Technical Note

ARUP

Project title	IAMP	Job number	[redacted]
Subject	Biodiversity Strategy to Inform [redacted] Design		
Prepared by	[redacted]	Date	17 March 2016

1 Introduction

The purpose of this high level strategy document is to provide relevant ecological information to inform the master-planning process, in order to achieve an ecologically sensitive design that is fully integrated with green infrastructure, landscape character, a sustainable urban drainage system (SUDS) and suitable flood alleviation measures.

Key ecological considerations should include how to avoid impacts to Local Wildlife Sites (LWSs), how to reduce loss of semi-natural habitats, how to avoid impacting on legally protected species, how to mitigate for any habitat losses, and how to create a green network by ensuring connectivity between all existing and new ecological features across the scheme.

2 Assumptions and Limitations

This strategy is based on the available survey information[1] at the time of writing, which comprises the Ecology Survey Report (WYG, 2015)[2].

Further ecological surveys are proposed for 2016, to fill existing data gaps. Information gathered over the next year may further influence this strategy.

At this stage, this document does not provide detailed species-specific mitigation proposals.

3 A Multi-disciplinary Approach

It was highlighted in the first environmental workshop with consultees (26 January 2016), that it is important for ecology to drive the landscape mitigation. There should be strong links between ecology, flood/drainage and landscape solutions to provide multifunctional spaces, including use of Water Framework Directive (WFD) to maximise opportunities and improve habitats.

Discussion was held with the project landscape consultant, [redacted] (Arup), on 7 March 2016, and strategy documents were developed in tandem. It was noted that:

[redacted]

[2] White Young Green (December 2015) Land North of Nissan Final Report.

- an area of open space/parkland could be created, which could be integrated with ecological mitigation and habitat creation to enable public access for recreation and provide health benefits to employees;
- it would be wise to avoid creating public access immediately adjacent to the River Don due to the potential impact of public pressure/disturbance on habitats and wildlife, and perhaps views of the watercourse could be created instead, to give the impression of access; and
- where habitats serve a dual purpose of both landscape and ecological mitigation, caution should be exercised in case public pressure to manage habitat areas 'neatly', reduces the ecological value of these areas.

Opportunities for features to serve both a landscape and ecological purpose, include:

- providing a screening bund and tree belt along the A19, which would also discourage [redacted] reducing mortality risk (from an ecological perspective, 3m tall 'screens' should be planted along existing roads [redacted];
- planting avenue trees to screen along internal roads, which [redacted] (from an ecological perspective, 3m tall screens should be planted [redacted]
- designing green and brown roofs for landscape purposes, which also provide an ecological function e.g. nesting sites on buildings; and
- developing a landscape buffer (10m wide line of trees/shrubs and 5m wide grassland verge) along the northern and western edges of the development, which will also provide suitable [redacted]

Discussion have been held with the with the project's flood risk and drainage specialist, [redacted] (JMP). A series of swales throughout the development have been suggested, which could be enhanced to provide ecological connectivity through the scheme. Areas of permanent water could be included within the swales and SUDS features to act as an ecological enhancement. Other opportunities for maximising the ecological value of SUDS features include[3]:

- locating dry or wet basins in, or next to, non-intensively managed land where there are most likely to be natural sources of native species to colonise the basins;
- locating treatment ponds near to (but not directly connected to) other wetland areas e.g. natural ponds and river floodplains, so that species from these areas will colonise the new ponds, and potentially re-colonise if pollutant flushes impact the ponds (e.g. create ponds/ditches/wetland close to the river corridor for population by water voles);
- creating habitat mosaics with varying sizes (from 1 ha down to 1m^2) of sub-basins of permanent, temporary and semi-permanent ponds;
- creating small pools around the margins of larger ponds, fed by clean surface runoff from non-intensively managed grassland, scrub or woodland;
- creating shallow grassy ponds (e.g. pools just 1-2m diameter) along swales, particularly towards their cleanest ends; and

[3] HR Wallingford (2003) Maximising the Ecological Benefits of Sustainable Drainage Schemes.

- planting trees, scrub and wet woodland around ponds to provide a valuable habitat for amphibians, a food source for invertebrates and help to suppress algal blooms.

Environmental co-ordinator [redacted] (Arup), attended the River Don Restoration Project meeting hosted by the North East Local Nature Partnership (NELNP) on 26 February 2016. The IAMP Project should seek opportunities for collaboration with the River Don Restoration Project.

A meeting was held with environmental specialist [redacted] (Jacobs) and engineering project manager [redacted] (Jacobs) in relation to the A19 Testos and Downhill Lane Junction Improvements scheme, for which a Development Consent Order is due to be submitted in 2017. Survey information will be shared across both projects and periodic meetings will be held to ensure that the designs, being progressed by each project, avoid conflict and aim to 'work' together.

Further discussion will also be held with Ecologist [redacted] (Gateshead Council), regarding the proposed extension of the Follingsby Industrial Park, to the west of the IAMP scheme.

4 Summary of Principles to Inform Masterplan Design

Areas to Avoid

[redacted]

Retain 50m buffers around LWSs and PLWSs to reduce 'edge effects', and protect breeding bird populations.

