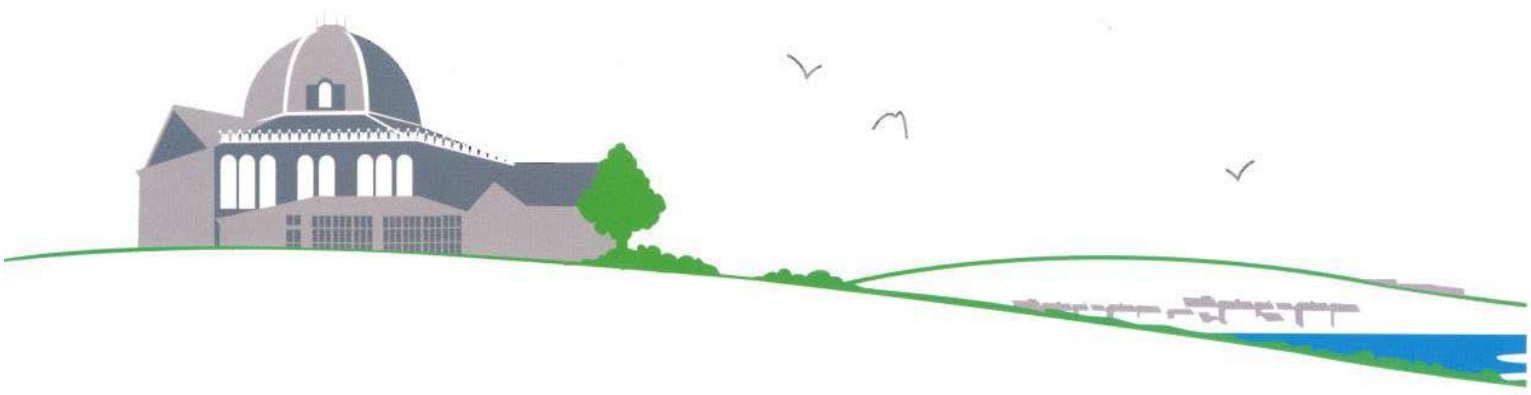
Penny Anderson Associates Ltd
CONSULTANT ECOLOGISTS

VALENCIA WASTE MANAGEMENT

BEDDINGTON FARMLANDS

REVISED
BASELINE BIODIVERSITY NET GAIN REPORT



VALENCIA WASTE MANAGEMENT LTD

BEDDINGTON FARMLANDS

REVISED BASELINE BIODIVERSITY NET GAIN REPORT

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This project has been undertaken in accordance with PAA policies and procedures on quality assurance.

Signed: 

Penny Anderson Associates Ltd
CONSULTANT ECOLOGISTS

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1. INTRODUCTION

1.1 Penny Anderson Associates (PAA) was commissioned by Egniol Consulting on behalf of their client, Valencia Waste Management, to carry out update baseline habitat survey and condition assessment to inform a revised Biodiversity Net Gain (BNG) assessment of land at Beddington Farmlands in the London Borough of Sutton (LBS), centred on grid reference TQ 29076 66272, hereafter referred to as the 'site'.

1.2 The update baseline survey and condition assessment are required to address the planning consultation response from the Senior Biodiversity Officer at the London Borough of Sutton dated 2nd May 2024.

1.3 This report presents the results of the update baseline habitat surveys, condition assessments and revised Statutory Metric which includes post-development BNG calculations, based on a Revised Restoration Management Plan (RRMP) (PAA 2025).

1.4 It is acknowledged that the site has a very long and complex planning history which, for brevity, is not detailed in this report. Instead, the report focuses on providing an accurate account of the baseline habitats present on site, supported by detailed habitat descriptions, mapping, photographs, species lists and condition assessments which set out the necessary evidence to support the stated habitat condition used in the Statutory Metric.

1.5 The final section of this report presents an overview of the findings with recommendations for ecological enhancement that are captured within the RRMP.

Structure of Report

1.6 The remainder of this report is structured as follows, with separate chapters for each broad habitat type due to the large volume of data to be presented:

- Section 2: Methodology;
- Section 3: Grasslands;
- Section 4: Woodlands;
- Section 5: Freshwater (including wetlands, lakes, ponds, marginal vegetation etc.);
- Section 6: Sparsely Vegetated Land and Open Mosaic Habitats;
- Section 7: Scrub;
- Section 8: Hedgerows (including hedgerows, lines of trees);
- Section 9: Rivers and Ditches;
- Section 10: Post-development Habitats and Condition; and
- Section 11: Discussion and Recommendations.

2. METHODOLOGY

Field Survey

2.1 An update baseline habitat survey was completed by Sacha Rogers, Managing Director (PAA) assisted by Joe Walters, Ecologist (PAA) over several days during August and September 2024, with habitats, methods and dates as detailed in Table 1. A further final 'ground truth' visit was completed within areas of wetland, grassland, scrub and woodland habitat west of the Northern Lake and Southern Lake on 19 November 2024. Two additional recently planted scrub parcels were also noted at the edges of the main landfill area during the ground truth survey on 19 November 2024 (these were previously overlooked due to presence of tall grassland, now cut).

2.2 Any limitations or assumptions are noted in the 'Limitations' section of this report.

2.3 In accordance with the consultation feedback from the Senior Biodiversity Office at LBS dated 2 May 2024, it has been agreed that the 'baseline' is the habitats in their current condition. It is acknowledged that the consultation feedback required updated baseline information to be collected during the optimal survey season, i.e. summer 2024, whereas the surveys were undertaken in August/September 2024 which is towards the end of the optimum survey season. The limitations arising from this later than optimum survey date are discussed in the 'Limitations' section of the report, and throughout the 'Results' section where applicable.

2.4 Both surveyors are suitably qualified and experienced to undertake these types of survey. Joe Walters (Ecologist) is an Accredited River MoRPh (Modular River Survey) surveyor with expertise in the assessment of a variety of different types of rivers, streams and canals across the UK. He has recently completed a large-scale survey of headwaters in West Somerset for the Forestry Commission and regularly undertakes River MoRPh[1] survey for development projects.

2.5 Sacha Rogers is the Managing Director of PAA with 30 years of experience of habitat survey and evaluation across a vast number of sites in the UK and has carried out baseline BNG surveys and condition assessment across a variety of sites and habitats.

Table 1 Summary of Habitat Surveys and Dates

Habitat Type	Methods	Surveyor	Date(s)
Scoping visit	Walkover to assess broad habitat types	Sacha Rogers	15/08/24
Terrestrial habitats - woodlands, most grasslands, scrub, hedgerows (and Oily Ditch), sparsely vegetated land and open mosaic habitats (except for north-east parcels yet to be filled)	UKHab classification Statutory Metric Condition Assessment	Sacha Rogers	20/08/24 21/08/24 09/09/24 (part)
Wetlands, lakes (including islands and adjacent habitats) and north-east parcels (incl. Cemetery Ditch)	UKHab classification Statutory Metric Condition Assessment	Sacha Rogers	09/09/24 (part) 10/09/24 11/09/24

[1] https://modularriversurvey.org/morph-rivers/

Habitat Type	Methods	Surveyor	Date(s)
Watercourses (River Wandle Overflow, MEC and MEC Overflow)	River MoRPh Survey	Joe Walters	20/08/24 21/08/24
Ground truth visit – wetland, grassland, woodland and scrub habitat west of Northern Lake and Southern Lake and additional information on hedgerows gathered during beat-up survey	Walkover to ground truth and collection additional data for Habitat Condition Assessment and Hedgerow Beat up Survey	Sacha Rogers	18/11/24 19/11/24

UKHab Classification

2.6 The UKHab classification survey was undertaken in accordance with UKHab Classification User Manual (2023) and accompanying UKHab Classification (2023) and involved slowly walking and mapping individual habitat parcels, allocating each parcel to the 'best fit' UKHab classification by comparing the habitat to the relevant UKHab description. Where the habitat was not a perfect fit with any of the UKHab classifications, the 'best' fit was allocated, with a justification set out in the 'Results' section of this report as appropriate.

2.7 Habitats were classified to Level 4 or Level 5 UKHab classification as far as possible.

2.8 Secondary codes have been used extensively to record additional information on habitat complexity, e.g. to denote areas of bare ground, presence of ruderal species or scattered scrub etc

2.9 The outputs from the survey have been mapped by splitting the site into north and south to illustrate the habitat parcels in sufficient detail. Each parcel has been allocated a unique reference number which has been used throughout this report to clearly identify where each habitat is located. Minimum mappable units (MMU) have been applied where appropriate for habitats that occur in small-scale mosaics. Figure numbers are as follows:

- Figure 1a/1b is an overview of the baseline habitat parcels;
- Figure 2a/2b shows baseline habitats using UKHabs Codes;
- Figure 3a/3b is an overview of post-Development habitat parcels; and
- Figure 4a/4b shows post-Development habitats in UKHabs Codes).

2.10 Each parcel is described, including notes on botanical species diversity and structure, features of note, e.g. locally notable plant species, presence of non-native species and evidence of, or potential for, protected or notable fauna.

2.11 It is acknowledged that in some cases the baseline habitat type differs from the previously agreed habitat which should by now have been created/restored under the extant planning consent and a commentary is provided, where applicable, on how the baseline differs from the previously agreed target habitat type.

2.12 A provisional botanical species list using the DAFOR[2] scale has been collected for each parcel (Appendix 1, provided separately) unless the parcels are judged to be so similar in species

[2] *Where D=Dominant, A=Abundant, F-Frequent, O=Occasional and R=Rare*

composition that a single species list will suffice, e.g. for sparsely vegetated land located on access tracks throughout the site and parcels of willow scrub.

2.13 Representative photographs have been taken to record habitats for most parcels (Appendix 2).

Baseline Habitat Condition Assessment

2.14 Additional data was collected in the field for each habitat parcel to allow the parcel to be assessed against the Statutory Metric condition assessment criteria.

2.15 For the southern and northern lakes, the separate Lake Naturalness Assessment (Natural England 2019) criteria were used to assess condition (completed condition sheets provided separately at Appendix 3).

2.16 The data collected to assess habitat condition varies according to habitat type but, typically, involved gathering additional information on species presence and diversity, presence of invasive and non-desirable species, structural diversity, management issues and other pressures and threats including physical damage, grazing etc. This was carried out on a parcel-by-parcel basis such that each individual parcel of, e.g. scrub habitat or island, has its own condition assessment.

2.17 Additional information was also collected on the number of plant species per square metre to aid in the assessment of habitat type and condition for the grassland parcels. This was carried out by walking a 'W-walk' through the parcel and stopping at random points to count the number of plant species, as well as ratio of grasses to herbaceous species within a 1x1m^2 quadrat (measured by eye). This process was continued in each parcel until either the requisite number of threshold species (e.g. eight or ten species/metre square) was met, or where the results were very close to the threshold and the surveyor judged that a survey earlier in in the season would be likely to exceed the threshold, or where the surveyor judged that the parcel was significantly below the threshold and no amount of quadrats would be likely to yield a significantly greater number of species/m^2.

2.18 The judgements made in relation to each grassland parcel are detailed in the 'Results' section of this report.

2.19 The outputs from the condition assessment are a suite of completed Condition Assessment Sheets, with a separate sheet for each habitat parcel, and notes providing a supporting rationale for the condition assessment, noting any limitations/assumptions where applicable.

2.20 Due to the significant number of habitat parcels the baseline Condition Assessment Sheets are provided as Excel spreadsheets separately to this report, and are organised by habitat type, e.g. grasslands, woodlands, freshwater habitats etc. (Appendix 4a-g).

River MoRPh Survey

2.21 The Modular River Survey (MoRPh) approach has been developed to audit streams and rivers, specifically within the context of providing a condition assessment for BNG calculations and metrics. The survey methodology has been developed in partnership with Queen Mary University of London and the Environment Agency.

2.22 MoRPh methodology provides three tools for assessing rivers. In this case, the methodology applied was the standard 'MoRPh Survey'. This comprises a field survey that characterises the local physical structure of a river channel and its margins at a scale that complements biological surveys. The survey is typically conducted over a river length of 10 to 40m. Data are entered into the MoRPh database by trained surveyors. Fourteen numerical indicators are extracted from the survey data and are used to derive a condition assessment for the surveyed reach.

2.23 The MoRPh survey methodology was used for the MEC[3]), MEC Overflow and River Wandle Overflow channels. The results are presented at Appendix 5.

2.24 General information on channel form, in-channel vegetation (if present), bankside vegetation, flow/water depth and presence of invasive non-native species (INNS) was also recorded, along with details of watercourse and riparian encroachment for input to the BNG Metric.

Baseline BNG Metric

2.25 The outputs from the update baseline surveys and condition assessments have been used to populate a revised baseline Statutory Metric (provided separately to this report at Appendix 6).

2.26 In some cases, there is not a direct translation of UKHab classifications into the habitat categories used in the BNG metric. Professional judgement has been used, where appropriate, therefore, in conjunction with the consultation feedback from the Senior Biodiversity Office at LBS, and with reference to guidance in the Statutory Metric User Guide, to select the 'best fit' habitat type for use within the Statutory Metric.

2.27 Each habitat parcel has been entered as a separate row in the Metric, in numerical order starting with grasslands, then woodlands, then freshwater habitats etc.

2.28 The 'Assessor Comments' column has been used to provide additional detail for each parcel as appropriate so that it can be tracked through the BNG assessment process.

Post-Development Habitat Condition

2.29 The post-Development condition of each habitat parcel has been assessed using professional judgment based on current baseline condition and the proposed aftercare and management. A separate Condition Sheet has been prepared for each parcel that will be enhanced or created (Appendix 7a-f, provided separately), i.e. where a change to habitat type or condition is proposed. For all other habitats where no specific enhancement or creation is proposed, the aim will be to ensure no deterioration of current condition by undertaking appropriate aftercare and management.

Limitations and Assumptions

2.30 A number of limitations are acknowledged, and assumptions made during the survey, and these are elaborated on in the body of the report where appropriate:

- Surveys were conducted relatively late in the year (late August/early September) and this is likely to have resulted in under-recording of early flowering species as well as some detail being obscured by presence of tall, dense vegetation, e.g. areas of newly planted hedgerow may have been missed and the presence of dense bankside vegetation hampered the River MoRPh survey recording;
- The identification of plants to species level has been hampered in some cases due to plants having dried up and/or started to die back, especially some of the grasses but also earlier flowering forbs;
- Species lists are not exhaustive and are focussed on collecting the key species required to inform UKHab classification and subsequent BNG condition assessment, as well as other readily identifiable species observed on the day to provide a reasonably complete

[3] *Main Effluent Carrier*

record of species. Early flowering species which had 'gone over' due to the late time of year, and any particularly difficult specimens which could not be readily identified in the field were omitted, in the interests of focussing on the most pertinent data in the time available;

- Where complex habitat mosaics and subtle variation in habitat characteristics are present, for example within areas of grassland which transition from grass-dominated to herb-dominated patches and complex ecotones at transition from grassland to scrub habitats, these are not mapped in detail but are described in the report where appropriate;
- Taking into account travel time/site meetings etc, the total number of survey days was approximately seven days (one and a half days for River MoRPh and five and a half days for all other habitats). Whilst some detail will inevitably have been missed due to the extensive size and complexity of the site, it is anticipated that sufficient effort has been undertaken to support a robust baseline assessment;
- The islands in the Northern Lake, the far shorelines of both the Southern and Northern Lakes, and the current landfill area were not accessed for reasons of practicality and safety. The lake habitats were initially viewed from the opposite (eastern) bank using binoculars supplemented with a ground truth visit on 19 November 2024 to access the habitats on the western bank;
- The complexity of the site has hindered the ability to map habitats in detail, in particular, the rapidly changing nature of the site means that aerial photography cannot be used to provide a detailed 'base' upon which to map habitat boundaries. In addition, many areas of the site comprise fine grained mosaics which are difficult to map in meaningful detail;
- Some of the habitats are atypical due to the recently established nature of parts of the site and not easy to 'fit' into UKHab and/or BNG categories, and judgements have had to be made on 'best fit';
- The condition assessments for the Lake habitats do not include any water quality or biological sampling, and professional judgement has been used to assess water quality and presence of INNS;
- Areas of the site were inaccessible for survey, especially in the east of the site adjoining the currently landfill area due to presence of dense vegetation as well as safety reasons; and
- The survey of the core meadow area took place after herbicide spraying had been undertaken earlier in the year, and this may have resulted in some plant species being killed off by herbicide and, therefore, not recorded during the subsequent survey.

Summary Overview of Habitats

2.31 A summary table that brings together all of the habitat parcels, their UKHab category, how they have been entered in the Metric and their baseline and post-Development condition is presented at Appendix 8 (provided separately).

3. GRASSLANDS

Overview

3.1 The grasslands are variable in composition, moderately species-rich overall, with occasional species-rich patches containing indicators of lowland meadow and are characterised by a generally low cover of grasses and abundant forbs. Some areas have been created through seeding and others have become established through natural succession from bare ground. A survey earlier in the year would be likely to yield a greater species diversity. Occasionally the sward is dominated by coarse grasses, e.g. at the southern end of the site, suggesting deeper more fertile soils are present here. Undesirable species bristly oxtongue[4] and goat's-rue are abundant, along with other non-natives, such as Canadian fleabane. Spiny restharrow is also locally abundant.

3.2 Notable species were recorded rarely to occasionally and included great burnet, salad burnet, yellow-rattle, lady's bedstraw and common knapweed. Other features of interest were localised damp hollows resulting from landfill settlement and supporting species indicative of poorly drained conditions, e.g. common sedge and tufted hair-grass.

3.3 Overall, most areas are a good fit with the UKHab Classification for Other Neutral Grassland.. The core meadow area contains a sufficient number of species to meet the criteria for Lowland Meadow and the eastern part of the mound is also close fit for this category. A small patch of species-rich grassland in the western woodland corridor is also mapped as Lowland Meadow as it is considered a very close (albeit not perfect) fit. The more species-poor examples of grassland were considered a good fit with the Modified Grassland category.

Detailed Descriptions

Parcel G1 – Rosewell Mound/East Side of Landform

3.4 This is a grassland of variable composition. Attempts to accurately map variation within the sward were challenging as the most recently available hi-resolution aerial imagery is not sufficiently up-to-date to allow for sensible mapping of compartments, and there is no clear definition between parcels on the ground which typically form an intimate mosaic of grassier patches and more herb-rich areas.

3.5 The variable composition of the grassland reflects its recent origin and subsequent management. The grassland was previously mapped as a mosaic of tall ruderal, ephemeral/short perennial, bare ground and poor semi-improved grassland MKA Ecology Limited (survey 2021). It is understood that this area has not received any application of seed.

