mease	SAC	Spined loach and bullhead.	Approx. 20 km to the south of the Kingsway and Markeaton junctions; and approx. km to the south of Little Eaton junction
West Midlands Mosses	SAC and Ramsar	Natural dystrophic lakes and ponds. Transition mires and quaking bogs. Nationally important wetland habitats with noteworthy fauna including birds and invertebrates.	Approx. 30km to the south-west of the Kingsway and Markeaton junctions

Table 2(b): Statutory Designated Sites within 2km of Kingsway and Markeaton Junctions

Site Name	Designation(s)	Reason for Designation	Relationship to Scheme
Kedleston Park	Site of Special Scientific Interest (SSSI)	Rich and diverse deadwood invertebrate fauna which is primarily dependent upon the large number of mature and over-mature beech and pedunculate oak trees.	Approx. 1.9km north-west of the scheme boundary (Markeaton junction)
Mickleover Meadows	Local Nature Reserve (LNR)	Diverse habitat mosaic	0.7km west of the scheme boundary (Kingsway junction)
Darley and Nutwood	LNR	Habitats include grassland being invaded by scrub and woodland which includes an area of ancient woodland.	1.5km north-east of the scheme boundary (Markeaton junction)

Table 2(c): Non-statutory Designated Sites within 2km of Kingsway and Markeaton Junctions

Site Name	Designation(s)	Reason for Designation	Relationship to Scheme
A38	Local Wildlife Site	Semi-improved neutral	Within the scheme boundary

Site Name	Designation(s)	Reason for Designation	Relationship to Scheme
Roundabout	(LWS)	grassland	
Mickleover Railway Cutting	LWS	Habitat mosaic	Adjacent to the scheme boundary continuing up to 0.8km west of the scheme boundary
Markeaton Brook System	LWS	Invertebrate assemblage (including white-clawed crayfish)	Within the scheme boundary continuing up to 0.8km south-east of the scheme boundary and 1.2 km north of the scheme boundary
Bramble Brook and Margins	LWS	Secondary broad-leaved woodland	Adjacent to and within the scheme boundary
Markeaton Park	LWS	Wood pasture and Parks including veteran trees (BAP habitat – Wood pasture)	Directly adjacent to the north and west of the scheme boundary
Osierbed and Gravelpit Woods	LWS	Secondary broad-leaf wet woodland	Approx. 0.3km north west of the scheme boundary
Markeaton Lane Meadow	LWS	No information	Approx. 0.4km north of the scheme boundary
Kedleston Road Marsh	LWS	No information	Approx. 0.8km north of the scheme boundary
Beech Wood	LWS	No information	Approx. 0.5km north east of the scheme boundary
Friargate Station	LWS	Presence of Red data book (RDB) species (BAP habitat – Open mosaic)	Approx. 0.8km east of the scheme boundary
Kedleston Road Hedge	LWS	No information	Approx. 0.8km north of the scheme boundary
River Derwent	LWS	No information	Approx. 1.1km east of the scheme boundary
Mickleover – Etwall Trail (Derby)	LWS	No information	Approx. 1.3km west of the scheme boundary
Mackworth Brook	LWS	No information	Approx. 1.4km west of the scheme boundary
Inglewood Avenue Meadow	LWS	No information	Approx. 1.5km west of the scheme boundary
Radbourne Lane Hedge	LWS	No information	Approx. 1.5km west of the scheme boundary
Bunkers Wood	LWS	No information	Approx. 1.3km south of the scheme boundary
Woodlands School Hedges	LWS	No information	Approx. 1.8km north of the scheme boundary
Darley and Nutwood	LWS	No information	Approx. 1.5km north-east of the scheme boundary

Table 2(d): Non-Designated Sites of Interest within 2km of Kingsway and Markeaton Junctions

Site Name	Category (with DWT reference number when available)	Reason for Designation	Relationship to Scheme
Land off Kingsway	Potential Local Wildlife Site (PLWS) (DE115 and (R6541)	Running water and small pond	Approx. 0.2km east of the scheme boundary
King Street	PLWS (DE072/3)	No information	Approx. 0.9km east of the scheme boundary
Old Cemetery	DE081/3	Not assessed	Approx. 1.0km east of the scheme

Site Name	Category (with DWT reference number when available)	Reason for Designation	Relationship to Scheme
			boundary
All Saints Churchyard	AV015/3	Not assessed	Approx. 1.3km west of the scheme boundary
Littleover Brook	DE073/3	Not assessed	Approx. 1.3km south east of the scheme boundary
Rykneld Recreation Ground	DE087/3	Not assessed	Approx. 1.4km south east of the scheme boundary
Bunkers Grassland - Derby	PLWS	No information	Approx. 1.1km south of the scheme boundary
Hackwood Farm Pond	DE071/3	No information	Approx. 1.6km west of the scheme boundary
Markeaton Brook	AV017/3	No information	Approx. 1.8km south of the scheme boundary
Old Hall Wood	DE082/3	Not assessed	Approx. 1.2km south of the scheme boundary
Gold Lane	AV009/3	No information (BAP habitat adjacent – Traditional Orchard)	Approx. 1.8km west of the scheme boundary
Richmond Close	PLWS	No information	Approx. 1.6km south of the scheme boundary
Lower Vicarwood Pond 2	AV010/3	No information	Approx. 1.9km north west of the scheme boundary
Hell Brook & Hell Brook Copse	PLWS	No information	Approx. 1.4km south of the scheme boundary
Lower Vicarwood Pond	AV013/3	No information	Approx. 2.0km north west of the scheme boundary
Broadway Stream	DE056/3	No information	Adjacent to Markeaton junction scheme section

Little Eaton Junction

Table 2(e): Statutory Designated Sites within 2km of Little Eaton Junction

Site Name	Designation(s)	Reason for Designation	Relationship to Scheme
Breadsall Railway Cutting	LNR, SSSI	Unimproved grassland. Calcareous, neutral and acidic grassland. Diverse butterfly population.	Approx. 1.5km south east of the scheme boundary
Allestree Park	LNR	Parkland, veteran trees, secondary woodland and open water	Approx. 0.2km west of the scheme boundary
Darley and Nutwood	LNR	Habitats include grassland being invaded by scrub and woodland which includes an area of ancient woodland.	Approx. 0.15km south of the scheme boundary
Chaddesden Wood and Lime Lane Wood	LNR	Ancient semi-natural oak woodland	Approx. 1.6km east of the scheme boundary

Table 2(f): Non-statutory Designated Sites within 2km of Little Eaton Junction

Site Name	Designation(s)	Reason for Designation	Relationship to Scheme
Alfreton Road Rough Grassland	LWS	Floodplain grassland semi-improved	Within the scheme boundary.
River Derwent	LWS	Flowing water, river and associated streams	Within the scheme boundary.
Allestree Park	LWS	Unimproved neutral grassland (BAP habitat – Wood pasture)	Approx. 0.2km west of the scheme boundary.
Darley and Nutwood	LWS	Neutral grassland and ancient woodland	Approx. 0.15km m south of the scheme boundary
Burley Hill Farm Scrub and Grassland	LWS	Unimproved acid grassland	Approx. 1km west of the Little Eaton junction Site boundary
Breadsall Disused Railway	LWS	Unimproved neutral grassland	Approx. 0.3km south east of the Little Eaton junction Site boundary
Hatherings Wood, Little Eaton	LWS	Secondary broadleaved woodland	Approx. 0.6km north of the Little Eaton junction Site boundary
Camp Wood, Little Eaton	LWS	Secondary broad-leaved woodland	Approx. 0.3km east of the Little Eaton junction Site boundary
Watermeadows ditch	LWS	Standing open water	Approx. 0.4km south of the Little Eaton junction Site boundary
Peckwash Mills	LWS	Secondary broadleaved woodland	Approx. 1.4km north of the Little Eaton junction Site boundary.
Nooney's Pond	LWS	Standing open water	Approx. 0.7km south of the Little Eaton junction Site boundary
Darley Park	LWS	Wood Pasture and Parkland (BAP habitat – Wood pasture)	Approx. 0.7km south of the Little Eaton junction Site boundary
Beech Wood	LWS	No information	Approx. 1.0km south-west of the Little Eaton junction Site boundary.
Drum Hill Fields, Breadsall Moor	LWS	Unimproved acid grassland (BAP habitat – Lowland heathland)	Approx. 0.1km north-east of the Little Eaton junction Site boundary.
Ferriby Brook and Dam Brook	LWS (Includes PLWS (ER R6599 and ER009/3))	Secondary broad-leaved woodland	Approx. 1.2km east of the Little Eaton junction Site boundary
Moor Road fields	LWS	Semi-improved neutral grassland	Approx. 1.2km east of the Little Eaton junction Site boundary
Porter's Lane Hedge	LWS	Hedgerow	Approx. 1.2km south east of the Little Eaton junction Site boundary
Woodlands School Hedges	LWS	Hedgerow	Approx. 1.2km west of the Little Eaton junction Site boundary.
Breadsall Priory Golf Course	LWS	Wood-pasture and parks	Approx. 1.2km north east of the Little Eaton junction Site boundary
Porter's Lane Pond	LWS	Standing open water	Approx. 1.4km south east of the Little Eaton junction Site boundary
Horsley Carr	LWS	Ancient woodland plantation-mixed	Approx. 0.6km north-east of the Little Eaton junction Site boundary.
Moor plantation & Drum Hill	LWS	Secondary broadleaved woodland	Approx. 0.25km north-east of the Little Eaton junction Site boundary.
Eatonpark Wood	LWS	Secondary broadleaved woodland (BAP habitat – Wood pasture)	Approx. 0.8km north of the Little Eaton junction Site boundary.

Site Name	Designation(s)	Reason for Designation	Relationship to Scheme
Burley Wood	LWS	Ancient-woodland plantation-broadleaved	1.5km west of the Little Eaton junction Site boundary.
High View South Community School Nature Reserve	LWS	Unimproved neutral grassland	Approx. 1.5km south east of the Little Eaton junction Site boundary
Whittaker Lane Woodland	LWS	Secondary broadleaved woodland	Approx. 1.1km north of the Little Eaton junction Site boundary.
Breadsall Railway Cutting	LWS	Unimproved neutral grassland	Approx. 1.6km south of the Little Eaton junction Site boundary
Chaddesden Wood and Lime Lane Wood	LWS	Ancient semi-natural oak woodland (BAP habitat – Traditional orchard)	Approx. 1.6km east of the scheme boundary
Kedleston Road Hedge	LWS	No information	Approx. 1.7km south-west of the scheme boundary.
Markeaton Park	LWS	No information	Approx. 1.8km south-west of the scheme boundary
Markeaton Lane Meadow	LWS	No information	Approx. 1.8km south-west of the scheme boundary
Kedleston Road Marsh	LWS	No information	Approx. 1.8km south-west of the scheme boundary
Great Farley's Wood	LWS	Ancient semi-natural woodland-mixed (BAP habitat – Traditional orchard)	Approx. 1.75km north of the scheme boundary.
Markeaton Brook System	LWS	No information	Approx. 2.0km south-west of the scheme boundary.
The Warren, Coxbench LWS	LWS	No information	Approx. 1.5km north of the scheme boundary.

Table 2(g): Non-designated Sites of Interest within 2km of Little Eaton Junction

Site Name	Category (with DWT reference number when available)	Reason for Designation	Relationship to Scheme
A38 Scrub	DE050/3	Not assessed	Within the scheme boundary
Ford Lane Field	Site recorded as a PLWS in 2015 by DWT but not in 2016. AV Grassland (no designation number)	Semi-improved acid grassland, needs survey	Within the proposed scheme boundary
Des Lane Brook Course	DE/3	Not assessed	To the west of scheme boundary
Boosemoor Brook	ER018/3	Not assessed	Adjacent to the east of the scheme boundary
Plantation	ER017/3	Not assessed	Adjacent to the scheme boundary
Old Derby Canal	ER003/3	Not assessed	Adjacent to the south of the scheme boundary
Croft Wood	PLWS ER004	Secondary woodland	Approx. 0.3km south of the scheme boundary
Marsh area, Breadsall	PLWS ER001	Swamp	Approx. 0.2km south of the scheme boundary
The Slip	ER007/3	Not assessed	Approx. 0.9km east of the scheme

Site Name	Category (with DWT reference number when available)	Reason for Designation	Relationship to Scheme
			boundary
A6 Bank	PLWS DE R6335	Semi-improved grassland	Approx. 0.3km west of the scheme boundary
Holme Nook Ponds	PLWS DE R6440	Open water	Approx. within 0.25km south of the scheme boundary
Rigga Quarry	PLWS	No information	Approx. 1km north west of the scheme boundary
Manor Farm Pasture	PLWS ER R6496	Acid grassland	Approx. within 0.4km south east of the scheme boundary
Waste Land, Duffield	AV120/3	No information	Approx. 1.5km north west of the scheme boundary
St Edmunds Churchyard	DE088/3	Not assessed	Approx. 0.5km west of the scheme boundary
Garage Pond	ER187/3	Not assessed	Approx. 0.6km south east of the scheme boundary
Mill Plantation	PLWS ER008	Secondary woodland	Approx. within 0.7km east of the scheme boundary
Outwoods	PLWS	No information	Approx. 1.25km south of the scheme boundary
Haslams Lane Brook course	Haslams	No information	Approx. 1km south of Little Eaton junction scheme section
Embankment, Little Eaton	ER125/3	Not assessed	Approx. 0.6km north east of scheme boundary
Little Eaton Acid Grassland	PLWS	No information	Approx. 0.05km north east of the Little Eaton junction scheme section.
Ferriby Brook	PLWS	No information	Approx. 1.1km east of the scheme boundary
Home Farm Pond	ER015/3	No information	Approx. 1.3km north of the scheme boundary
Breadsall Moor Grassland	PLWS	No information	Approx. 0.4km north east of the scheme boundary
River Derwent, Duffield Bridge	AV122/3	No information	Approx. 1.9km north of the scheme boundary
Broomfield Hedge	PLWS ER R6600	Ancient hedge	Approx. 1.5km east of the scheme boundary
Broomfield College grasslands	PLWS	No information	Approx. 1.8km east of the scheme boundary
Daypark Quarry	AV030/3	No information	Approx. 1.4km north of the scheme boundary
Bank plantation Horsley	PLWS	No information	Approx. 1.9km north of the scheme boundary
Castle Wood Coxbench	PLWS AV038/3	No information	Approx. 1.1km north of the scheme boundary

Table 3 Habitats Summary

Ecological Feature – Habitats	Description of Findings	Survey Work Undertaken for the Proposed Scheme in 2015	Survey Work Undertaken for the Proposed Scheme in 2016	Survey Work Undertaken for the Proposed Scheme in 2017	Recommended Survey Work for 2018
Semi-natural broad-leaved woodland and scattered broad-leaved trees	Present within the Kingsway junction and the A38 central reservation to the south of Kingsway junction. A wide fringe of broad-leaved woodland was also recorded in Markeaton Park, including veteran trees. Trees also fringed Markeaton Lake and Mill Pond. Isolated pockets of habitat also present across the proposed scheme at both Kingsway and Makaton junction and Little Eaton junction section.	Extended Phase 1 habitat survey in 2015; botanical survey in 2015; and river habitat and river corridor survey in 2015	Extended Phase 1 habitat survey in 2016 of the Additional Sites	Extended Phase 1 habitat survey in 2017 across the proposed scheme; botanical survey of species-rich grassland areas and new habitat areas (including semi-improved grassland, woodland and hedgerows) identified from proposed scheme boundary changes in 2017	Selective updates to botanical survey data from 2015; further botanical survey of the restored landfill site at Little Eaton following the botanical survey in 2017; and river habitat survey of those watercourses to be directly impacted / diverted by the proposed scheme (Dam Brook and Bramble Brook).
Semi-improved neutral grassland	Species rich semi-improved grassland is present at the A38 Roundabout LWS at Kingsway junction, on the embankment to the north of Little Eaton junction and restored landfill site at Little Eaton junction. However, in some areas of the A38 Roundabout LWS, the species rich semi-improved grassland is currently succeeding to scrub. Therefore there are areas which could be considered of lower nature conservation importance.				
Standing water and associated inundation vegetation	Twenty-three ponds were identified within 50m of the proposed scheme boundary. Other ponds located within 500m of the proposed scheme were considered in relation to their GCN breeding potential (see Appendix 8E Species).				
Running water	Seven streams were identified within 50m of the proposed scheme boundary: Bramble Brook, Markeaton Brook, Middle Brook, Watermeadows Ditch, Dam Brook, Boosemoor Brook and the River Derwent.				
Hedgerows	One hedgerow was surveyed as species-rich at Little Eaton but does not qualify as important under the wildlife and landscape criteria of the Hedgerow Regulations 1997. All other hedgerows surveyed across the proposed scheme were species poor and not important under the wildlife and landscape criteria of the Hedgerow Regulations 1997.				
Broadleaved plantation woodland	Broad-leaved plantation was present at Mackworth Park, on the approach of the Little Eaton junction on both sides of the carriageway, south west of the River Derwent, and to the east by Boosemoor Brook. Two lines of mature horse chestnut trees also present to the south east of Kingsway junction (within 50m of the proposed scheme boundary).				
Coniferous plantation	Two discrete stands of coniferous plantation was surveyed; one to the south of Little Eaton junction; and one to the north east of Kingsway roundabout.				
Mixed plantation woodland	The central reservation separating the carriageways north of Kingsway junction (leading to Markeaton junction) comprised very dense mixed plantation woodland, with native broad-leaved species. Mixed woodland plantation woodland was also located to the west of the A38 near to the entrance to Markeaton Park.				
Poor semi-improved grassland	Although semi-natural grassland is identified as an LBAP habitat, most of the grassland across the site was species-poor and of limited ecological importance in comparison to the more limited areas identified as species-rich. Semi-natural grassland is however known to have the potential to support a variety of species including invertebrates and nesting birds.				
Improved grassland and arable	Improved grassland and arable habitat recorded to the south and east of Little Eaton junction.				
Marshy grassland	An area of marshy grassland to the west of Ford Lane, choked by reedmace <i>Typha</i> sp., meadowsweet <i>Filipendula ulmaria</i> and ornamental non-native reed sweet grasses <i>Glyceria</i> spp. No open water was recorded.				
Dense and scattered scrub	Scattered scrub and dense scrub occurred in areas throughout the extent of the proposed scheme and were interspersed within grassland habitats. Willows and alders in particular occurred in proximity to the streams and areas of standing water.				
Tall ruderal	This habitat was commonly found along footpaths and along field margins. Numerous stands of Japanese knotweed, giant knotweed and Himalayan Balsam were also recorded.				
Amenity grassland	Most of the small gardens (including the gardens along Queensway) and mown verges associated with residential properties within the boundary of the proposed scheme were included in this habitat category. Amenity grassland was also recorded in Mackworth Park, Markeaton Park and Derby University.				
Hard standing and bare ground	Hardstanding was recorded principally associated with the carriageways of the A38 as well as public footpaths and residential and commercial properties surrounding the proposed scheme.				
Buildings	Buildings or man-made structures were recorded on or within 50m. Including residential properties at Markeaton junction; bridge structures at Kingsway junction; and bridges and mobile homes at Little Eaton junction.				

Table 4 Species Summary

Ecological Feature – Species	Description of Findings	Survey Work Undertaken for the Proposed Scheme in 2015	Survey Work Undertaken for the Proposed Scheme in 2016	Survey Work Undertaken for the Proposed Scheme in 2017	Recommended Survey Work for 2018
Flora species	<p>Sand spurrey <i>Spegularia rubra</i> data records possibly within the scheme boundary near Kingsway roundabout and near Site 21. Brown sedge <i>Carex disticha</i> data records also possibly within the scheme boundary near Site 3. However record accuracy not precise enough to determine exact locations.</p> <p>No notable flora species recorded on or within 50m of the proposed scheme boundary, from the Extended Phase 1 habitat and botanical surveys carried out to date, which require individual valuation or assessment. Further botanical surveys in 2018 will confirm this.</p>	Botanical survey in 2015	None	Botanical survey of species-rich grassland areas and new habitat areas (including semi-improved grassland, woodland and hedgerows) identified from proposed scheme boundary changes in 2017.	Selective updates to botanical survey data from 2015; and further botanical survey of the restored landfill site at Little Eaton following the botanical survey in 2017.
Great crested newts	<p>Desk study records of great crested newts within 2km of the proposed scheme. No great crested newts detected in the vicinity of the proposed scheme during surveys in 2015 or 2017.</p>	Great crested newt survey in 2015; and desk study with Derbyshire Wildlife Trust (DWT).	A review of waterbodies within 500 m of the Additional Sites was carried out in 2016; and updated desk study with DWT.	A review of waterbodies within 500m of the 2017 proposed scheme boundary; and great crested newt survey in 2017 across the proposed scheme.	None
Toads	<p>No records of common toad from desk study information. Toads (peak count of 26 individuals) found in ponds in association with Markeaton junction in 2015 and assumed to still be present in 2017 during great crested newt surveys. .</p>	Great crested newt survey in 2015; and desk study with DWT.	A review of waterbodies within 500m of the Additional Sites was carried out in 2016; and updated desk study with DWT.	A review of waterbodies within 500m of the 2017 proposed scheme boundary; and great crested newt survey in 2017 across the proposed scheme.	None
Reptiles	<p>Desk study records of reptiles were recorded within 1km of the proposed scheme.</p> <p>No reptiles were recorded across the proposed scheme during surveys in 2015.</p> <p>No significant habitat changes across the proposed scheme in regards to those areas of habitat previously surveyed in 2015. Given negative result in 2015; no further surveys were recommended in 2017 on those areas previously surveyed.</p> <p>New grassland habitats within Sites 8, 10 and 19 with potential to support reptile populations were identified in 2016/2017.</p> <p>No reptiles were found at Site 8 during surveys in 2017. However, surveys at Site 10 and 19 were only partially completed in 2017.</p>	Reptile survey in 2015; and desk study.	As part of the extended Phase 1 habitat survey of the Additional Sites in 2016, an assessment of habitats was made for their potential to support reptiles.	<p>Extended Phase 1 habitat survey based on 2017 proposed scheme boundary; and reptile survey of Site 8, 10 and 19.</p> <p>(Partially completed)</p>	Complete reptile surveys at Site 10 and 19.
Badger	<p>Due to the confidential nature of badger sett information, all current survey and assessment data has been withheld from this PEI Report. This information is, however, being fully considered and evaluated as part of the ongoing assessment into the potential effects on this legally protected species.</p>	Badger survey in 2015 and monitoring throughout the 2015 ecological survey season; and desk study.	Partial badger survey as part of extended Phase 1 habitat survey in 2016 at the Additional Sites.	Updated badger survey based on the 2017 proposed scheme boundary; and badger territory analysis.	Updated characterisation of setts potentially impacted by the scheme to inform licencing; and desk study data
Water vole	<p>Records of water vole exist within 1km of the proposed scheme as well as from numerous watercourses that flow through or adjacent to the proposed scheme from within the last 10 years.</p> <p>In 2015 AECOM recorded a water vole latrine on Watermeadows Ditch. No other signs recorded on any other watercourses surveyed.</p> <p>As the 2015 water voles survey results were approaching 2 years old, it was recommended that those waterbodies were re-surveyed in 2017 (i.e. Markeaton Brook, Markeaton Lake, Mill Ponds, Mackworth Brook, Bramble Brook, Dam Brook, Watermeadows Ditch, River Derwent and</p>	Water vole survey in 2015; and desk study.	As part of the extended Phase 1 habitat survey of the Additional Sites in 2016, an assessment of habitats was made for their potential to support water vole.	Extended Phase 1 habitat survey based on 2017 proposed scheme boundary; updated water vole survey of waterbodies surveyed in 2015; and water vole survey of new stretches of watercourse identified in	Complete surveys at Little Eaton junction section of the proposed scheme (drain Pb1, Watermeadows Ditch, Dam Brook and the River Derwent)