Avoid loss of semi-natural habitat wherever possible, specifically the:

- River Don / watercourses, with an absolute minimum buffer of 30m to be maintained, however a 50m buffer from the watercourse is recommended;
- Woodland, as it is assumed that all woodland should be retained (for location of woodland see Figure 3.1 in the Ecology Survey Report[5]), and a 50m buffer from woodland edges should be maintained;
- Ponds, with a 20m buffer maintained around them;
- Swamp/marsh, with a 20m buffer round them;
- The better examples of semi-improved grassland;
- Trees, with a 10m buffer around each retained tree; and
- Species rich hedgerows, with a 10m buffer along retained hedgerows.

[redacted]

[4] White Young Green (December 2015) Land North of Nissan Final Report.
[5] White Young Green (December 2015) Land North of Nissan Final Report.

Avoid development in proximity to the [redacted] specifically avoid excavation works, heavy machinery, fire or use of chemicals within 30m and certain piling activities up to 100m.

[redacted]

Habitats to Create

As a general principle, it is recommended that lost or degraded habitats need to be replaced with habitat of equivalent or greater quantity and quality (including hedgerow translocation or re-creation). Details of this are outlined in the No Net Loss Calculations Technical Note[6].

In addition to this, proposed habitat creation should satisfy the ecological requirements of individual notable and protected species and species groups, through provision of food sources, shelter and breeding areas. This can be grouped into a requirement for the creation of the following habitats:

- **Semi-improved grassland** [redacted] (approximate recommendation 30-50ha) will also benefit a variety of farmland and general passerine bird species. Establishment of game strips and tussocky grassland habitat adjacent to ditches will support this;
- **Marshy grassland** will be beneficial to waders and winter passage bird species;
- **Hedgerows** will be beneficial to a variety of farmland bird species. Beware the risk of woodland planting to farmland bird species, if woodland planting replaces hedgerow planting;
- **Trees** are beneficial for passerine bird species;
- **Arable field margins** are beneficial for a wide variety of farmland bird species;
- **Arable fields** themselves are beneficial to waders, winter passage species and farmland bird species;
- **Wetland/marsh/swamp** areas to expand riparian habitats for water vole and for wetland bird species can be created though provision of larger shallower wetland areas (link to permanently wet SUDS features); and
- **Ponds and reed beds** are beneficial for winter passage species and passerine species.

Provide Habitat Connectivity: Opportunities for Linking Habitats

It would be useful to think of the River Don and its buffer as the 'Green Spine' of the proposed development, and link all proposed ecological mitigation / green infrastructure / green space / SUDs features into this 'Green Spine', to create a green network across the site. This can be done by:

[6] Arup (09 March 2016) Technical Note – IAMP No Net Loss Calculations – Supporting Notes – Iteration 1

- Maintaining connectivity for wildlife [redacted] via watercourses and hedgerows with good field margins, for example through:
  - avoiding affecting access [redacted] and areas of grassland and woodland;
  - ensuring hedgerows have tall/rank grassland strips either side of them at least 1m wide;
  - retaining connecting habitats between water vole populations along the River Don; and
  - [redacted] (e.g. woodland associated with Elliscope Fm East / Hylton Bridge LWS, and the River Don its tributaries) and ideally retain 20m buffers around key bat commuting and foraging areas (see Figure 4.1.7 in WYG Report).
- Replacing lost habitat connectivity, for example by planting hedgerows and tree-lines to replace severed bat flight-lines; creating a network of ecological 'stepping stones' through the proposed development (e.g. network of ponds, grassland and trees) and providing culverts with mammal-ledges and under- or over-bridge structures where new roads sever habitat connectivity;
- Creating linkages between areas of retained and created habitats, for example through enhancement or greening of existing structures (e.g. green roofs / green walls), and linking areas of ecological mitigation with SUDs features (e.g. planting along swales) and landscape features (e.g. connecting to, and enhancing the ecological value of tree lines used for screening); and
- Enhancing habitat connectivity by planting to strengthen existing green corridors through the landscape (e.g. bolstering hedgerows, and planting trees in hedgerows).

In a wider context, cross-boundary wildlife corridors should also be maintained, for example along the River Don westwards into Gateshead and eastwards through the culvert[7] under the A19.

Specific Infrastructure Design Considerations

The design of any bridge over the River Don should take into account the sensitivity of the water vole population found along the banks of the river. It is recommended that any bridge over the River Don should have a long span, to reduce any negative impacts that the bridge may have on the river and specifically the water vole population. Further water vole surveys along the River Don could help inform micro-siting of any proposed bridge.

It is very important to avoid increased light levels along watercourses, including the River Don, to [redacted]

[7] To be confirmed by site visit.

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Offsetting any Biodiversity Loss

Farmland birds require large areas of principally open habitat. To compensate for the loss of up to approximately 170ha of predominantly arable farmland, it is possible that consideration will need to be given to habitat creation or enhancements off-site, in nearby intensively farmed areas.

The possibility of some arable reversion (arable land reverted to grassland) in intensively farmed areas should be considered.

There might be the opportunity to secure Wardley Colliery, or part of it. This is contaminated land designated as a South Tyneside Local Wildlife Site but is not currently managed for biodiversity well. Securing the long term management of Wardley Colliery LWS for biodiversity should be considered as a possible method for offsetting any losses in biodiversity, or an enhancement measure.

DOCUMENT CHECKING (not mandatory for File Note)

	Prepared by	Checked by	Approved by
Name	[redacted]		
Signature			