3.6 The underlying soils are understood to be approximately 1m depth of clay over river sands and gravels, resulting in a substrate that is heavy and impermeable during the winter months and baked dry with cracks during the summer. River gravels are abundant at the surface in places, especially on the northern face of the mound. This poor drainage is evidence in places where water has pooled locally in shallow depressions resulting from settlement of the landform.

3.7 In general, the grassland is herb-rich with a relatively small proportion of grasses throughout the sward, with patches dominated by creeping bent and occasional Yorkshire-fog, perennial rye-

[4] *Plant species names follow Stace 2019. See Appendix 1 for scientific names.*

grass, false-oat grass, smaller cat's tail and cock's-foot elsewhere. Tufted hair-grass and marsh foxtail occur locally and occasionally on damper ground.

3.8 Herbaceous species are diverse, and often occur in local abundance, e.g. wild carrot and bird's-foot-trefoil. Other species of note recorded frequently to occasionally (and localised rather than throughout) are spiny restharrow, meadow vetchling, red bartsia, hawkweed oxtongue and, in wetter areas, common fleabane. Common knapweed occurred rarely. A localised area of locally abundant bird's-foot-trefoil, oxeye daisy, wild carrot, meadow vetchling, red clover and crested dog's-tail was noted in the south-east portion of the parcel.

3.9 Also present in the far south-east corner were localised patches of ruderal species on what appeared to be recently disturbed ground with spear thistle, creeping thistle, common nettle, red dead-nettle, mugwort and hedge mustard locally abundant.

3.10 Several 1x1m quadrats where assessed by eye (as outlined in the Methodology section) to count typical numbers of species per square metre and to assess ratio of grasses to herbaceous species with eight to ten species per square metre typically recorded (more species would likely be observed if the survey was conducted earlier in the year).

3.11 Bristly ox-tongue and goat's-rue are undesirable species and occur in abundance throughout G1 with bristly oxtongue particularly dominant on Rosewell Mound.

3.12 The best fit UKHab category is judged to be 'Other Neutral Grassland' (g3c) on the basis that it:

- Does not consistently meet the definition for Lowland Meadow (g3a) (see below) or Upland Hay Meadow (g3b);
- Has >20% cover of broadleaved herbs and sedges;
- >8 species per m2 (including forbs, grasses, sedges and rushes, excluding bryophytes) – in this case there are consistently up to ten species/m^2;
- > or equal to one grass that is not generally sown for agricultural production at least abundant (in this case creeping bent occurs abundantly); and
- Cover of rye-grasses and white clover (if present) is <30%.

3.13 Parcel G1 also contains a range of species that are typical of the Other Neutral Grassland category in UKHab including grasses (creeping bent, marsh foxtail, false oat-grass, Yorkshire-fog etc) and herbaceous species (ribwort plantain, red clover and common fleabane).

3.14 The sward does not neatly fit any of the Level 5 UKHab grassland categories (e.g. g3c5, g3c6 etc) which is perhaps a reflection of its recent origins, coupled with variable management which have resulted in an ill-defined sward.

3.15 The habitat is a near fit with Lowland Meadow (g3a) but is does not yet consistently contain enough indicator species to meet the criteria for Lowland Meadow (i.e. >4 indicators present, or >3 indicators occasional). Although strictly speak a total of four indicators (meadow vetchling, bird's-foot-trefoil, oxeye daisy, common knapweed) are present, this occur only patchily or rarely. The habitat also lacks the 'typical' grass species (accordingly to UKHab associated with Lowland Meadow, e.g. crested dog's-tail and sweet vernal-grass).

3.16 This assessment is based on professional judgement and is open to interpretation. Currently the habitat is entered into the Metric as Other Neutral Grassland but it would not be completely unreasonable to enter the habitat as Lowland Meadow on the basis of presence of four indicator species.

3.17 Condition is assessed as Poor.

Parcel G2 – Core Meadow Area

3.18 Located in the south-west of the main landform, this parcel is longer established than G1 (it is understood to have been in place for around 14 years) and has been seeded in the past with a species-rich grass and wildflower mix, though establishment of the target species has been variable, most likely due to a combination of heavy clay soils, difficult ground conditions during establishment and subsequent management. Secondary codes have been used across this area to denote patches where creeping bent is locally dominant.

3.19 The sward is species-rich in places containing typically >10 species/m^2, and most likely more if surveyed earlier in the season. At least seven indicator species of the UKHab Lowland Meadow grassland classification are present, at least occasionally, throughout the sward comprising yellow-rattle, meadow vetchling, common knapweed, great burnet, bird's-foot-trefoil, salad burnet and common sedge.

3.20 Other desirable species (though not specifically indicators for lowland meadow) included wild carrot, yarrow, red bartsia, red clover and creeping cinquefoil.

3.21 The species composition is heavily biased towards herbaceous species at the expenses of grasses, with only creeping bent occurring in local abundance where it is deleterious to the sward by outcompeting more desirable species. Other grass species occur occasionally to frequently only and included smaller cat's-tail, tufted hair-grass, common bent, rough meadow-grass, crested dog's-tail and perennial rye-grass (the latter occurring rarely to occasionally only).

3.22 Locally, patches of bramble and abundant creeping bent are present around the landfill wells and gas vents indicated by use of Secondary Code 127 'Sward-type Mosaic'.

3.23 In damper hollows hairy sedge, marsh foxtail and common fleabane were noted, along with scentless mayweed, knotgrass, tufted hair-grass and common couch.

3.24 In terms of undesirable species, creeping thistle is occasional and goat's-rue and bristle oxtongue are present frequently throughout the sward along with other species more typically associated with ruderal communities, including red deadnettle, hedge mustard and perennial sow-thistle. The inclusion of goat's-rue and bristly oxtongue as undesirable species is based on local judgement; both species are widespread throughout the site, often in abundance at the expense of other more desirable species, and this skews the number of herbaceous species in the sward. Undesirable species have been excluded from species counts per square metre when assessing habitat condition.

3.25 The grassland was of uniform (tall) height on day of survey (it is also noted that management of this area currently comprises a single cut in early autumn resulting in uniform sward height).

3.26 The parcel is assessed as being a good fit with the criteria for UKHab Lowland Meadow by virtue of meeting at least two of the following three criteria:

- >15 species m^2 (including grasses and excluding bryophytes – possibly met if surveyed earlier in the year, anecdotally it is reported that >14 species/m^2 have been recorded (LBS pers. comm.);
- >30% cover of broadleaved herbs and sedges (excluding white clover, creeping buttercup and injurious weeds);
- <10% cover of rye-grasses and white clover; and
- Either > or equal to four indicators present or > or equal to three indicators occasionally but not limited to field corners or edges (in this case seven indicators are present).

3.27 The habitat is entered into the Metric as Lowland Meadow.

3.28 Condition is assessed as Poor.

Parcel G3 – Northern Slope of Landform

3.29 Located on the northern face of the main landform, the habitat is a transition from other neutral grassland towards a ruderal-dominated community over a stony ground with locally dominant grassier patches, becoming more sparse with ruderal species dominating towards the edges of the mound and especially northwards. There is no clear definition between the grassier and ruderal vegetation to be able to map this transition in a meaningful way.

3.30 It has, therefore, been mapped and assessed as other neutral grassland, using Secondary Code 81 to denote areas with a greater proportion of ruderal species, e.g. at the western and northern edges of the mound.

3.31 Species within the grassier areas are similar to G1, including creeping bent, red clover, small amounts of perennial rye-grass, lesser trefoil, wild carrot, and bird's-foot-trefoil and ribwort plantain. Ruderal-dominated areas (with few grasses) include great willowherb, common mallow, common fleabane, hawkweed oxtongue, mugwort, teasel, hedge mustard and occasional oxeye daisy. A single plant of hoary ragwort was recorded.

3.32 Species numbers per square metre were typically eight to ten and it is likely that a greater number would be recorded if surveyed earlier in the year.

3.33 Creeping bent, common reed, coltsfoot and field horsetail are present in damper areas.

3.34 The habitat is entered into the Metric as Other Neutral Grassland.

3.35 Condition is assessed as Poor.

Parcel G4 – Verges etc (North-east of Landfill Area)

3.36 Located in the east of the site (north and east of the current landfill area (note - landfill is denoted by Secondary Code 831) this habitat comprises the grassy verges and other areas associated with disturbed ground, tracks and pathways. Secondary Code 61 has also been applied to denote Re-created Habitat.

3.37 For brevity, the grasslands in this area have been grouped together for assessment as they exhibit a similar species composition and abundance.

3.38 The verges alongside tracks are typically 1 to 2m wide and are differentiated from the adjoining areas of OMHPDL[5] by a greater ratio of grasses to herbaceous species (typically 60% grass cover, 40% forbs). Species are variable throughout but typically comprise locally abundant false oat-grass, creeping bent, common couch, perennial rye-grass, yarrow, greater plantain, common ragwort, lesser trefoil and common mallow.

3.39 Small corners and areas of damper grassland are locally present, e.g. at the corners/edges of tracks where ground is locally damp and rutted, and include annual beard grass, knotgrass, greater plantain and creeping bent.

3.40 1m x 1m quadrats typically contain at least eight species/m^2 and would likely exceed this if surveyed earlier in the year, hence the habitat meets the UKHab criteria for Other Neutral Grassland, and more specifically g3c5 *Arrhenatherum* neutral grassland with a high percentage cover of false oat-grass throughout the sward, although other typical indicators of this grassland type are fairly limited.

3.41 The habitat is entered into the Metric as Other Neutral Grassland.

[5] *Open Mosaic Habitat on Previously Developed Land*

3.42 Condition is assessed as Moderate.

Parcel G5 – Pylon Corridor

3.43 Located as a wide linear strip of grassland beneath the overhead pylon easement, running between Phase 1 and Phase 2 wetland areas.

3.44 This parcel is relatively species-poor mesotrophic grassland, lacking the species-richness of the grassland associated with the main landform and with a higher ratio of grasses to forbs, around 80% grass cover and 20% forbs. Typical species are cock's-foot, perennial rye-grass, fescue species (likely tall or meadow fescue), wall barley, ribwort plantain, common nettle, common ragwort and yarrow. Green alkanet was noted here (the only other observation was in woodland at the southern boundary of the site).

3.45 Localised patch of creeping bent-dominated grassland are present within this broad corridor.

3.46 1m x 1m quadrat counts typically reached eight species/m^2 (except for localised creeping bent-dominated areas. The habitat is considered a best fit with Modified Grassland (UKHab code g4) on the basis of the relatively low species diversity and indicators of high nutrient levels, e.g. common nettle.

3.47 The habitat is entered into the Metric as Modified Grassland.

3.48 Condition is assessed as Good.

Parcel G6 – Adj. Phase 1 Wetland/MEC Overflow

3.49 Located as a broad linear strip between the Phase 1 wetland and MEC Overflow, this habitat has a high percentage grass to forb cover (typically 80 to 100% grass cover) but with consistently up to eight species/m^2. In contrast to the rest of the site, red fescue was locally abundant to frequent here.

3.50 Small patches of bramble in places, and localised damp areas supporting knotgrass and common fleabane toward the western end. A small patch of locally frequent bird's-foot-trefoil, oxeye daisy, lesser trefoil and ribwort plantain suggests a previous attempt at seeding, otherwise the sward is generally rather species-poor. Common nettle was locally frequent, suggesting elevated nutrient levels.

3.51 Forbs species were lacking in diversity and typically limited to ruderal species, e.g. mugwort, bristly oxtongue, common ragwort, hedge mustard, Canadian fleabane and great willowherb.

3.52 The habitat is considered a best fit with UKHab Modified Grassland (g4) on the basis of the generally low species diversity, high percentage cover of palatable grasses and likely elevated nutrient levels.

3.53 The habitat is entered into the Metric as Modified Grassland.

3.54 The condition is entered as Good.

Parcel G7 – Banks of P1 Wetland

3.55 Located around the southern and western edges of Phase 1 wetland, this habitat is species-rich in places with a high proportion of forbs to grasses and, therefore, a relatively high number of species/m^2 (*c*.ten). It is assumed that the grassland may have been seeded with a species-rich mix. This habitat was hand sown in 2021, although not fully sown hence the patchy coverage of ruderal species.

3.56 Typical species were perennial rye-grass, meadow foxtail (only location this species noted on site), creeping bent, red fescue, white clover, bird's-foot-trefoil, oxeye daisy, common knapweed,

ribwort plantain and wild carrot. A possible single plant of greater bird's-foot-trefoil was also noted, but this was not conclusively identified. Other species, e.g. teasel, broad-leaved dock, bristly oxtongue and creeping thistle, occur in local abundance or are frequent throughout the sward.

3.57 The habitat does not quite meet the criteria for Lowland Meadow with only three indicator species present (common knapweed, oxeye daisy and bird's-foot-trefoil) and is entered into the Metric as Other Neutral Grassland. If greater bird's-foot-trefoil is able to be confirmed by survey earlier in the year, it may be possible to re-categorise this parcel as Lowland Meadow.

3.58 Condition is assessed as Good.

Parcel G8 – Education Area

3.59 Located in the Education Area at the northern end of the Northern Lake, this habitat comprises a quite large parcel of grassland which, for brevity, has been group together and assessed with the small triangle of grassland to the east of the MEC Overflow channel.

3.60 The sward is quite grassy (approximately 80% grasses to 20% forbs) and not especially diverse, with typical species including common couch, red fescue, creeping bent, cock's-foot, false oat-grass, white clover and yarrow. Ruderal species, e.g. mugwort, hawkweed oxtongue, hedge mustard, creeping thistle and spear thistle are scattered throughout, with creeping thistle sometimes locally abundant.

3.61 In spite of the relatively low species diversity, there are typically *c*.eight species/m^2, and likely more if surveyed earlier in the year. The habitat is, therefore, considered to fit the criteria for Other Neutral Grassland.

3.62 The habitat is entered into the Metric as Other Neutral Grassland.

3.63 Condition is assessed as Moderate.

Parcel G9 –Northern Lake – Brown Hairstreak Area

3.64 Located at the southern end of the Northern Lake this is a complex area which is an intimate mosaic of dense and scattered scrub and grassland and includes an interesting south-east facing slope with evidence of burrowing hymenoptera, young blackthorn scrub which supports the eggs of brown hairstreak[6] butterfly and offers reptile basking potential.

3.65 This bank also supports abundant *Peltigera* and *Cladonia* lichen species and is the only known location on site for this lichen community.

3.66 The habitat is not especially large or species-rich but occurs as an intimate mosaic so has a relatively high count per 1m x 1m quadrats of *c*.eight species/m^2, with more species likely to be recorded if surveyed earlier in the year. Species include false-oat grass, cock's-foot, yarrow, lesser trefoil, hawkweed oxtongue, wild carrot, ribwort plantain and a St John's-wort species (one of only two locations of St John's-wort noted, the other being the fen area).

3.67 The habitat is entered into the Metric as Other Neutral Grassland.

3.68 Condition is assessed as Moderate.

[6] *Thecla betulae*

Parcel G10 –Southern Lake Grasslands

3.69 Located mainly at the southern end of the Southern Lake, with smaller patches scattered elsewhere, this is a complex and variable habitat mosaic with area of rather species-poor grassland with indicators of poorly drained ground, patchy bramble scrub and some recently planted young trees (e.g. pedunculate oak, field maple, wild cherry).

3.70 The grassland species are limited to cock's-foot, false oat-grass and frequent to occasional broad-leaved willowherb, bristly oxtongue, purple-loosestrife, creeping buttercup and creeping cinquefoil. The number of species per square metre is typically up to eight, and it is considered unlikely that a survey earlier in the year would yield a significantly higher species diversity.

3.71 The habitat is considered a best fit with UKHab classification for Modified Grassland and is entered as such into the Metric.

3.72 Condition is assessed as Good.

Parcel G11 – Northern Boundary of Site

3.73 Parcel G11 is a linear strip that runs along the northern boundary of the site.

3.74 A narrow belt of grassland with abundant ruderal species (previously mapped as tall ruderal in the MKA phase 1 map (survey 2021). Typical species include creeping bent, frequent false oat-grass and forbs comprising ribwort plantain, spear thistle, teasel, hemlock, hedge mustard and greater burdock. There are typically around eight species/m^2, possibly more if surveyed earlier in the year.

3.75 Wetland species associated with the adjacent Phase 2 wetland were noted at the edges of the grassy strip including common fleabane, water mint, purple-loosestrife and possible marsh ragwort (identification not conclusive).

3.76 Abundant burrows of aculeate hymenoptera were noted in a south-facing, sand bank.

3.77 Owl pellets were also recorded.

3.78 The habitat is mapped and entered in the Metric as Other Neutral Grassland, and is a reasonable fit with *Arrhenatherum* neutral grassland (g3c5) on the basis of frequent false oat-grass and ribwort plantain though the other associated species are rather atypical of the habitat.

3.79 Condition is assessed as Moderate.

Parcel G12 – Southern Boundary of Site

3.80 Parcel G12 forms a grassy track that runs along the southern boundary of the site, south of Phase 3 wetland.

3.81 The habitat comprises generally rank, coarse grasses indicative of high nutrient conditions. Species include creeping bent, common couch, perennial rye-grass, cockspur, Yorkshire-fog and forbs include locally abundant common nettle (>5% of total area), hogweed (judged to be a locally undesirable species and, therefore, excluded from species counts per square metre), field horsetail, pendulous sedge (rarely) and a scattering of ruderal species, e.g. great willowherb, mugwort, greater burdock and scattered bramble.

3.82 There are consistently around eight species/m^2, and unlikely to be more if surveyed earlier in the year. This grassland is considered a good fit with UKHab Modified Grassland (g4) based on the high cover of palatable grasses and species indicative of fertile soils.

3.83 The habitat is entered into the Metric as Modified Grassland.

3.84 Condition is assessed as Good.

Parcel G13 – Embankment Overlooking P3 Wetland

3.85 Parcel G13 is located in a broad swathe that covers the embankment overlooking the Phase 3 Wetland.

3.86 A rather coarse, rank sward of a few grass species, e.g. cock's-foot, false oat-grass and common couch, with occasional perennial rye-grass and (rarely) crested dog's-tail. Ruderal species and forbs are frequent to locally abundant and include creeping thistle, bristly oxtongue, smooth sow-thistle, wild carrot, common ragwort and teasel. There are typically up to eight species/m^2, and likely to be more if surveyed earlier in the year.

3.87 The habitat is mapped and entered in the Metric as Other Neutral Grassland.

3.88 Condition is assessed as Moderate.

Parcel G14 – Species-Rich Patch (West of Site)

3.89 A small patch of species-rich grassland adjacent to the gravel surfaced path that runs alongside the western boundary woodlands.

3.90 The patch includes grasses – common couch, Timothy, perennial rye-grass, wall barley, cock's-foot, marsh foxtail, Yorkshire-fog and possible (but unconfirmed) heath-grass (*Danthonia decumbens*).