Ecological Feature – Species	Description of Findings	Survey Work Undertaken for the Proposed Scheme in 2015	Survey Work Undertaken for the Proposed Scheme in 2016	Survey Work Undertaken for the Proposed Scheme in 2017	Recommended Survey Work for 2018
	<p>Boosemoor Brook).</p> <p>New watercourses / stretches of watercourse identified for survey in 2017 as a result of proposed scheme boundary changes: Lower reaches of Bramble Brook, upper and lower reaches of the River Derwent, lower reaches of Watermeadows Ditch, Bottle Brook and drain Pb1.</p> <p>Due to the lack of available water vole habitat and water vole latrines within the Markeaton and Kingsway junctions, and on the Bottle Brook and Boosemoor Brook at the Little Eaton junction, it was considered that water voles were absent from these sections during surveys in 2017. Surveys were only partially completed in 2017 at drain Pb1, Watermeadows Ditch, Dam Brook and the River Derwent at Little Eaton junction.</p>			<p>2017</p> <p>(Partially completed)</p>	
Otter	<p>No records of otter from within the last ten years at Kingsway and Markeaton. Two recent otter records were however found at Little Eaton.</p> <p>During the 2015 field surveys at Kingsway and Markeaton Junctions, field signs of otter spraints were recorded at all six of the waterbodies surveyed. Two potential holt sites were also identified however these were found not to be in use in 2017.</p> <p>During the 2015 field surveys at Little Eaton Junction, field signs of otter spraints were recorded at three of the four waterbodies surveyed. A total of five spraints were recorded. No holts were recorded.</p> <p>Otter were considered to be present at both the Markeaton and Little Eaton junctions with watercourses used as both foraging and commuting routes, however they were absent from the Kingsway junction during surveys in 2017. Surveys were only partially completed in 2017 at Dam Brook and Watermeadows Ditch at Little Eaton junction.</p>	<p>Otter survey in 2015; and desk study.</p>	<p>As part of the extended Phase 1 habitat survey of the Additional Sites in 2016, an assessment of habitats was made for their potential to support otter.</p>	<p>Extended Phase 1 habitat survey based on 2017 proposed scheme boundary; otter survey of waterbodies surveyed in 2015; and otter survey of new stretches of watercourse identified in 2017.</p> <p>(Partially completed)</p>	<p>Complete surveys at Little Eaton junction section of the proposed scheme (Dam Brook and Watermeadows Ditch).</p>
Bats – Roosting (all species)	<p>Bat roosts were confirmed in 2017 at 3 bridges: B2 Flood Arch (also identified in 2015); B3 River Derwent bridge (also identified in 2015); B15 rail crossing; and 1 property: number 30 Queensway (part of B8). Surveys of the Queensway buildings at Markeaton junction were only partially completed in 2017.</p> <p>Three trees/ groups of trees were highlighted as being of importance to bats at Markeaton during surveys in 2015, with one confirmed roost and two flagged as possible roosts for common bat species. However, no bat roosts were identified within the proposed scheme boundary or 50m buffer, during the bat trapping and tracking surveys at Markeaton in 2017.</p> <p>65 new trees were surveyed in 2017 based on the 2017 proposed scheme boundary; and 35 trees previously surveyed in 2015 were reassessed in 2017. Surveys of trees across the proposed scheme were only partially completed in 2017.</p>	<p>Bat roost surveys in 2015 (each built structure and tree within the proposed scheme boundary was assessed in-line with then current guidance from the Bat Conservation Trust (BCT) (Hundt, 2012). Between May and September 2015 dusk emergence and/or dawn re-entry surveys and/or thermal imaging surveys were undertaken at those built structures identified by the preceding bat roost potential survey as having potential to support roosting); and desk study.</p>	<p>As part of the extended Phase 1 habitat survey of the Additional Sites in 2016, an assessment of habitats was made for their potential to support bats.</p>	<p>Bat surveys in 2017 (external and internal survey assessments for the 17 residential properties at the Markeaton junction section of the proposed scheme, and subsequent dusk emergence and dawn re-entry surveys.</p> <p>Bat roost presence / absence surveys for confirmed roost sites at buildings and structures identified from the 2015 and 2016.</p> <p>Tree climbing of new potential roost features based on the 107 proposed scheme boundary); and desk study.</p> <p>(Partially completed)</p>	<p>Update of 2015 bat survey data; complete bat surveys at Markeaton and Little Eaton junction (buildings and trees); and potentially further updated characterisation surveys of identified bat roosts to support licences.</p>

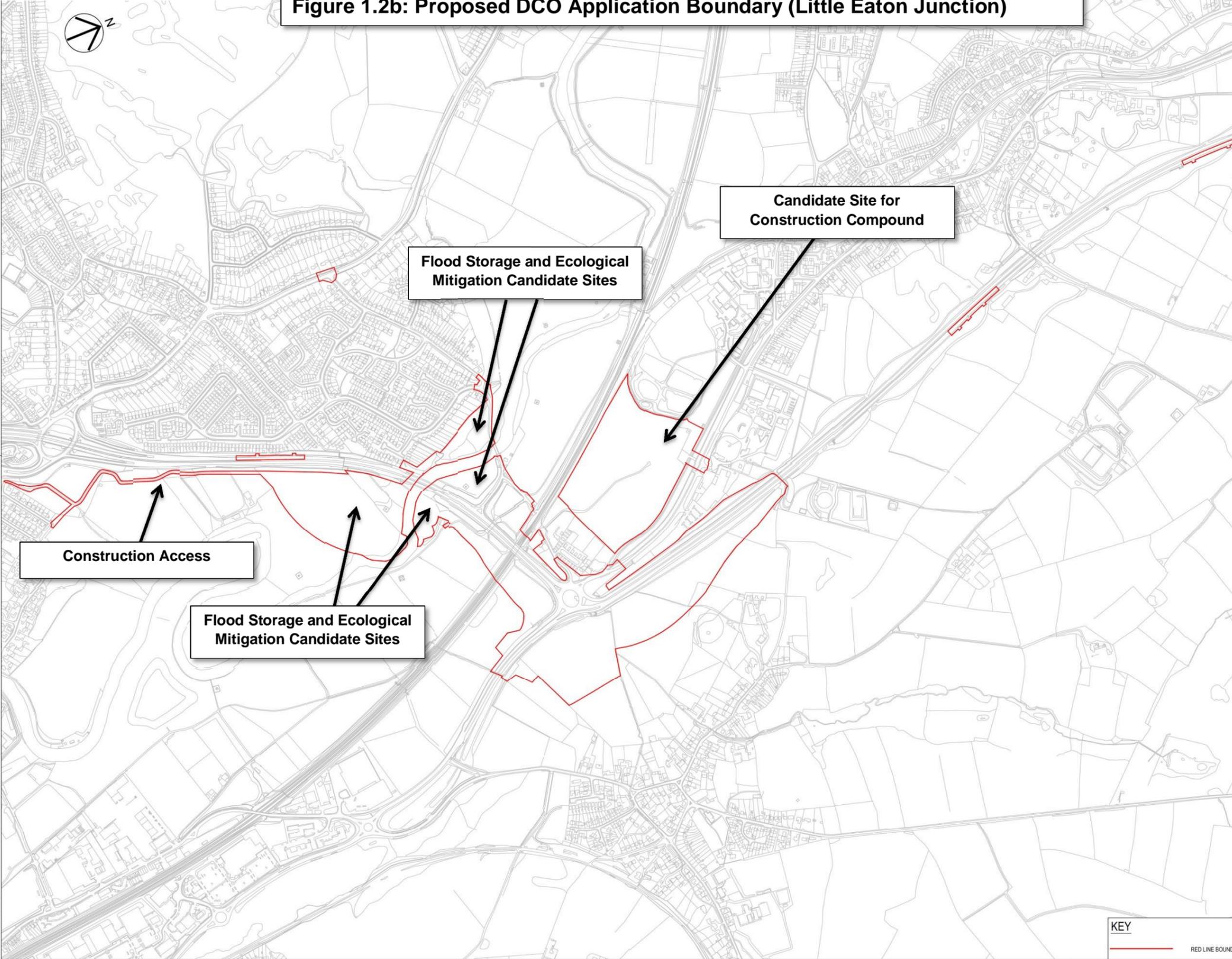
Ecological Feature – Species	Description of Findings	Survey Work Undertaken for the Proposed Scheme in 2015	Survey Work Undertaken for the Proposed Scheme in 2016	Survey Work Undertaken for the Proposed Scheme in 2017	Recommended Survey Work for 2018
Bats – Foraging and Commuting (all species)	<p>Significant change in habitat suitability for bats recorded in 2017; in comparison to 2015. This was based on the bat survey results from 2015, desk study data records, and updated survey guidance.</p> <ul style="list-style-type: none"> • Kingsway – Low (spring, summer and autumn transects) • Markeaton – Moderate to High (bat trapping and radio tracking and transects alongside the Kingsway surveys) • Little Eaton – Moderate value (monthly transect surveys April to October). <p>Key bat activity hotspots were identified within Markeaton Park and along the River Derwent (north and south of the A38) as well as to the north of the Flood Arch bridge at Little Eaton (Talbot Turf land).</p> <p>The trapping confirmed Markeaton Park to be a valuable foraging and commuting habitat for bats (with one bat travelling up to 5km from it's roost site to the park). The trapping also resulted in the first in hand record of a serotine bat for Derbyshire, therefore indicating that Markeaton was a possible valuable foraging and commuting route for this species.</p>	Bat activity surveys in 2015 – (activity surveys within and in the immediate vicinity of the proposed scheme were based on Hundt 2012 guidance. May, June and July transects); and desk study.	As part of the extended Phase 1 habitat survey of the Additional Sites in 2016, an assessment of habitats was made for their potential to support bats	Bat activity surveys in 2017 – (activity surveys within and in the immediate vicinity of the proposed scheme were based on Collins, 2016 guidance); bat trapping and radio-tracking; and desk study	None
Birds – Breeding	<p>Desk study records were returned for numerous bird species listed under Section 41 of the NERC Act (2006).</p> <p>Surveys in 2015 and/or 2017 confirmed:</p> <ul style="list-style-type: none"> • Barn owl at Little Eaton junction. • An assemblage of notable farmland birds on the pastoral land and arable land to the east of the A38 at Little Eaton. • A population of nesting lapwing south-west of Little Eaton junction. • Presence of the Schedule 1 little ringed plover and oystercatcher south-west of Little Eaton junction. • Common nesting bird species across the proposed scheme. • Breeding bird interest in association with scrub at the proposed construction compound at Little Eaton junction (Site 8). 	Breeding bird surveys in 2015 (conducted across the proposed scheme to assess the conservation importance of the local bird assemblage and to identify habitat of importance to members of this species group); and desk study.	As part of the extended Phase 1 habitat survey of the Additional Sites in 2016, an assessment of habitats was made for their potential to support breeding birds.	Selective updates across the proposed scheme based on the 2017 proposed scheme boundary; and full suite of breeding bird surveys at Sites 7a, 7b, 22, 10a (part of site 10), 19a and 19c.	None
Birds – Wintering	<p>Populations of wintering birds including lapwing and teal, in the flooded field south-west of Little Eaton junction was confirmed during surveys in 2015/16.</p> <p>None of the Additional Sites surveyed in 2017 supported significant numbers of wintering bird target species.</p>	Wintering bird surveys in 2015/16 (conducted at Alfreton Road grassland LWS and Talbot Turf to the south west of Little Eaton junction) and desk study.	Wintering bird surveys of Additional Sites 7a, 7b, 10, 21, 19a, 19b and 19c.	Update of 2015/16 wintering bird survey data at Little Eaton in 2017/18. (Results yet to be analysed and reported)	None
White-clawed crayfish	<p>At Kingsway and Markeaton Junctions, white-clawed crayfish <i>Austropotamobius pallipes</i> records were identified within 2 km of the junctions. At Little Eaton junction eleven records of white-clawed crayfish were identified within 2 km of the junction and this includes a record of a single female white-clawed crayfish within a section of Dam Brook.</p> <p>During field surveys in 2015 at Kingsway and Markeaton junction's, four sections of watercourse were identified as having potential to support white-clawed crayfish populations (Markeaton Lake, Mill Pond 1, Mill Pond 2 and Middle Brook), although no white-clawed crayfish were found in any of the surveyed watercourses. American signals <i>Pacifastacus leniusculus</i> were however found.</p> <p>During field surveys in 2015, at Little Eaton junction, four watercourses were identified as having potential to support white-clawed crayfish populations (River Derwent, Watermeadows ditch, Dam Brook and Boosemoor Brook). One white-clawed crayfish was recorded within Dam Brook.</p>	White-clawed crayfish survey in 2015; and desk study.	As part of the extended Phase 1 habitat survey of the Additional Sites in 2016, an assessment of habitats was made for their potential to support white-clawed crayfish.	Extended Phase 1 habitat survey based on 2017 proposed scheme boundary; an assessment of habitats was made for their potential to support white-clawed crayfish; and updated white-clawed crayfish surveys at Little Eaton. (Partially completed)	Further presence/absence survey on Dam Brook upstream of the A38/A61 roundabout to determine the likely impact of the proposed scheme on any remnant white-clawed crayfish populations which may be located upstream of the weir at this

Ecological Feature – Species	Description of Findings	Survey Work Undertaken for the Proposed Scheme in 2015	Survey Work Undertaken for the Proposed Scheme in 2016	Survey Work Undertaken for the Proposed Scheme in 2017	Recommended Survey Work for 2018
	<p>Updated surveys were undertaken in 2017 at Little Eaton junction only; plus Bottle Brook which was a new watercourse identified in 2016/17 which was not previously surveyed in 2015. No white-clawed crayfish were found. Signal crayfish were identified on both the Watermeadows Ditch and the Dam Brook downstream of the A38/A61 roundabout (at the wier). Appropriate survey upstream of the weir could not be undertaken to confirm white-clawed or American signal crayfish presence in 2017 due to access restrictions.</p> <p>No updated surveys were recommended at Markeaton or Kingsway junction in 2017 due to the known presence of American signal crayfish</p>				location.
Terrestrial invertebrates	<p>Terrestrial invertebrate records included one species listed on Schedule 5 of the WCA, 33 species listed as species of principal importance, 36 species listed on the LBAP and one invasive species.</p> <p>Terrestrial invertebrate survey conducted across all semi-improved grassland areas in 2015. During field surveys in 2015 at Kingsway and Markeaton Junctions, grassland at Kingsway Hospital (Site G) was the most species diverse, with a peak count of 70 species recorded. Five notable species were also recorded; two butterfly (Lepidoptera) species; two notable species of hoverfly; and one species of bumblebee.</p> <p>During field surveys in 2015 at Little Eaton Junction, grassland at Talbot Turf Farm (Site E) was the least species diverse, with a peak count of 22 species. However, a casual record of the Nationally Scarce hoverfly <i>Pocota personata</i>; was made - determined that the record does not reflect a breeding population within Site E. Two other notable species were recorded; small heath butterfly and one species of bumblebee.</p> <p>The mosaic of habitats with varied sward height grassland, scrub, and bare ground present within Site 8 has the potential to support a diverse assemblage of terrestrial invertebrates, which may include notable species. Site 8 was recommended for further terrestrial invertebrate assessment (yet to be completed).</p>	Terrestrial invertebrate survey in 2015; and desk study.	As part of the extended Phase 1 habitat survey of the Additional Sites in 2016, an assessment of habitats was made for their potential to support terrestrial invertebrates.	Extended Phase 1 habitat survey based on 2017 proposed scheme boundary; an assessment of habitats was made for their potential to support terrestrial invertebrates.	Selective update of the 2015 terrestrial invertebrate survey data; and terrestrial invertebrate survey (June, July and August) of the proposed construction compound at Little Eaton.
Aquatic macroinvertebrates	<p>In regards to the proposed scheme, records were relatively common and of low conservation importance and do not have any statutory or non-statutory status.</p> <p>During field surveys in 2015 at Kingsway and Markeaton Junction, Markeaton Brook was identified of very good biological quality in the stretch sampled, and of “Moderate” to “Fairly High” conservation value; support communities likely to be very sensitive to changes in water quality. Bramble Brook was of moderate biological quality and of “Low” conservation value and supports communities likely to be relatively tolerant to pollution. Regionally notable species were recorded in Markeaton Brook were: <i>Potamophylax rotundipennis</i> (a caddisfly) and <i>Brachycentrus subnubilus</i> (a caddisfly).</p> <p>During field surveys in 2015 at Little Eaton Junction, the River Derwent which flows through the survey area was assessed as representing a high quality habitat with regard to aquatic macroinvertebrates, and of “Moderate” to “Fairly High” conservation value - supports communities likely to be sensitive to changes in water quality. Dam Brook was assessed as representing a good quality habitat with regard to aquatic macroinvertebrates and of “Low” to “Moderate” conservation value - supports communities likely be sensitive to changes in water quality. A single regionally notable species recorded from Dam Brook - <i>Potamophylax rotundipennis</i> (a caddisfly). Regionally notable species was recorded from the River Derwent were: <i>Brachycentrus subnubilus</i> (a caddisfly) and <i>Lasiocephala basalis</i> (a caddisfly).</p>	Aquatic invertebrate survey in 2015; and desk study.	As part of the extended Phase 1 habitat survey of the Additional Sites in 2016, an assessment of habitats was made for their potential to support aquatic invertebrates.	Extended Phase 1 habitat survey based on 2017 proposed scheme boundary; and aquatic invertebrate survey of Bottle Brook at Little Eaton junction.	Update of 2015 aquatic macroinvertebrate survey data (Markeaton Brook, Bramble Brook, River Derwent, Dam Brook).

Ecological Feature – Species	Description of Findings	Survey Work Undertaken for the Proposed Scheme in 2015	Survey Work Undertaken for the Proposed Scheme in 2016	Survey Work Undertaken for the Proposed Scheme in 2017	Recommended Survey Work for 2018

This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office. Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Highways England 100030649 2018.

Figure 1.2b: Proposed DCO Application Boundary (Little Eaton Junction)



SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION BOX
 IT IS ASSUMED THAT ALL WORKS ON THIS DRAWING WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROPRIATE METHOD STATEMENT.
 THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT.
 EXCEPTIONAL RISKS RELATING TO THE WORKS ASSOCIATED WITH THIS DRAWING ARE IDENTIFIED BELOW.

CONSTRUCTION
MAINTENANCE / OPERATION / DECOMMISSIONING / DEMOLITION

NOTES
 1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DOCUMENTATION.
 2. DO NOT SCALE FROM THIS DRAWING. USE ONLY PRINTED DIMENSIONS.
 3. ALL DIMENSIONS IN MILLIMETRES. ALL CHANGES, LEVELS AND COORDINATES ARE IN METRES UNLESS DEFINED OTHERWISE.
 4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE PROJECT HEALTH & SAFETY FILE FOR ANY IDENTIFIED POTENTIAL RISKS.

Revision	By	Check	Date	Suffix
1	AW		12/06/17	P01
2	SO		12/02/18	P02
3	AJW		20/02/18	P03
4	AJW		20/02/18	P04

Purpose of issue

Revision	By	Check	Date	Suffix
1	AW		12/06/17	P01
2	SO		12/02/18	P02
3	AJW		20/02/18	P03
4	AJW		20/02/18	P04

FOR REVIEW & COMMENT

Client
 Highways England
 Major Projects
 Mobility Gate
 Stone Street
 Manchester
 M1 2WD

Working on behalf of

Project Title
**A38
 DERBY JUNCTIONS**

Drawing Title
**RED LINE BOUNDARY
 SHEET 2 OF 2**

Designed	Drawn	Checked	Approved	Date
SO	SO	GS	AJW	20/02/18

Internal Project No.
 60533462

Scale @ A1
 1:5000

Zone
 Whole Scheme

THIS DOCUMENT HAS BEEN PREPARED PURSUANT TO AND SUBJECT TO THE TERMS OF AECOM'S APPOINTMENT BY ITS CLIENT. AECOM ACCEPTS NO LIABILITY FOR ANY USE OF THIS DOCUMENT OTHER THAN BY ITS ORIGINAL CLIENT OR FOLLOWING AECOM'S EXPRESS AGREEMENT TO SUCH USE, AND ONLY FOR THE PURPOSES FOR WHICH IT WAS PREPARED AND PROVIDED.

AECOM
 Royal Court
 Basil Close, Chesterfield
 Derbyshire, S41 7SL
 Tel: 01463 296221
 Fax: 01463 296229
 www.aecom.com

AECOM
 AECOM Infrastructure & Environment UK Limited
 Registered in England Registered number: 680328
 Registered office: South House, Alconoc Ltd.,
 Basingstoke, Hampshire RG21 7PP

KEY
 RED LINE BOUNDARY

Drawing Number	Originator	Volume	Rev
HE514503	ACM	LSI	P04
A38_SW_PR_ZZ	DR DC 0002		
Location	Type	Role	Number

File Name: C:\P\WORKING\AECOM\DRAWINGS\SPRINGFIELD\A38\DCO\A38_SW_PR_ZZ.DC.0002
 Plot Date: 20 February 2018 16:59:29
 File Name: C:\P\WORKING\AECOM\DRAWINGS\SPRINGFIELD\A38\DCO\A38_SW_PR_ZZ.DC.0002

Project:	A38 Derby Junction	Job No/Ref:	60533462
Purpose:	Ecology Progress Meeting with Consultees (No. 8)	Date held:	29.08.18
Held at:	Nottingham AECOM Office	Made by:	Gaelle Bardsley
Present:	Oliver Barnett (OB) AECOM Gaelle Bardsley (GB) AECOM Hannah Procter (HP) AECOM Liz Newman AECOM Simon Wild (SRW) AECOM Hilary Nelmes (HN) DCiC Trevor Taylor (TT) DWT Richard Carline (RC) Highways England Tom French (TF) DCC	Distribution:	As above plus Andy Wilson (AECOM) Osam Mudhesh (Highways England)
Apologies:	Louise Hill (LH) EA Marlene Segre (MS) AECOM Jonathan Merrills (JM) Highways England Andrew Stubbs (AS) Natural England		

No.	Item	Action By
1.	General Housekeeping/ Introductions.	
2.	Objectives: <ul style="list-style-type: none"> - To recapitulate on the last meeting minutes and actions - To provide an update on the proposed scheme, programme and assessment - To summarise key points from the Natural England meeting on 06.06.18 - To present results of the baseline surveys gathered to date (where results are available) and outline mitigation - Touch on the approach for the environmental assessment and methodology - To highlight progress on the Highways England Designated Fund proposals 	
3.	Health and Safety Moment: <ul style="list-style-type: none"> - The 'cough CPR' myth (which suggests that coughing vigorously could help you if you think you are having a heart attack) has been circulating the internet for a while now, especially on social media sites such as Facebook. If you come across it, please avoid forwarding the spam any further and consider letting the person who posted it know that there's no truth in it. - The absolute priority when you think you or someone else is having a heart attack is to call 999. 	
4.	Recap on last meeting minutes – all actions met.	
5.	Update on the proposed scheme and project timescales: SRW ran through the project background and status: <ul style="list-style-type: none"> - Preferred Route Announcement (PRA) made on 31st January 2018 (https://www.gov.uk/government/consultations/a38-derby-junctions- 	

improvements)

- The proposed scheme is a Nationally Significant Infrastructure Project (NSIP) and aiming for Development Consent Order (DCO) submission in spring 2019.
- The Scoping Report was written and issued to the Planning Inspectorate (PINS) who sent it to statutory consultees for comment.
- Preliminary Environmental Information Report (PEIR) has been produced and presents a description of the proposed scheme, the likely significant environmental effects (based on the preliminary environmental information available at the time of PEIR publication), measures to avoid or reduce such effects and the alternatives considered. This is to support consultees in developing an informed view of the likely significant environmental effects of the proposed scheme. The PEIR is available via the link: https://highwaysengland.citizenspace.com/he/a38-derby-junctions-statutory-consultation/supporting_documents/A38%20Derby%20Junctions%20%20Preliminary%20Environmental%20Information%20Report%20PEIR.pdf
- Statutory public consultation is starting on 7th September for 6 weeks, and comprises 8 exhibitions located in public buildings near the A38. The consultation timetable is available on Highways England's website (<https://highwaysengland.co.uk/projects/a38-derby-junctions/>) The consultation will help us shape our proposals before we submit our application for a Development Consent Order (DCO).
- The proposed scheme boundary has been developed to incorporate additional areas for flood compensation, construction compounds and ecology candidate sites. 2017 ecology surveys and reports were based on a larger proposed scheme boundary which has now been refined in 2018.
- Scheme figures and proposed scheme boundary attached for your information.