3.91 Forbs include lady's bedstraw, hedge bedstraw, ribwort plantain, oxeye daisy, yarrow, common knapweed and wild carrot, of which three are indicators of lowland meadow (oxeye daisy, lady's bedstraw and common knapweed). There are around ten species/m^2 due to the high percentage of forbs for this relatively small area.

3.92 The patch does not quite fit the criteria for Lowland Meadow – requiring three indicator species to be present at least occasionally – in this case lady's bedstraw was a single plant (occurring rarely). However, it is likely that survey earlier in the year would yield a greater number of species, potentially including more indicator species.

3.93 As a precaution this patch of grassland is, therefore, mapped as g3a (Lowland Meadow).

3.94 Habitat condition is assessed as Poor.

Parcel G15 – Community Orchard

3.95 Located on the west-facing slope of the main landform, a recently planted orchard of fruit trees e.g. apple, plum. The trees are very young and have not yet developed any structural diversity.

3.96 The habitat is planted within Other Neutral Grassland, hence is mapped as g3c, with Secondary Code 27 to denote Traditional Orchard (which includes community orchards).

3.97 In accordance with the BNG User Guide (2024) the orchard habitat is entered in the Metric as primary habitat type, i.e. Other Neutral Grassland that it falls within (i.e. Parcel G3). The trees are not yet large enough to be mapped as individual trees.

3.98 Condition is assessed as Moderate.

4. WOODLANDS

Overview

4.1 The woodlands are confined to the edges of the site, primarily along the western boundary where the woodland forms a broad linear belt stretching the entire length of the site. A belt of woodland is also present along the southern site boundary, separating the site from Beddington Park to the south. In general, the woodlands are relatively young, in incorporate parcels which have been planted in the relatively recent past but are now sufficiently mature to have developed characteristics of semi-natural woodland. The woodland canopy and shrub layers contain a good range of native species. There was no recognisable or notable ground flora community, but a survey earlier in the year may yield a more diverse woodland ground flora.

4.2 Structural diversity is reasonably well developed, with good amounts of regeneration, saplings, young and more mature trees, a dense shrubby woodland edge and some fallen and standing deadwood. The most mature parcel is the south of the site, estimated to be around 80 plus years of age and there are two notably older individual trees in the central woodland parcel which pre-date the rest of the woodland.

4.3 The woodlands are generally mapped as Other Broadleaved Woodland except for a dense belt of willow-dominated Wet Woodland fringing the Northern Lake.

Detailed Descriptions

Parcel W1a – Northern Woodland (West of Path)

4.4 Located between the off-site railway (to the west) and the Phase 1 wetland, this woodland comprises young semi-natural woodland. The habitat was previously recorded as 'semi-natural broadleaved woodland' in the MKA Phase 1 mapping (survey 2021).

4.5 The canopy is reasonably diverse and includes semi-mature pedunculate oak, wild cherry, hawthorn, goat willow, birch (possible hybrid of silver/downy), alder and poplar species. The age structure is limited, with most trees estimated to be *c*.30 to 40 years of age and, therefore, assumed to be recently established secondary woodland. The canopy is dense, casting heavy shade and consequently there is little to no regeneration of saplings or seedlings.

4.6 Species in the shrub layer include hazel, field rose, dog rose and honeysuckle. The ground flora appears limited in diversity, although a survey in spring may yield a greater range of species. Species recorded on the day of survey include creeping bent, common nettle, hogweed, ivy and bramble.

4.7 The best fit woodland type is considered w1g Other Broadleaved Woodland as, by a process of elimination, the parcel does not meet the descriptions for the more distinctive lowland mixed deciduous woodland categories, e.g. ash, oak, birch or beech-dominated canopies.

4.8 W1a is, therefore, entered into the Metric as Other Broadleaved Woodland

4.9 Condition is assessed Moderate.

Parcel W1b – Northern Woodland (East of Path)

4.10 Located next to parcel W1a (see above), parcel W1b is a narrow strip of former dense scrub that has now matured out to form a young woodland canopy.

4.11 The canopy is reasonably diverse with a similar range of shrubby species to the adjoining semi-natural compartment (W1a) but younger in age, perhaps 10-12 years, and is assumed to have

been planted, due to its lack of structural diversity. Species include grey willow, hawthorn, ash and hazel.

4.12 The canopy is dense, casting heavy shade and consequently there is little to no regeneration of saplings or seedlings. As for parcel W1a, the ground flora appears limited in diversity, although a survey in spring may yield a greater range of species. Species recorded on the day of survey include creeping bent, common nettle, hogweed, ivy and bramble.

4.13 It is noted that in the MKA Phase 1 map (survey 2021) parcel W1b was recorded as dense scrub. For the purposes of this report the habitat is now classified as woodland on the basis that it has matured and meets the description of the UKHab definition of woodland, namely '*Vegetation dominated by trees that are >5m high when mature, which form a distinct although sometimes open canopy with canopy cover of >25%* …'.

4.14 Within this overarching category the best fit UKHab woodland type is considered w1g Other Broadleaved Woodland and is entered into the Metric as such.

4.15 Secondary Code 29 has been added to denote that the woodland is planted.

4.16 Condition is assessed as Moderate.

Parcel W2a – Central Woodland Block

4.17 Located between the off-site railway (to the west) and the Northern Lake (to the east). This is a generally young, scrubby block of woodland either side of a gravel surfaced path. It should be noted that the woodland extends right up to the edge of the Northern Lake. The woodland fringing the lake has a different character and is described as Parcel W2b (see below).

4.18 Previously recorded as part broadleaved woodland (west of path) and part dense scrub (east of path) on the MKA Phase 1 map (survey 2021), this parcel is now considered as a single woodland block as the scrub habitat has matured to >5m in canopy height, therefore, meeting the UKHab definition for a woodland habitat.

4.19 The woodland canopy is estimated to be quite young, perhaps 30 years but there are at least two large, mature trees which pre-date the rest of the woodland and comprise a pedunculate oak (estimated age 100 plus years) and a mature field maple (estimated 100 to 150 years). Old maps (*www.nls.uk*) indicate a former hedge line at this location dating from the period 1830 to 1880 so it is likely the old trees date from this period.

4.20 The canopy is reasonably diverse and includes ash, Norway maple and pedunculate oak, and there is a well- developed, diverse shrub layer and shrubby edge including blackthorn, wild privet, hawthorn, field maple, hazel, grey willow, holly and rowan.

4.21 Although previously planted, the woodland is now sufficiently well established to exhibit characteristics of semi-natural woodland with evidence of natural regeneration of saplings and seedlings, diverse structure and woody species diversity.

4.22 As with woodland parcel W1a, the ground flora appears to be lacking in diversity although a survey earlier in the year may yield more species. Areas of bare ground are present. Species observed on the day of survey were limited to common nettle and bramble.

4.23 The former (now dry) river channel of the River Wandle Overflow which previously ran through this woodland parcel was evident as a dry channel to the east of the gravel path. Some remnant grey willow and crack willow and occasional patches of pendulous sedge were evident, picking out the line of the channel.

4.24 The best fit UKHab category is Other Broadleaved Woodand (w1g) with the addition of Secondary Code 29 to denote that the woodland has its origins as a plantation woodland. The canopy is not

sufficiently distinctive to be a good fit with the more distinctive types of lowland mixed deciduous woodland, e.g. ash, oak, birch or beech woodland.

4.25 The parcel is entered into the Metric as Other Broadleaved Woodland.

4.26 The condition is assessed as Good.

Parcel W2b – Central Woodland (Adj Northern Lake)

4.27 Fringing the western shoreline of the Northern Lake, parcel W2b is contiguous with W2a, but sufficiently different in character (i.e. willow-dominated) to require a separate classification. The woodland was initially viewed from a distance from the opposite shore of the Northern Lake using binoculars only, with a supplementary visit on foot on 19 November 2024 to access part of the wet woodland area to assess structure and ground flora etc.

4.28 Locally frequent purple-loosestrife was present where the habitat wraps around to the north of the Northern Lake, and the woodland edge is quite poorly defined here, transitioning to scattered scrub of hawthorn, blackthorn and crack willow with locally abundant patches of bramble.

4.29 Within the wet woodland proper, the ground is notably wet underfoot with a dense, mature canopy of mixed willow species, including some reasonably large trees estimated to be perhaps 40 years old. The ground flora is limited due to the dense canopy. There is abundant standing and fallen deadwood. The woodland is considered to best fit the UKHab classification for wet woodland (w1d) defined as woodland on 'seasonally wet' soils, usually with alder, birch or (as in this case) willow as the dominant species, and found on 'lake edges'. The transition from dryland woodland may be sharp or gradual according to the local hydrological conditions. In this case the transition is sharp as the ground rises to the west.

4.30 The habitat is entered into the Metric as Wet Woodland.

4.31 Condition is assessed as Good.

Parcel W3a – Southern Woodland (West of Path)

4.32 Located between the off-site railway to the west and the Southern Lake, this is a mature woodland, previously mapped as semi-natural broadleaved (MKA Ecology Limited survey 2021) and estimated to be at least 80 plus years in age with a diverse canopy. Habitats to the east of the gravel path are generally young trees and scrub <5m tall (see 'Scrub' section of this report).

4.33 In the photographs W3 is referred to as the Southern Woodland.

4.34 Many large, mature trees are present within the canopy with species including pedunculate oak, ash, holm oak and some very large poplars (with some die-back evident in the canopy). The shrub layer includes holly, elder, silver birch, hazel and field maple. The ground flora is lacking in diversity (although, as above, a survey earlier in the year may yield additional species). Species observed on the day of survey include ivy, bramble, common nettle and greater burdock. The woodland has a well-developed shrubby edge, typically with abundant bramble.

4.35 A review of old mapping (www.nls.uk) indicates there was previously woodland at this location during the period 1830 to 1880, although none of the trees currently present appear to be this old.

4.36 A gravel surfaced path runs alongside the woodland with species-rich grassland either side (see Grassland section of report).

4.37 Saplings and young trees are present throughout and there is some standing and fallen deadwood.

4.38 W3a is considered a good fit with UKHab woodland code w1g Other Broadleaved Woodland as it does not have a sufficiently distinctive canopy to be a good fit with any of the other lowland mixed deciduous woodland types.

4.39 W3a is entered into the Metric as Other Broadleaved Woodland.

4.40 Condition is assessed as Good.

Parcel W4 – Southern Boundary of Site

4.41 Located on the southern boundary of the site, W4 is a belt of woodland which straddles the site boundary. This was not surveyed in detail, other than to gather sufficient detail to conduct a condition assessment but was noted to comprise a canopy of semi-mature ash, pedunculate oak, downy birch and wild cherry with hazel and hawthorn and ground flora dominated by ivy. Green alkanet was noted on the bank that rises up into the woodland edge.

4.42 A freshly dug fox[7] earth was noted in the woodland edge.

4.43 The woodland is considered a good fit with UKHab category w1g Other Broadleaved Woodland. It has not been obviously planted in the past.

4.44 The habitat is entered into the Metric as Other Broadleaved Woodland.

4.45 Condition is assessed as Moderate.

[7] *Vulpes vulpes*

5. FRESHWATER HABITATS

Overview

5.1 The wetland habitats are diverse and include two well-established artificial lakes with islands, three recently created/part created wetland mosaics, two operational settlement ponds and a small pond used as part of the water management system known as 'Kingfisher Pond'. These features are largely ground water fed, with some inputs from surface water drainage. It is understood that that wetlands are used to provide flood storage via the River Wandle Overflow at times of flood and can become backed up with flood water when the Wandle is bank full. Water levels are variable, therefore, and subject to significant fluctuation.

5.2 There is some evidence of localised eutrophication, likely originating from seepage from the adjacent Thames Water wastewater treatment works, with some nutrient enrichment from waterfowl also likely.

5.3 Habitats associated with the wetland features include emergent vegetation – mainly common reed which forms dense stands in places, with other emergent species indicative of the high nutrient levels also present, e.g. greater reedmace, purple-loosestrife, yellow iris. There is abundant young and more mature willow scrub regeneration throughout.

5.4 The INNS *Crassula helmsii* is locally abundant, indicated by Secondary Code 524 'Invasive Species'.

Detailed Descriptions

Parcel F1 – Northern Settlement Pond

5.5 Located east of the current landfill area, F1 is one of two moderately-sized waterbodies used as settlement lagoons. Parcel F1 is the northern of the two waterbodies.

5.6 F1 is roughly rectangular in outline with the western portion of the waterbody infilled and forming a spit of land that extends across most of the feature, leaving open water habitat to the east. A narrow linear island is present in the eastern portion of the pond supporting saplings of goat willow[8] and white willow, with a ground flora of colt's-foot, teasel, great willowherb and greater reedmace.

5.7 A similar suite of species is present on the banks of the waterbody with the addition of bristly ox-tongue, purple-loosestrife and creeping bent.

5.8 Water levels in the ponds appear to be stable with limited fluctuations, e.g. there is no obvious drawdown zone. Water quality is highly turbid and duckweed species is present. Emergent vegetation is limited to greater reedmace.

5.9 Scrub saplings and emergent vegetation fall below the threshold of MMU in UKHab, i.e. <25m^2 or 5m linear patches and have not been mapped individually.

5.10 The best fit UKHab category is r1g Other Standing Water with Secondary Code 41 (Pond – non-priority).

[8] *Goat willow is a variable species that can readily hybridise with grey willow. Throughout this report professional judgement has been applied to distinguish between goat willow and grey willow where possible based on leaf shape, but it is possible that hybrids of the two species are also present.*

5.11 The pond is entered into the Metric as Pond (Non-Priority). In accordance with the Statutory Metric User Guide (2024) stands of marginal vegetation associated with the pond are included in the Metric as part of the pond feature.

5.12 Condition is assessed as Moderate.

Parcel F2 – Southern Settlement Pond

5.13 Located east of the current landfill area, Parcel F2 is the southern of the two waterbodies used as a settlement lagoon.

5.14 F2 is roughly elliptical in shape, with an area of infilling at the southern end. Water levels appear relatively stable, with no obvious drawdown zone. The western edge is dominated by a band of white willow saplings, and the northern bank by common nettle, indicative of high nutrient levels. Some shallow sloping, bare ground is present on the western edge where it adjoins the current landfill area. Some algae and duckweed species were present, indicative of nutrient enrichment, and there was very limited emergent vegetation except for of a small patch of common reed.

5.15 The eastern bank supported a line of white willow, grey willow and goat willow saplings and young shrubs. Celery-leaved buttercup was observed as several scattered individual plants on the eastern bank. An induvial plant of pendulous sedge was also present.

5.16 The best fit UKHab category is r1g Other Standing Water with Secondary Code 41 (Pond – non-priority).

5.17 The pond is entered into the Metric as Pond (Non-Priority) which includes the stand of young willow saplings and common reed vegetation.

5.18 Condition is assessed as Moderate.

Parcel F3a/b – Phase 2 Wetland

5.19 The Phase 2 wetland area is a complex mosaic of habitats contained within a low ‘basin’ that has been artificially constructed to lower the ground levels, forming a series of flooded ponds of variable depth. A deeper pond is present to the west, with a series of shallow ponds or ‘scrapes’ with wide, exposed drawdown zones in the eastern portion of the wetland. The west and east portions are separated by a ditch. There is no water level control structure currently in place between the east/west portions of Phase 2. There is an earth bund and a gated pipe that runs from the ditch into the Phase 1 wetland.

5.20 The eastern portion of the wetland has not yet been fully formed and includes areas of bare substrate which are above the ground water table for most of the year. These areas are mapped as part of the OMHPDL habitat described elsewhere in this report.

5.21 In terms of vegetation composition, the shallow pool/scrape areas in the eastern portion of the wetland support fringes of willow scrub, greater reedmace and great willowherb. The drawdown/inundation zone is around 10m wide with exposed flints and gravels. Ephemeral vegetation within the drawdown zone includes knotgrass, colt’s-foot, creeping bent, cockspur, scentless mayweed, purple-loosestrife, hairy sedge, a bur-marigold (species not confirmed), marsh foxtail and common fleabane. The undulating ground surface provides a varied topography with shallow splash pools and exposed substrates.

5.22 Moving further to the west, the central portion of the wetland supports deeper water and a linear fringe of willow scrub, common reed, greater reedmace, purple-loosestrife, water mint and creeping cinquefoil. A goosefoot species and some duckweed species were also present. There was a broad (3m) wide inundation zone on the southern edge of the pool supporting pendulous sedge, common fleabane, gypsywort (one of only two locations noted on site for this species, see

also island Is5), soft-rush and yellow iris. Young willow scrub (mainly goat willow) was noted as encroaching across the pool.

5.23 Small patches of the INNS *Crassula helmsii* were noted at the southern end of this central pool, indicated by Secondary Code 524 'Invasive Species'.

5.24 The ditch that separates the eastern and western portions of the Phase 2 wetland was choked with emergent vegetation including water mint, yellow iris, grey willow saplings, great willowherb and some bramble on the western bank. Shallow water was visible on the day of survey, with some duckweed species and creeping bent apparent in the base of the ditch.

5.25 The western portion of the wetland comprises a deep pool with steep banks and no inundation zone. Small patches of emergent greater reedmace were present, with pendulous sedge, common reed, yellow iris and one- to two-year-old (estimated) willow scrub saplings. The bankside vegetation above the water line included great willowherb, hard rush, water mint, colt's-foot and creeping bent.

5.26 Duckweed species and algae were noted at the edges of the pool, starting to form a floating mat and indicative of nutrient enrichment.

5.27 The wetland habitat is not a straightforward fit with a single UKHab category and has been mapped primarily as r1f6 (Other Temporary Ponds and Scrapes) which according to UKHab includes scrapes artificially created for biodiversity enhancement and seems to be a good fit. UKHab code f2d (Aquatic Marginal Vegetation) has been used to map the larger patches of marginal vegetation. Secondary Code 10 has been used to denote scattered scrub.

5.28 The open water habitat is entered into the Metric as Lakes –Temporary Lakes, Ponds and Pools. The emergent vegetation is entered as Wetland – Fen Upland/Lowland in accordance with the Phase 1 Translation Tool in the BNG Metric which suggests this should be used for habitats formerly described as 'marginal vegetation' in the JNCC (2021) Phase 1 methodology. For brevity, the stands of emergent vegetation have been grouped together and entered as a single parcel.

5.29 Condition is assessed as Moderate for the open water element and Moderate for the marginal vegetation. Stands of emergent vegetation that are smaller than the MMU is assessed as part of the open water element.

Parcel F4a/b – Phase 1 Wetland

5.30 The Phase 1 wetland is a complex area of wetland habitat within an artificially constructed 'basin' created by lowering ground levels, and forming a series of shallow pools, ditches and channels interspersed islands, the latter intended to be created and managed as wet grassland. The resulting habitat as assessed on the day of survey is a mosaic of shallow pools and channels with extensive drawdown zones that have become colonised with dense beds of the INNS *Crassula helmsii*. There were no extensive areas of wet grassland, although it is possible that species indicative of wet grassland habitat may be present beneath the *Crassula*.

5.31 The wetland is separated into east and west by a ditch with tilting weirs from both east and west sides. The eastern portion of the wetland has a fringe of two- to three-year-old (estimated) willow scrub and tall ruderal species, e.g. mugwort, bristly oxtongue, hemlock and occasionally butterfly-bush along the banksides.

5.32 The wetted zone was shallow on the day of survey, estimated to be *c*.0.25 to 0.5m in depth, and turbid but with no obvious signs of algae. The inundation zone supported a sparse cover of ephemeral/ruderal species including great willowherb, common fleabane, colt's-foot and scentless mayweed as well as frequent *Crassula helmsii*. Small stands of common reed were noted at the edges of the spur of land that supports the overhead pylon (northern side of wetland), along with small patches of duckweed species.

5.33 Scattered willow scrub was present along all sides of the wetland.

5.34 The western portion of the wetland held shallow water only, estimated to be *c.*10-25cm in depth, and contained abundant mats of *Crassula helmsii*. The drawdown zone supported ephemeral species including knotgrass, Canadian fleabane and cudweed species.

5.35 The ditch which separates the east and western portions of the wetland contained greater reedmace, willow scrub, great willowherb, purple-loosestrife and approximately 10 to 20cm of water. The banksides were vegetated with creeping bent, ribwort plantain, bird's-foot-trefoil and occasional common reed.

5.36 It is considered the use of r1f6 (Other Temporary Ponds and Scrapes) and f2d (Aquatic Marginal Vegetation) would be the best fit for the habitat type in this instance, but with use of Secondary Code 55 to denote that the habitat also functions as a modified Floodplain Wetland Mosaic for key species, namely lapwing[9]. Secondary Code 10 has been used to denote scattered scrub.

5.37 The open water habitat is entered into the Metric as Lakes – Temporary Lakes, Ponds Pools. The emergent vegetation is entered as Wetland – Fen Upland/Lowland in accordance with the Phase 1 Translation Tool in the BNG Metric which suggests this should be used for habitats formerly described as 'marginal vegetation' in the JNCC (2021) Phase 1 methodology. For brevity, the stands of marginal vegetation have been entered and assessed as a single parcel.

5.38 Condition is assessed as Moderate for the Pond – Priority Habitat element, and Moderate for the marginal vegetation. The fringing/emergent vegetation that is smaller than the MMU is assessed as part of the open water element.

Parcel F5a/b – Northern Lake (and Associated Islands)

5.39 The Northern Lake is a large open waterbody >2ha in size (hence assessed using the condition criteria for a Lake.

5.40 Where areas of fringing vegetation are present and greater than the MMU (i.e. 25m^2 or 5m linear length) these have been mapped and assessed separately.

5.41 A notable feature of the Northern Lake is the presence of several discrete islands which have each been mapped, described and assessed (from a distance using binoculars) based on the dominant vegetation type observed on the day of survey.

5.42 The lake itself is assumed to be of considerable depth with steep banks and no evidence of an obvious drawdown zone. The water was turbid and it is assumed that there is some nutrient enrichment from the water inputs and added to by water fowl. Enrichment is also likely to be coming from the MEC inputs, albeit at a low level, although this may increase considerably during storm events. Abundant waterfowl were noted on the day of survey. There are localised structures (e.g. MEC Overflow) but otherwise no significant physical modifications. There was no evidence of INNS.

5.43 Each of the islands is briefly described below:

- Parcel Is1 – Roughly circular with steep banks and with tall ruderal vegetation (up to 1m tall) comprising common reed, common nettle, great willowherb and young willow saplings;
- Parcel Is2 – Semi-circular in shape with a narrow, exposed gravel margin being used by waterfowl as an area for loafing. This island supported tall ruderal vegetation including hedge mustard, Canadian fleabane, common fleabane, great willowherb, purple-

[9] *Vanellus vanellus*

loosestrife, bristly oxtongue and small amount of greater reedmace. It is understood that this island was originally created as a gravel island specifically for target species little ringed plover[10] breeding. However, maintaining the open habitat conditions on this small island during the breeding season is likely to be impractical and disturbing to the target bird species;

- Parcel Is3 – A complex of smaller islands, some only just exposed and supporting inundation vegetation, others with tall forbs and occasional scattered willow scrub at the edges. Species included purple-loosestrife, hedge mustard and greater willowherb. Waterfowl were present loafing on the shallow, muddy edges;
- Parcel Is4 – An irregularly-shaped island supporting mainly willow scrub with occasional purple-loosestrife, bramble and hedge bindweed;
- Parcel Is5 – An irregularly-shaped island with young willow scrub and locally abundant bramble with occasional teasel, common reed, gypsywort and great willowherb;
- Parcel Is6 – A large spit of land extending from the southern shoreline with shallow margins and supporting ruderal vegetation: Canadian fleabane, common fleabane, purple-loosestrife, locally abundant common reed and occasional willow scrub towards the southern end. This island also supports a considerable amount of low-lying/creeping bramble scrub;
- Parcel Is7 – A spit of land extending from the southern shoreline with steep edges, supporting abundant scattered scrub (perhaps three- to four-years-old) with occasional purple-loosestrife, hedge bindweed and common reed; and
- Parcel Is8 – A circular, wooded island on the far side of the Northern Lake (as viewed from the east bank) supporting semi-mature white willow, crack willow, grey willow and blackthorn scrub.

5.44 Fringes of common reed, with occasional greater reedmace, were present around much of the shoreline of the Northern Lake, with stands mapped individually but entered into the Metric as a single feature.

5.45 The habitats associated with the Northern Lake have been mapped as Eutrophic Lake (r1a) and entered into the Metric as Lake – Moderate Alkalinity Lake as, by a process of elimination, none of the other Lake categories in the BNG metric are considered to capture the characteristics of the waterbody.

5.46 The island vegetation has been mapped as either sparsely vegetated land (s1) with Secondary Code 81 to denote Ruderal, or 16 to denote Tall Forbs, or has been mapped as willow scrub (h3j). The island habitats are entered into the Metric as Sparsely Vegetated Land – Ruderal/Ephemeral or Tall Forbs, or as willow-dominated scrub, i.e. Heathland and Scrub – Willow Scrub. Island 8 is entered as Wet Woodland.

5.47 The reed margins were generally <5m wide, therefore, did not meet the definition for mapping as a Reedbed and have instead been classified as Aquatic Marginal Vegetation (f2d). This habitat is entered into the Metric as Fen – Upland/Lowland as there is no other suitable BNG category for stands of aquatic marginal vegetation. This accords within the Phase 1 Translation Tool for the Statutory Metric which suggests habitats formally classified as 'marginal vegetation' using the JNCC (2010) Phase 1 methodology should now be classified as either the feature that they occur within, or as Fen – Upland/Lowland.

[10] *Charadrius dubius*

5.48 Condition of the open water element of the lake is assessed as Fairly Good.

5.49 Condition of the islands varies according to the characteristics of each and are Moderate/Good.

5.50 Condition of the aquatic marginal vegetation stands (collectively) is assessed as Moderate.

Parcel F6a/b – Southern Lake (and Associated Islands)

5.51 The Southern Lake comprises two open waterbodies (the southern part referred to as the 'Reedbed Lake') separated by a narrow causeway but for the purposes of this assessment the open water is considered and assessed as a single parcel with the same broad characteristics. The combined surface area is >2ha, hence the Southern Lake is assessed as a Lake habitat for UKHab and BNG purposes. The Reedbed Lake has previously been identified for reedbed creation but previous attempts at this have not been entirely successful. This portion of the lake is assessed as 'Reedbed' for the purposes of BNG.

5.52 The lake is assumed to be of variable depth with relatively stable water levels (unless in flood) with no evidence of an obvious drawdown zone observed on the day of survey. It is understood that the Southern Lake (and the Northern Lake) are used as flood storage for the River Wandle and thus water levels are likely to rise considerably when in flood).

5.53 Submerged 'islands' are evident especially in the southern portion where these are just visible beneath the surface.

5.54 The water was turbid and it is assumed that there is some nutrient enrichment from the water inputs and added to by waterfowl. Abundant waterfowl were noted on the day of survey. There are a few physical structures, e.g. causeway/bund. No INNS were noted to be present but Himalayan balsam is present in the River Wandle Overflow located upstream.

5.55 The causeway that bisects the lake is dominated by three- to four-year-old (estimated) willow scrub with a narrow fringe of common reed. The entire lake fringe and banks are vegetated with extensive belts of willow scrub and stands of common reed. There are a number of small islands in the lake which, for brevity, are grouped together and assessed as follows:

- Is9 – group of three islands in the south of the lake supporting stands of reed and occasional greater reedmace and abundant willow scrub, and assessed as 'reedbed' for the purposes of BNG; and
- Is10 – two islands in the north of the lake with abundant young willow scrub and tall ruderal vegetation (viewed from a distance only – ruderal species not identified to species level).

5.56 As for the Northern Lake, the habitats associated with the Southern Lake have been mapped as Eutrophic Lake (r1a) and entered into the Metric as Lake – Moderate Alkalinity Lake as, by a process of elimination, none of the other Lake categories in the BNG metric are considered to capture the characteristics of the waterbody.

5.57 The island vegetation has been mapped as either f2d (Aquatic Marginal Vegetation) or willow scrub (h3j) with Secondary Code 81 to denote Ruderal.

5.58 The stands of willow scrub at the edges of the lake are generally extensive and have been mapped separately as dense scrub (see Chapter 7).

5.59 The reed margins were generally <5m wide, therefore, did not meet the definition for mapping as a Reedbed and have instead been classified as Aquatic Marginal Vegetation (f2d). This habitat is entered into the Metric as Fen – Upland/Lowland as there is no other suitable BNG category for stands of aquatic marginal vegetation. This accords within the Phase 1 Translation Tool for the Statutory Metric which suggests habitats formally classified as 'marginal vegetation' using the JNCC (2010) Phase 1 methodology should now be classified as either the feature that they occur within, or as Fen – Upland/Lowland.

5.60 Condition of the open water element of the lake is assessed as Fairly Good.

5.61 Condition of the islands is Moderate.

5.62 Condition of the aquatic marginal vegetation stands (collectively) is assessed as Moderate.

5.63 Condition of the Reedbed Lake is assessed as Poor.

Parcel F7 – Fen Area

5.64 Located on the eastern side of the Southern Lake, this is a semi-circular area of topogenous (i.e. fed vertically by ground water) rich fen vegetation on low-lying ground which is assumed to be partial contact with ground water creating suitable damp conditions to sustain fen vegetation. The fen type is likely

5.65 Species present were possible marsh ragwort (identification not definitive), abundant creeping cinquefoil, creeping bent, locally abundant common fleabane, hard rush, common sedge, hairy, sedge and bird's-foot-trefoil. An individual plant of St John's-wort (not identified to species level) was also present. Undesirable species goat's-rue and a wide belt of bramble were noted. There is a low cover of scattered hawthorn and bramble scrub.

5.66 The habitat is mapped as f2a (Lowland Fen).

5.67 The parcel is entered into the Metric as Wetland – Upland/Lowland Fen.

5.68 Condition is assessed as Good.

Parcel F8 – Kingfisher Pond

5.69 F8 is a small, shallow pond estimated to be *c*.0.1 to 0.5m in depth on the day of survey with steep banks and stands of marginal vegetation comprising pendulous sedge, common reed and a narrow fringe of dense young willow scrub on the southern shore, and occasional white willow saplings elsewhere. Large woody debris provides additional habitat niches. This large woody debris is understood to be mobile in flood conditions and would, therefore, need to be removed to prevent blockage/damage to flood control structures.

5.70 Artificial pipework is present that is used to help fill the adjacent Phase 3 wetland when required.

5.71 The banks and bank top are vegetated with tall forbs and other neutral grassland including great willowherb, bristly oxtongue, mugwort, bird's-foot-trefoil, Canadian fleabane, perennial rye-grass, greater burdock, common nettle and creeping thistle.

5.72 Occasional self-set sycamore and Himalayan balsam were present on the banks/bank top, indicated by Secondary Code 524 'Invasive Species'.

5.73 Within the pond duckweed species and algae mats were present, indicating nutrient enrichment.

5.74 The pond is mapped as r1g (Other Standing Water) with Secondary Code 41 (Pond – non-priority).

5.75 The habitat is entered into the Metric as Lake – Ponds (non-priority).

5.76 Condition is assessed as Poor.

Parcel F9a/b/c – Phase 3 Wetland

5.77 This is a large, complex area of shallow standing water with exposed islands. Water depths on the day of survey were low across the wetland, approximately 0.1 to 0.3m (estimated).

5.78 The habitat mosaic has been mapped as parcels of r1f6 (Other Temporary Ponds and Scrapes) for the open water element.

5.79 The exposed islands were vegetated with a mix of tall forbs and emergent vegetation, with scattered ephemeral species including scentless mayweed, knotgrass, Canadian fleabane, fool's water-cress, great willowherb, greater reedmace, bur-marigold (not identified to species level) and a possible stand of greater bird's-foot-trefoil (not definitively identified). Scattered young willow scrub was present throughout the islands. At northern edge of the wetland is a band of exposed ground that has established as wet grassland, closely grazed by waterfowl, with a reasonably well-developed sward (viewed from a distance only). Beneath the tall forb vegetation, the islands are predominantly vegetated with creeping bent. They have been assessed as 'wet grassland' using Secondary Codes 10 (to denote scattered scrub) and 16 (to denote tall forbs).

5.80 Parcel F9c is more notably dominated by creeping bent without the tall forb cover and has also been assessed using the condition criteria for 'wet grassland'.

5.81 The entire of Phase 3 wetland is also tagged with Secondary Code 503 to denote 'wet', i.e. water table within 40cm of the surface throughout the year, and Secondary Code 55 to denote 'Floodplain Wetland Mosaic'.

5.82 *Crassula helmsii* is reported to be present in Phase 3 wetland but was not observed on the day of survey, indicated by Secondary Code 524 'Invasive Species'.

5.83 Algae mats and duckweed species were noted in places, indicating high nutrient levels.

5.84 Secondary Code 10 has been used to denote Scattered Scrub.

5.85 The habitats are entered into the Metric as Lakes – Temporary Lakes, Ponds and Pools (for the open water element), and Grassland – Floodplain Wetland Mosaic for the wet grassland (with tall forbs in some cases) which appears to be a best fit within the Statutory Metric categories for wet grassland habitats that form part of a wider wetland mosaic.

5.86 Habitat condition of the open water element is assessed as Poor.

5.87 Habitat condition for islands supporting 'wet grassland' with tall forbs (grouped together and assessed as a single parcel F9b) is assessed as Moderate.

5.88 Habitat condition for the wet grassland (without tall forbs) parcel F9c is assessed as Moderate.

6. SPARSELY VEGETATED LAND AND OPEN MOSAIC HABITATS

Overview

6.1 These habitats comprise recently established vegetation over previously disturbed or bare ground or associated with gravel surfaced tracks throughout the site. The species composition is variable and comprises tall ruderal, ephemeral and short perennial species. Bristly oxtongue and goat's-rue (locally undesirable species) occur occasionally to abundantly throughout.

Detailed Descriptions

Parcel SPV1 – Tracks (Throughout Site)

6.2 Associated with gravel surfaced, constructed tracks throughout the site which have variable amounts of vegetation cover from largely unvegetated up to 50% vegetated with ephemeral/short perennial vegetated.

6.3 The track south of the P3 wetland is much grassier and assessed separately (see parcel G12).

6.4 For the purposes of this assessment, and for brevity, the habitat is assessed as a single parcel for input to the Metric, although it is acknowledged that the percentage vegetation cover and species composition is variable across the site. Grasses are typically absent except scattered at track edges, e.g. creeping bent, cockspur and annual beard-grass. Forbs include low growing ephemeral and perennial species, such as scentless mayweed, red clover and knotgrass, as well as taller ruderal species, e.g. bristly oxtongue.

6.5 The habitat is considered a good fit with the urban sparsely vegetated land category of UKHab code u1f (Sparsely vegetated urban land) which applies to '*urban land with a vegetation cover of 10-50%*' and is typically described as abandoned/derelict land, usually constructed permeable but can be impermeable where succession is taking place'.

6.6 It is entered into the Metric as Urban – OMHPDL.

6.7 Condition is assessed as Moderate.

Parcel SPV2 – North-east of Current Landfill Area

6.8 Located north and east of the current landfill area are variable habitats associated with disturbed ground.

6.9 As far as is practicable, the grassland and scrub habitats in this area have been mapped and described individually (see relevant sections of this report). The ruderal communities are mapped as Parcel SPV2 which, for brevity, have been grouped together and assessed as a single compartment of OPMHPL, denoted by use of Secondary Code 80.

6.10 Typical species comprise hemlock, common nettle, mugwort, hawkweed oxtongue, hedge mustard, red dead-nettle, smooth sow-thistle, Canadian fleabane and greater burdock. Patches of bramble are often found within the tall ruderal community but have not been mapped individually.

6.11 Two notable species were dittander and round-leaved crane's-bill which were found at the edges of a track in this area.

6.12 One or two small areas of disturbed/mounded soil close to the current landfill area (and, therefore, not access for safety reasons) were viewed from a distance and appeared to be typical of the

adjoining areas supporting, e.g. common nettle, Canadian fleabane, hemlock and some bramble and elder saplings.

6.13 The best fit UKHab category is u1f (Sparsely vegetated urban land) and is entered into the Metric as Urban – OMHPDL.

6.14 Condition is assessed as Moderate.

Parcel SPV3 – Adj. Southern Settlement Pond

6.15 Located east of pond F2, this is a quite large area of previously disturbed ground that has become colonised with around 70% ruderal species and bare ground and 30% grass cover (mainly creeping bent). Overall, the habitat is considered a better fit with the description for OMHPDL rather than a grassland *per se*, hence included in this section of the report.

6.16 Localised areas comprise dominant creeping bent, otherwise species are more representative of ruderal or ephemeral/short perennial communities including colt's-foot, bristly oxtongue, great willowherb, common reed (rarely), Canadian fleabane, scentless mayweed, white clover, teasel, ribwort plantain and annual beard-grass. Goat's-rue is present scattered throughout. The ground appears to be undergoing recent disturbance toward the southern end with evidence of recent earth moving/filling, presumably associated with the adjacent landfill operations.