6. Objectives of the meeting with Natural England (06.06.2018)

- To provide Natural England with a clear understanding of the current proposed scheme and project timescales - Done
- To obtain general agreement from Natural England on the proposed scope of ecology survey work for 2018 – Done
- To confirm no obvious impact pathways to European Designated Sites and on that basis impacts on European Designated Sites may be scoped out from further assessment (as per Planning Inspectorate National Schemes (PINS) comment on the Scoping Report) – Done (see point 5.1)
- To determine the approach and timescales for protected species licences/ obtaining Letters of No Impediment (LoNI) to support the Environmental Statement (ES). Confirm the date/ age of data to support the licences and which species the LoNI is required for. Where access may have restricted gathering of baseline data, agree on an approach to draw conclusions to support the ES – Done. Key points highlighted in 5.2 below.
- Find out how/ if Natural England can provide general comment/ advice on mitigation across the proposed scheme – Yes, upon receipt of 2017 Baseline reports and draft licences.
- Confirm Natural England's input going forward – Done, through Discretionary Advice Service (DAS).

6.1 - Statutory Designated Sites

- Kedleston Park SSSI – located approx. 1.9km north-west of the proposed scheme boundary (Markeaton junction). Rich and diverse deadwood

invertebrate fauna which is primarily dependent upon the large number of mature and over-mature beech and pedunculate oak trees. Scoped into the assessment. Natural England agreed that there would be no significant effects. Hydrological links via Markeaton Brook however located upstream of the proposed scheme. The existing culvert beneath the A38 connecting Markeaton Lake with Mill Pond would remain in situ and would not need to be extended. Surface water would be attenuated. Drainage from the proposed scheme would outfall on the downstream side of Markeaton Lake culvert which subsequently discharges into Mill Pond.

- Breadsall Railway Cutting SSSI – located approx. 1.5km south-east of the proposed scheme boundary (Little Eaton junction) Unimproved grassland. Calcareous, neutral and acidic grassland. Diverse butterfly population. Scoped into the assessment; however, located upstream of Dam Brook. No significant effects.
- Natural England asked us however to consider potential traffic and air quality issues (especially during construction) in our assessment.
- Morley Brick Pits SSSI - located approx. 1.9km north-east of the proposed scheme boundary (Little Eaton junction). Site consists of a series of flooded pits colonised by a range of open water community flora species and water beetle. This had not been mentioned in the assessment since it was only included in the 2km buffer because of the small “road signage” redline to the north of Little Eaton junction (along the A38) and that the source of impacts anticipated would be more than 2km away. Natural England re-explained that all the designated sites within the buffer (even if no impacts are anticipated) should be mentioned in our assessment.

6.2 – Key points:

- Bats
 - o Bat data and licences - Bat roosts identified from previous surveys (2015 and 2017):
 - 1) A Queensway property which would be lost due to the proposed scheme (common pipistrelle and whiskered bat, occasional or transient roost);
 - 2) Trees at Markeaton (within the Park and around Mill Ponds) which would be potentially impacted or disturbed from construction of the proposed scheme (occasional or transient roost of common bat species identified in 2015; none identified in 2017);
 - 3) Flood Arch bridge at Little Eaton junction, which would be extended to the south (a small day roost used by both soprano and common pipistrelle bats); and
 - 4) The River Derwent bridge at Little Eaton junction which would not be directly impacted, but may be disturbed by adjacent construction activities (mixed species maternity/ satellite roost).

Licences anticipated for 1) to 3). Need to review tree removal plan to address 2). At the River Derwent Bridge (4)), there would be no direct impacts to the River Derwent Bridge from construction activities. Natural England agreed that potential indirect disturbance can be covered through non-licenced Method Statement.

Natural England explained that the bat data from the latest survey season (this year) will have to be used in order to obtain the draft licence/ letter of no impediment (as per normal licensing approach). A “top-up” would be

essential. Natural England agreed that 1 dusk or dawn survey for the flood arch and 1 dusk + 1 dawn for the single Queensway property should suffice. We have aimed to try do this at a different time of year to the previous surveys. Already conducting surveys at the trees in 2018.

Natural England raised concern about the lack of hibernation information. We are therefore ensuring that in the bat report this year that potential for hibernating bats is clarified. We have the necessary baseline information to draw firm conclusions on the potential for hibernating bats (which we weren't at the time able to present at the meeting). Natural England highlighted however that if we did need additional data it could be a combination of potential and a commitment to undertake surveys post production/ submission of the ES in autumn/ winter.

- Access – AECOM explained that the bat roost surveys in association with residential properties proposed for demolition at Queensway, Markeaton junction have, in the main, been completed; however, there were some properties not accessed in 2017 which require survey in 2018. We will continue to try gain access; however, this may be difficult until Highways England take possession. Given the findings from 2017, and the extent and accuracy of bat field data obtained in 2017 from use of advanced survey techniques (thermal imaging), it is considered that there are unlikely to be any significant roosts present (such as a maternity roost) in association with these properties. It is considered that any roosts present are likely to be transient roosts used by one or two bats. Natural England was happy that from the volume of surveys we have undertaken that we can be confident that we did not expect any significant/ maternity roosts. AECOM proposed to submit a licence for a small roost of both common pipistrelle and whiskered at the house (known roost). Continue to pursue access where possible to demonstrate reasonable effort to obtain access for other properties. If can't survey this year, survey of previously inaccessible buildings/ areas once Highways England take possession and in the unlikely event of any bats or evidence of bats being found, the European Protected Species (EPS) licence will be amended. This would be in addition to pre-construction surveys (or possibly combined with these depending upon actual timescales).
- Lighting strategy – Natural England raised concern about LED lighting; we will review the lighting strategy for the proposed scheme.
- Badger
 - Kingsway and Little Eaton junction outlier setts to be lost. Natural England agreed with the approach so far.
- Water voles and Lamprey
 - No signs of water voles in 2015/ 2017 survey. However, in spring 2018 – confirmed water vole signs on Dam Brook. Natural England confirmed at the time that they are not keen on any rescue and hold 'off-site. On-site mitigation in advance construction/ loss of the ditch is the preferred option.
 - Re. lamprey (Natural England agreed that this is interesting, but also

agree this is a matter for the Environment Agency).

- Proposed road signage locations
Natural England agreed with the approach for the proposed sign locations i.e. minimal impacts on biodiversity associated. Works would be temporary during the construction phase to install new road signs within the highways boundary. There would be minimal vegetation clearance. The work activities would be localised and considered non-licensable, therefore do not require verification surveys in 2018 to support the assessment. Pre-construction survey checks by an Ecological Clerk of Works would be carried out as part of the Construction Environmental Management Plan (CEMP). Given that they are within the redline boundary it was agreed to include some Phase 1 habitat information. **HP asked RC if AECOM could undertake a drive-by in an Area 7 vehicle. RC to get back to us.**

RC

7. Brief summary of ecology baseline for 2018:

- HP ran through a summary of the ecology baseline surveys gathered in 2018 and outline mitigation:

Phase 1 – Markeaton Construction Compound

- Baseline surveys have included bat roost surveys, botanical and terrestrial invertebrates surveys and targeted surveys on Middle Brook (River Habitat, otter and aquatic macroinvertebrate) – due to be completed in September 2018.
- Acknowledged the presence of Sturgess Fields (Friends of Markeaton Brook) – designated ‘Green Wedge Land’. The site comprises three fields, interspersed with mature, broadleaved woodland and has Markeaton Brook/ Middle Brook running through it. TT reminded everyone that Middle Brook contains fresh water sponge.
- Design of the construction compound aims to be within the amenity grassland area, minimise tree loss and avoid direct impacts on Middle Brook. Area to be used temporarily and assumed to be restored to existing site conditions post construction.

Badgers

- Updated badger survey including characterisation/ mapping of setts to inform draft licences.
- Loss of outlier setts (no replacement setts). The design will aim to avoid and protect main setts identified at Little Eaton junction.
- Outlier setts to be lost/ directly disturbed to be done under Natural England licence.
- Foraging and commuting routes aim to be retained (including the periphery of the construction compound at Little Eaton junction – the proposed design has also considered other ecology at this location); habitat planting to compensate for any lost habitat and retain foraging resource.
- Consideration of the installation of badger fencing at key locations (particularly Little Eaton and Kingsway junctions).

Botanical

- Updated botanical survey including the A38 Kingsway LWS grassland and the proposed construction compound at Little Eaton junction.

- Sites are generally deteriorating botanically – high levels of scrub encroachment so opportunity to improve.
- Propose that new compensatory habitat includes a combination of translocation and seed mixes complimentary to the local area.
- Only grassland identified as suitable for potential translocation is the A38 Kingsway LWS grassland (LWS is designated for its semi-improved grassland habitat) – could selectively remove some turfs and translocate to Mackworth Park or the Kingsway flood storage areas. Dependent on further investigation - geology of the soil and security of management. Otherwise, a bespoke seed mix would work just as well – tailored to species present.
- Construction compound at Little Eaton junction has aimed to avoid areas of main botanical interest.

Terrestrial Invertebrates

- No significant change on terrestrial invert potential since 2015. Full suite of surveys (June, July and August) at A38 Kingsway Roundabout and the proposed construction compound at Little Eaton and Markeaton junctions only.
- Proposed mitigation likely to overlap with the botany approach.
- Bare earth mounds would be of benefit (as identified at Little Eaton junction) – incorporate within flood compensation and ecological mitigation areas.
- Temporary use of construction compounds (Markeaton and Little Eaton junctions). Assumed to be restored to existing conditions post construction.

Reptiles

- No reptiles. As expected. Scoped out of the assessment.
- Mosaic of habitats incorporated as part of the landscape design would provide potential suitable habitat.

Birds – Barn Owls

- Barn owls. Inspected the nest/ nest box by tree climber and schedule 1 barn owl licence holder. No active signs of barn owl at known nest and box site. Unable to climb the tree with previously known nest; however, being covered as part of bat roost surveys at Little Eaton junction.
- Although no confirmed current signs of barn owl still looking at option to incorporate a shelter belt at Little Eaton junction as part of the design to facilitate barn owls in the wider area to fly up and over the road.

Bats

- Data still being gathered and analysed.
- Outline mitigation discussed with Natural England.
 - o Pre-construction surveys (once Highways England take possession).
 - o At Markeaton – Buildings and trees 3No. bat boxes per roost lost. However, note that there are bat boxes already at Markeaton – in Markeaton Park and around Mill Pond - alternative location could be Mackworth Park at Kingsway junction. Additionally, it is recognised that the bat boxes inspected round Mill Pond this year are not in use by bats. HP asked if anyone had any opinion on the

idea to translocate the roost features on the limbs of the roost trees to be lost (where applicable) to other retained trees within the Markeaton Park or Mackworth Park. HN raised her concerns about the potential maintenance and safety checks costs. However, no objection re. having bat boxes potentially within Mackworth Park. RC mentioned the possibility of translocating the features on trees within the soft estate where no public access was permitted.

- Flood arch bridge – from surveys this year it appears to be a feeding/ resting perch for common bat species. However, will investigate the incorporation of bat boxes on the south facing side (with it being a box culvert type bridge extension it may not be practical to make the roost an integral part of this).
- Supervised soft strip of buildings, bridge and trees at suitable time of year (generally winter not summer considered suitable).
- Also reviewing the tree removal/ habitat rendition plans to ensure that 'removal of 'potential roost features' are also mitigated.
- Foraging and commuting routes aim to be retained – River Derwent, railway line and construction compound reduced foot print at Little Eaton junction. Temporary impacts during the replacement of the footbridge – identified as a significant commuting route for bats. No strong evidence to support the use of temporary bat bridges/ gantries (shown to be ineffective).

White-Clawed Crayfish (WCC), Fish and Water Vole – Dam Brook

- In 2015 found one WCC on Dam Brook. However, in 2017 found one American signal south of the weir. Surveys this year aimed to determine the presence or likely absence of white-clawed crayfish upstream of the weir. Survey technique using refuge traps; however found American signals. No white-clawed crayfish now on Dam Brook. WCC to be scoped out of the assessment.
- During the spring aquatic invert survey update found lamprey within Dam Brook. Therefore, we undertook focused electric fish surveys in the summer.
- During the spring water vole survey; found signs of water voles (latrines) on Dam Brook. Concurs with the water vole latrine found on Watermeadows ditch in 2015 (previously highlighted there may be a risk).
- Outline/ draft mitigation proposals:
 - Need a biosecurity and invasive species management plan (as part of the Construction Environmental Management Plan (CEMP)) to ensure no spread of crayfish plague from work in association with the watercourse.
 - Combined approach for potential water vole and lamprey mitigation. Lamprey are straight forward in that we propose that the fish can be caught and released downstream – suitable silt habitat identified on Watermeadows ditch. Propose netting in place until new channel created and connected. Need to avoid the spawning season (spring time).
 - It is considered that there may be a remnant low undetected population of water vole. Although found signs in spring; did not find any further signs in the summer (recently done a second visit in August). Installed artificial floats/ pads to maximise survey effort and see if any latrines. Monitoring over the next three weeks.
 - Precautionary approach currently been investigated to create wildlife

ponds adjacent to realigned Dam Brook in advance of the Dam Brook works; with sufficient establishment time to act as water vole mitigation (with trapping and translocation under licence – once lamprey have been translocated). Aware that strimming by displacement is not a viable option (given the length of channel affected (>50m) and the suboptimal habitat located immediately adjacent). However, there is a risk that no water voles would be trapped/ water voles extinct (given ~2 year life span). Pre-construction surveys therefore required (spring and summer/ autumn). Mitigation approach to be reviewed following completion of 2018 surveys.

Other sites/ habitats/ species to mention

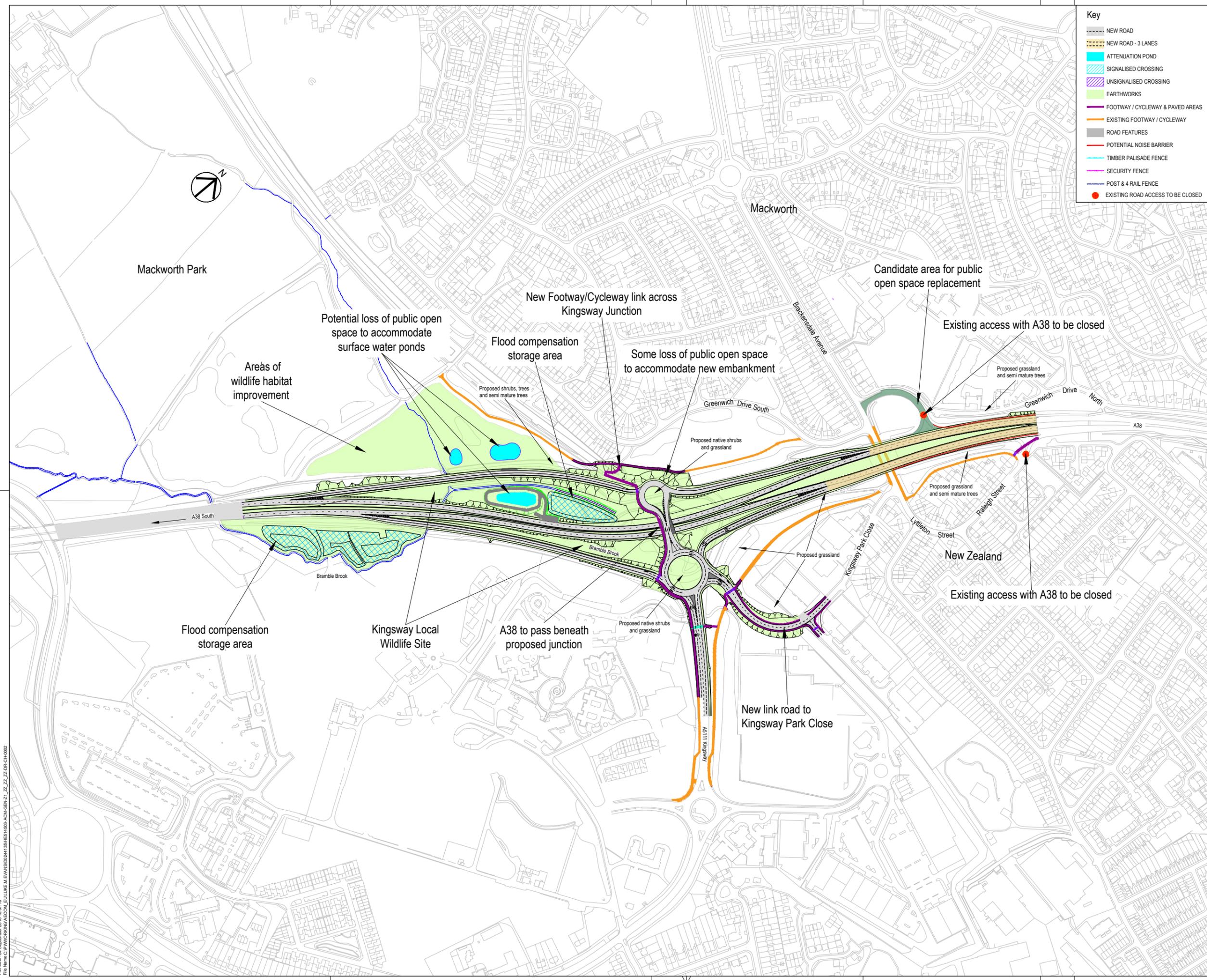
- LWS – Markeaton Park LWS some tree loss however minimised where possible and currently aims to avoid veteran trees. Structure and function of the LWS not considered to be compromised; River Derwent LWS – potential temporary use close to one bank. A38 Scrub – other site of interest - some potential habitat losses within the land plot to the north of the A38 to the west of the river temporarily (currently being reviewed). Alfreton Road Rough Grassland LWS – New Zealand Pigmyweed. Flood plain grassland in association with flood compensation area to the west and Dam Brook of better quality.
- Hedgehogs - found at Markeaton Park during bat surveys (up to 6No. at one time); to be scoped into the assessment. Sensitive timing of removal of vegetation which may be suitable nesting habitat (such as thick layers of leaves, logs) (avoiding hibernation November to March). Hedgehog boxes, hedge and native shrub planting, uncut margins or 'wild' areas, to be considered within the landscape planting.
- Birds – Breeding birds. Scrub at proposed Little Eaton construction compound aims to be avoided. Farmland bird assemblage at Little Eaton junction to the east of the junction; the screen planting would aim to mitigate potential impacts. Wintering bird assemblage at Alfreton Road grassland would primarily be retained (in association with the draw dawn area). Screening/ shelter belt to minimise potential impacts.
- Aquatic Invertebrates – surveys are still being updated. Autumn visit programmed in September 2018. The results of which will then feed into the Water Framework Directive assessment.
- Amphibians – no great crested newt (GCN) however note population of toads at Markeaton junction. **HP asked TT if the toad crossing run by volunteers was still in place. TT to check.** Destructive hand searches in that area at Markeaton. Potential silt fencing proposed to protect water quality of Markeaton Lake and Mill Pond during construction would also aim to prevent toads entering the construction zone. As part of the flood storage areas at Kingsway junction – surface water attenuation area at Mackworth Park. Discussed the option of incorporating the creation of wildlife ponds (would in theory benefit GCN extending the habitat range of known GCN to the west at Mickleover), however, the land profile currently appears unsuitable for ponds to hold water.
- Otter – maintenance of otter dispersal corridors by keeping at least one bank free/ accessible. Keeping night-time working and associated lighting to a minimum. HN asked if any holt would be created at Ford Lane. HP responded that as no holt would be lost, artificial holts were not proposed

TT

- for the proposed scheme.
 - Invasive plants – Biosecurity and Management Plan to be drafted to accompany the CEMP. Potential opportunity for enhancement at the construction compound at Little Eaton junction.
8. HP ran through the Environmental Statement approach and methodology:
- Ecological Impact assessment will be as outlined in the Scoping Report and PCF Stage 2 EAR.
 - Based on:
 - o Design Manual for Road and Bridges (DMRB);
 - o IAN 130/10 (Ecology and Nature Conservation: Criteria for Impact Assessment);
 - o Guidelines of Ecological Impact Assessment (EclA) in the UK and Ireland (Chartered Institute of Ecology and Environmental Management (CIEEM), Second Edition 2016), hereafter referred to as the CIEEM guidelines (Note added in post meeting: new CIEEM EclA guidelines have recently been released (September, 2018) – these will be reviewed and referenced where applicable); and
 - o Professional judgement.
 - A hierarchical geographical approach has been used to assign nature conservation resource importance (or value).
 - o International or European;
 - o UK or National;
 - o Regional;
 - o County or Unitary Authority; and
 - o Local;
 - Ecological features of Local importance or and above; or legal protection carried forward for the assessment.
 - Characterisation of ecological impacts on specific features (taking into account impact avoidance design measures and standard management activities);
 - Determination of the significance of effects by the importance of the ecological feature and the characterisation of the ecological impact on each specific feature;
 - Effect is either significant or not significant;
 - Significant effect, in ecological terms, is defined as an effect (either positive or negative) that either supports or undermines biodiversity conservation objectives for important (i.e. valuable) ecological features. Significant at a range of geographical scales which IAN 130/10 categorised as very large, large, moderate, slight, or neutral, depending on the geographical scale – this is the only place where a ‘matrix’ approach is utilised;
 - Supporting documents will include the CEMP (including approach for non-licensed method statements) and the Letters of No Impediment (once obtained).
9. HP gave an update on Designated Funds:
- We have been commissioned to do the Feasibility Studies (only) for two ecology DF submissions:
 - 1) Green footbridge at Markeaton (Mixed Use Vs Modified Grey Bridge Vs ‘Like-for-Like’ replacement);
 - 2) Ecological enhancements of areas adjacent to the strategic road

	<p>network (Ford Lane, Markeaton Park and Mill Pond, and Mackworth Park)</p> <ul style="list-style-type: none">- There are some challenges with this; need to treat these separate to the A38 Derby Junctions scheme and DCO submission; however, also need to consider the main scheme to ensure there are no conflicts with ideas proposed for the bridge.- Green footbridge – currently undertaking an optioneering exercise to see which high level concept to progress with. Looking like the approach for a more architectural structure with biodiversity benefits (i.e. sub-options for a modified grey bridge) may be the ‘do-able’ concept to pursue based on the objectives for the structure.- The ecological enhancements feasibility study will be progressed after completion of the No-Net Loss assessment for the A38 main proposed scheme.- Highways England will be keen to see value for money and good environmental outcomes demonstrated before committing to detailed design/ construction.	
10.	<p>AOB</p> <p>HN informed everyone that the cycle track planned to be constructing at Mackworth Park was postponed till 2019.</p> <p>HN mentioned proposals for the extension of Mickleover Meadows LNR into Mackworth Park. Potential opportunity for collaboration with the A38 Derby Junctions scheme with the management plan/ incorporation of ecological mitigation at this location.</p>	

Minutes Produced by: Gaelle Bardsley
Reviewed by: Hannah Procter
Issued by: Gaelle Bardsley



Key	
	NEW ROAD
	NEW ROAD - 3 LANES
	ATTENUATION POND
	SIGNALISED CROSSING
	UNSIGNALISED CROSSING
	EARTHWORKS
	FOOTWAY / CYCLEWAY & PAVED AREAS
	EXISTING FOOTWAY / CYCLEWAY
	ROAD FEATURES
	POTENTIAL NOISE BARRIER
	TIMBER PALISADE FENCE
	SECURITY FENCE
	POST & 4 RAIL FENCE
	EXISTING ROAD ACCESS TO BE CLOSED

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION BOX

IT IS ASSUMED THAT ALL WORKS ON THIS DRAWING WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROPRIATE METHOD STATEMENT.

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT.

EXCEPTIONAL RISKS RELATING TO THE WORKS ASSOCIATED WITH THIS DRAWING ARE IDENTIFIED BELOW.

CONSTRUCTION

MAINTENANCE / OPERATION / DECOMMISSIONING / DEMOLITION

Plot Date: 04 September 2018 10:57:18
 File Name: C:\P\WORKING\AECOM_EU\LINE_M_EVANS\0204113011\HE1400-ACM-GEN-Z1_Z2_ZZ-DR-CH-002

Revision Details	By	Check	Date	Suffix
First Issue	SO		03/09/18	P01.3

Client: Highways England
 Floor 5
 Two Colmore Square
 38 Colmore Circus
 Birmingham
 B4 6BN

Working on behalf of

A38 DERBY JUNCTIONS

KINGSWAY JUNCTION CONSULTATION BROCHURE DRAWING

Designed	Drawn	Checked	Approved	Date

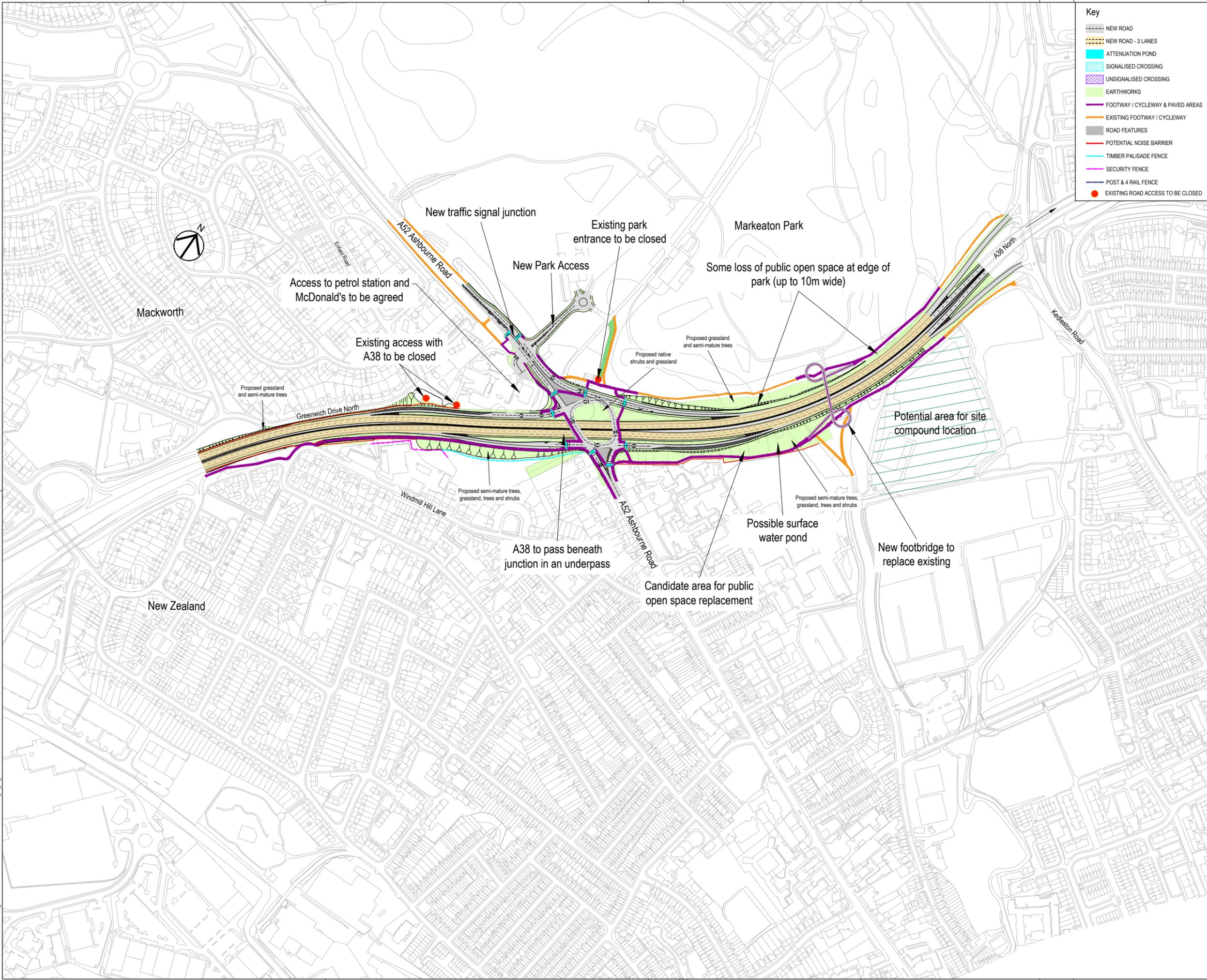
Internal Project No. 60533462
 Scale @ A1 1:2500
 Suitability SO
 Zone A38/A5111 Kingsway

THIS DOCUMENT HAS BEEN PREPARED PURSUANT TO AND SUBJECT TO THE TERMS OF AECOM'S APPOINTMENT BY ITS CLIENT. AECOM ACCEPTS NO LIABILITY FOR ANY USE OF THIS DOCUMENT OTHER THAN BY ITS ORIGINAL CLIENT OR FOLLOWING AECOM'S EXPRESS AGREEMENT TO SUCH USE, AND ONLY FOR THE PURPOSES FOR WHICH IT WAS PREPARED AND PROVIDED.

AECOM
 Royal Court
 Basil Close, Chesterfield
 Derbyshire, S41 7SL
 Tel: 01246 296221
 Fax: 01246 296229
 www.aecom.com

AECOM
 AECOM Infrastructure & Environment UK Limited
 Registered in England Registered number: 880328
 Registered office: Scott House, Alconon Link,
 Basingstoke, Hampshire RG21 7FP

Drawing Number	Originator	Volume	Rev
HE514503 -ACM	-ACM	-GEN-	P01.3
Z1_ZZ_ZZ_ZZ		-DR-CH-002	
Location	Type	Role	Number



Key

- NEW ROAD
- NEW ROAD - 3 LANES
- ATTENUATION POND
- SIGNALISED CROSSING
- UNSIGNALISED CROSSING
- EARTHWORKS
- FOOTWAY / CYCLEWAY & PAVED AREAS
- EXISTING FOOTWAY / CYCLEWAY
- ROAD FEATURES
- POTENTIAL NOISE BARRIER
- TIMBER PALISADE FENCE
- SECURITY FENCE
- POST & 4 RAIL FENCE
- EXISTING ROAD ACCESS TO BE CLOSED

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION BOX

IT IS ASSUMED THAT ALL WORKS ON THIS DRAWING WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROPRIATE METHOD STATEMENT.

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT.

EXCEPTIONAL RISKS RELATING TO THE WORKS ASSOCIATED WITH THIS DRAWING ARE IDENTIFIED BELOW.

CONSTRUCTION

MAINTENANCE / OPERATION / DECOMMISSIONING / DEMOLITION

First Issue	By	SO	03/09/18	P01.3
Revision Details	Check	Date		Suffix
Purpose of issue				

Client: Highways England
 Two Colmore Square
 38 Colmore Circus
 Birmingham
 B4 6BN

highways england

Project Title

A38 DERBY JUNCTIONS

MARKEATON JUNCTION CONSULTATION BROCHURE DRAWING

Designed	Drawn	Checked	Approved	Date
Internal Project No.	Suitability			
60533462	S0			
Scale @ A1	Zone			
1:2500	A38/A52 Markeaton			

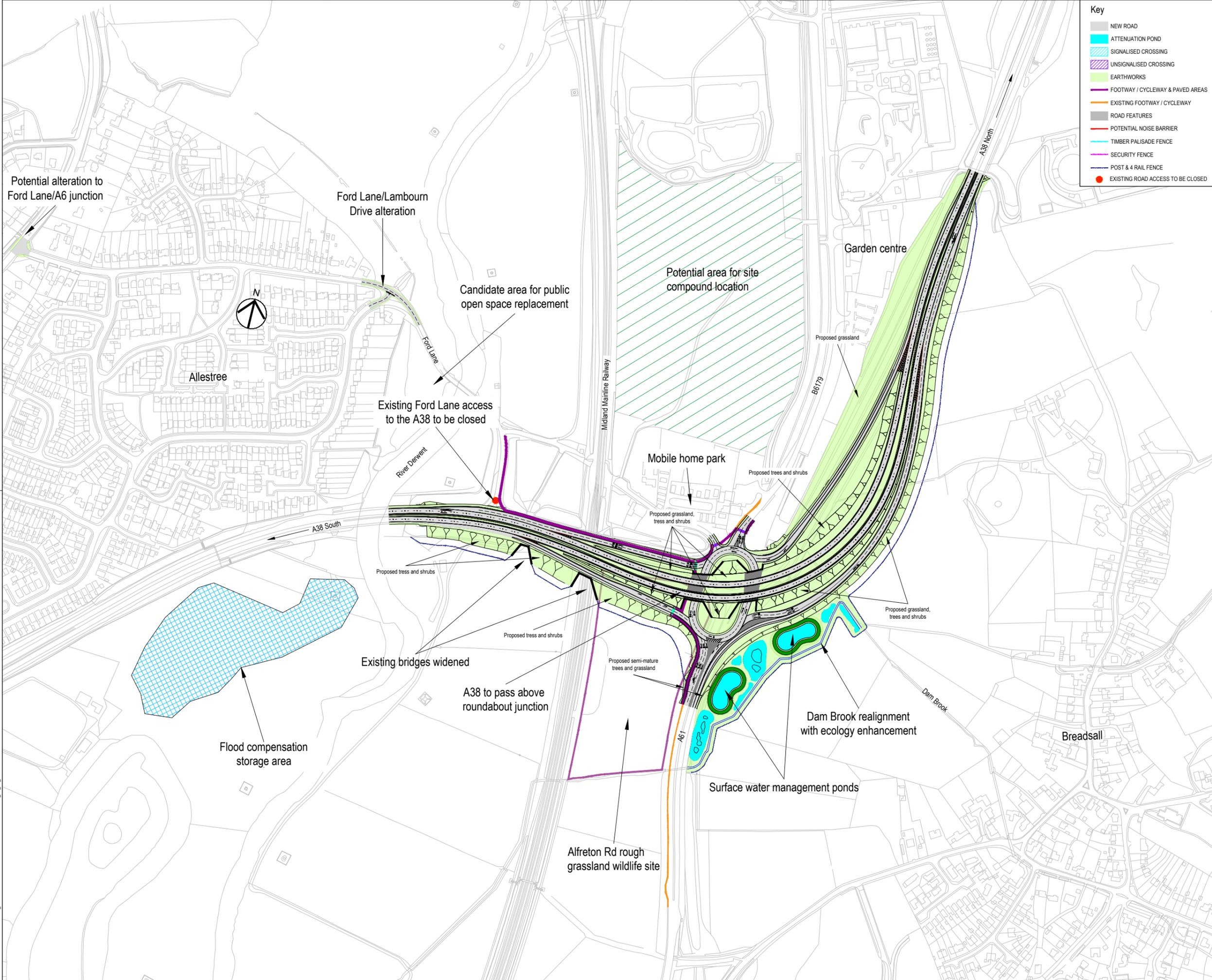
THIS DOCUMENT HAS BEEN PREPARED PURSUANT TO AND SUBJECT TO THE TERMS OF AECOM'S APPOINTMENT BY ITS CLIENT. AECOM ACCEPTS NO LIABILITY FOR ANY USE OF THIS DOCUMENT OTHER THAN BY ITS ORIGINAL CLIENT OR FOLLOWING AECOM'S EXPRESS AGREEMENT TO SUCH USE, AND ONLY FOR THE PURPOSES FOR WHICH IT WAS PREPARED AND PROVIDED.

AECOM
 Royal Court
 Basil Close, Chesterfield
 Derbyshire, S41 7SL
 Tel: 01246 296221
 Fax: 01246 296229
 www.aecom.com

AECOM Infrastructure & Environment UK Limited
 Registered in England Registered number: 880288
 Registered office: Scott House, Alconon Link,
 Basingstoke, Hampshire RG21 7PP

Drawing Number	Originator	Volume	Rev
HE514503	-ACM	-GEN-	P01.3
ZZ ZZ ZZ ZZ	-DR-CH-0003		
Location	Type	Role	Number

Plot Date: 04 September 2018 10:38:22
 File Name: C:\P\WORKING\AECOM_EU\LINE_M\EVANS\02041130\HE514503-ACM-GEN-ZZ_ZZ_ZZ-DR-CH-0003



Key

- NEW ROAD
- ATTENUATION POND
- SIGNALISED CROSSING
- UNSIGNALISED CROSSING
- EARTHWORKS
- FOOTWAY / CYCLEWAY & PAVED AREAS
- EXISTING FOOTWAY / CYCLEWAY
- ROAD FEATURES
- POTENTIAL NOISE BARRIER
- TIMBER PALISADE FENCE
- SECURITY FENCE
- POST & 4 RAIL FENCE
- EXISTING ROAD ACCESS TO BE CLOSED

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION BOX

IT IS ASSUMED THAT ALL WORKS ON THIS DRAWING WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROPRIATE METHOD STATEMENT.

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT.

EXCEPTIONAL RISKS RELATING TO THE WORKS ASSOCIATED WITH THIS DRAWING ARE IDENTIFIED BELOW.

CONSTRUCTION

MAINTENANCE / OPERATION / DECOMMISSIONING / DEMOLITION

Potential alteration to Ford Lane/A6 junction

Ford Lane/Lambourn Drive alteration

Candidate area for public open space replacement

Potential area for site compound location

Garden centre

Allestree

Existing Ford Lane access to the A38 to be closed

Mobile home park

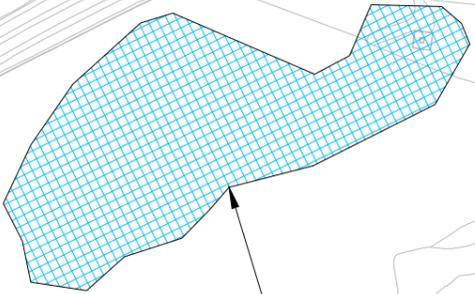
A38 South

Proposed trees and shrubs

Proposed grassland, trees and shrubs

Proposed trees and shrubs

Proposed grassland, trees and shrubs



Flood compensation storage area

Existing bridges widened

A38 to pass above roundabout junction

Proposed semi-mature trees and grassland

Dam Brook realignment with ecology enhancement

Surface water management ponds

Alfreton Rd rough grassland wildlife site

Breadsall

First Issue	SO	03/09/18	P01.4
Revision Details	By	Check	Date

Purpose of issue

Client: Highways England
 Floor 5
 Two Colmore Square
 38 Colmore Circus
 Birmingham
 B4 4BN



Project Title
A38 DERBY JUNCTIONS

Drawing Title
LITTLE EATON JUNCTION CONSULTATION BROCHURE DRAWING

Designed	Drawn	Checked	Approved	Date
---	---	---	---	---
Internal Project No. 60533462	Suitability SO			
Scale @ A1 1:2500	Zone A38/A61 Little Eaton			

THIS DOCUMENT HAS BEEN PREPARED PURSUANT TO AND SUBJECT TO THE TERMS OF AECOM'S APPOINTMENT BY ITS CLIENT. AECOM ACCEPTS NO LIABILITY FOR ANY USE OF THIS DOCUMENT OTHER THAN BY ITS ORIGINAL CLIENT OR FOLLOWING AECOM'S EXPRESS AGREEMENT TO SUCH USE, AND ONLY FOR THE PURPOSES FOR WHICH IT WAS PREPARED AND PROVIDED.

AECOM
 Royal Court
 Basil Close, Chesterfield
 Derbyshire, S41 7SL
 Tel: 01246 296221
 Fax: 01246 296229
 www.aecom.com

AECOM Infrastructure & Environment UK Limited
 Registered in England Registered number: 880328
 Registered office: Scott House, Alconon Link,
 Basingstoke, Hampshire RG21 7FP

Drawing Number HE514503	Originator -ACM	Volume -GEN-	Rev P01.4
Z3 ZZ ZZ ZZ	-DR-CH-0006		
Location	Type	Role	Number

Plot Date: 04 September 2018 10:59:24
 File Name: C:\P\WORKING\AECOM_E\LULINE_M\EVANS\02041130\HE514503-ACM-GEN-Z3_ZZ_DR-CH-0006

Project:	A38 Derby Junction	Job No/Ref:	60533462
Purpose:	Discretionary Advice Service from Natural England	Date held:	06.06.18
Held at:	Natural England, Nottingham Office	Made by:	Jeremy Truscott Gaelle Bardsley

Present:	Gaelle Bardsley (GB)	AECOM - Ecology	Distribution: As above plus: Andy Wilson (AECOM) Joshua Burton (AECOM) Richard Adams (AECOM) Marlene Segre (AECOM) Oliver Barnett (AECOM) Hannah Procter (AECOM) Stephanie Cooling-Green (AECOM) (SCG) Simon Betts (AECOM) Osam Mudhesh (Highways England) Jonathan Merrills (Highways England)
	Jeremy Truscott (JT)	AECOM - Ecology	
	Simon Wild (SRW)	AECOM - Environment Lead	
	Andrew Stubbs (AS)	Natural England - Planning Adviser	
	Leslie Barton (LB)	Natural England - Species Adviser	

No.	Item	Action By
1.	General Housekeeping/ Introductions.	
2.	<p>Objectives:</p> <ul style="list-style-type: none"> - To provide Natural England with a clear understanding of the current proposed scheme and project timescales. - To obtain general agreement from Natural England on the proposed scope of ecology survey work for 2018. - To confirm no obvious impact pathways to European Designated Sites and on that basis impacts on European Designated Sites may be scoped out from further assessment (as per PINS comment on the Scoping Report). - To determine the approach and timescales for protected species licences/ obtaining Letters of No Impediment (LoNI) to support the Environmental Statement (ES). Confirm the date/ age of data to support the licences and which species the LoNI is required for. (As per Appendix I: https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/10/PINS-Advice-Note-11_AnnexC_20150928.pdf) - Where access may have restricted gathering of baseline data, agree on an approach to draw conclusions to support the ES. - Find out how/ if Natural England can provide general comment/ advice on mitigation across the proposed scheme. - Confirm Natural England's input going forward. 	
3.	<p>Update on the proposed scheme and project timescales: SRW ran through the project background and status:</p> <ul style="list-style-type: none"> - Preferred Route Announcement (PRA) made on 31st January 2018 (https://www.gov.uk/government/consultations/a38-derby-junctions- 	

- improvements)
- The proposed scheme is a Nationally Significant Infrastructure Project (NSIP) and aiming for Development Consent Order (DCO) submission in spring 2019.
- The Scoping Report was written and issued to the Planning Inspectorate (PINS) who sent it to statutory consultees for comment.
- Preliminary Environmental Information Report (PEIR) to be produced which will present a description of the proposed scheme, the likely significant environmental effects (based on the preliminary environmental information available at the time of PEIR publication), measures to avoid or reduce such effects and the alternatives considered. This is to support consultees in developing an informed view of the likely significant environmental effects of the proposed scheme. To be issued prior to public consultation in September 2018 (starts on 7th September for 6 weeks).
- The proposed scheme boundary has been developed to incorporate additional areas for flood compensation, construction compounds and ecology candidate sites. 2017 ecology surveys and reports were based on a larger proposed scheme boundary which has now been refined in 2018.
- Scheme figures and proposed scheme boundary attached FYI.

4. Brief summary of ecology baseline surveys and discussion on proposed surveys for 2018:

- GB and JT ran through a summary of the ecology baseline surveys gathered in 2017 and proposed surveys for 2018 (refer to tables attached for condensed summaries):
 - Selective updates to botanical survey data from 2015.
 - Further botanical survey of the restored landfill site at Little Eaton junction following the botanical survey in 2017.
 - River habitat survey of those watercourses to be directly impacted/ diverted by the proposed scheme (Dam Brook, Middle Brook and Bramble Brook).
 - Complete reptile surveys at two discrete areas at Little Eaton junction which could not be completed in 2017.
 - Updated characterisation of badger setts potentially impacted by the proposed scheme to inform licencing.
 - Complete otter and water vole surveys at Little Eaton junction which could not be completed in 2017.
 - Update of 2015 bat survey data.
 - Complete bat surveys at Markeaton junction and Little Eaton junction (buildings and trees) which could not be completed in 2017.
 - Further updated characterisation surveys of identified bat roosts to support licences not considered to be required as surveyed in 2017.
 - Further presence/ absence survey on Dam Brook upstream of the A38/ A61 roundabout to determine the likely impact of the proposed scheme on any remnant white-clawed crayfish populations which may be located upstream of the weir at this location.
 - Selective update of the 2015 terrestrial invertebrate survey data across the proposed scheme.
 - Terrestrial invertebrate survey (June, July and August) of the proposed construction compound at Little Eaton junction.