6.17 The habitat was previously mapped as ephemeral/short perennial vegetation in the MKA phase 1 survey (survey 2021) and this is considered a good characterisation of the vegetation type, which does not yet have a sufficiently closed sward to be assessed as grassland.

6.18 The best fit UKHab category is u1f (Sparsely vegetated urban land) and is entered into the Metric as Urban – OMHPDL.

6.19 Condition is assessed as Moderate.

Parcel SPV4 – Adj. P2 Wetland Area

6.20 Parcel SPV4 is located in the north of the site, associated with Phase 2 wetland and surrounding areas, on previously disturbed and still largely bare ground (around 20 to 50%) which has become colonised with a reasonably diverse mix of ruderal and ephemeral/short perennial species with a few grasses (around 40% cover) and includes mugwort, red clover, lesser trefoil, hedge mustard, red dead-nettle, common mallow, bristly oxtongue, knotgrass and greater plantain.

6.21 Areas of concrete hardstanding, crushed rubble, soil mounds and small area of bramble provide additional diversity.

6.22 The best fit UKHab category is u1f (Sparsely vegetated urban land) and is entered into the Metric as Urban – OMHPDL.

6.23 Condition is assessed as Moderate.

Parcel SPV5 – Eastern Embankment of Northern Lake

6.24 Located in a broad swathe along the eastern bank of the Northern Lake, this habitat comprises a tall forb/ruderal community of common nettle, hemlock, hogweed, mugwort, broad-leaved dock, teasel and greater burdock, with a narrow fringe of common reed along the shoreline.

6.25 The best fit UKHab category is s1 (Sparsely vegetated land) with Secondary Code 81 to denote Ruderal and entered into the Metric as Sparsely Vegetated Land – Ruderal (a low distinctiveness habitat which is considered the best fit for the habitat type).

6.26 Condition is assessed as Moderate.

Parcel SPV6 – Bund Between Settlement Ponds

6.27 Parcel SPV6 is located along a narrow bund between settlement ponds F1 and F2 in the east of the site. The bund is vegetated with tall ruderal vegetation dominated by common nettle with occasional creeping thistle, and a dense patch of bramble and occasional elder saplings indicative of disturbed ground with high nutrient levels. Secondary Code 16 is used to denote Tall Forbs dominated by common nettle.

6.28 The habitat is entered into the Metric as Sparsely Vegetated – Ruderal/Ephemeral (a low distinctiveness habitat which is considered the best fit for the habitat type).

6.29 Condition is assessed as Moderate.

Parcel SPV7 – Adj. P3 Wetland

6.30 This is a small parcel of land at the eastern end of Phase 3 Wetland on recently disturbed ground (this stands out as bare ground on recent aerial photographs) which has become colonised with predominately ruderal species including great willowherb, common nettle, hemlock, greater burdock, hedge mustard, common mallow, fleabane species and teasel.

6.31 The habitat is entered into the Metric as OMHPDL.

6.32 Condition is assessed as Moderate.

Parcels SPV8 and SPV9 – South of Rosewell Mound

6.33 Located at the southern end of Rosewell Mound are two patches of ruderal vegetation. SPV8 comprises abundant creeping thistle, with frequent to occasional spear thistle, common nettle, red dead-nettle, mugwort and greater burdock. SPV9 comprises abundant creeping and spear thistle only. The parcels are entered in the Metric as Sparsely Vegetated Land – Ruderal/Ephemeral and the condition is assessed as Poor.

7. SCRUB

Overview

7.1 Patches of dense/continuous scrub are present throughout the site, most notably on the southern side of the main landform where scrub has been planted in discreet blocks, and in broad swathes along the eastern edge of Northern Lake and Southern Lake. In general, these scrub patches are diverse and species-rich with a good range of native shrubs present and exhibit a range of ages and structural diversity. Single-species-dominated scrub patches are also present in localised areas across the site comprising bramble, blackthorn and willow. Each of these main scrub areas is described below, grouping the parcels together where these are very similar.

Detailed Descriptions

Parcel Sc1 – Other Blackthorn Scrub

7.2 Parcel Sc1 is located at the north end of the site, broadening out from the ecologically valuable line of trees (H2) as a wider parcel of blackthorn-dominated scrub (*c.*90% blackthorn) approximately 10m wide on the southern side of the tree line. Smaller amounts of bramble were also present.

7.3 The blackthorn scrub contains semi-mature and mature shrubs, as well as regeneration of saplings and a well-developed edge with tall grassland adjacent. The best fit UKHab definition is Other Blackthorn Scrub (h3a6) defined as '*Dense scrub with blackthorn dominant in unexposed areas'*. The habitat is entered into the Metric as Blackthorn scrub.

7.4 Professional judgement has been used to adapt the condition criteria for this habitat to reflect the naturally dense structure of blackthorn scrub which typically results in a dense stand of mature scrub dominated by 100% blackthorn and an ecotone of young, suckering growth at the edges. The Statutory Metric condition criteria for 'scrub' are generic and do not take account of this naturally occurring dense, single-species-dominated growth form. This particular stand of blackthorn scrub is considered to be an ecologically valuable example of the type. It is, therefore, considered appropriate in this instance to modify the condition criteria and assess condition as Good.

Parcel Sc2 – Bramble Scrub

7.5 For brevity, all dense bramble scrub parcels are grouped together and mapped/assessed as a single parcel. This habitat occurs frequently throughout the site, typically at the edges of tracks and woodland, on the banks overlooking the lakes and along the banks of the MEC, MEC Overflow and River Wandle Overflow.

7.6 A particularly large area of bramble is present centrally within the site, next to the orchard area on the west-facing slopes of the main landform, and there are other large patches on the west-facing embankments of the Northern and Southern Lakes. This large patch is understood to be planted species-rich scrub that has bramble encroachment, and localised presence of gorse.

7.7 The habitat is entered into the Metric as Bramble scrub.

7.8 Condition is N/A.

Parcels Sc3, Sc4 and Sc5 – Hawthorn Scrub

7.9 Located on the south of the main landform, these recently planted patches comprise species-rich native scrub planting of young shrubs with relatively limited structural diversity due to the young

age. Mini-rides are present currently within Sc4 and Sc5 but will likely close as the shrub canopy matures.

7.10 The habitat is entered into the Metric as Hawthorn Scrub.

7.11 Condition is assessed as Moderate.

Parcels Sc6 and Sc7 – Hawthorn Scrub

7.12 Located on the south of the main landform, Sc6 and Sc7 are predominantly hawthorn with a good mix of other native species including hazel, blackthorn, elder, dog rose and dogwood. Saplings and semi-mature shrubs are present indicating some natural regeneration and there are quite large rides/cut throughs which provide sheltered edge habitat with unmanaged grassland in between.

7.13 The habitat is entered into the Metric as Hawthorn Scrub.

7.14 Condition is assessed as Good.

Parcels Sc8 and Sc9 – Mixed Scrub

7.15 Located on the south of the main landform, Sc8 and Sc9 are quite large patches of semi-mature species-rich native mixed scrub with some saplings present. There are larger rides/gaps within the scrub providing sheltered edge habitats.

7.16 The habitat is entered into the Metric as Mixed Scrub.

7.17 Condition is assessed as Good.

Parcel Sc10 – Mixed Scrub

7.18 Located on the south of the main landform, Sc10 is a large, dense patch of mature scrub of predominantly hawthorn but including dogwood, hazel, elder and bramble, and a mini-patch of bramble-dominated scrub adjacent to the south. There was no obvious regeneration, seedlings or saplings. Some large rides/cut throughs were present providing a fairly abrupt edge between the clumps of shrubs.

7.19 The habitat is entered into the Metric as Mixed Scrub.

7.20 Condition is assessed as Moderate.

Parcel Sc11 – Mixed Scrub

7.21 Also located on the south of the main landform Sc11 is a large, mature patch of species-rich mixed native scrub including hawthorn, guelder rose, blackthorn, goat willow and hazel. Mature shrubs and saplings were present. There were no rides/cut throughs.

7.22 The habitat is entered into the Metric as Mixed Scrub.

7.23 Condition is assessed as Moderate.

Parcel Sc12 and Sc13 – Hawthorn Scrub

7.24 Located on the south of the main landform, these quite large patches of semi-mature native species mixed scrub were predominantly hawthorn, guelder rose, hazel and dogwood. There are clearings and a structurally diverse edge, and saplings present (including a young pedunculate oak sapling) indicating natural regeneration within and along the shrubby edge.

7.25 A small patch of scattered scrub comprising mature blackthorn, dog rose and willow was noted on the upslope side of Sc12, and is indicated with Secondary Code 10.

7.26 The habitat is entered into the Metric as Hawthorn Scrub.

7.27 Condition is assessed as Good.

Parcel Sc14 – Mixed Scrub

7.28 Located in the east of the site, north of the current landfill area, Sc14 is a mature patch of scrub comprising hawthorn, pedunculate oak saplings, blackthorn and rowan with no obvious rides/clearings. A line of scrub extends north to south along an earth bund at the perimeter of the site. This linear portion of scrub was not assessed in any detail and it is assumed for the purposes of this assessment that the linear strip is of the same or similar composition to the rest of the Sc14 patch.

7.29 This parcel is entered in the Metric as Mixed Scrub.

7.30 Condition is assessed as Moderate.

Parcel Sc15 - Mixed Scrub

7.31 Located in the east of site, north of current landfill area, Sc15 is belt of mature, dense scrub with an edge of dense bramble and comprising goat willow, hawthorn, blackthorn and dogwood. The shrub belt thins towards the eastern edge where the gaps between individual shrubs provide sheltered micro-habitats.

7.32 Sc15 is entered into the Metric as Mixed Scrub.

7.33 Condition is assessed as Good.

Parcel Sc15a – Assumed Mixed Scrub (Inaccessible for survey)

7.34 Located in the east of the site, adjacent to the current landfill area and inaccessible for survey due to the presence of tall, impenetrable vegetation and proximity to live landfill area. This parcel was viewed from a distance only and appeared to comprise a mosaic of dense bramble and mixed native scrub.

7.35 The habitat is entered into the Metric as Mixed Scrub.

7.36 Condition is assumed as Good on a precautionary basis.

Parcel Sc16 – Other Blackthorn Scrub

7.37 Located within the fence on the western side of the Northern Lake, Sc16 is a belt of mature blackthorn-dominated scrub (>75% blackthorn) with occasional bramble. The patch is tall (*c.*4m) with a well-developed edge providing an ecotone that grades into adjacent tall unmanaged grassland with suckering readily occurring at the edges.

7.38 The parcel is entered into the Metric as Blackthorn Scrub.

7.39 As for Parcel Sc1 (see above), it is considered appropriate to modify the condition assessment criteria for blackthorn scrub in this instance and assess the parcel as being in Good condition.

7.40 Condition is assessed as Good.

Parcel Sc17 – Other Neutral Grassland with Mixed Scrub

7.41 Located between the Southern Lake and track (on the eastern sides of the lake) is a large area of 'Other Neutral Grassland' which has previously been planted with native species-rich scrub, including spindle, hazel, alder, dog rose, hawthorn and field rose with large clearings between patches of scrub. This habitat is extensive and extends more or less continuously along the entire

eastern bank of the lake, incorporating areas of locally dominant bramble scrub in places. Scattered and young saplings of willow scrub are also present, particularly towards the southern end of this parcel, often extending down to the lake edge with a narrow toe of common reed.

7.42 The habitat is complex and forms an intimate mosaic with patches of grassland between the scrub and, for the purposes of this assessment, it is best mapped as 'Other Neutral Grassland' with excessive scrub encroachment. The habitat condition is, therefore, undertaken using the relevant grassland condition criteria.

7.43 Condition is assessed as Poor.

Parcel Sc18 (and Sc18a/b) – Willow Scrub (and Reedbed with Willow)

7.44 Parcel Sc18 is located around the edges of the Northern and Southern Lakes.

7.45 The habitat occurs as patches of willow-dominated scrub, often dense, of varying ages and exhibiting good structural diversity with saplings, young and mature shrubs, and a well-developed edge. There are typically sheltered glades and open belts of unmanaged grassland between parcels of scrub, although some areas are becoming large and dense and will benefit from future management to maintain a more open grassland/scrub habitat mosaic.

7.46 A quite large patch of Sc18 located on the east side of the Southern Lake is best described as reedbed with willow and has, therefore, been assessed using the 'wetland – reedbed' condition criteria. This parcel is denoted as Sc18a on Figure 1b.

7.47 The parcels located around the edges of the Southern Lake are fairly mature, often >5m in height and, therefore, assessed using the 'woodland – wet woodland' condition criteria. These parcels are mapped as Sc18b on Figure 1b.

7.48 Additional interest is provided by patches of reed-dominated swamp mapped as 'aquatic marginal vegetation' (not all patches have been exhaustively mapped).

7.49 The habitat is entered into the Metric as Willow Scrub (Sc18) or Reedbed with willow (Sc18a) or Wet Woodland (Sc18b).

7.50 Condition is assessed as Good (Sc18), Poor for the reedbed with willow (Sc18a) and Moderate for the wet woodland parcels (Sc18b).

Parcel Sc19 – Mixed Scrub

7.51 Parcel Sc19 is a small patch of recently planted mixed scrub including some larger tree species, e.g. alder, hornbeam and pedunculate oak, and shrubs, e.g. hazel, wild privet and hawthorn. Some self-set goat willow was also present. There was no regeneration (yet) due to the young age of the scrub and the patch is too small for glades and rides, although it does have a sheltered 'wavy' edge.

7.52 The habitat is entered into the Metric as Mixed Scrub.

7.53 Condition is assessed as Moderate.

Parcel Sc20 – Mixed Scrub

7.54 Two small groups of recently planted mixed scrub comprising hawthorn, wild privet, guelder rose and some self-set willow make up parcel Sc20. The patches are too small to contain rides/glades but with informal grouping and some natural regeneration providing structural diversity and sheltered edge.

7.55 The habitat is entered into the Metric as Mixed Scrub.

7.56 Condition is assessed as Moderate.

Parcel Sc21 – Mixed Scrub

7.57 Parcel Sc21 is located on the western side of the Southern Lake, within the perimeter fence line.

7.58 The habitat is intermediate between young woodland and mature scrub, and comprises young trees, e.g. poplar species, birch species and alder but also dense mature scrub including grey willow, guelder rose, hawthorn and white willow. It is assumed to be relatively recently planted (tree guards are still present and require removal). It is noted that the habitat was classified as a belt of broadleaved woodland in the MKA Phase 1 survey 2021.

7.59 Dense belts of bramble-dominated scrub with occasional common nettle and great willowherb were also present on the eastern side of the gravel surfaced path but too small to map individually, and dense bramble is also present on the lake-facing edge of this mature scrub patch. The habitat is more or less impenetrable and lacking glades and rides, although a small ride had been cut through in November 2024 to facilitate access for the condition assessment.

7.60 The parcel is entered into the Metric as Mixed Scrub, thought it could arguably be further split into Other Broadleaved Woodland at its western edge, and mixed scrub and bramble scrub in the interior. The edge immediately adjacent to the Southern Lake is mapped as willow-dominated scrub (see Parcel Sc18).

7.61 Further habitat diversity is provided by a narrow belt mapped as ‘aquatic marginal vegetation’ located on a low-lying inundated ‘shelf’ that runs along the lake edge between the willow-dominated lake fringe and higher ground dominated by bramble and mixed scrub to the west (this wet zone is mapped as F6b). The aquatic marginal vegetation includes patches of common reed and tall sedges e.g. false fox-sedge and bottle sedge.

7.62 Condition is assessed as Moderate.

8. HEDGEROWS

Overview

8.1 Most of the hedgerows on site are recently planted native species-rich hedges (it is understood that *c*.11,000 whips have recently been planted throughout the site). Otherwise, the main feature is a mature line of native trees and shrubs which runs along the northern boundary of the site.

Detailed Descriptions

Parcel H1 – Line of Trees (Northern Boundary)

8.2 H1 is an ecologically valuable line of trees that forms the northern site boundary.

8.3 The treeline is mature and unmanaged to a height of approximately 4m (large shrubs/smaller trees) with taller trees (mainly crack willow and pedunculate oak), and a width of 4 to 6m. It contains at least seven native species (crack willow, pedunculate oak, hawthorn, elm sp., field maple, blackthorn and elder). Gaps between the trees are dominated by bramble.

8.4 Towards the western end of the line of trees are scattered dead trees (assume pedunculate oak) which are likely to be of high ecological value, e.g. for invertebrates/potential for bat roosting.

8.5 The treeline is positioned on a low bank (*c*.1m high) with an associated ditch (Oily Ditch – see description D1).

8.6 This feature does not meet the UKHab definition for a 'hedgerow', i.e. '*lines of shrubs that have the base of their leafy canopies < or equal to 2m in height from the ground* …' as there are numerous large gaps between individual trees. Instead, the feature is considered a better fit with an 'ecologically valuable line of trees' for which the definition is '*A line of trees that has one or more mature, veteran or ancient trees per 30m length*'.

8.7 The presence of dead/dying oak trees suggests there may be underlying sensitivity to wet ground conditions and/or water quality associated the adjacent Oily Ditch.

8.8 Secondary Codes 34 (ecologically valuable line of trees) and 50 (ditch) have been used to describe the habitat.

8.9 The feature is entered into the metric as Ecologically Valuable Line of trees – associated with bank or ditch.

8.10 Condition is assessed as Poor.

Parcel H2 – Line of Trees (Northern Boundary)

8.11 H2 is a continuation of the ecologically valuable line of trees that forms the northern site boundary but is separated from H1 by an access track that runs from the site northwards into the 'Three Corner Field' area beyond.

8.12 The treeline is mature and unmanaged to a height of approximately 4m (large shrubs/smaller trees) with taller individual trees (pedunculate oak) and contains a least five native species comprising pedunculate oak, crack willow, elder, hawthorn and blackthorn. Dense bramble scrub was also present.

8.13 As for H1, the presence of dead/dying oak trees suggests there may be underlying sensitivity to wet ground conditions and/or water quality associated the adjacent Oily Ditch.

8.14 As for H1 (see above) the feature is considered a best fit with Secondary Code 34 (ecologically valuable line of trees). It is assumed that Oily Ditch and bank are present within the line of trees although this was not visible due to dense blackthorn and bramble scrub.

8.15 The feature is entered into the metric as Ecologically Valuable Line of Trees – associated with bank or ditch.

8.16 Condition is assessed as Poor.

Parcel H3 – Side of Track (Near Northern Lake)

8.17 H3 is a fairly recently planted species-rich native hedgerow that runs along either side of the track next to the Northern Lake. The hedgerow is approximately 1m wide and 1.5m tall with at least five native species, including hazel, hawthorn, dog rose and blackthorn, and no significant gaps either horizontally or vertically. The ground flora comprises a mix of coarse grasses and ruderal species typically associated with disturbed ground, including cock's-foot, false oat-grass, bristly oxtongue and teasel. Disturbed ground (the track) is present on one side (east) of the hedgerow. To the west is a broad belt of unmanaged grassland and scrub.