- Update of 2015 aquatic macroinvertebrate survey data (Markeaton Brook, Middle Brook, Bramble Brook, River Derwent, Dam Brook).

5. Designated sites and potential impacts:

- GB and JT ran through the designated sites and potential impacts anticipated:

European Sites

- There are no European designated sites with bats as a qualifying feature within 30km of the proposed scheme boundary; and no impact pathways (i.e. habitat or hydrological links) exists in regards to flight paths or feeding areas of birds from the proposed scheme to an SPA or Ramsar within 30km.
- Nearest sites are:
 - Gang Milne SAC – approx. 18km to the north-west of the Kingsway and Markeaton junctions; and approx. 15km to the north-west of Little Eaton junction.
 - The Peak District SAC - a number of isolated stretches – the nearest located approx. 19km to the north-west of the Kingsway and Markeaton junctions; and approx. 17km to the north-west of Little Eaton junction.
 - Bee Nest & Green Clay Pits SAC – located approx. 19km to the north-west of the Kingsway and Markeaton junctions; and approx. 18km to the north-west of Little Eaton junction.

➔ GB asked AS and LB if the European Designated Sites could therefore be scoped out from further assessment, knowing that they will be formally reported within the Assessment of Implications on European Sites Report. **AS responded that NE will check the reasons for designating the SAC sites and get back to us.**

AS

Statutory Sites

- GB mentioned that AECOM had noted from the scoping response from Natural England that Breadsall Railway Cutting SSSI and Kedleston Park SSSI are in close proximity to the proposed scheme:
 - Kedleston Park SSSI – located approx. 1.9km north-west of the scheme boundary (Markeaton junction). Hydrological connections via Markeaton Brook. Scoped into the assessment however; located upstream of the proposed scheme. A large existing culvert (Markeaton Lake Culvert) beneath the A38 connecting Markeaton Lake with Mill Pond would remain in situ and would not need to be extended. The Markeaton Lake culvert currently receives highway drainage from the A38. Pumping of surface water from the proposed A38 underpass and drainage from existing and additional paved areas would be attenuated to HD33/06 (Surface and

Subsurface Drainage Systems for Highways) as a minimum. Drainage from the proposed scheme would outfall on the downstream side of Markeaton Lake culvert which subsequently discharges into Mill Pond.

- AS and LB agreed with GB and JT that no significant effects were therefore considered on Kedleston Park SSSI. AS mentioned his past experiences with PINS and highlighted the requirement to note all designated sites within the buffer (even if no impacts are anticipated) and explain why no impacts are anticipated.
- Breadsall Railway Cutting SSSI – located approx. 1.5km south-east of the proposed scheme boundary (Little Eaton junction). Scoped into the assessment; however, located upstream of Dam Brook, adjacent to Ferriby Brook.
- AS and LB asked us to consider potential traffic and air quality issues (especially during construction) in our assessment. AS explained that an additional cars could trigger air quality issues. Confirmed that traffic data would be interrogated to determine potential for knock-on ecological effects (to be reported in the ES).
- GB noted that Morley Brick SSSI (located approx. 1.9km north-east of the proposed scheme boundary (Little Eaton junction)) had not been mentioned in the assessment since it was only included in the 2km buffer because of the small “road signage” redline to the north of the Little Eaton junction (along the A38) and that the source of impacts anticipated will be more than 2km away. AS re-explained that all the designated sites within the buffer (even if no impacts are anticipated) should be mentioned in our assessment.

Non-Statutory Sites

- JT asked if Natural England would provide comment on potential impacts to non-statutory designated sites and/ or those sites scoped in/ out of assessment. AS responded that Natural England would not comment on non-statutory sites and leave that to the local planning authority, consultees and local groups.

6. Protected species incl. approach to licences including ‘Letter of No Impediment (LoNI)’ and access challenges:

- JT and GB listed the protected species confirmed on the site which may require licensing:

Roosting bats

- Bat roosts currently confirmed at 1) a Queensway property which would be lost due to the proposed scheme (common pipistrelle and whiskered bat, occasional or transient roost); 2) Trees at

Markeaton (within the Park and around Mill Ponds) which would be potentially impacted or disturbed from construction of the proposed scheme (occasional or transient roost of common bat species identified in 2015; none identified in 2017); Flood Arch bridge at Little Eaton junction, which would be extended to the south (a small day roost used by both soprano and common pipistrelle bats); and the River Derwent bridge at Little Eaton junction which would not be directly impacted, but may be disturbed by adjacent construction activities (mixed species maternity/ satellite roost).

- **Bat data:** JT explained that the bat data for the confirmed roost at Queensway and the Flood Arch Bridge to support draft bat licences dates from 2017. LB explained that data from the latest survey season (this year) will have to be used in order to obtain a licence (as per normal licensing approach). 3 surveys may not be required, but at least a “top-up” would be essential. LB agreed that 1 dusk survey for the flood arch and 1 dusk + 1 dawn for the single Queensway property should suffice. Ideally the additional surveys should be done at a different time of the year. If the identification of species roosting is still ambiguous, more surveys will also be required. **JT/ GB to schedule in “top-up” bat surveys.**

JT/ GB

LB raised her concern about the lack of hibernation survey on buildings and trees (or assessment at least). It appeared that AECOM concentrated effort on looking at only summer use and none of our reporting from 2015 mentioned hibernation surveys, assessment of potential for use as hibernation site, or potential use at other times of year including autumn mating season. **JT to check with the surveyors who undertook the building surveys and get back to LB.**

JT

LB highlighted the need to address hibernation potential and agreed that it could be a combination of assessment of potential use and a commitment to undertake hibernation surveys after submitting the ES in autumn/ winter.

- **Bat Licence format:** JT asked if we needed to produce separate licences for each of the identified bat roosts i.e. one licence for the properties at Queensway, one for trees (if required) and one for the bridge. LB explained that it may be better to separate these out by type i.e. buildings, structures, trees; but became concerned about different land owners and appendixes may be too big if all together. NE may be flexible on the format. **JT to explore options and determine/ confirm at next meeting.**
- **Bats at the River Derwent:** JT explained that no direct impacts on the roost were anticipated and asked if considered potential indirect disturbance may be covered through non licensable method statement. LB agreed.
Access restrictions at Queensway and impact on bat licence/ ES

JT

approach – GB explained that the bat roost surveys in association with residential properties proposed for demolition at Queensway, Markeaton junction have, in the main, been completed; however, there were some properties not accessed in 2017 which require survey in 2018. Given the findings from 2017, and the extent and accuracy of bat field data obtained in 2017 from use of advanced survey techniques (thermal imaging), it is considered that there are unlikely to be any significant roosts present (such as a maternity roost) in association with these properties. It is considered that any roosts present are likely to be transient roosts used by one or two bats. GB asked if Natural England were happy with the conclusion drawn here (where/ if access cannot be gained to survey outstanding properties), as long as reasonable effort has been demonstrated to try obtain access. GB also asked if we should include any non-accessible properties in the licence. LB explained that a licence could not be obtained without the consent of the landowner. LB agreed with our approach, providing that we undertake update surveys on those properties upon Highways England taking possession of these. LB was happy that from the volume of surveys we have undertaken that we can be confident that we did not expect any significant/ maternity roosts. JT proposed that AECOM submit a licence for a small roost of both common pipistrelle and whiskered at the house and if anything else crops up this is reflected in seeking an amendment to the licence. Natural England agreed. AECOM will need to make sure that they detail this approach – survey of previously inaccessible buildings/ areas once Highways England take possession and in the unlikely event of any bats or evidence of bats being found, the European Protected Species (EPS) licence for the other Queensway property will be amended. This would be in addition to pre-construction surveys (or possibly combined with these depending upon actual timescales).

- LB raised her concerns about potential new LED lighting. LEDs will be different to the sodium lights that are currently assumed to be present on site. SRW explained that AECOM were looking at lighting strategy for Little Eaton junction (over the proposed flyover).

Badgers

- Outlier setts at Kingsway junction and Little Eaton junction which would be lost. Main setts are assumed to be avoided. LB agreed with our approach so far.

Water voles

- Water vole presence recently detected on Dam Brook, field signs found during recent survey in April 2018 (assumed small isolated population).
- AS and LB were interested in this find and noted that they had not anticipated this as there was no mention of a water vole issue in our 2015 baseline report. **GB to send the latest data and maps from the 2017/2018 water vole survey.** LB and AS pointed out

GB

that neither of them would consider themselves water vole experts, and they would have to refer issues to other members of their team for consideration. They noted that this may be a more difficult issue that the others discussed and were interested in how we will propose to resolve this. As it will be a licensing issue, it is something we are likely to have to come back to in future discussions once we have approached Highways England regarding mitigation options. AS and LB were not so keen on any "rescue and holding off site" for one or more seasons and would very much be in favour of on-site mitigation with a new watercourse in place with appropriate habitat established in advance of the existing ditch being lost. Recommend that mitigation options are discussed with Highways England. SRW pointed out that this was complicated by the fact that the plans for the road involve loss of the ditch at an early stage of the construction. SRW acknowledged that AECOM will have to come up with a plan for appropriate sequencing of the diversion. It was further noted that establishing suitable habitat is not a quick fix.

- Second water vole survey programmed July-September 2018 to determine population. With regards to the River Derwent our assessment is that this stretch is generally unsuitable for water voles and AECOM are proposing to scope out the planned 2nd surveys for this stretch. **LB to discuss with colleagues from Natural England and get back to us.**

LB

White-clawed crayfish

- White-clawed crayfish are considered as a low risk. A single white-clawed crayfish was found in 2015 on Dam Brook. However, signal crayfish was identified downstream of the weir on Dam Brook in 2017. Presence/ likely absence is to be confirmed following completion of surveys in 2018, upstream of the weir.
- LB and AS agreed that it is probably unlikely that they will be present due to recent records of signal crayfish. If they are present suitable mitigation would be required. Surveys to be completed to inform assessment.

Lamprey

- Lamprey recently found on Dam Brook. Natural England agreed that this is interesting, but also agree this is a matter for the Environment Agency.

GB and JT enquired about the approach to adopt and timescale to expect with regards to obtaining the LoNI. AS and LB responded that AECOM should send the drafts of all the licences to be assessed by Natural England (including European

Protected and Wildlife and Countryside Act Species).

- General query re. access: SRW explained that AECOM were attempting to gain as much access as possible across the proposed scheme. In the main we have gained this. Problematic areas are Dam Brook towards Breadsall and Site 10 (south-east of Little Eaton roundabout). Where there has been difficulty we have adapted the survey approach e.g. reptiles (observational surveys north and south of the target area). Given the data obtained across the proposed scheme since 2015, we can be confident on the conclusions that can be drawn where access has been an issue.

GB asked what was the general accepted approach re. any areas we have not been able to access for survey to support the ES. Did we need Natural England to agree on the conclusions made in to support the ES, in advance of submission? LB and AS commented that we would have to update surveys after Highways England take possession and there is potential for this to cause delays in obtaining a water vole licence. **SRW to flag this access (for water vole surveys) up to Highways England.**

SRW

- Proposed road signage locations: There are isolated red line boundary areas outside of the main scheme footprint (as shown on figures) proposed for road signage. They are assumed to have minimal impacts on biodiversity associated. Works will be temporary during the construction phase to install new road signs within the highways boundary. There will be minimal vegetation clearance. The work activities will be localised and considered non-licensable, therefore do not require verification surveys in 2018 to support the assessment. Pre-construction survey checks by an Ecological Clerk of Works will be carried out as part of the Construction Environmental Management Plan (CEMP).

LB and AS agreed with this approach, but it would need to be included as it is in the red-line boundary. GB suggested that it would be easier to include an assessment of what is there. GB suggested a drive-by survey/ assessment and AS and LB agreed as it is not really a biodiversity issue but all that should be reflected in our assessment (including justification for a drive-by survey (subject to the usual pre-construction survey/ checks later)). Our report will have to demonstrate that these areas will not be impacted. **GB to investigate survey of isolated red line boundary areas and include in baseline of ES.**

GB

7. Outline mitigation and No-Net Loss assessment:

No-Net Loss in Biodiversity: GB and JT explained that the objective of the proposed scheme is to deliver no-net loss in biodiversity. Early stakeholder engagement has taken place (with Derby City Council, Derby County Council, Derbyshire Wildlife Trust, Environment Agency and Highways England Area 7 Management) to identify areas adjacent to the proposed scheme (and within the redline boundary) to use for potential ecological compensation/ enhancement. These area are:

- Markeaton Park and Mill Ponds;

- Areas within Mackworth Park;
- Areas within Kingsway Hospital;
- Areas to the east and west of the River Derwent to the north and south of the A38 (incl. Ford Lane).

AS explained that Natural England would recommend at least No-Net Loss. Net-Gain in biodiversity would be very well received and would look great on AECOM/ Highways England. Natural England is looking at green access, ecological connectivity and Biodiversity Action Plan (BAP) species. AS would also like to see insurance on the compensation for the loss of the houses on Queensway.

JT explained that the Metric for the assessment was in the process of being determined (DEFRA or Highways England recently published guidance) with ongoing communication with Highways England. AS agreed with this approach (post-meeting note: agreed with Highways England that we will follow the DEFRA metric).

JT explained that the mitigation details for bats will be included in the licences.

JT ran through the proposed mitigations:

- For Queensway house (& trees). Bat boxes, 3No. for each roost, on nearby trees (i.e. each side of the road).
- For the flood arch bridge. Bat boxes 3No. on the south facing sides of the extended bridge (with it being a box culvert type bridge extension it is not very practical to make the roost an integral part of this).
- For any roosts lost (house/ tree/ bridge) supervised soft strip demolition/ removal at an appropriate time (winter not summer) considered suitable, no need to exclude.
- General mitigation - high level outline mitigation (which is included in the PEIR) is to be discussed. Planning to put together a document to demonstrate incorporation of ecology mitigation into the design. Water vole and lamprey on Dam Brook to be considered.
- Mitigation measures are still being considered by Highways England and the water voles recently recorded will require additional considerations.

JT asked if Natural England could provide comment on the mitigation proposed ahead of submission of the draft licence and if landowner agreements (for the monitoring of any mitigation e.g. bat boxes) needed to be in place as part of the draft licence. LB and AS explained that Natural England could only comment once they had all our baseline data. GB explained that the reports were in the process of being approved by Highways England. **GB to forward the reports afterwards.** In the meantime, AS recommended to check the standard advice on line

GB

<https://www.gov.uk/guidance/protected-species-how-to-review-planning-applications#standing-advice-for-protected-species>).

LB explained that where possible Natural England would like integral bat boxes at the Flood Arch Bridge. JT suggested two possible options: (i) leave gaps at the expansion joint between the existing and new concrete box culvert, with this leading to cavity above; (ii) **JT to check if there are opportunities for integral bat boxes on the new abutment walls alongside new box culvert on the southern side of the bridge expansion area.** Natural England would prefer the second option. AECOM to check with design team/ engineers/ Highways England.

JT

LB explained that land owner agreements will be required as per usual standard licensing procedures. This may influence our decision on whether to separate licenses or group them. **Approach to be clarified by email exchange of meeting notes/ minutes with Natural England.**

JT/ SCG

8. Expected input from Natural England going forward:

GB and JT enquired if input from Natural England were possible for the following:

- Comments on the PEIR;
- Attendance at the next consultation/ stakeholder meetings (anticipated to be a date in the summer and a date in the autumn);
- Formal comment on the AIES report (once produced/ updated);
- Review and determination of the draft protected species licences;
- Agreement in principal on conclusions drawn where access has been an issue;
- Comment further on mitigation design generally and re. EPS.

AS explained that AECOM and Natural England had to go through the financial aspect of the Discretionary Advice Service (DAS). Natural England were ready to offer document reviews, emails, teleconference and meeting attendance. AS agreed to come to the two next consultation meetings at the AECOM Nottingham office planned for summer and autumn (dates TBC). **SRW to confirm DAS/ financial aspect set up to progress with consultation and Highways England invoicing Natural England directly.**

SRW

Minutes Produced by: Gaelle Bardsley/ Jeremy Truscott

Reviewed by: Simon Wild

Issued by: Gaelle Bardsley

Table 1: Summary of ecological studies and surveys carried out up to the end of 2017

Study / Survey	Survey Date	Study Area	Description	Report Reference
Desk Study	January 2015	International statutory designated sites up to 30 km from the 2015 proposed scheme boundary for sites designated at an international level for bats. All other statutory and non-statutory designated sites and non-designated sites of interest, and protected / notable species records up to 2km from the 2015 proposed scheme boundary.	A desk-based study with Derbyshire Wildlife Trust and other specialist groups, to identify international, national and other statutory designated sites, non-statutory local sites and non-designated sites of interest within proximity to the proposed scheme. Online resources also reviewed.	47071319-URS-05-RP-EN-003
Extended Phase 1	January/February 2015	Up to 50m from the 2015 proposed scheme boundary	Extended Phase 1 habitat survey to map habitat types, and assess the potential for protected species and/or habitats or species groups of nature conservation importance to occur on and within close proximity to the 2015 proposed scheme. Included an assessment of features on and adjacent to the 2015 proposed scheme site for bat roost potential. The location and extent of invasive plant species was also recorded as part of these vegetation surveys.	47071319-URS-05-RP-EN-003
Breeding bird surveys	April, May and June 2015	Up to 500m from the 2015 proposed scheme boundary (although habitats within 50m of the 2015 proposed scheme were given greater emphasis)	Breeding bird surveys to specifically identify any notable / Schedule 1 bird species or assemblages of bird species within the extent or immediate vicinity of the 2015 proposed scheme.	47071319-URS-05-RP-EN-008
Great crested newt surveys	mid-April to May 2015	Up to 500m from the 2015 proposed scheme boundary	Great crested newt survey of ponds located within 500m of the 2015 proposed scheme to determine the presence/likely absence of great crested newts.	47071319-URS-05-RP-EN-009
Reptile surveys	June 2015	Up to 50m from the 2015 proposed scheme boundary	Reptile surveys at discrete locations that were considered to be potentially suitable to support this species group.	47071319-URS-05-RP-EN-010
Botanical survey	June 2015	Up to 50m from the 2015 proposed scheme boundary	Botanical survey of selected areas of grassland, hedgerows and other habitats comprising broadleaved woodland, plantation, scrub, ditch and standing water.	47071319-URS-05-RP-EN011
Badger surveys	January 2015	Up to 50m from the 2015 proposed scheme boundary (extended up to 500 m from the proposed scheme boundary (where access allowed) to check those badger records identified from the desk study data search).	Badger survey also included ongoing monitoring in the 2015 ecology survey season to determine the presence of badger setts, and other badger field signs, across the proposed scheme.	47071319-URS-05-RP-EN-012
Terrestrial invertebrate surveys	June and August 2015	Up to 50m from the 2015 proposed scheme boundary for terrestrial invertebrates	Terrestrial invertebrate survey of selective areas of suitable habitat within and adjacent to the proposed scheme.	47071319-URS-05-RP-EN-013
Water vole and otter surveys	March and May 2015	Up to 250m from the 2015 proposed scheme boundary	Water vole and otter surveys on watercourses within and adjacent to the proposed scheme considered suitable to support these species groups.	47071319-URS-05-RP-EN-014
River habitat and river corridor survey	May 2015	Up 500m from the 2015 proposed scheme boundary	River habitat and river corridor survey of watercourses that may be crossed or potentially directly impacted by the proposed scheme.	47071319-URS-05-RP-EN-015
White-clawed crayfish surveys	July and August 2015	At least 50m from the 2015 proposed scheme boundary (extended further where necessary to take into account a 100 - 200 m sampling site within a 500 m section of watercourse)	White-clawed crayfish surveys on watercourses identified as potentially suitable to support this species group.	47071319-URS-05-RP-EN-017
Aquatic macro-invertebrate survey	Spring, Summer and Autumn 2015	Up to 250m from the 2015 proposed scheme boundary for aquatic macroinvertebrates	Aquatic macro-invertebrate survey on watercourses that would be most likely affected by the proposed scheme.	47071319-URS-05-RP-EN-018
Bat surveys	May to September 2015	Up to 50m from the 2015 proposed scheme boundary	Bat surveys on trees and structures, which were identified as having potential to support roosting bats during the Extended Phase 1, to determine the presence/likely absence of bats roosting. Bat activity surveys, comprising walked transect and static detector surveys, and	47071319-URS-05-RP-EN-020

Study / Survey	Survey Date	Study Area	Description	Report Reference
			bat trapping surveys, were also undertaken across the proposed scheme.	
Wintering bird surveys	September 2015 to March 2016	Targeted areas within and adjacent to the 2015 proposed scheme boundary only up to 100m	Wintering bird surveys to identify any notable wetland bird species or assemblages within the extent of the proposed scheme.	47071319-URS-05-RP-EN-022
Updated Desk Study	September 2016	Statutory and non-statutory designated sites and non-designated sites of interest 2km from the 2016 proposed scheme boundary.	An updated desk study was carried out for the proposed scheme, plus 19 Additional Sites identified as potential flood compensation; borrow pits; construction compounds; and/or ecological compensation areas.	47071319-URS-05-TN-EN-023
Extended Phase 1 Habitat Survey	September/October 2016	Up to 50m from the boundary of each of the 19 Additional Sites identified beyond the 2016 proposed scheme boundary.	Extended Phase 1 habitat surveys were carried out across 19 Additional Sites identified as potential flood compensation; borrow pits; construction compounds; and/or ecological compensation areas.	47071319-URS-05-TN-EN-023
Wintering Bird Survey	September 2016 to March 2017	Targeted areas within and adjacent to the 2016/17 proposed scheme boundary up to 100m.	Wintering bird surveys to identify any notable wetland bird species or assemblages within the extent of Additional Sites 7a, 7b, 10, 21, 19a, 19b and 19c, which were not previously surveyed.	To be published
Extended Phase 1 Habitat Survey	February to June 2017	Up to 50m from the 2017 proposed scheme boundary.	Extended Phase 1 habitat survey to resurvey the habitats previously surveyed in 2015 and 2016, and survey new areas identified in 2017 as a result of proposed scheme boundary changes. This defined the scope of surveys for 2017 (as listed below).	To be published
Breeding Bird Survey	March to July 2017	Up to 50m from the 2017 proposed scheme boundary (Only 50 m in comparison to 500m. The 2017 surveys were an update to the 2015 surveys. The surveys in 2015 were based on the road development (with potentially further ranging impacts). The additional sites, which concern storage areas, flood compensation/ecological compensation areas, were considered to not have as wider scale impacts. Schedule 1 species were however regarded adjacent to the sites).	As the 2015 breeding bird survey results were approaching 2 years old, those areas with the highest potential for breeding birds were resurveyed in 2017 to provide an update to determine whether the breeding bird assemblage remained comparable to that identified in 2015. Furthermore additional areas (for potential construction compounds, flood storage and ecological compensation) were added to the proposed scheme boundary, and required a full suite of breeding bird surveys in 2017.	To be published
Great Crested Newt Survey	Mid-April to May 2017	Up to 500m from the 2017 proposed scheme boundary	Great crested newt survey of ponds located within 500m of the 2017 proposed scheme to determine the presence/likely absence of great crested newts. New ponds identified which were not previously surveyed. Additionally, although a negative result in 2015, age of data was approaching 3 breeding seasons old and recommended to be updated.	To be published
Reptile Survey	September to October 2017	Targeted areas within and adjacent to the 2017 proposed scheme boundary up to 100m	Reptile surveys at discrete locations that were considered to be potentially suitable to support this species group which were not previously surveyed in 2015. The new grassland habitats within Sites 8, 10 and 19 were identified to have potential to support reptile populations.	To be published
Botanical Survey	July 2017	Targeted areas within and adjacent to the 2017 proposed scheme boundary up to 50m	Resurvey of A38 Roundabout LWS and Alfreton Road Grassland LWS given the data from 2015 was approaching 2 years old. Survey of the A38 Scrub Site of Interest, a new designated site and area of woodland identified in 2017 due to proposed scheme boundary changes. Updated vegetation survey of species-rich areas and seven new grassland areas identified in 2017 due to proposed scheme boundary changes. One new hedgerow H8 species-rich also identified for further survey.	To be published
Badger Territory Analysis	January to February 2017	Up to 50m from the 2017 proposed scheme boundary (extended up to 500 m from the proposed scheme boundary (where access allowed) to check those badger records identified from the desk study data search).	Updated badger survey and territory analysis based on the 2017 proposed scheme boundary.	To be published

Study / Survey	Survey Date	Study Area	Description	Report Reference
Water Vole and Otter Survey	May to September 2017	Up to 250m from the 2017 proposed scheme boundary.	<p>As the 2015 water voles survey results were approaching 2 years old, it was recommended that these waterbodies are re-surveyed.</p> <p>Lower reaches of Bramble Brook, upper and lower reaches of the River Derwent, lower reaches of Watermeadows Ditch, Bottle Brook and Pb1 were new watercourses / stretches of watercourse identified for survey as a result of proposed scheme boundary changes.</p>	To be published
White-clawed Crayfish Survey	July 2017	At least 50m from the 2017 proposed scheme boundary at Little Eaton only (extended further where necessary to take into account a 100 - 200 m sampling site within a 500 m section of watercourse)	<p>In 2015 AECOM recorded white-clawed crayfish on the Dam Brook. Potential for this species to be present within other watercourses and waterbodies which exist within or adjacent to the proposed scheme at Little Eaton Junction only. Data approaching 2 years old therefore updated survey recommended.</p> <p>As a result of the AECOM 2015 survey findings and the close proximity of signal crayfish further white-clawed crayfish surveys in the Markeaton and Kingsway junctions were not considered necessary and were discounted from further survey in 2017</p> <p>Bottle Brook was a new watercourse not previously surveyed in 2015.</p>	To be published
Aquatic Macroinvertebrate Survey	May and November 2017	Targeted areas from the 2017 proposed scheme boundary up to 250m	<p>Bottle Brook was a new watercourse identified as a result of proposed scheme boundary changes and subject to spring, summer and autumn aquatic macroinvertebrate surveys.</p>	To be published
Bat Trapping and Radio-tracking	June and September 2017	Targeted areas within and adjacent to the 2017 proposed scheme boundary at Markeaton.	<p>Targeted bat trapping and radio-tracking surveys on tree roosting bat species within and adjacent to the proposed scheme boundary at Markeaton (Markeaton Park and Mill Ponds).</p> <p>Also carried out to assist with determining population dynamics given high habitat valuation for bats at Markeaton.</p>	To be published
Tree Climbing Bat Assessment	March to July 2017	Up to 50m from the 2017 proposed scheme boundary	<p>PRF assessment on trees with potential to be impacted by the proposed scheme, and not previously surveyed in 2015.</p>	To be published
Bat Roost Survey – Buildings and Structures	February to September 2017	Up to 50m from the 2017 proposed scheme boundary (confirmed roosts only or new features not previously surveyed in 2015)	<p>External and internal survey assessments for the 17 residential properties at the Markeaton junction section of the proposed scheme, and subsequent dusk emergence and dawn re-entry surveys (where required).</p> <p>Bat roost presence / absence surveys for confirmed roost sites at buildings and structures identified from the 2015 and 2016. This was to aim to gain up to date and more detailed survey information to further characterise the roosts, to support the ecological impact assessment of the scheme and feed into any potential draft licence applications.</p> <p>Dusk emergence / dawn return surveys recommended for the new potential roost features identified during the 2017 PRF assessment with potential to be impacted by the proposed scheme, and not previously surveyed in 2015.</p>	To be published
Bat Activity Survey	April to October 2017	Up to 50m from the 2017 proposed scheme boundary.	<p>Significant change in habitat suitability for bats recorded in 2017; in comparison to 2015. This was based on the bat survey results from 2015, desk study data records, and updated survey guidance.</p> <ul style="list-style-type: none"> • Kingsway – Low (requiring spring, summer and autumn transects) • Markeaton – Moderate to High (recommended for bat trapping and radio tracking and transects alongside the Kingsway surveys) • Little Eaton – Moderate value (requiring monthly transect surveys April to October). 	To be published

Table 2: Designated and Non-Designated Sites Summary

Table 2(a): European Designated Sites within 30km of the proposed scheme

Site Name	Designation(s)	Primary Reason for Designation	Relationship to Scheme
Gang Milne	Special Area of Conservation (SAC)	The site contains the richest anthropogenic Calaminarian grasslands in the UK.	Approx. 18km to the north-west of the Kingsway and Markeaton junctions; and approx. 15 km to the north west of Little Eaton junction.
Bee Nest & Green Clay Pits	SAC	Great crested newts occur in a number of ponds on site, which vary in size, profile and vegetation cover.	Approx. 19km to the north-west of the Kingsway and Markeaton junctions; and approx. 18km to the north-west of Little Eaton junction.
Peak District	SAC	Semi-natural dry grassland and scrubland facies on calcareous substrates (important orchid site), tilio-acerion forests of slopes, screes and ravines. White-clawed crayfish.	A number of isolated stretches – the nearest located approx. 19km to the north-west of the Kingsway and Markeaton junctions; and approx. 17 km to the north-west of Little Eaton junction.
South Pennine Moors	SAC and Special Protection Area (SPA)	European dry heaths, blanket bogs, old sessile oak woods with Ilex and Belchnum in the British Isles. Internationally important assemblage of birds.	Approx. 28km to the north of the Kingsway and Markeaton junctions; and approx. 24 km to the north of Little Eaton junction.
River Mease	SAC	Spined loach and bullhead.	Approx. 20 km to the south of the Kingsway and Markeaton junctions; and approx. km to the south of Little Eaton junction
West Midlands Mosses	SAC and Ramsar	Natural dystrophic lakes and ponds. Transition mires and quaking bogs. Nationally important wetland habitats with noteworthy fauna including birds and invertebrates.	Approx. 30km to the south-west of the Kingsway and Markeaton junctions

Table 2(b): Statutory Designated Sites within 2km of Kingsway and Markeaton Junctions

Site Name	Designation(s)	Reason for Designation	Relationship to Scheme
Kedleston Park	Site of Special Scientific Interest (SSSI)	Rich and diverse deadwood invertebrate fauna which is primarily dependent upon the large number of mature and over-mature beech and pedunculate oak trees.	Approx. 1.9km north-west of the scheme boundary (Markeaton junction)
Mickleover Meadows	Local Nature Reserve (LNR)	Diverse habitat mosaic	0.7km west of the scheme boundary (Kingsway junction)
Darley and Nutwood	LNR	Habitats include grassland being invaded by scrub and woodland which includes an area of ancient woodland.	1.5km north-east of the scheme boundary (Markeaton junction)

Table 2(c): Non-statutory Designated Sites within 2km of Kingsway and Markeaton Junctions

Site Name	Designation(s)	Reason for Designation	Relationship to Scheme
A38	Local Wildlife Site	Semi-improved neutral	Within the scheme boundary

Site Name	Designation(s)	Reason for Designation	Relationship to Scheme
Roundabout	(LWS)	grassland	
Mickleover Railway Cutting	LWS	Habitat mosaic	Adjacent to the scheme boundary continuing up to 0.8km west of the scheme boundary
Markeaton Brook System	LWS	Invertebrate assemblage (including white-clawed crayfish)	Within the scheme boundary continuing up to 0.8km south-east of the scheme boundary and 1.2 km north of the scheme boundary
Bramble Brook and Margins	LWS	Secondary broad-leaved woodland	Adjacent to and within the scheme boundary
Markeaton Park	LWS	Wood pasture and Parks including veteran trees (BAP habitat – Wood pasture)	Directly adjacent to the north and west of the scheme boundary
Osierbed and Gravelpit Woods	LWS	Secondary broad-leaf wet woodland	Approx. 0.3km north west of the scheme boundary
Markeaton Lane Meadow	LWS	No information	Approx. 0.4km north of the scheme boundary
Kedleston Road Marsh	LWS	No information	Approx. 0.8km north of the scheme boundary
Beech Wood	LWS	No information	Approx. 0.5km north east of the scheme boundary
Friargate Station	LWS	Presence of Red data book (RDB) species (BAP habitat – Open mosaic)	Approx. 0.8km east of the scheme boundary
Kedleston Road Hedge	LWS	No information	Approx. 0.8km north of the scheme boundary
River Derwent	LWS	No information	Approx. 1.1km east of the scheme boundary
Mickleover – Etwall Trail (Derby)	LWS	No information	Approx. 1.3km west of the scheme boundary
Mackworth Brook	LWS	No information	Approx. 1.4km west of the scheme boundary
Inglewood Avenue Meadow	LWS	No information	Approx. 1.5km west of the scheme boundary
Radbourne Lane Hedge	LWS	No information	Approx. 1.5km west of the scheme boundary
Bunkers Wood	LWS	No information	Approx. 1.3km south of the scheme boundary
Woodlands School Hedges	LWS	No information	Approx. 1.8km north of the scheme boundary
Darley and Nutwood	LWS	No information	Approx. 1.5km north-east of the scheme boundary

Table 2(d): Non-Designated Sites of Interest within 2km of Kingsway and Markeaton Junctions

Site Name	Category (with DWT reference number when available)	Reason for Designation	Relationship to Scheme
Land off Kingsway	Potential Local Wildlife Site (PLWS) (DE115 and (R6541)	Running water and small pond	Approx. 0.2km east of the scheme boundary
King Street	PLWS (DE072/3)	No information	Approx. 0.9km east of the scheme boundary
Old Cemetery	DE081/3	Not assessed	Approx. 1.0km east of the scheme

Site Name	Category (with DWT reference number when available)	Reason for Designation	Relationship to Scheme
			boundary
All Saints Churchyard	AV015/3	Not assessed	Approx. 1.3km west of the scheme boundary
Littleover Brook	DE073/3	Not assessed	Approx. 1.3km south east of the scheme boundary
Rykneld Recreation Ground	DE087/3	Not assessed	Approx. 1.4km south east of the scheme boundary
Bunkers Grassland - Derby	PLWS	No information	Approx. 1.1km south of the scheme boundary
Hackwood Farm Pond	DE071/3	No information	Approx. 1.6km west of the scheme boundary
Markeaton Brook	AV017/3	No information	Approx. 1.8km south of the scheme boundary
Old Hall Wood	DE082/3	Not assessed	Approx. 1.2km south of the scheme boundary
Gold Lane	AV009/3	No information (BAP habitat adjacent – Traditional Orchard)	Approx. 1.8km west of the scheme boundary
Richmond Close	PLWS	No information	Approx. 1.6km south of the scheme boundary
Lower Vicarwood Pond 2	AV010/3	No information	Approx. 1.9km north west of the scheme boundary
Hell Brook & Hell Brook Copse	PLWS	No information	Approx. 1.4km south of the scheme boundary
Lower Vicarwood Pond	AV013/3	No information	Approx. 2.0km north west of the scheme boundary
Broadway Stream	DE056/3	No information	Adjacent to Markeaton junction scheme section

Little Eaton Junction

Table 2(e): Statutory Designated Sites within 2km of Little Eaton Junction

Site Name	Designation(s)	Reason for Designation	Relationship to Scheme
Breadsall Railway Cutting	LNR, SSSI	Unimproved grassland. Calcareous, neutral and acidic grassland. Diverse butterfly population.	Approx. 1.5km south east of the scheme boundary
Allestree Park	LNR	Parkland, veteran trees, secondary woodland and open water	Approx. 0.2km west of the scheme boundary
Darley and Nutwood	LNR	Habitats include grassland being invaded by scrub and woodland which includes an area of ancient woodland.	Approx. 0.15km south of the scheme boundary
Chaddesden Wood and Lime Lane Wood	LNR	Ancient semi-natural oak woodland	Approx. 1.6km east of the scheme boundary

Table 2(f): Non-statutory Designated Sites within 2km of Little Eaton Junction

Site Name	Designation(s)	Reason for Designation	Relationship to Scheme
Alfreton Road Rough Grassland	LWS	Floodplain grassland semi-improved	Within the scheme boundary.
River Derwent	LWS	Flowing water, river and associated streams	Within the scheme boundary.
Allestree Park	LWS	Unimproved neutral grassland (BAP habitat – Wood pasture)	Approx. 0.2km west of the scheme boundary.
Darley and Nutwood	LWS	Neutral grassland and ancient woodland	Approx. 0.15km m south of the scheme boundary
Burley Hill Farm Scrub and Grassland	LWS	Unimproved acid grassland	Approx. 1km west of the Little Eaton junction Site boundary
Breadsall Disused Railway	LWS	Unimproved neutral grassland	Approx. 0.3km south east of the Little Eaton junction Site boundary
Hatherings Wood, Little Eaton	LWS	Secondary broadleaved woodland	Approx. 0.6km north of the Little Eaton junction Site boundary
Camp Wood, Little Eaton	LWS	Secondary broad-leaved woodland	Approx. 0.3km east of the Little Eaton junction Site boundary
Watermeadows ditch	LWS	Standing open water	Approx. 0.4km south of the Little Eaton junction Site boundary
Peckwash Mills	LWS	Secondary broadleaved woodland	Approx. 1.4km north of the Little Eaton junction Site boundary.
Nooney's Pond	LWS	Standing open water	Approx. 0.7km south of the Little Eaton junction Site boundary
Darley Park	LWS	Wood Pasture and Parkland (BAP habitat – Wood pasture)	Approx. 0.7km south of the Little Eaton junction Site boundary
Beech Wood	LWS	No information	Approx. 1.0km south-west of the Little Eaton junction Site boundary.
Drum Hill Fields, Breadsall Moor	LWS	Unimproved acid grassland (BAP habitat – Lowland heathland)	Approx. 0.1km north-east of the Little Eaton junction Site boundary.
Ferriby Brook and Dam Brook	LWS (Includes PLWS (ER R6599 and ER009/3))	Secondary broad-leaved woodland	Approx. 1.2km east of the Little Eaton junction Site boundary
Moor Road fields	LWS	Semi-improved neutral grassland	Approx. 1.2km east of the Little Eaton junction Site boundary
Porter's Lane Hedge	LWS	Hedgerow	Approx. 1.2km south east of the Little Eaton junction Site boundary
Woodlands School Hedges	LWS	Hedgerow	Approx. 1.2km west of the Little Eaton junction Site boundary.
Breadsall Priory Golf Course	LWS	Wood-pasture and parks	Approx. 1.2km north east of the Little Eaton junction Site boundary
Porter's Lane Pond	LWS	Standing open water	Approx. 1.4km south east of the Little Eaton junction Site boundary
Horsley Carr	LWS	Ancient woodland plantation-mixed	Approx. 0.6km north-east of the Little Eaton junction Site boundary.
Moor plantation & Drum Hill	LWS	Secondary broadleaved woodland	Approx. 0.25km north-east of the Little Eaton junction Site boundary.
Eatonpark Wood	LWS	Secondary broadleaved woodland (BAP habitat – Wood pasture)	Approx. 0.8km north of the Little Eaton junction Site boundary.

Site Name	Designation(s)	Reason for Designation	Relationship to Scheme
Burley Wood	LWS	Ancient-woodland plantation-broadleaved	1.5km west of the Little Eaton junction Site boundary.
High View South Community School Nature Reserve	LWS	Unimproved neutral grassland	Approx. 1.5km south east of the Little Eaton junction Site boundary
Whittaker Lane Woodland	LWS	Secondary broadleaved woodland	Approx. 1.1km north of the Little Eaton junction Site boundary.
Breadsall Railway Cutting	LWS	Unimproved neutral grassland	Approx. 1.6km m south of the Little Eaton junction Site boundary
Chaddesden Wood and Lime Lane Wood	LWS	Ancient semi-natural oak woodland (BAP habitat – Traditional orchard)	Approx. 1.6km east of the scheme boundary
Kedleston Road Hedge	LWS	No information	Approx. 1.7km south-west of the scheme boundary.
Markeaton Park	LWS	No information	Approx. 1.8km south-west of the scheme boundary
Markeaton Lane Meadow	LWS	No information	Approx. 1.8km south-west of the scheme boundary
Kedleston Road Marsh	LWS	No information	Approx. 1.8km south-west of the scheme boundary
Great Farley's Wood	LWS	Ancient semi-natural woodland-mixed (BAP habitat – Traditional orchard)	Approx. 1.75km north of the scheme boundary.
Markeaton Brook System	LWS	No information	Approx. 2.0km south-west of the scheme boundary.
The Warren, Coxbench LWS	LWS	No information	Approx. 1.5km north of the scheme boundary.

Table 2(g): Non-designated Sites of Interest within 2km of Little Eaton Junction

Site Name	Category (with DWT reference number when available)	Reason for Designation	Relationship to Scheme
A38 Scrub	DE050/3	Not assessed	Within the scheme boundary
Ford Lane Field	Site recorded as a PLWS in 2015 by DWT but not in 2016. AV Grassland (no designation number)	Semi-improved acid grassland, needs survey	Within the proposed scheme boundary
Des Lane Brook Course	DE/3	Not assessed	To the west of scheme boundary
Boosemoor Brook	ER018/3	Not assessed	Adjacent to the east of the scheme boundary
Plantation	ER017/3	Not assessed	Adjacent to the scheme boundary
Old Derby Canal	ER003/3	Not assessed	Adjacent to the south of the scheme boundary
Croft Wood	PLWS ER004	Secondary woodland	Approx. 0.3km south of the scheme boundary
Marsh area, Breadsall	PLWS ER001	Swamp	Approx. 0.2km south of the scheme boundary
The Slip	ER007/3	Not assessed	Approx. 0.9km east of the scheme

Site Name	Category (with DWT reference number when available)	Reason for Designation	Relationship to Scheme
			boundary
A6 Bank	PLWS DE R6335	Semi-improved grassland	Approx. 0.3km west of the scheme boundary
Holme Nook Ponds	PLWS DE R6440	Open water	Approx. within 0.25km south of the scheme boundary
Rigga Quarry	PLWS	No information	Approx. 1km north west of the scheme boundary
Manor Farm Pasture	PLWS ER R6496	Acid grassland	Approx. within 0.4km south east of the scheme boundary
Waste Land, Duffield	AV120/3	No information	Approx. 1.5km north west of the scheme boundary
St Edmunds Churchyard	DE088/3	Not assessed	Approx. 0.5km west of the scheme boundary
Garage Pond	ER187/3	Not assessed	Approx. 0.6km south east of the scheme boundary
Mill Plantation	PLWS ER008	Secondary woodland	Approx. within 0.7km east of the scheme boundary
Outwoods	PLWS	No information	Approx. 1.25km south of the scheme boundary
Haslams Lane Brook course	Haslams	No information	Approx. 1km south of Little Eaton junction scheme section
Embankment, Little Eaton	ER125/3	Not assessed	Approx. 0.6km north east of scheme boundary
Little Eaton Acid Grassland	PLWS	No information	Approx. 0.05km north east of the Little Eaton junction scheme section.
Ferriby Brook	PLWS	No information	Approx. 1.1km east of the scheme boundary
Home Farm Pond	ER015/3	No information	Approx. 1.3km north of the scheme boundary
Breadsall Moor Grassland	PLWS	No information	Approx. 0.4km north east of the scheme boundary
River Derwent, Duffield Bridge	AV122/3	No information	Approx. 1.9km north of the scheme boundary
Broomfield Hedge	PLWS ER R6600	Ancient hedge	Approx. 1.5km east of the scheme boundary
Broomfield College grasslands	PLWS	No information	Approx. 1.8km east of the scheme boundary
Daypark Quarry	AV030/3	No information	Approx. 1.4km north of the scheme boundary
Bank plantation Horsley	PLWS	No information	Approx. 1.9km north of the scheme boundary
Castle Wood Coxbench	PLWS AV038/3	No information	Approx. 1.1km north of the scheme boundary

Table 3 Habitats Summary

Ecological Feature – Habitats	Description of Findings	Survey Work Undertaken for the Proposed Scheme in 2015	Survey Work Undertaken for the Proposed Scheme in 2016	Survey Work Undertaken for the Proposed Scheme in 2017	Recommended Survey Work for 2018
Semi-natural broad-leaved woodland and scattered broad-leaved trees	Present within the Kingsway junction and the A38 central reservation to the south of Kingsway junction. A wide fringe of broad-leaved woodland was also recorded in Markeaton Park, including veteran trees. Trees also fringed Markeaton Lake and Mill Pond. Isolated pockets of habitat also present across the proposed scheme at both Kingsway and Makaton junction and Little Eaton junction section.	Extended Phase 1 habitat survey in 2015; botanical survey in 2015; and river habitat and river corridor survey in 2015	Extended Phase 1 habitat survey in 2016 of the Additional Sites	Extended Phase 1 habitat survey in 2017 across the proposed scheme; botanical survey of species-rich grassland areas and new habitat areas (including semi-improved grassland, woodland and hedgerows) identified from proposed scheme boundary changes in 2017	Selective updates to botanical survey data from 2015; further botanical survey of the restored landfill site at Little Eaton following the botanical survey in 2017; and river habitat survey of those watercourses to be directly impacted / diverted by the proposed scheme (Dam Brook and Bramble Brook).
Semi-improved neutral grassland	Species rich semi-improved grassland is present at the A38 Roundabout LWS at Kingsway junction, on the embankment to the north of Little Eaton junction and restored landfill site at Little Eaton junction. However, in some areas of the A38 Roundabout LWS, the species rich semi-improved grassland is currently succeeding to scrub. Therefore there are areas which could be considered of lower nature conservation importance.				
Standing water and associated inundation vegetation	Twenty-three ponds were identified within 50m of the proposed scheme boundary. Other ponds located within 500m of the proposed scheme were considered in relation to their GCN breeding potential (see Appendix 8E Species).				
Running water	Seven streams were identified within 50m of the proposed scheme boundary: Bramble Brook, Markeaton Brook, Middle Brook, Watermeadows Ditch, Dam Brook, Boosemoor Brook and the River Derwent.				
Hedgerows	One hedgerow was surveyed as species-rich at Little Eaton but does not qualify as important under the wildlife and landscape criteria of the Hedgerow Regulations 1997. All other hedgerows surveyed across the proposed scheme were species poor and not important under the wildlife and landscape criteria of the Hedgerow Regulations 1997.				
Broadleaved plantation woodland	Broad-leaved plantation was present at Mackworth Park, on the approach of the Little Eaton junction on both sides of the carriageway, south west of the River Derwent, and to the east by Boosemoor Brook. Two lines of mature horse chestnut trees also present to the south east of Kingsway junction (within 50m of the proposed scheme boundary).				
Coniferous plantation	Two discrete stands of coniferous plantation was surveyed; one to the south of Little Eaton junction; and one to the north east of Kingsway roundabout.				
Mixed plantation woodland	The central reservation separating the carriageways north of Kingsway junction (leading to Markeaton junction) comprised very dense mixed plantation woodland, with native broad-leaved species. Mixed woodland plantation woodland was also located to the west of the A38 near to the entrance to Markeaton Park.				
Poor semi-improved grassland	Although semi-natural grassland is identified as an LBAP habitat, most of the grassland across the site was species-poor and of limited ecological importance in comparison to the more limited areas identified as species- rich. Semi-natural grassland is however known to have the potential to support a variety of species including invertebrates and nesting birds.				
Improved grassland and arable	Improved grassland and arable habitat recorded to the south and east of Little Eaton junction.				
Marshy grassland	An area of marshy grassland to the west of Ford Lane, choked by reedmace <i>Typha</i> sp., meadowsweet <i>Filipendula ulmaria</i> and ornamental non-native reed sweet grasses <i>Glyceria</i> spp. No open water was recorded.				
Dense and scattered scrub	Scattered scrub and dense scrub occurred in areas throughout the extent of the proposed scheme and were interspersed within grassland habitats. Willows and alders in particular occurred in proximity to the streams and areas of standing water.				
Tall ruderal	This habitat was commonly found along footpaths and along field margins. Numerous stands of Japanese knotweed, giant knotweed and Himalayan Balsam were also recorded.				
Amenity grassland	Most of the small gardens (including the gardens along Queensway) and mown verges associated with residential properties within the boundary of the proposed scheme were included in this habitat category. Amenity grassland was also recorded in Mackworth Park, Markeaton Park and Derby University.				
Hard standing and bare ground	Hardstanding was recorded principally associated with the carriageways of the A38 as well as public footpaths and residential and commercial properties surrounding the proposed scheme.				
Buildings	Buildings or man-made structures were recorded on or within 50m. Including residential properties at Markeaton junction; bridge structures at Kingsway junction; and bridges and mobile homes at Little Eaton junction.				