8.18 The UKHab definition for a species-rich hedgerow (UKHab code h2a5), i.e. '*Native hedgerows with 5 or more native or archaeophyte woody species in a 30m section*) is considered a good fit due to the range of woody species present. There are no trees, ditches or banks.

8.19 H3 is entered into the Metric as Species Rich Native Hedgerow.

8.20 Condition is assessed as Good.

Parcel H4 – Side of Track (Near Northern Lake)

8.21 H4 is continuous with H3 (see above) with a similar suite of native species, occasional gaps of >5m, and approximately 1.5m wide but slightly longer established and up to 2m tall. The hedgerow follows the fenceline which runs between the track edge and the Northern Lake. There is some evidence of mechanical damage, possibly resulting from the adjacent track formation.

8.22 The best fit UKHab code is Species Rich Native Hedgerow (h2a5). There are no trees, ditches or banks. H4 is entered into the Metric as 'Species Rich Native Hedgerow'.

8.23 Condition is assessed as Good.

Parcel H5 – Side of Track (Northern Lake)

8.24 H5 is a very recently planted hedgerow in a double staggered row comprising young whips (60 to 90cm) planted within the current or last season. There are many wide gaps along its length and evidence of die-back, most likely drought stress. Species are mixed native including hawthorn, blackthorn, wild privet and hazel

8.25 The best fit UKHab code is Species Rich Native Hedgerow (h2a5). There are no trees, ditches or banks.

8.26 H4 is entered into the Metric as Species Rich Native Hedgerow.

8.27 Condition is assessed as Moderate.

Parcel H6 – Side of Track (Southern Lake)

8.28 H6 is a very recently planted hedgerow in a double staggered row comprising young whips (60 to 90cm) planted within the current or last season. The hedgerow wraps around the Southern Lake, extending around to the southern-most perimeter gate. Species include spindle, dogwood,

hawthorn, guelder rose, field rose and blackthorn, planted rather sporadically (or have died/no longer visible).

8.29 The habitat is entered into the Metric as Species Rich Native Hedgerow.

8.30 Condition is assessed as Moderate.

Parcel H7 – Side of Track (Eastern Side of Track)

8.31 H7 is a very recently planted hedgerow in a double staggered row comprising young whips (60 to 90cm) planted within the current or last season, and with significant losses from drowning/waterlogging, where the hedgerow is planted into a wet swale that follows alongside the access track.

8.32 Some losses through drought stress are also likely. Species are mixed native, including hazel, wild privet, hawthorn, spindle and blackthorn.

8.33 The habitat is entered into the Metric as Species Rich Native Hedgerow.

8.34 In spite, of the substantial lengths that have died back, the hedgerow condition is assessed as Moderate.

9. RIVERS AND DITCHES

Overview

9.1 Watercourses within the site comprise three watercourses with flowing water (MEC, MEC Overflow and River Wandle Overflow) and two ditches (Oily Ditch and Cemetery Ditch), all of man-made origin. The channels are lacking in morphological diversity, typically comprising trapezoidal or vertical-sided banks. Most are concrete lined. Oily Ditch was dry on the day of survey but is understood to carry water under certain conditions. There is limited aquatic or marginal vegetation and no natural 'in-channel' features.

9.2 The INNS Himalayan balsam is present in the River Wandle Overflow, indicated by Secondary Code 524 'Invasive Species'.

9.3 Culverted sections of ditch and watercourse will be measured for inclusion in the Metric and denoted with Secondary Code 851 'Culvert'.

Detailed Descriptions

Parcel R1 – MEC

9.4 Parcel R1 is located in the north of the site, flowing east to west.

9.5 The MEC is an artificial watercourse, constructed to carry treated effluent from the adjacent wastewater treatment works. The banks were largely obscured from view by the presence of dense, bankside vegetation but were assumed to be vertical banks of concrete construction. Channel width is approximately 2m, and water depth assumed to be *c*.0.5m on the day of survey. The banks are *c*.1 to 2m in height.

9.6 Flow on the day of survey was relatively fast and rippled, and slightly turbid.

9.7 There was no marginal or aquatic vegetation. The banksides were densely vegetated with bramble, hedge mustard, common nettle and mugwort.

9.8 The MEC is entered into the Metric as Other Rivers and Streams.

9.9 Condition is assessed as Poor.

Parcel R2 – MEC Overflow

9.10 The MEC Overflow is an artificial channel constructed to take excess flow from the MEC and divert this into the Northern Lake.

9.11 The banks were largely obscured on the day of survey by the presence of dense bankside vegetation (except for the eastern end where the channel emerges from the culvert), but it is assumed that the entire channel has trapezoidal concrete sides and a concrete bed. Water levels were low on the day of survey. The bankside vegetation is predominantly dense bramble scrub with occasional goat willow, crack willow and hawthorn scrub, comprising immature scattered scrub and saplings.

9.12 The MEC Overflow is entered into the Metric as Other Rivers and Streams.

9.13 Condition is assessed as Poor.

Parcel R3 – River Wandle Overflow

9.14 The River Wandle Overflow channel is contained within a wide belt of unmanaged grassland, occasional dense patches of bramble scrub, scattered scrub and young trees including goat

willow, poplar sp., ash, wych elm, occasional pedunculate oak, downy birch, crack willow and white willow (indicated with Secondary Code 32 'Scattered Trees'). Sycamore was noted here (not observed elsewhere within the site) and could potentially become a problem in future if it continues to colonise.

9.15 The channel banks and bed are obscured by the dense bankside vegetation. The watercourse appears to be *c*.5m wide and is assumed to be trapezoidal. It is chocked with common reed and scattered willow scrub, occasional greater reedmace and frequent to locally abundant Himalayan balsam (note – Secondary Code 524 'Invasive Species').

9.16 The River Wandle Overflow is entered into the Metric as Other Rivers and Streams.

9.17 Condition has been assessed over three reaches, with two of the reaches being assessed as Fairly Poor and one as Moderate. The higher value condition has been used for the purposes of this assessment, i.e. Moderate.

Parcel D1 – Oily Ditch

9.18 Oily Ditch forms the northern boundary of the site and is associated with a line of trees.

9.19 It was dry on the day of survey though it is reported by Valencia (pers.comm.) to hold water for at least part of the year. The ditch is approximately 1m wide at the base and trapezoidal in cross-section with steep banks to *c*.2m height at bank top. The ditch supports no aquatic vegetation. Bankside vegetation comprised bramble and tall ruderal species, e.g. greater burdock, great willowherb, spear thistle, common nettle and mugwort. There is abundant fallen deadwood within the channel from the overhanging tree line which includes some large specimens of crack willow.

9.20 In accordance with the definitions for ditches set out in UKHab, i.e. '*Ditches that are part of the structure of a line of trees and within 2m of it should be recorded as part of the line of trees feature*' Oily Ditch is mapped as part of the 'Line of Trees' that it is associated with and reported both under the 'Hedgerow' section of this report (see description for H1) and in this section of the report under 'Rivers and Ditches'. For completeness, it is mapped as both an ecologically valuable line of trees (Secondary Code 34) and a ditch (Secondary Code 50).

9.21 In addition, Oily Ditch is entered into the Metric as a Ditch in its own right (as well as part of a tree line (H1)). The inclusion of Oily Ditch as a water feature in the Metric is considered appropriate in this case due to its important drainage function as part of the overall hydrological functioning of the site, as well as capturing any opportunities for enhancement.

9.22 Habitat condition is assessed as Poor.

Parcel D2 – Cemetery Ditch

9.23 Cemetery Ditch is located in the east of the site beyond the current landfill area.

9.24 This is a concrete vertical-sided, straight channel approximately 2m wide and enclosed by a chain-link mesh. There was no perceptible flow on the day of survey. The water surface was completely covered with 100% duckweed species indicative of eutrophication coupled with slow flowing/still water. The bed was not visible, but water levels were assumed to be at least 0.5m. There was no emergent vegetation.

9.25 The habitat is mapped as r1 (Standing Open Water) with Secondary Code 50 to denote a ditch.

9.26 The habitat is entered into the Metric as a Ditch.

9.27 Habitat condition is assessed as Poor.

10. POST-DEVELOPMENT HABITATS

Introduction

10.1 This section of the report summarises the proposed post-development habitats and enhancements that are described in more detail in the RRMP (PAA 2025) and captured within the habitat creation/habitat enhancement tabs of the BNG Metric.

Proposed Post-Development Habitats

10.2 The post-development habitat condition sheets are included at Appendix 7a-f. The broad mechanisms for habitat creation and enhancement are described in the separate RRMP (PAA 2025) and, for brevity, are not repeated here.

10.3 A summary of the 'fate' of each parcel and target condition is presented at Appendix 8, e.g. 'retained no change' 'retained and enhanced' or 'lost and replaced'.

10.4 The remainder of this section presents a headline summary overview of the post-development habitats by broad habitat type.

Grasslands

10.5 The existing Lowland Meadow parcels (G1 and G3) will be extended further to the east once the remaining landform has been completed, with the new parcels (G1 Ext and G3 Ext) to be created as Lowland Meadow in 'good' condition from the outset. Existing 'core meadow area' G2 and parcels G1 and G3 will be enhanced through appropriate aftercare and management to Lowland Meadow in good condition.

10.6 All areas of Other Neutral Grassland and Modified Grassland will be subject to suitable management to ensure at least no deterioration from current condition (moderate or good) or, in the case of parcel Sc17 which currently has significant willow encroachment, will be enhanced from poor to good condition.

10.7 Modified Grassland parcel G6 will be partially used for the creation of Sacrificial Cropland.

10.8 The remainder of Modified Grassland G6, and the whole of Modified Grassland parcel G5 will be converted to OMHPDL in good condition.

Woodlands

10.9 All existing woodlands will be managed to ensure at least no deterioration from current condition (moderate or good).

10.10 New woodland parcel W5 will be created on completion of remaining landfill area using suitable native species to achieve Other Broadleaved Woodland in moderate condition in the long-term.

Freshwater

10.11 Existing wet grasslands P1 and P2 will be managed to ensure at least no deterioration from current condition (moderate). The P3 Wet Grassland, currently in poor condition will enhanced to moderate through management and eradication of INNS *Crassula helmsii*. The post-development condition sheets have been presented at Appendix 7c to demonstrate why it will not be possible to achieve good condition. This is due to the presence of artificial bunds, weirs and pumps which, although a necessary and desirable element of future water management, are nevertheless an artificial feature which would not be present in a naturally functioning wetland in good condition. This is, however, a professional judgement, and it could be argued that the presence of artificial

bunds, weirs and pumps is an integral part of these wetlands and should not be a barrier to the attainment of good condition.

10.12 Notwithstanding the above, future management of the P1, P2 and P3 wetlands will aim to enhance the ecological value of each wetland, even if this does not necessarily result in an uplift to the BNG condition.

10.13 Existing settlement ponds F1 and F2 will be lost, and F2 will be replaced with a new Storage Basin (F10a) with emergent vegetation (F10b) and wet grassland edges (F10c).

10.14 Additional small storage ponds (F11) will be created near P2 wet grassland with design informed by Method Statements.

10.15 The remaining (eastern) portion of P2 wet grassland will be created on completion of the remaining landfill operations in this area under a Method Statement due to the complexity of the habitat and enclosed within predator fencing that captures both P1 and P2 wet grasslands within one large fenced area. The long-term aim is to achieve moderate condition.

10.16 The Northern and Southern Lakes will be managed to ensure at least no deterioration of current (fairly good) condition. The southern portion of the Southern Lake, i.e. the 'Reedbed Lake', will be enhanced from current status as reedbed in 'poor' condition, along with Island Is9, and existing willow-dominated scrub patch (Sc18a) to reedbed in good condition.

10.17 The islands located in the Northern and Southern Lakes (Is 1 to 8 and Is10) will be managed to reduce vegetation height, and reversion of the habitat to 'bare ground' in good condition as nesting islands and feeding/loafing areas. A new nesting island will also be created in the larger proposed storage lagoon (Parcel F10a) which will be created and managed as 'bare ground' in good condition.

Sparsely Vegetated Land

10.18 Large areas of existing OMHPDL will be lost in the east of the site (Parcel SPV2) and where the remaining portion of the P2 wet grassland will be created (SPV4). To replicate this habitat, it is proposed to convert the Other Neutral Grassland and scrub habitats that were originally to be created in the north-east of the site (under the Stantec RRMP (Stantec 2024a)) with OMHPDL in good condition.

10.19 It is noted that a portion of the proposed OMH adjacent to the existing Energy Recovery Facility (ERF) is currently proposed for scrub creation under the planning conditions associated with the ERF. It will be necessary, therefore, to refine the details of habitat creation at this location to ensure that the appropriate habitat is provided, as agreed with LBS.

10.20 Modified grassland parcels G5 and part of G6 would also be converted to OMHPDL (and part of parcel G6 will also be converted to Sacrificial Cropland).

10.21 Good condition will be achieved by incorporating at least four vegetation components, namely ruderal, species-rich grassland, inundation vegetation and pools, as well as bare substrate, throughout the whole of the newly created OMHPDL habitat. The bare substrate habitat may encourage development of lichen-rich communities which is a further key habitat component of OMHPDL.

10.22 The provision of OMHPDL will not only satisfy the BNG trading rules by replacing existing OMHPDL but also provides a habitat of higher distinctiveness (High Distinctiveness) than the Other Neutral Grassland, Scrub (Medium Distinctiveness) and Modified Grassland (Low Distinctiveness) habitats that it will replace in the original RRMP (Stantec 2024a). Other Neutral Grassland and Scrub habitats will be well represented elsewhere within the site, whereas there would be no OMHPDL (unless created as now proposed). OMHPDL provides a habitat for invertebrate fauna, e.g. burrowing bees and wasps which have been recorded on site, potentially for reptiles and provides a seed source for graminivorous bird species. The inclusion of scattered

scrub will include patches of blackthorn to provide habitat for brown hairstreak butterfly, and other berry-bearing species will provide some cover and over wintering food for birds.

Scrub

10.23 The target for the majority of existing scrub habitats is for at least no deterioration from current condition (either moderate or good for all parcels) although suitable management will be undertaken to maintain and enhance structural diversity, e.g. creation of rides and 'scalloped' edges, even if this does not necessary result in an uplift in BNG condition. For the larger Parcels (Sc10, Sc11 and Sc21), these will be enhanced from moderate to good condition through appropriate habitat diversification, e.g. creation of rides/glades.

10.24 All new scrub planting will target good condition through use of appropriate native species and designing in structural diversity from the outset, with subsequent management encouraging natural regeneration, diverse edges and a range of ages throughout the scrub patches.

Hedges

10.25 The target for existing hedges is to enhance the most recently planted sections through appropriate aftercare and management (H5, H6 and H7) to achieve good condition, and for all other treelines and hedges to ensure no deterioration from current condition (moderate/good).

10.26 Additional hedgerows have still to be planted alongside access routes that will lead to a 'viewing point' on the main landform and these will be planted and managed with the aim of achieving good condition once established. The original RRMP (Stantec 2024a) included 'scattered trees' alongside these tracks but this is no longer proposed, to avoid creation of predator perches.

Ditches and Watercourses

10.27 Existing ditches and watercourses will be managed to ensure at least no deterioration from current condition (poor/moderate). The significant scale of interventions that would be necessary to enhance from poor/moderate to moderate/good would be disproportionately intrusive and costly, e.g. to 'break out' the existing culverted lengths of channel or, in the case of the River Wandle Overflow unfeasible because the key driver for 'poor' condition is the lack of flowing water for most of the time.

10.28 New ditches D3 and D4 will be created to convey surface water to the P3 and P2 wet grassland areas, respectively and are likely to achieve no more than moderate condition due to intermittent flow.

11. RESULTS OF BNG ASSESSMENT

11.1 This section of the report summarises the results of the BNG Metric.

11.2 A copy of the Metric tool is presented separately as Appendix 6 and the overall results are illustrated at Table 2. This demonstrates a net gain of +30.79% for habitat units, 117.42% for hedgerow units and 30.57% for watercourse units. The Metric 'trading rules' are met for all habitats.

11.3 In brief, the assessment, as presented in Table 2, has incorporated assumptions about post-development habitat condition, supported by the proposed aftercare and management set out in the RRMP.

11.4 The Strategic Significance has been selected as 'Formally Identified in Local Strategy' to reflect the Site of Importance for Nature Conservation (SINC) designation afforded policy protection by Policy 26 of the London Borough of Sutton Local Plan (LBS 2018) and the Metropolitan Green Chain and Wandle Valley Regional Park policies as set out in the Local Plan Policy 25.