Table 4 Species Summary

Ecological Feature – Species	Description of Findings	Survey Work Undertaken for the Proposed Scheme in 2015	Survey Work Undertaken for the Proposed Scheme in 2016	Survey Work Undertaken for the Proposed Scheme in 2017	Recommended Survey Work for 2018
Flora species	<p>Sand spurrey <i>Spegularia rubra</i> data records possibly within the scheme boundary near Kingsway roundabout and near Site 21. Brown sedge <i>Carex disticha</i> data records also possibly within the scheme boundary near Site 3. However record accuracy not precise enough to determine exact locations.</p> <p>No notable flora species recorded on or within 50m of the proposed scheme boundary, from the Extended Phase 1 habitat and botanical surveys carried out to date, which require individual valuation or assessment. Further botanical surveys in 2018 will confirm this.</p>	Botanical survey in 2015	None	Botanical survey of species-rich grassland areas and new habitat areas (including semi-improved grassland, woodland and hedgerows) identified from proposed scheme boundary changes in 2017.	Selective updates to botanical survey data from 2015; and further botanical survey of the restored landfill site at Little Eaton following the botanical survey in 2017.
Great crested newts	<p>Desk study records of great crested newts within 2km of the proposed scheme. No great crested newts detected in the vicinity of the proposed scheme during surveys in 2015 or 2017.</p>	Great crested newt survey in 2015; and desk study with Derbyshire Wildlife Trust (DWT).	A review of waterbodies within 500 m of the Additional Sites was carried out in 2016; and updated desk study with DWT.	A review of waterbodies within 500m of the 2017 proposed scheme boundary; and great crested newt survey in 2017 across the proposed scheme.	None
Toads	<p>No records of common toad from desk study information. Toads (peak count of 26 individuals) found in ponds in association with Markeaton junction in 2015 and assumed to still be present in 2017 during great crested newt surveys. .</p>	Great crested newt survey in 2015; and desk study with DWT.	A review of waterbodies within 500m of the Additional Sites was carried out in 2016; and updated desk study with DWT.	A review of waterbodies within 500m of the 2017 proposed scheme boundary; and great crested newt survey in 2017 across the proposed scheme.	None
Reptiles	<p>Desk study records of reptiles were recorded within 1km of the proposed scheme.</p> <p>No reptiles were recorded across the proposed scheme during surveys in 2015.</p> <p>No significant habitat changes across the proposed scheme in regards to those areas of habitat previously surveyed in 2015. Given negative result in 2015; no further surveys were recommended in 2017 on those areas previously surveyed.</p> <p>New grassland habitats within Sites 8, 10 and 19 with potential to support reptile populations were identified in 2016/2017.</p> <p>No reptiles were found at Site 8 during surveys in 2017. However, surveys at Site 10 and 19 were only partially completed in 2017.</p>	Reptile survey in 2015; and desk study.	As part of the extended Phase 1 habitat survey of the Additional Sites in 2016, an assessment of habitats was made for their potential to support reptiles.	<p>Extended Phase 1 habitat survey based on 2017 proposed scheme boundary; and reptile survey of Site 8, 10 and 19.</p> <p>(Partially completed)</p>	Complete reptile surveys at Site 10 and 19.
Badger	<p>Due to the confidential nature of badger sett information, all current survey and assessment data has been withheld from this PEI Report. This information is, however, being fully considered and evaluated as part of the ongoing assessment into the potential effects on this legally protected species.</p>	Badger survey in 2015 and monitoring throughout the 2015 ecological survey season; and desk study.	Partial badger survey as part of extended Phase 1 habitat survey in 2016 at the Additional Sites.	Updated badger survey based on the 2017 proposed scheme boundary; and badger territory analysis.	Updated characterisation of setts potentially impacted by the scheme to inform licencing; and desk study data
Water vole	<p>Records of water vole exist within 1km of the proposed scheme as well as from numerous watercourses that flow through or adjacent to the proposed scheme from within the last 10 years.</p> <p>In 2015 AECOM recorded a water vole latrine on Watermeadows Ditch. No other signs recorded on any other watercourses surveyed.</p> <p>As the 2015 water voles survey results were approaching 2 years old, it was recommended that those waterbodies were re-surveyed in 2017 (i.e. Markeaton Brook, Markeaton Lake, Mill Ponds, Mackworth Brook, Bramble Brook, Dam Brook, Watermeadows Ditch, River Derwent and</p>	Water vole survey in 2015; and desk study.	As part of the extended Phase 1 habitat survey of the Additional Sites in 2016, an assessment of habitats was made for their potential to support water vole.	Extended Phase 1 habitat survey based on 2017 proposed scheme boundary; updated water vole survey of waterbodies surveyed in 2015; and water vole survey of new stretches of watercourse identified in	Complete surveys at Little Eaton junction section of the proposed scheme (drain Pb1, Watermeadows Ditch, Dam Brook and the River Derwent)

Ecological Feature – Species	Description of Findings	Survey Work Undertaken for the Proposed Scheme in 2015	Survey Work Undertaken for the Proposed Scheme in 2016	Survey Work Undertaken for the Proposed Scheme in 2017	Recommended Survey Work for 2018
	<p>Boosemoor Brook).</p> <p>New watercourses / stretches of watercourse identified for survey in 2017 as a result of proposed scheme boundary changes: Lower reaches of Bramble Brook, upper and lower reaches of the River Derwent, lower reaches of Watermeadows Ditch, Bottle Brook and drain Pb1.</p> <p>Due to the lack of available water vole habitat and water vole latrines within the Markeaton and Kingsway junctions, and on the Bottle Brook and Boosemoor Brook at the Little Eaton junction, it was considered that water voles were absent from these sections during surveys in 2017. Surveys were only partially completed in 2017 at drain Pb1, Watermeadows Ditch, Dam Brook and the River Derwent at Little Eaton junction.</p>			<p>2017</p> <p>(Partially completed)</p>	
Otter	<p>No records of otter from within the last ten years at Kingsway and Markeaton. Two recent otter records were however found at Little Eaton.</p> <p>During the 2015 field surveys at Kingsway and Markeaton Junctions, field signs of otter spraints were recorded at all six of the waterbodies surveyed. Two potential holt sites were also identified however these were found not to be in use in 2017.</p> <p>During the 2015 field surveys at Little Eaton Junction, field signs of otter spraints were recorded at three of the four waterbodies surveyed. A total of five spraints were recorded. No holts were recorded.</p> <p>Otter were considered to be present at both the Markeaton and Little Eaton junctions with watercourses used as both foraging and commuting routes, however they were absent from the Kingsway junction during surveys in 2017. Surveys were only partially completed in 2017 at Dam Brook and Watermeadows Ditch at Little Eaton junction.</p>	<p>Otter survey in 2015; and desk study.</p>	<p>As part of the extended Phase 1 habitat survey of the Additional Sites in 2016, an assessment of habitats was made for their potential to support otter.</p>	<p>Extended Phase 1 habitat survey based on 2017 proposed scheme boundary; otter survey of waterbodies surveyed in 2015; and otter survey of new stretches of watercourse identified in 2017.</p> <p>(Partially completed)</p>	<p>Complete surveys at Little Eaton junction section of the proposed scheme (Dam Brook and Watermeadows Ditch).</p>
Bats – Roosting (all species)	<p>Bat roosts were confirmed in 2017 at 3 bridges: B2 Flood Arch (also identified in 2015); B3 River Derwent bridge (also identified in 2015); B15 rail crossing; and 1 property: number 30 Queensway (part of B8). Surveys of the Queensway buildings at Markeaton junction were only partially completed in 2017.</p> <p>Three trees/ groups of trees were highlighted as being of importance to bats at Markeaton during surveys in 2015, with one confirmed roost and two flagged as possible roosts for common bat species. However, no bat roosts were identified within the proposed scheme boundary or 50m buffer, during the bat trapping and tracking surveys at Markeaton in 2017.</p> <p>65 new trees were surveyed in 2017 based on the 2017 proposed scheme boundary; and 35 trees previously surveyed in 2015 were reassessed in 2017. Surveys of trees across the proposed scheme were only partially completed in 2017.</p>	<p>Bat roost surveys in 2015 (each built structure and tree within the proposed scheme boundary was assessed in-line with then current guidance from the Bat Conservation Trust (BCT) (Hundt, 2012). Between May and September 2015 dusk emergence and/or dawn re-entry surveys and/or thermal imaging surveys were undertaken at those built structures identified by the preceding bat roost potential survey as having potential to support roosting); and desk study.</p>	<p>As part of the extended Phase 1 habitat survey of the Additional Sites in 2016, an assessment of habitats was made for their potential to support bats.</p>	<p>Bat surveys in 2017 (external and internal survey assessments for the 17 residential properties at the Markeaton junction section of the proposed scheme, and subsequent dusk emergence and dawn re-entry surveys.</p> <p>Bat roost presence / absence surveys for confirmed roost sites at buildings and structures identified from the 2015 and 2016.</p> <p>Tree climbing of new potential roost features based on the 107 proposed scheme boundary); and desk study.</p> <p>(Partially completed)</p>	<p>Update of 2015 bat survey data; complete bat surveys at Markeaton and Little Eaton junction (buildings and trees); and potentially further updated characterisation surveys of identified bat roosts to support licences.</p>

Ecological Feature – Species	Description of Findings	Survey Work Undertaken for the Proposed Scheme in 2015	Survey Work Undertaken for the Proposed Scheme in 2016	Survey Work Undertaken for the Proposed Scheme in 2017	Recommended Survey Work for 2018
Bats – Foraging and Commuting (all species)	<p>Significant change in habitat suitability for bats recorded in 2017; in comparison to 2015. This was based on the bat survey results from 2015, desk study data records, and updated survey guidance.</p> <ul style="list-style-type: none"> • Kingsway – Low (spring, summer and autumn transects) • Markeaton – Moderate to High (bat trapping and radio tracking and transects alongside the Kingsway surveys) • Little Eaton – Moderate value (monthly transect surveys April to October). <p>Key bat activity hotspots were identified within Markeaton Park and along the River Derwent (north and south of the A38) as well as to the north of the Flood Arch bridge at Little Eaton (Talbot Turf land).</p> <p>The trapping confirmed Markeaton Park to be a valuable foraging and commuting habitat for bats (with one bat travelling up to 5km from it's roost site to the park). The trapping also resulted in the first in hand record of a serotine bat for Derbyshire, therefore indicating that Markeaton was a possible valuable foraging and commuting route for this species.</p>	Bat activity surveys in 2015 – (activity surveys within and in the immediate vicinity of the proposed scheme were based on Hundt 2012 guidance. May, June and July transects); and desk study.	As part of the extended Phase 1 habitat survey of the Additional Sites in 2016, an assessment of habitats was made for their potential to support bats	Bat activity surveys in 2017 – (activity surveys within and in the immediate vicinity of the proposed scheme were based on Collins, 2016 guidance); bat trapping and radio-tracking; and desk study	None
Birds – Breeding	<p>Desk study records were returned for numerous bird species listed under Section 41 of the NERC Act (2006).</p> <p>Surveys in 2015 and/or 2017 confirmed:</p> <ul style="list-style-type: none"> • Barn owl at Little Eaton junction. • An assemblage of notable farmland birds on the pastoral land and arable land to the east of the A38 at Little Eaton. • A population of nesting lapwing south-west of Little Eaton junction. • Presence of the Schedule 1 little ringed plover and oystercatcher south-west of Little Eaton junction. • Common nesting bird species across the proposed scheme. • Breeding bird interest in association with scrub at the proposed construction compound at Little Eaton junction (Site 8). 	Breeding bird surveys in 2015 (conducted across the proposed scheme to assess the conservation importance of the local bird assemblage and to identify habitat of importance to members of this species group); and desk study.	As part of the extended Phase 1 habitat survey of the Additional Sites in 2016, an assessment of habitats was made for their potential to support breeding birds.	Selective updates across the proposed scheme based on the 2017 proposed scheme boundary; and full suite of breeding bird surveys at Sites 7a, 7b, 22, 10a (part of site 10), 19a and 19c.	None
Birds – Wintering	<p>Populations of wintering birds including lapwing and teal, in the flooded field south-west of Little Eaton junction was confirmed during surveys in 2015/16.</p> <p>None of the Additional Sites surveyed in 2017 supported significant numbers of wintering bird target species.</p>	Wintering bird surveys in 2015/16 (conducted at Alfreton Road grassland LWS and Talbot Turf to the south west of Little Eaton junction) and desk study.	Wintering bird surveys of Additional Sites 7a, 7b, 10, 21, 19a, 19b and 19c.	Update of 2015/16 wintering bird survey data at Little Eaton in 2017/18. (Results yet to be analysed and reported)	None
White-clawed crayfish	<p>At Kingsway and Markeaton Junctions, white-clawed crayfish <i>Austropotamobius pallipes</i> records were identified within 2 km of the junctions. At Little Eaton junction eleven records of white-clawed crayfish were identified within 2 km of the junction and this includes a record of a single female white-clawed crayfish within a section of Dam Brook.</p> <p>During field surveys in 2015 at Kingsway and Markeaton junction's, four sections of watercourse were identified as having potential to support white-clawed crayfish populations (Markeaton Lake, Mill Pond 1, Mill Pond 2 and Middle Brook), although no white-clawed crayfish were found in any of the surveyed watercourses. American signals <i>Pacifastacus leniusculus</i> were however found.</p> <p>During field surveys in 2015, at Little Eaton junction, four watercourses were identified as having potential to support white-clawed crayfish populations (River Derwent, Watermeadows ditch, Dam Brook and Boosemoor Brook). One white-clawed crayfish was recorded within Dam Brook.</p>	White-clawed crayfish survey in 2015; and desk study.	As part of the extended Phase 1 habitat survey of the Additional Sites in 2016, an assessment of habitats was made for their potential to support white-clawed crayfish.	Extended Phase 1 habitat survey based on 2017 proposed scheme boundary; an assessment of habitats was made for their potential to support white-clawed crayfish; and updated white-clawed crayfish surveys at Little Eaton. (Partially completed)	Further presence/absence survey on Dam Brook upstream of the A38/A61 roundabout to determine the likely impact of the proposed scheme on any remnant white-clawed crayfish populations which may be located upstream of the weir at this

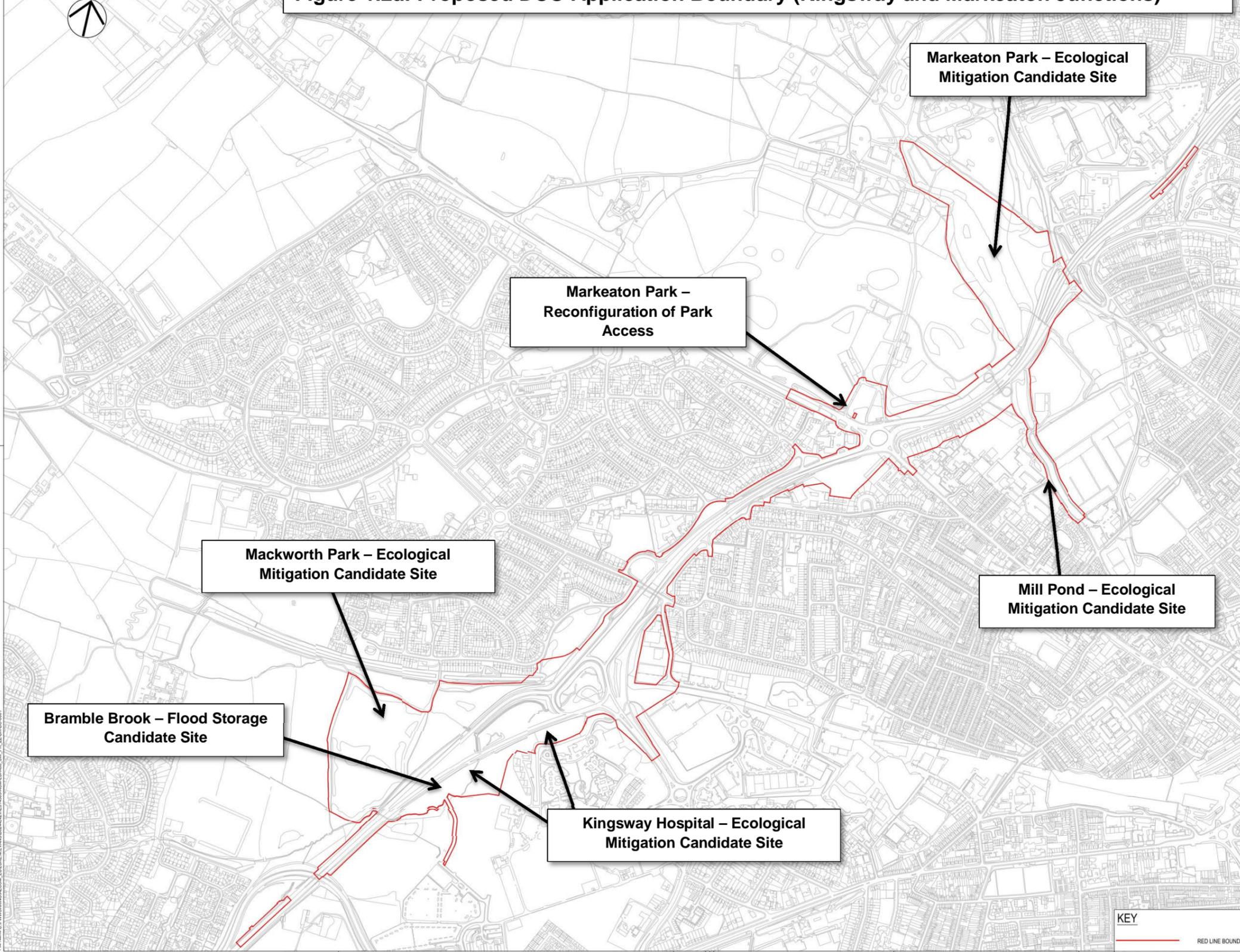
Ecological Feature – Species	Description of Findings	Survey Work Undertaken for the Proposed Scheme in 2015	Survey Work Undertaken for the Proposed Scheme in 2016	Survey Work Undertaken for the Proposed Scheme in 2017	Recommended Survey Work for 2018
	<p>Updated surveys were undertaken in 2017 at Little Eaton junction only; plus Bottle Brook which was a new watercourse identified in 2016/17 which was not previously surveyed in 2015. No white-clawed crayfish were found. Signal crayfish were identified on both the Watermeadows Ditch and the Dam Brook downstream of the A38/A61 roundabout (at the wier). Appropriate survey upstream of the weir could not be undertaken to confirm white-clawed or American signal crayfish presence in 2017 due to access restrictions.</p> <p>No updated surveys were recommended at Markeaton or Kingsway junction in 2017 due to the known presence of American signal crayfish</p>				location.
Terrestrial invertebrates	<p>Terrestrial invertebrate records included one species listed on Schedule 5 of the WCA, 33 species listed as species of principal importance, 36 species listed on the LBAP and one invasive species.</p> <p>Terrestrial invertebrate survey conducted across all semi-improved grassland areas in 2015. During field surveys in 2015 at Kingsway and Markeaton Junctions, grassland at Kingsway Hospital (Site G) was the most species diverse, with a peak count of 70 species recorded. Five notable species were also recorded; two butterfly (Lepidoptera) species; two notable species of hoverfly; and one species of bumblebee.</p> <p>During field surveys in 2015 at Little Eaton Junction, grassland at Talbot Turf Farm (Site E) was the least species diverse, with a peak count of 22 species. However, a casual record of the Nationally Scarce hoverfly <i>Pocota personata</i>; was made - determined that the record does not reflect a breeding population within Site E. Two other notable species were recorded; small heath butterfly and one species of bumblebee.</p> <p>The mosaic of habitats with varied sward height grassland, scrub, and bare ground present within Site 8 has the potential to support a diverse assemblage of terrestrial invertebrates, which may include notable species. Site 8 was recommended for further terrestrial invertebrate assessment (yet to be completed).</p>	Terrestrial invertebrate survey in 2015; and desk study.	As part of the extended Phase 1 habitat survey of the Additional Sites in 2016, an assessment of habitats was made for their potential to support terrestrial invertebrates.	Extended Phase 1 habitat survey based on 2017 proposed scheme boundary; an assessment of habitats was made for their potential to support terrestrial invertebrates.	Selective update of the 2015 terrestrial invertebrate survey data; and terrestrial invertebrate survey (June, July and August) of the proposed construction compound at Little Eaton.
Aquatic macroinvertebrates	<p>In regards to the proposed scheme, records were relatively common and of low conservation importance and do not have any statutory or non-statutory status.</p> <p>During field surveys in 2015 at Kingsway and Markeaton Junction, Markeaton Brook was identified of very good biological quality in the stretch sampled, and of “Moderate” to “Fairly High” conservation value; support communities likely to be very sensitive to changes in water quality. Bramble Brook was of moderate biological quality and of “Low” conservation value and supports communities likely to be relatively tolerant to pollution. Regionally notable species were recorded in Markeaton Brook were: <i>Potampohylax rotundipennis</i> (a caddisfly) and <i>Brachycentrus subnubilus</i> (a caddisfly).</p> <p>During field surveys in 2015 at Little Eaton Junction, the River Derwent which flows through the survey area was assessed as representing a high quality habitat with regard to aquatic macroinvertebrates, and of “Moderate” to “Fairly High” conservation value - supports communities likely to be sensitive to changes in water quality. Dam Brook was assessed as representing a good quality habitat with regard to aquatic macroinvertebrates and of “Low” to “Moderate” conservation value - supports communities likely be sensitive to changes in water quality. A single regionally notable species recorded from Dam Brook - <i>Potampohylax rotundipennis</i> (a caddisfly). Regionally notable species were recorded from the River Derwent were: <i>Brachycentrus subnubilus</i> (a caddisfly) and <i>Lasiocephala basalis</i> (a caddisfly).</p>	Aquatic invertebrate survey in 2015; and desk study.	As part of the extended Phase 1 habitat survey of the Additional Sites in 2016, an assessment of habitats was made for their potential to support aquatic invertebrates.	Extended Phase 1 habitat survey based on 2017 proposed scheme boundary; and aquatic invertebrate survey of Bottle Brook at Little Eaton junction.	Update of 2015 aquatic macroinvertebrate survey data (Markeaton Brook, Bramble Brook, River Derwent, Dam Brook).

Ecological Feature – Species	Description of Findings	Survey Work Undertaken for the Proposed Scheme in 2015	Survey Work Undertaken for the Proposed Scheme in 2016	Survey Work Undertaken for the Proposed Scheme in 2017	Recommended Survey Work for 2018

This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Highways England 100030649 2018.



Figure 1.2a: Proposed DCO Application Boundary (Kingsway and Markeaton Junctions)



SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION BOX
 IT IS ASSUMED THAT ALL WORKS ON THIS DRAWING WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROPRIATE METHOD STATEMENT.
 THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT.
 EXCEPTIONAL RISKS RELATING TO THE WORKS ASSOCIATED WITH THIS DRAWING ARE IDENTIFIED BELOW.

CONSTRUCTION
MAINTENANCE / OPERATION / DECOMMISSIONING / DEMOLITION

- NOTES**
1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DOCUMENTATION.
 2. DO NOT SCALE FROM THIS DRAWING, USE ONLY PRINTED DIMENSIONS.
 3. ALL DIMENSIONS IN MILLIMETRES, ALL CHAINAGES, LEVELS AND COORDINATES ARE IN METRES UNLESS DEFINED OTHERWISE.
 4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE PROJECT HEALTH & SAFETY FILE FOR ANY IDENTIFIED POTENTIAL RISKS.

Revision	By	Check	Date	Suffix
First Issue	LE	AJW	12/06/17	P01
Ecological enhancement site at Markeaton amended. OS mapping updated.	BO	AJW	12/02/18	P02
Ecological enhancement site at Markeaton amended. OS mapping updated.	SU	AJW	26/02/18	P03
Ecological enhancement site at Markeaton amended. OS mapping updated.	LE	AJW	26/02/18	P04

FOR REVIEW & COMMENT
 Client: Highways England
 Major Projects: Priority Gate
 Store Street
 Manchester
 M1 2WD
 Working on behalf of **highways england**

Project Title: **A38 DERBY JUNCTIONS**

Drawing Title: **RED LINE BOUNDARY SHEET 1 OF 2**

Designed	Drawn	Checked	Approved	Date
LE	GS	AJW	AJW	26/02/18

Internal Project No: 6053462
 Scale @ A1: 1:5000
 Zone: Whole Scheme

AECOM
 Royal Court
 Beal Close, Chesterfield
 Derbyshire, S41 7SL
 Tel: 01246 209221
 Fax: 01246 209229
 www.aecom.com
 AECOM Infrastructure & Environment UK Limited
 Registered in England. Registered number: 880328
 Registered office: First House, Acrewood Lane,
 Basingstoke, Hampshire RG21 7PP

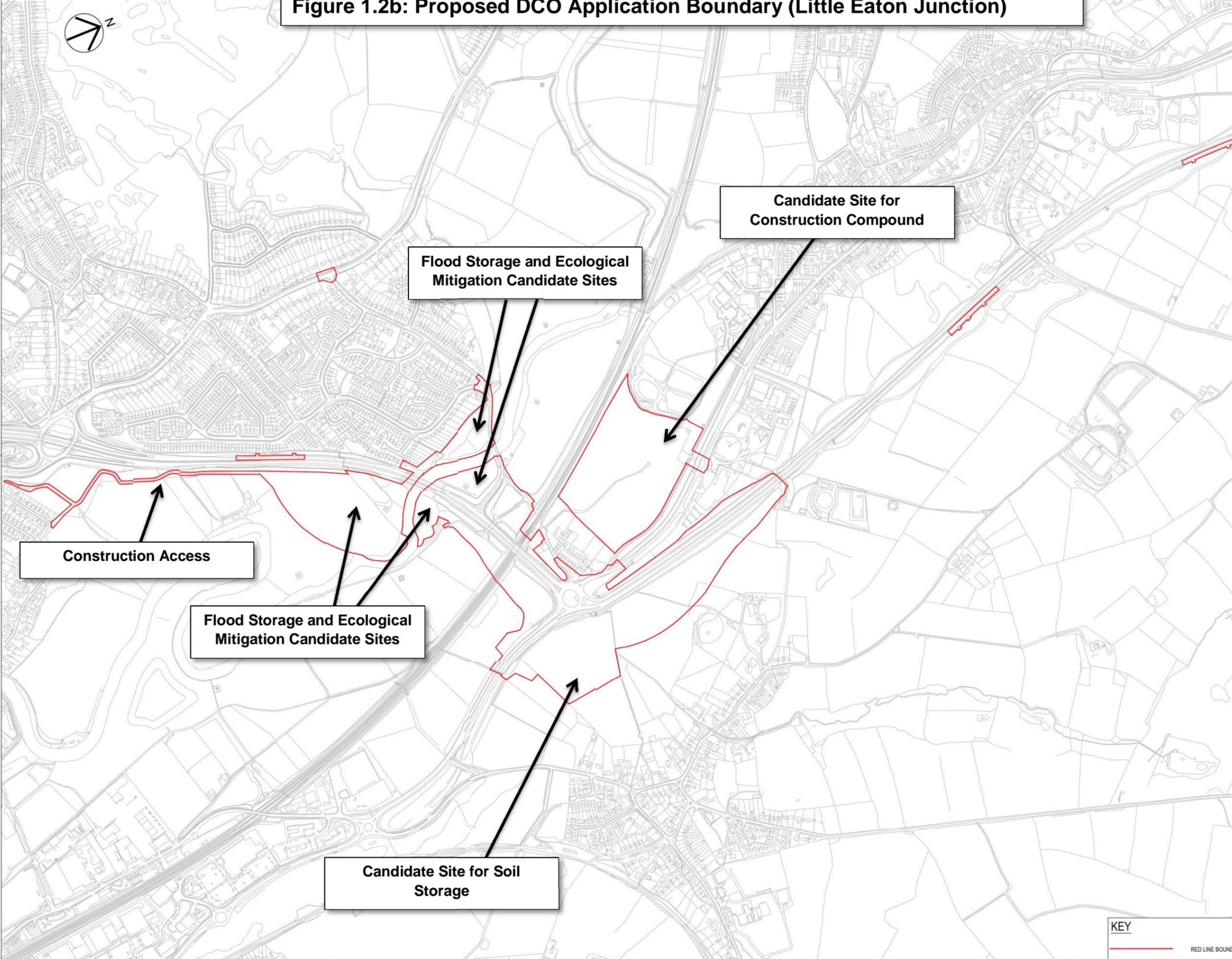
Drawing Number	Originator	Volume	Rev
HE514503	ACM	LSI	P04
A38_SW_PR_ZZ	DR	DC	0001
Location	Type	Role	Number

KEY
 RED LINE BOUNDARY

P04 Date: 26 February 2018 14:08:11
 File Name: C:\P\WORKING\AECOM\EDU\LE\M\A\N\2018\A38\A38_SW_PR_ZZ\DC\DC001

This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office. Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Highways England 100030649 2018.

Figure 1.2b: Proposed DCO Application Boundary (Little Eaton Junction)



SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION BOX
 IT IS ASSUMED THAT ALL WORKS ON THIS DRAWING WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROPRIATE METHOD STATEMENT.
 THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT.
 EXCEPTIONAL RISKS RELATING TO THE WORKS ASSOCIATED WITH THIS DRAWING ARE IDENTIFIED BELOW.

CONSTRUCTION
 MAINTENANCE / OPERATION / DECOMMISSIONING / DEMOLITION

NOTES
 1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DOCUMENTATION.
 2. DO NOT SCALE FROM THIS DRAWING. USE ONLY PRINTED DIMENSIONS.
 3. ALL DIMENSIONS IN MILLIMETRES. ALL CHANGES, LEVELS AND COORDINATES ARE IN METRES UNLESS DEFINED OTHERWISE.
 4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE PROJECT HEALTH & SAFETY FILE FOR ANY IDENTIFIED POTENTIAL RISKS.

Revision Details	By	Check	Date	Suffix
First Issue	LE	AJW	12/06/17	P01
Albion Rd access removed. Flood compensation area and storage compound amended	SO	AJW	12/02/18	P02
Albion Rd access removed. Flood compensation area and storage compound amended	LE	AJW	20/02/18	P03
Albion Rd access removed. Flood compensation area and storage compound amended	SO	AJW	20/02/18	P04

FOR REVIEW & COMMENT

Client: Highways England
 Major Projects
 Mobility Gate
 Stone Street
 Manchester
 M1 2WD
 Working on behalf of

Project Title:
**A38
 DERBY JUNCTIONS**

Drawing Title:
**RED LINE BOUNDARY
 SHEET 2 OF 2**

Designed	Drawn	Checked	Approved	Date
SO	SO	GS	AJW	20/02/18

Internal Project No: 60533462
 Scale @ A1: 1:5000
 Zone: Whole Scheme

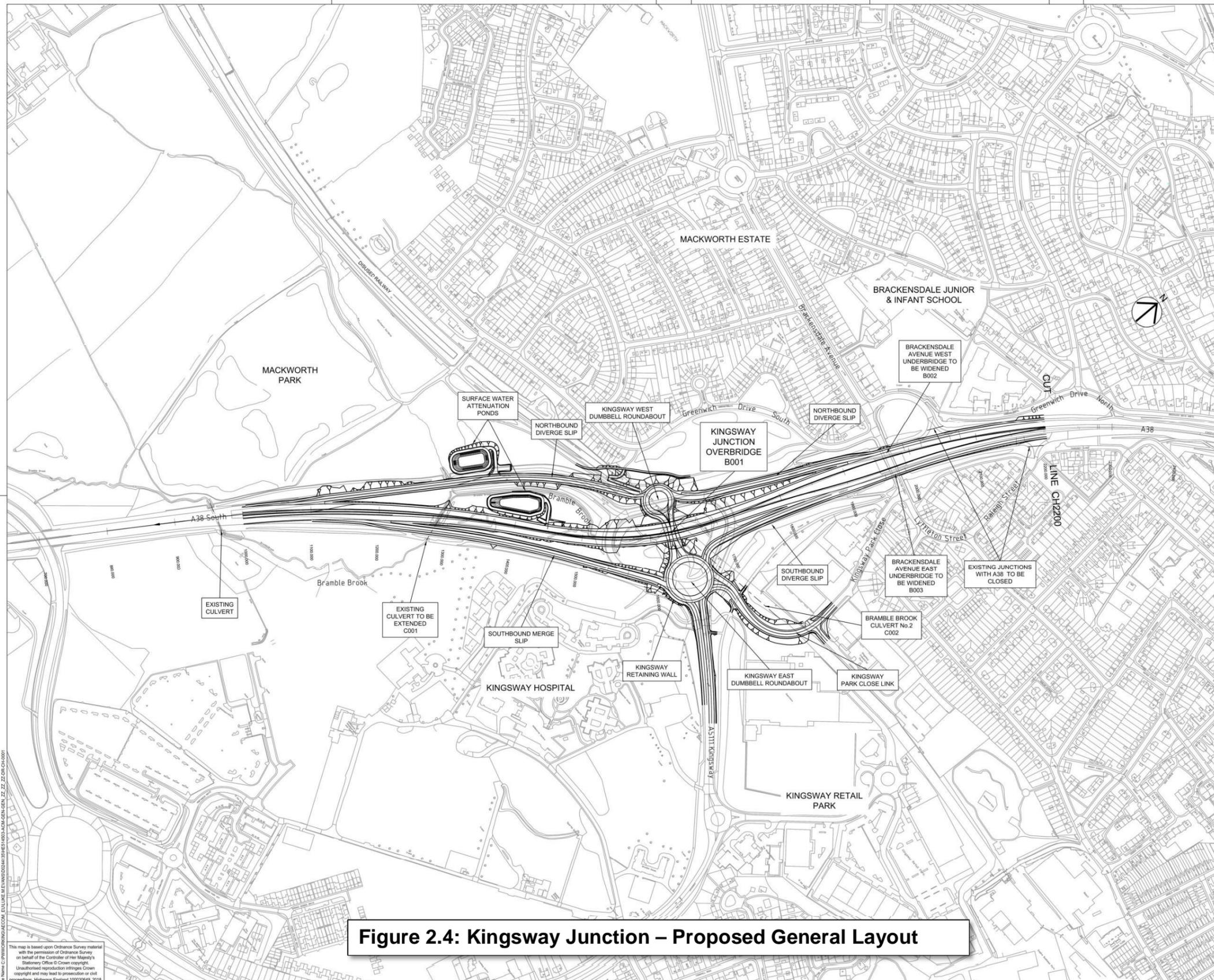
THIS DOCUMENT HAS BEEN PREPARED PURSUANT TO AND SUBJECT TO THE TERMS OF AECOM'S APPOINTMENT BY ITS CLIENT. AECOM ACCEPTS NO LIABILITY FOR ANY USE OF THIS DOCUMENT OTHER THAN BY ITS ORIGINAL CLIENT OR FOLLOWING AECOM'S EXPRESS AGREEMENT TO SUCH USE, AND ONLY FOR THE PURPOSES FOR WHICH IT WAS PREPARED AND PROVIDED.

AECOM
 Royal Court
 Basil Close, Chesterfield
 Derbyshire, S41 7SL
 Tel: 01463 209221
 Fax: 01463 209229
 www.aecom.com
 AECOM Infrastructure & Environment UK Limited
 Registered in England Registered number: 880328
 Registered office: South House, Alconoc Ltd.,
 Basingstoke, Hampshire RG21 7PP

KEY
 ——— RED LINE BOUNDARY

Drawing Number	Originator	Volume	Rev
HE514503	ACM	LSI	P04
A38_SW_PR_ZZ	DR DC 0002		
Location	Type	Role	Number

File Date: 20 February 2018 16:09:29
 File Name: C:\P\WORKING\AECOM\LUNDRIS\SPEN\RD\DC\HE514503\DC\SW_PR_ZZ\DC_0002



SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION BOX
 IT IS ASSUMED THAT ALL WORKS ON THIS DRAWING WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROPRIATE METHOD STATEMENT.
 THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT.
 EXCEPTIONAL RISKS RELATING TO THE WORKS ASSOCIATED WITH THIS DRAWING ARE IDENTIFIED BELOW.

CONSTRUCTION
MAINTENANCE / OPERATION / DECOMMISSIONING / DEMOLITION

NOTES
 PLEASE REFER TO 1:1000 SERIES DRAWINGS FOR:
 • MAIN PEDESTRIAN/CYCLE ROUTES AND CROSSING POINTS
 • INDICATIVE ROAD MARKINGS
 • MAINTENANCE ACCESS AREAS
 • FENCING (INCLUDING ENVIRONMENTAL BARRIERS)

First Issue	AMCB	11/04/17	P01
First Issue	LE	13/02/18	P02
Revision Details	By	Check	Date
	AJW		

Purpose of Issue: **FOR REVIEW & COMMENT**

Client: Highways England
 Working on behalf of

Project Title: **A38 DERBY JUNCTIONS**

Drawing Title: **KINGSWAY JUNCTION GENERAL LAYOUT**

Designed	Drawn	Checked	Approved	Date
LE	GS	AJW		13/02/18

Internal Project No: 60533462
 Scale @ A1: 1:2500
 Zone: A38/A511 Kingsway

THIS DOCUMENT HAS BEEN PREPARED PURSUANT TO AND SUBJECT TO THE TERMS OF AECOM'S APPOINTMENT BY ITS CLIENT. AECOM ACCEPTS NO LIABILITY FOR ANY USE OF THIS DOCUMENT OTHER THAN BY ITS ORIGINAL CLIENT OR FOLLOWING AECOM'S EXPRESS AGREEMENT TO SUCH USE, AND ONLY FOR THE PURPOSES FOR WHICH IT WAS PREPARED AND PROVIDED.

AECOM
 Royal Court
 Beal Close, Chesterfield
 Derbyshire, S41 7SL
 Tel: 01246 200221
 Fax: 01246 200222
 www.aecom.com

AECOM Infrastructure & Environment UK Limited
 Registered in England Registered number: 880328
 Registered office: Scott House, Aeronex Link,
 Basingstoke, Hampshire RG21 7PP

Figure 2.4: Kingsway Junction – Proposed General Layout

This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of the Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Highways England 100030649 2018.
 File Name: C:\P\00000000\AECOM\EDU\UK\A38\A511\KINGSWAY\GEN-DR-ZZ-ZZ-DR-02-0001

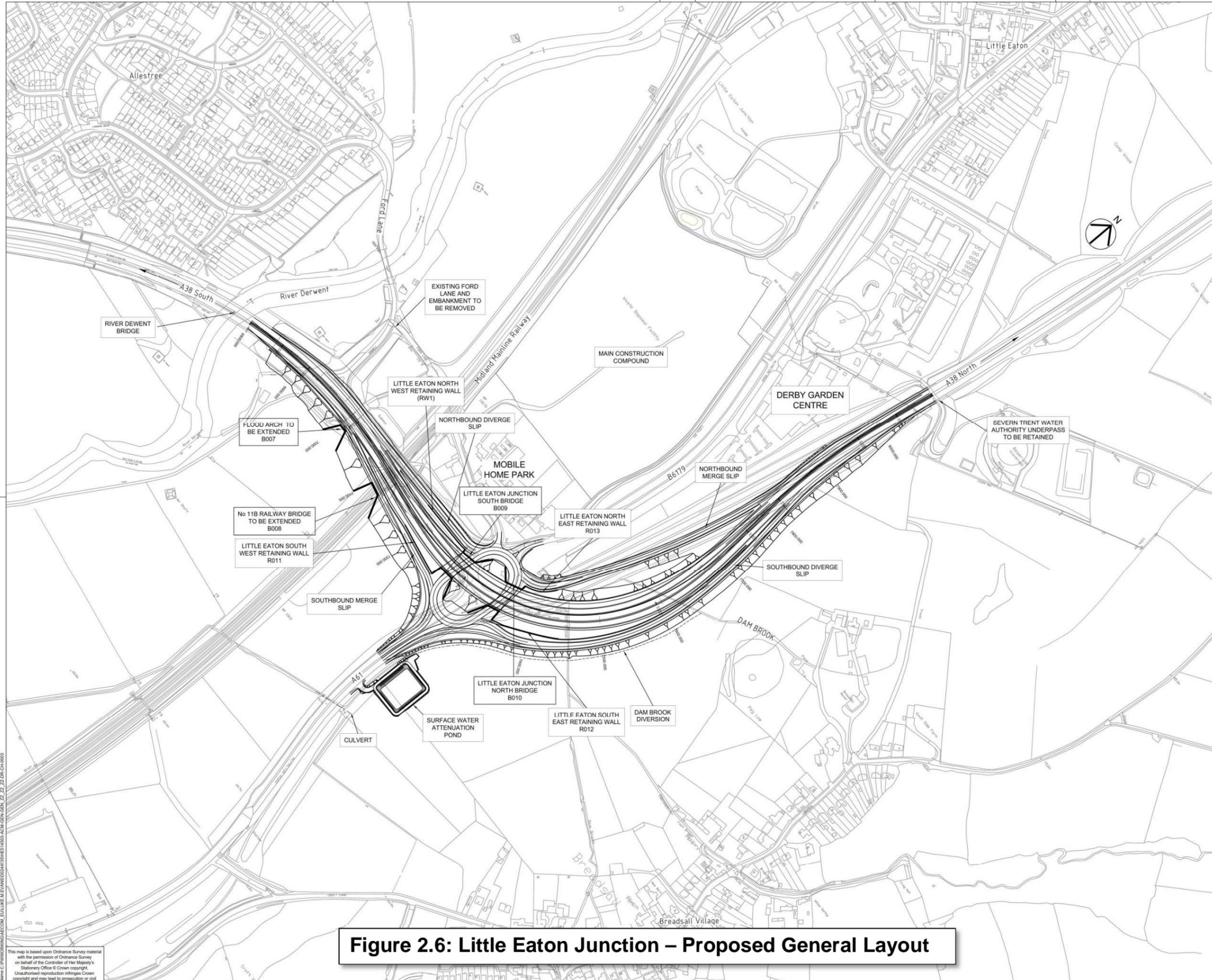


Figure 2.6: Little Eaton Junction – Proposed General Layout

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION BOX
 IT IS ASSUMED THAT ALL WORKS ON THIS DRAWING WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING WHERE APPROPRIATE, TO AN APPROPRIATE METHOD STATEMENT.
 THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT.
 EXCEPTIONAL RISKS RELATING TO THE WORKS ASSOCIATED WITH THIS DRAWING ARE IDENTIFIED BELOW:

CONSTRUCTION

MAINTENANCE / OPERATION / DECOMMISSIONING / DEMOLITION

First Issue	AMCB	11/04/17	PO1
Second Issue	LE	13/02/18	PO2
Revision Details	By	Date	Suffix
	AJW		
	Check		

Purpose of Issue
FOR REVIEW & COMMENT

Client
Highways England
 The Cube
 199 Whitfield Street
 Birmingham
 B1 1RN

Working on behalf of

Project Title
**A38
 DERBY JUNCTIONS**

Drawing Title
**LITTLE EATON JUNCTION
 GENERAL LAYOUT**

Designed	Drawn	Checked	Approved	Date
LE	GS	AJW		13/02/18

Internal Project No.
60533462

Scale @ A1
1:2500

Zone
A38/A61 Little Eaton

THIS DOCUMENT HAS BEEN PREPARED PURSUANT TO AND SUBJECT TO THE TERMS OF AECOM'S APPOINTMENT BY ITS CLIENT. AECOM ACCEPTS NO LIABILITY FOR ANY USE OF THIS DOCUMENT OTHER THAN BY ITS ORIGINAL CLIENT OR FOLLOWING AECOM'S EXPRESS AGREEMENT TO SUCH USE, AND ONLY FOR THE PURPOSES FOR WHICH IT WAS PREPARED AND PROVIDED.

AECOM
 Royal Court
 Best Close, Chesterfield
 Derbyshire, S41 7SL
 Telf: 01246 206221
 Fax: 01246 206229
 www.aecom.com

AECOM Infrastructure & Environment UK Limited
 Registered in England Registered number: 683326
 Registered office: Scott House, Aconex Link,
 Basingstoke, Hampshire RG21 7YP

Drawing Number	Originator	Volume	Rev
HE514503	ACM	GEN	P02
Z3_ZZ_ZZ_ZZ	DR CH 0003		
Location	Type	Role	Number

This map is based upon Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. Highways England 100018929 2018.