11.5 Pre-and post-development area have been accurately digitised in ArcGIS.

11.6 The key changes from the previous Stantec BNG Assessment (Stantec 2024b) relate primarily to how baseline and post development habitats have been mapped and assessed with the key differences summarised below:

- There is a significantly higher baseline score which is based on the updated baseline habitat survey and condition assessment conducted in late summer/autumn 2024, as presented in the baseline section of this report and as evidenced in the Baseline Habitat Condition sheets (Appendix 4a-g);
- The higher baseline score has resulted primarily from the more detailed mapping and re-allocation of habitat types, which are considered to 'best fit' the UKHab definitions. For example, the P1 and P3 wetlands were previously assessed as low distinctiveness 'Modified Grassland' but have been reallocated as high distinctiveness 'Temporary Lakes, Ponds and Pools' and 'Floodplain Wetland Mosaic' when considered carefully against the criteria for the relevant UKHab type;
- The core meadow area previously assessed as 'Other Neutral Grassland' is now assessed as 'Lowland Meadow' due to update survey information which has allowed for a larger number of key indicator species to be recorded, as well as applying a more precautionary approach to the number of species per square metre (to reflect the late timing of the survey which is likely to have resulted in some under-recording of species-richness);
- The lakes in Stantec (2024b) were assessed as 'Ponds' but are now assessed using the Lake Naturalness Assessment criteria;
- Another example is the area of land where the proposed P2 wetland will be created. In Stantec (2024b) this was assessed as 'Developed Land; sealed surface' but is now re-allocated to 'Open Mosaic Habitat of Previously Developed Land' which is a high distinctiveness habitat type that more accurately captures the mosaic of bare ground, shallow pools and sparsely vegetated habitats that are present in this area;
- In some cases, the habitat type has remained the same as per the previous Stantec report (Stantec 2024b), e.g. Mixed Scrub but habitat condition has been assessed in more detail. This has resulted in, for example, Mixed Scrub parcels previously assessed as being in 'poor condition' now being assessed as 'moderate' or 'good' condition through a more detailed and accurate consideration of the habitat against each of the condition criteria;
- There is a higher baseline hedgerow score than in the previous Stantec (2024b) version This is because a much greater and more accurate extent of baseline hedgerow has been

recorded and entered into the metric (a total of 2.75km) compared with a baseline of only 0.313km recorded in Stantec (2024b);

- There are some higher post development scores and associated percentage change for habitat units than for the previous Stantec version (Stantec 2024b). This is because, in the same way as for the baseline habitats, the proposed habitat types are more accurately mapped and described to reflect a 'best fit' with the relevant UKHab type and the post-development condition is also accurately assessed and evidenced, for each individual parcel;
- A key difference between Stantec (2024b) and the current assessment are large portions of the northern and eastern part of the mound now assessed as enhanced from 'Other Neutral Grassland' in poor condition to 'Lowland Meadow' in good condition, as this is considered achievable and a better fit with the aim for a high distinctiveness species-rich lowland meadow habitat;
- Another example is that Stantec (2024b) records all post-development reedbed condition as 'moderate' whereas the aim is for reedbed in 'good' condition which is considered achievable with appropriate interventions and management. The post development condition assumptions are set out in the accompanying Post-Development Habitat Condition sheets (Appendix 7a-f) to evidence the stated condition;
- The inclusion of watercourse units in the baseline metric (this appears to have been omitted in the Stantec (2024b) version of the BNG metric which records a 'zero' for watercourse baseline units, and no proposed watercourse enhancement or creation). Watercourse (ditch) creation is also now proposed, resulting in a BNG uplift of 30.57% for watercourse units, compared with 0% uplift in the previous Stantec (2024b) version; and
- The inclusion of OMHPDL at the baseline and post-development stage (this habitat was not included in the previous Stantec 2024b version). The OMHPDL has been included in the baseline to reflect the large areas of this high distinctiveness habitat type that are currently present on site and will, therefore, need to be replaced in the post-development layout to ensure that there is no net loss of this ecologically important habitat. The proposed Open Mosaic Habitat is a habitat of 'high distinctiveness' which will replace areas previously proposed by Stantec (2024b) as 'medium distinctiveness' grassland and scrub, hence contributing to a higher post-development BNG score than for the Stantec (2024b) assessment.

Table 2 Summary of BNG Metric Results

FINAL RESULTS		
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	237.66
	Hedgerow units	29.68
	Watercourse units	2.51
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	30.79%
	Hedgerow units	117.42%
	Watercourse units	30.57%
Trading rules satisfied?	Yes ✓	

12. REFERENCES

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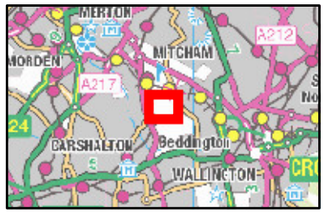
13. ABBREVIATIONS

BNG	Biodiversity Net Gain
ERF	Energy Recovery Facility
INNS	Invasive Non-native Species
LBS	London Borough of Sutton
MEC	Main Effluent Carrier
MMU	Minimum Mappable Unit(s)
MoRPh	Modular River Survey
OMHPDL	Open Mosaic Habitat on Previously Developed Land
PAA	Penny Anderson Associates Ltd
RRMP	Revised Restoration Management Plan
SINC	Site(s) of Importance for Nature Conservation

FIGURES



Legend

- Red Line Boundary

Habitat Categories

- Landfill Operational Areas
- D - Ditches
- F - Wetland
- G - Grassland
- Is - Islands
- R - Watercourse
- SPV - Sparsely vegetated land
- Sc - Scrub
- W - Woodland
- Hedgerow
- Watercourse - culvert
- Stock fence
- Predator fencing
- Gate

Secondary Codes

- 10 - Scattered scrub
- 16 - Tall forbs
- 18 - Species-rich grassland
- 27 - Orchard
- 55 - Floodplain wetland mosaic
- 61 - Re-created habitat
- 81 - Ruderal or ephemeral
- 524 - Invasive non-native species
- 831 - Landfill
- 851 - Culvert

British National Grid
Projection: Transverse Mercator
False Easting: 400000.000000
False Northing: -100000.000000
Central Meridian: -2.000000
Scale Factor: 0.999601
Latitude Of Origin: 49.000000

N

ISO A3

0 25 50 75 100 Metres

Penny Anderson Associates Ltd
Consultant Ecologists
Penny Anderson Associates Ltd,
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Buxton, Derbyshire, SK17 6SN.
Telephone 01298 27086

Project Name: Beddington Landfill

Discipline: Ecology

Title:

Habitat Parcels NORTH

Scale	1:3,000	Drawing No.	Figure 1a
Drawn By	CC	Originator SRG	Date 08/01/2025
Grid Ref.	529,053 166,553	Revision	1.0

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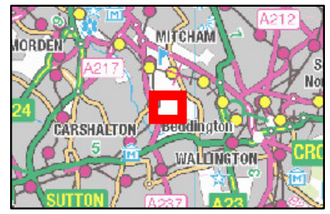

Legend

- Red Line Boundary

Habitat Categories

- Landfill Operational Areas
- D - Ditches
- F - Wetland
- G - Grassland
- Is - Islands
- R - Watercourse
- SPV - Sparsely vegetated land
- Sc - Scrub
- W - Woodland
- Hedgerow
- Watercourse - culvert
- Stock fence
- Predator fencing
- Gate

Secondary Codes

10 - Scattered scrub
16 - Tall forbs
18 - Species-rich grassland
27 - Orchard
32 - Scattered trees
55 - Floodplain wetland mosaic
81 - Ruderal or ephemeral
127 - Sward type mosaic
503 - Wet
524 - Invasive non-native species
831 - Landfill

British National Grid
Projection: Transverse Mercator
False Easting: 400000.000000
False Northing: -100000.000000
Central Meridian: -2.000000
Scale Factor: 0.999601
Latitude Of Origin: 49.000000

N

ISO A3

0 25 50 75 100 Metres

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Title:

Habitat Parcels SOUTH

Scale	1:3,000	Drawing No.	Figure 1b
Drawn By	CC	Originator	SRG	Date	16/01/2025
Grid Ref.	529,073 166,031	Revision	1.0

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British National Grid
Projection: Transverse Mercator
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Central Meridian: -2.000000
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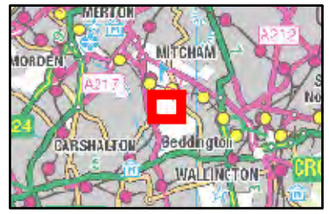

Legend

Red Line Boundary

UKHab Habitats

- f2d Aquatic Marginal Vegetation
- g3 Neutral Grassland
- g3a Lowland Meadows
- g3c Other Neutral Grassland
- g3c5 Arrenatherum Neutral Grassland
- g4 Modified Grassland
- h3a6 Other Blackthorn Scrub
- h3d Bramble Scrub
- h3f Hawthorn Scrub
- h3h Mixed Scrub
- h3j Willow Scrub
- r1 Standing Open Water
- r1a Eutrophic Standing Waters
- r1f6 Other Temporary Ponds and Scrapes
- r1g Other Standing Water
- r2b Other Rivers and Streams
- s Sparsely Vegetated Land
- u1b Developed land; sealed surface
- u1c Artificial land; unsealed surface
- u1f Sparsely vegetated urban land
- w1 Broadleaved and mixed woodland
- w1d Wet Woodland
- w1g Other Broadleaved Woodland
- h2a5, Species rich native hedgerow
- r2b, Other rivers and streams - culvert
- w1, Ecologically valuable line of trees
- Fence

Secondary Codes
10 - Scattered scrub
16 - Tall forbs
18 - Species-rich grassland
27 - Orchard
55 - Floodplain wetland mosaic
61 - Re-created habitat
81 - Ruderal or ephemeral
524 - Invasive non-native species
831 - Landfill
851 - Culvert

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Project Name	Beddington Landfill
Discipline	Ecology
Title	**UKHab Habitats NORTH**
Scale	1:3,000
Drawing No.	Figure 2a
Drawn By	CC
Originator	SRG
Date	08/01/2025
Grid Ref.	529,053 166,553
Revision	1.0

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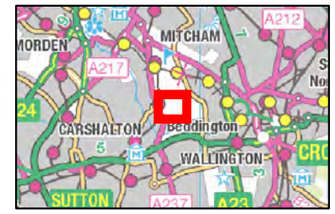

Secondary Codes
10 - Scattered scrub
16 - Tall forbs
18 - Species-rich grassland
27 - Orchard
32 - Scattered trees
55 - Floodplain wetland mosaic
81 - Ruderal or ephemeral
127 - Sward type mosaic
503 - Wet
524 - Invasive non-native species
831 - Landfill

Legend

- Red Line Boundary

UKHab Habitats

- f2a Lowland Fens
- f2d Aquatic Marginal Vegetation
- f2e Reedbeds
- g3 Neutral Grassland
- g3a Lowland Meadows
- g3c Other Neutral Grassland
- g3c5 Arrenatherum Neutral Grassland
- g4 Modified Grassland
- h3a6 Other Blackthorn Scrub
- h3d Bramble Scrub
- h3f Hawthorn Scrub
- h3h Mixed Scrub
- h3j Willow Scrub
- r1 Standing Open Water
- r1a Eutrophic Standing Waters
- r1f6 Other Temporary Ponds and Scrapes
- r1g Other Standing Water
- r2b Other Rivers and Streams
- s Sparsely Vegetated Land
- u1c Artificial land; unsealed surface
- u1f Sparsely vegetated urban land
- w1 Broadleaved and mixed woodland
- w1d Wet Woodland
- w1g Other Broadleaved Woodland
- h2a5, Species rich native hedgerow
- r2b, Other rivers and streams - culvert
- w1, Ecologically valuable line of trees
- Fence

British National Grid
Projection: Transverse Mercator
False Easting: 400000.000000
False Northing: -100000.000000
Central Meridian: -2.000000
Scale Factor: 0.999601
Latitude Of Origin: 49.000000

N

ISO A3

0 25 50 75 100 Metres

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Project Name: Beddington Landfill

Discipline: Ecology

Title:

UKHab Habitats SOUTH

Scale	Drawing No.
1:3,000	Figure 2b

Drawn By	Originator	Date
CC	SRG	16/01/2025

Grid Ref.	Revision
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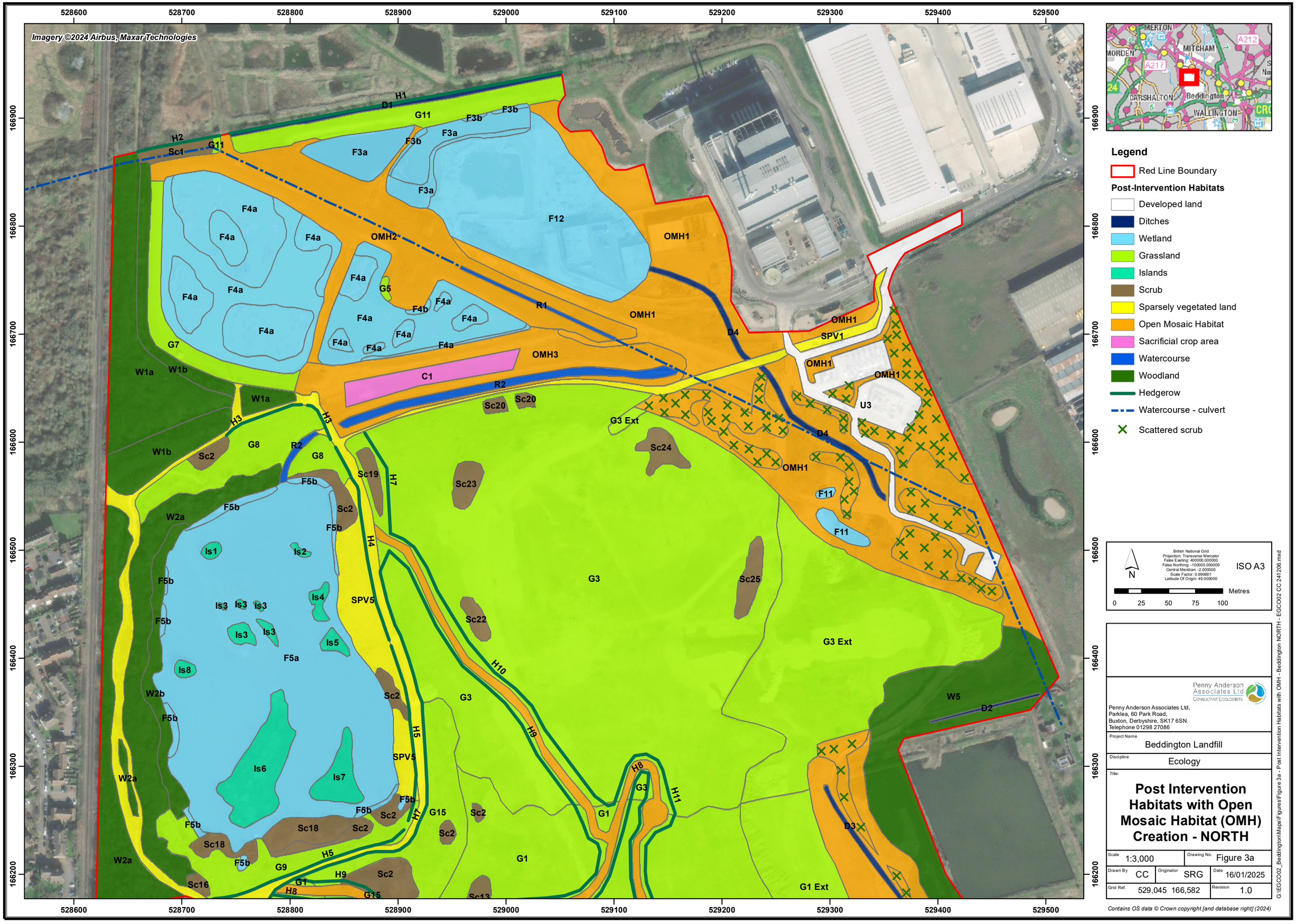
Imagery ©2024 Airbus, Maxar Technologies
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166700
166600
166500
166400
166300
166200
H1
D1
G11
F3b
F3a
H2
Sc1
F4a
F12
OMH2
OMH1
R1
D4
SPV1
U3
G5
F4b
OMH3
C1
R2
Sc20
G3 Ext
Sc24
G7
W1a
W1b
H3
G8
Sc2
Sc19
H7
Sc23
F5b
W2a
H4
F11
Is1
Is2
Is3
Is4
SPV5
Is5
F5a
Is8
G3
Sc25
Sc22
H10
H9
W2b
H5
Is6
Is7
H8
H11
G1
G15
D3
G9
Sc16
G1 Ext
W5
D2
MERTON
MORDEN
MITCHAM
A212
A217
CARSHALTON
Beddington
WALLINGTON
Legend
Red Line Boundary
Post-Intervention Habitats
Developed land
Ditches
Wetland
Grassland
Islands
Scrub
Sparsely vegetated land
Open Mosaic Habitat
Sacrificial crop area
Watercourse
Woodland
Hedgerow
Watercourse - culvert
Scattered scrub
N
British National Grid
Projection: Transverse Mercator
False Easting: 400000.000000
False Northing: -100000.000000
Central Meridian: -2.000000
Scale Factor: 0.999601
Latitude Of Origin: 49.000000
ISO A3
Metres
0
25
50
75
100
Penny Anderson Associates Ltd
Consultant Ecologists
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Project Name
Beddington Landfill
Discipline
Ecology
Title:
Post Intervention Habitats with Open Mosaic Habitat (OMH) Creation - NORTH
Scale
1:3,000
Drawing No.
Figure 3a
Drawn By
CC
Originator
SRG
Date
16/01/2025
Grid Ref.
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Revision
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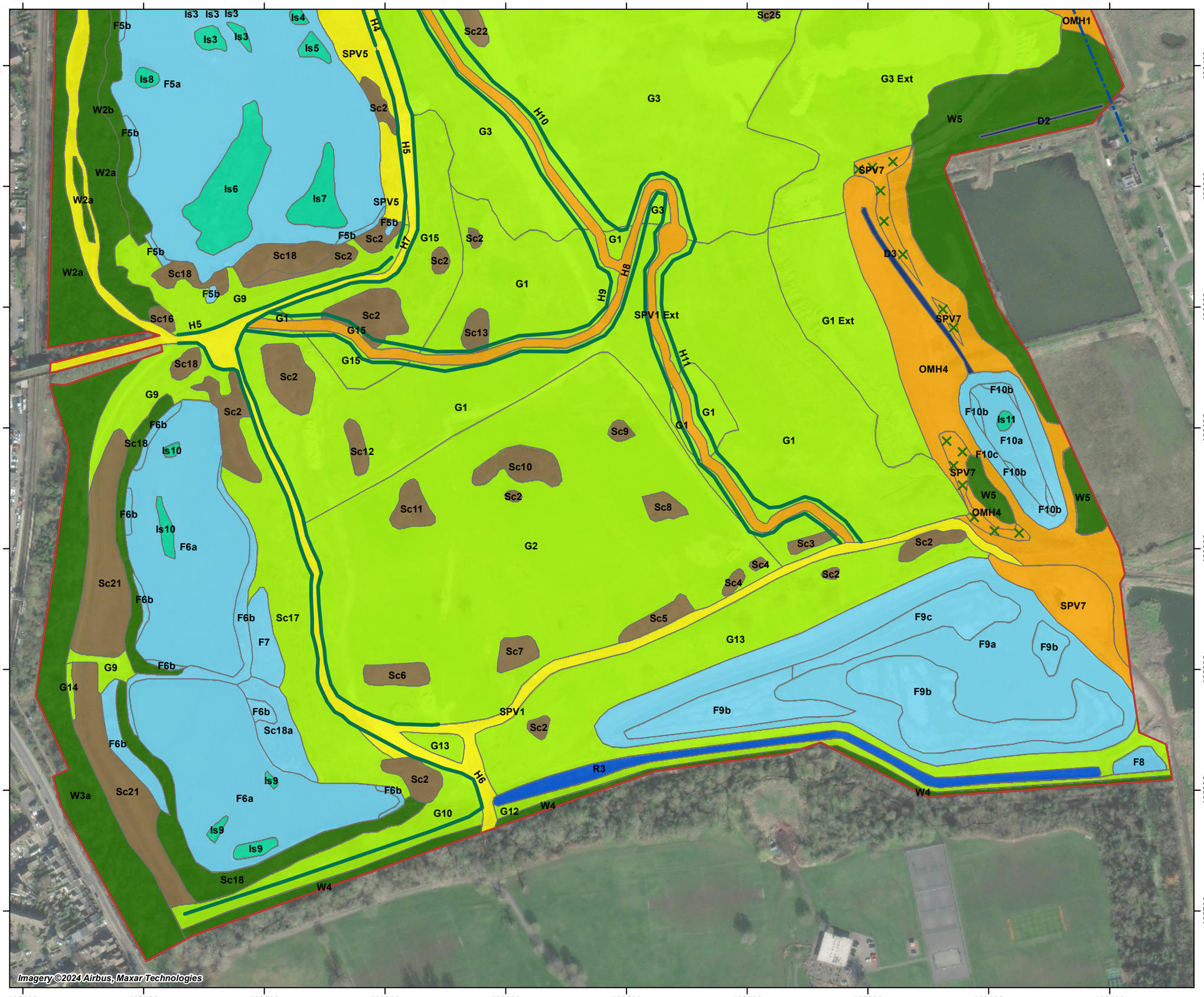

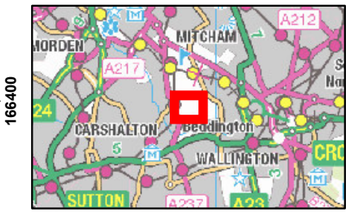

Legend

- Red Line Boundary

Post-Intervention Habitats

- Developed land
- Ditches
- Wetland
- Grassland
- Islands
- Scrub
- Sparsely vegetated land
- Open Mosaic Habitat
- Sacrificial crop area
- Watercourse
- Woodland
- Hedgerow
- Watercourse - culvert
- Scattered scrub

British National Grid
Projection: Transverse Mercator
False Easting: 400000.000000
False Northing: -100000.000000
Central Meridian: -2.000000
Scale Factor: 0.999601
Latitude Of Origin: 49.000000

ISO A3

N

0 25 50 75 100 Metres

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Discipline: Ecology

Title:

Post Intervention Habitats with Open Mosaic Habitat (OMH) Creation - SOUTH

Scale	1:3,000	Drawing No.	Figure 3b
Drawn By	CC	Originator	SRG
Date	16/01/2025		
Grid Ref.	529,079 166,042	Revision	1.0

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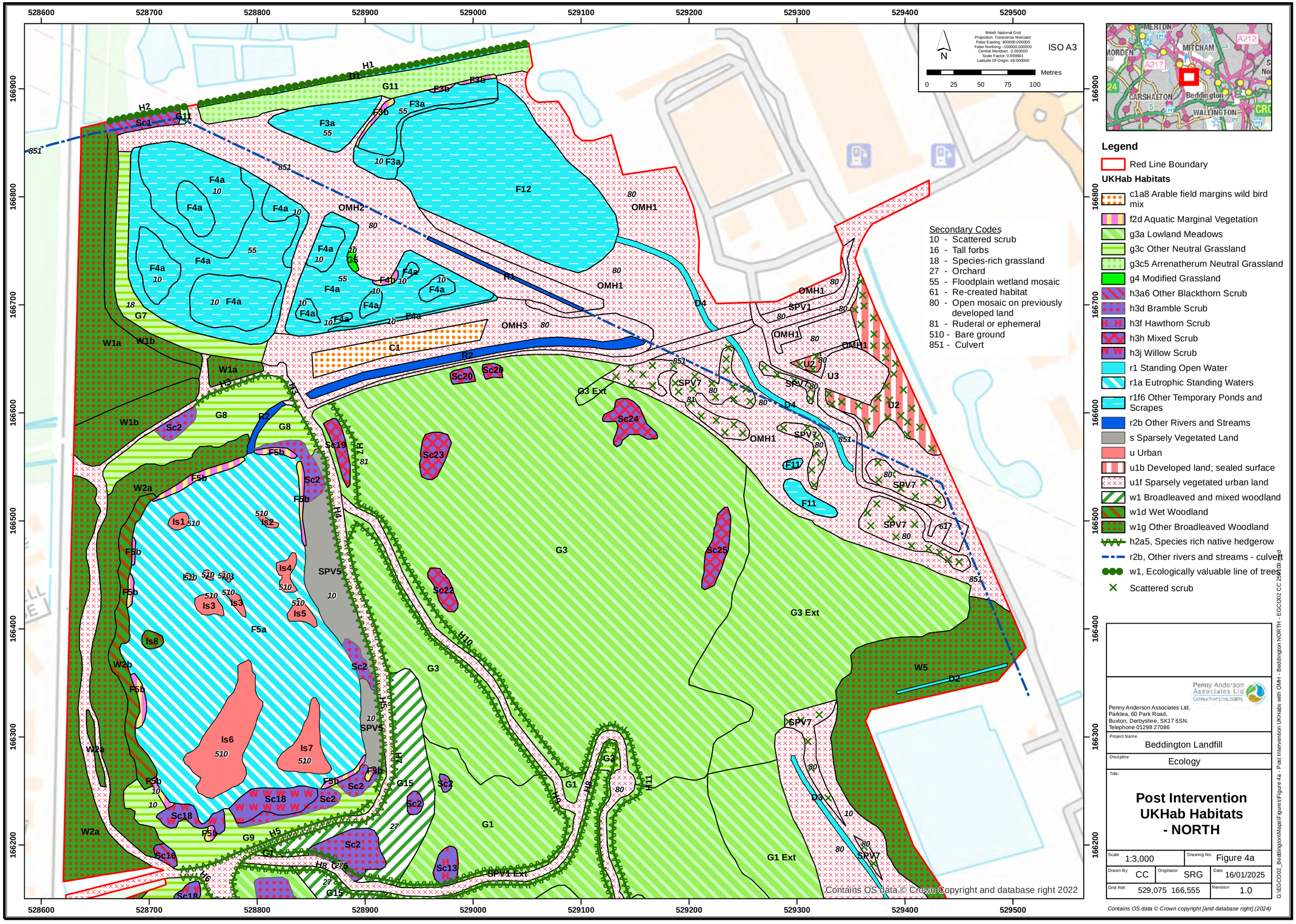

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Telephone 01298 27086

Project Name: Beddington Landfill

Discipline: Ecology

Title:

Post Intervention UKHab Habitats - NORTH

Scale	1:3,000	Drawing No.	Figure 4a
Drawn By	CC	Originator	SRG
Date	16/01/2025		
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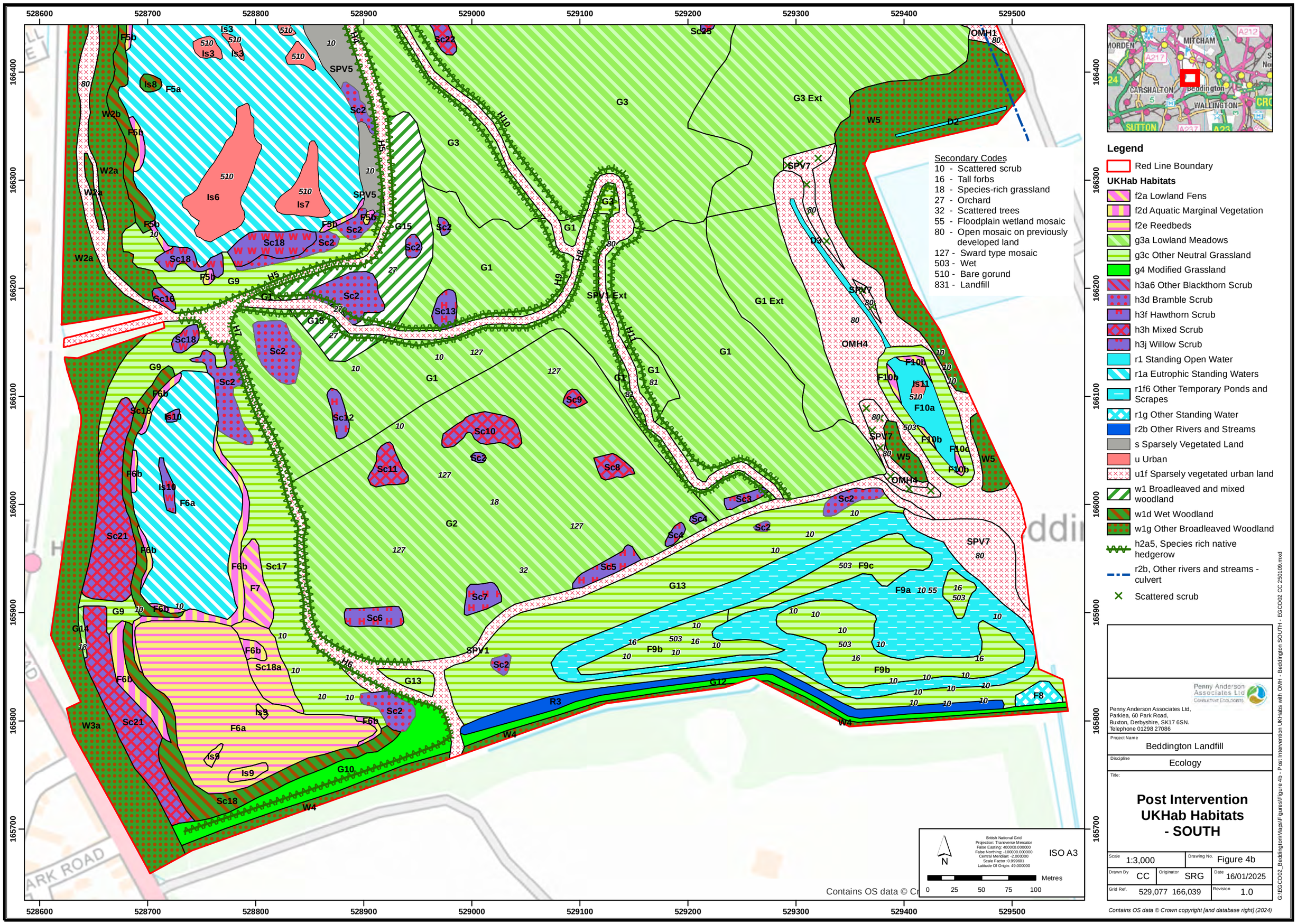

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Project Name: Beddington Landfill

Discipline: Ecology

Title:

Post Intervention UKHab Habitats - SOUTH

Scale	Drawing No.
1:3,000	Figure 4b

Drawn By	Originator	Date
CC	SRG	16/01/2025

Grid Ref.	Revision
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APPENDICES

APPENDIX 1

Botanical Species Lists
(provided separately)

APPENDIX 2

Photographs

G1 Rosewell Mound

G2 Core Meadow Area

G3 Northern Face of Mound

G4 Grassy Verges – East of Site

G5 Under Pylons

G6 Between Phase 1 and MEC Overflow

G7 Banks of Phase 1 Wetland

G8 Education Area

G9 Brown Hairstreak Area

G10 Southern Lake Grasslands

G11 Adj Northern Boundary

G12 Adj Southern Boundary

G13 Embankment P3 Wetland

G14 Lowland Meadow Western Boundary

W1a Northern Woodland – West of Path

W1a-W1b Northern Woodland Block

W1b Northern Woodland – East of Path

W2a Central Woodland

W2b Wet Woodland

W3 Southern Woodland

F1 Northern Settlement Pond

F2 Southern Settlement Pond and SPV6 Ruderal

F3 Phase 2 Wetland - East

F3 Phase 2 Wetland - West

F4 Phase 1 Wetland - Overview

F5 Northern Lake - Overview

F6 Southern Lake - Overview

F7 Fen Adj Southern Lake

F8 Kingfisher Pond

F9 Phase 3 Wetland - Overview

SPV1 Typical Sparsely Vegetated Track

SPV2 Typical Ruderal Adj Landfill Area

SPV3 East of F2

SPV4 East of P2 Wetland

SPV5 Banks of Northern Lake

SPV6 Ruderal Banks of F2 Pond

Sc1 Blackthorn Scrub

Sc3 Hawthorn Scrub

Sc4 Hawthorn Scrub

Sc5 Hawthorn Scrub

Sc6 Hawthorn Scrub

Sc7 Hawthorn Scrub

Sc8 Mixed Scrub

Sc9 Mixed Scrub

Sc10 Mixed Scrub

Sc11 Mixed Scrub

Sc12 Hawthorn Scrub

Sc13 Hawthorn Scrub

Sc15 Mixed Scrub

Sc15a Inaccessible Scrub and Ruderal

Sc16 Blackthorn Scrub

Sc17 Mixed Scrub Southern Lake

Sc18 Willow Scrub

Sc19 Mixed Scrub

Sc20 Mixed Scrub

Sc21 Mixed Scrub and Wetland Mosaic

H1 Eco Val Line of Trees

H2 EVLoT and Sc1 Blackthorn Scrub

H3 Species-rich Native Hedge

H4 Species-rich Native Hedge

H5 Newly Planted Hedge

H6 Species-rich – recently planted

H7 Species-rich – recently planted

D1 Oily Ditch

D2 Coronation Ditch

MEC Overflow Channel

R1 MEC

R3 River Wandle Overflow

APPENDIX 3

Lake Condition Assessment Sheets
(provided separately)

APPENDIX 4a-g

Baseline Habitat Condition Sheets
(provided separately)

APPENDIX 5

River MoRPh Survey Results

	Beddington RCA Baseline 2024 - MoRPh Data						
	Subreach Name	River Wandle Overflow 1	River Wandle Overflow 2	River Wandle Overflow 3	MEC Overflow Upstream	MEC Overflow Downstream	MEC
	National Grid Reference	TQ 29458 65818	TQ 29320 65833	TQ 29196 65852	TQ 29060 66668	TQ 28880 66632	TQ 29014 66745
	Preliminary Condition Score	0.481781	0.534413	0.331984	-1.732794	-1.421053	-1.655870
	River Type	H	H	H	F	F	H
	Final Condition Score	Fairly Poor	Moderate	Fairly Poor	Poor	Poor	Poor
	Shape	1	1	1	0.4347826	0.4347826	1.1904762
	Average Width	2	2	2	1	1	2.5
	Positive Index Average	0.7894737	0.84210527	0.94736844	0.42105263	0.57894737	0.42105263
	Negative Index Average	-0.30769232	-0.30769232	-0.61538464	-2.1538463	-2	-2.0769231
	A6: Bedrock Reaches	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE
	A7: Coarsest Bed Material Size Class	GP	GP	GP	GP	GP	SA
	A8: Average Alluvial Bed Material Size Class	SA	SA	SA	GP	GP	SA
Positive Indicators	B1: Bank Top Vegetation Structure	2	1	1	1	1	1
	B2: Bank Top Tree Feature Richness	0	0	0	0	0	0
	B3: Bank Top Water Related Features	0	4	4	0	0	0
	C1: Bank Face Riparian Vegetation Structure	2	2	2	1	1	1
	C2: Bank Face Tree Feature Richness	0	0	0	0	0	0
	C3: Bank Face Natural Bank Profile Extent	0	0	0	0	0	0
	C4: Bank Face Natural Bank Profile Richness	0	0	0	0	0	0
	C5: Bank Face Natural Bank Material Richness	1	1	1	1	2	0
	C6: Bank Face Bare Sediment Extent	1	0	0	1	1	1
	D1: Channel Margin Aquatic Vegetation Extent	3	3	4	0	1	3
	D2: Channel Margin Aquatic Morphotype Richness	2	1	2	0	0	1
	D3: Channel Margin Physical Feature Extent	0	0	0	0	0	0
	D4: Channel Margin Physical Feature Richness	0	0	0	0	0	0
	E1: Channel Aquatic Morphotype Richness	2	2	2	1	2	0
	E2: Channel Bed Tree Features Richness	0	0	0	1	1	0
	E3: Channel Bed Hydraulic Features Richness	0	0	0	1	1	0
	E4: Channel Bed Natural Features Extent	0	0	0	0	0	0
	E5: Channel Bed Natural Features Richness	0	0	0	0	0	0
	E6: Channel Bed Material Richness	2	2	2	1	1	1
Negative Indicators	B4: Bank Top NNIPS Cover	0	0	0	0	0	0
	B5: Bank Top Managed Ground Cover	0	0	0	-4	-4	0
	C7: Bank Face Artificial Bank Profile Extent	0	0	0	-4	-4	-4
	C8: Bank Face Reinforcement Extent	0	0	0	-4	-4	-4
	C9: Bank Face Reinforcement Material Severity	0	0	0	-4	-2	-4
	C10: Bank Face NNIPS Cover	-3	-3	-4	0	0	0
	D5: Channel Margin Artifical Features	0	0	0	0	0	-4
	E7: Channel Bed Siltation	0	0	0	0	0	0
	E8: Channel Bed Reinforcement Extent	0	0	0	-4	-4	-4
	E9: Channel Bed Reinforcement Severity	0	0	0	-4	-4	-4
	E10: Channel Bed Artificial Features Severity	0	0	0	0	0	0
	E11: Channel Bed NNIPS Extent	-1	-1	-4	0	0	0
	E12: Channel Bed Filamentous Algae Extent	0	0	0	-4	-4	-3

APPENDIX 6

Statutory Metric
(provided separately)

APPENDIX 7a-f

Post-Development Habitat Condition Sheets (provided separately)

APPENDIX 8

Summary Overview of Habitats
(provided separately)

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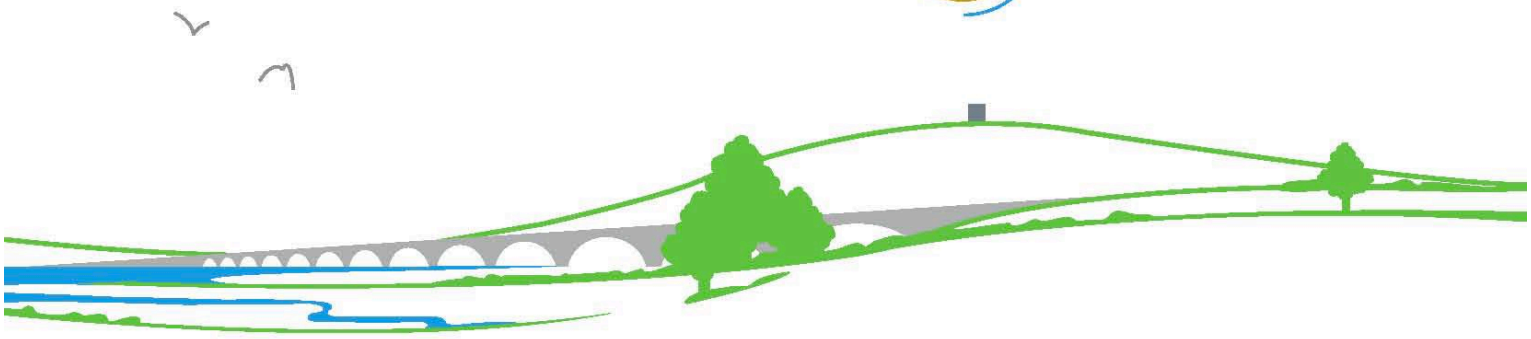

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