

Technical Note

Project: Overarching Great Crested Newt Mitigation, Coed Darcy

Subject: Phase 0 GCN Ponds: Summary of Ground Conditions

Client:	Revantage		
Project No:	04020	Version:	1
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I Introduction

This technical note has been prepared to support a planning application for the construction of Great Crested Newt (GCN) ponds in one area of the Coed Darcy development site.

This technical note seeks to demonstrate that ground conditions have been appropriately considered and can be effectively managed through standard good practice and site-specific mitigation measures, and:

- summarises available information relating to the anticipated ground conditions at the proposed pond locations
- considers implications of construction of the ponds
- identifies potential ground-related constraints
- sets out appropriate mitigation measures to manage potential risks during the works.

2 Background

SKE has developed an overarching GCN mitigation strategy for Coed Darcy which links four phases of habitat creation to three planning applications: the Crymlyn Tip Restoration Proposals (determination pending), the Outline Redevelopment Planning Permission (determination pending), and the North Site Reservoir Discontinuance (granted). Further details on the Overarching Great Crested Newt Mitigation Strategy are presented in SKE Report JN00657/D01 dated May 2024.

This technical note supports delivery of the initial phase of habitat creation referred to as 'Phase 0'. This phase is independent of the planning applications referenced above and involves the early creation of ponds and refugia to facilitate future translocation works. This phase is in the south-west of the Coed Darcy development site and has been subject to a walkover to verify the proposed pond locations.

The location of the Phase 0 ponds within the wider development boundary is shown on PJA Drawing 04020-A-SK298-P1 included in Appendix A.

3 Existing Ground Conditions Information

The Coed Darcy development site is located at the former Llandarcy Oil Refinery. The site has undergone two periods of investigation since closure of the refinery in 1997. The first period of investigation was carried out by URS between 1998 and 2004. The second period of investigation was carried out by Atkins between 2013 and 2015.

The proposed Phase 0 GCN receptor ponds are located on the southwestern periphery of the site, and as such are outside the main processing and bulk storage areas of the former oil refinery. Nevertheless, these areas were investigated and reported in the following technical notes and reports:

- URS Report: Final Factual Report for Ground Investigation- Reference: FR1287. August 2005.
- Atkins Technical Note 1388- Coed Darcy Open Space Zone G (Southern Margin Woodland) Reference: 5041216-REM-TN-1389. October 2015.
- Atkins Report: Coed Darcy Validation Report Monitor Phase 67 – Reference: 5041216-OSW-0001370. Rev 1. October 2015
- Atkins Report: Rap Feature 9 and Demonstration Village Remediation Verification Report Reference: 5041216/DV/RPT/293. December 2010

It should be noted that the extent of the proposed Phase 0 ponds form a very small part of the technical notes and reports referenced above.

These reports summarise local geology and hydrogeology, evidence of contamination identified during ground investigations, and provide details of any remedial works and subsequent validation that was carried out. The scope of any remediation was dependent on the proposed end use of each area of the site. The Phase 0 ponds coincide with proposed areas validated for both residential and public open space end use.

A public open space end use requires all known visible hydrocarbons and overwhelming odours to be remediated, and a limited number of remedial target criteria to be achieved for certain substances. A residential end use requires much more stringent remedial target criteria to be achieved for a wider suite of substances and minimal visual and olfactory evidence of contamination is permitted.

4 Anticipated Ground Conditions

4.1 Phase 0 Ponds

Trial pits completed within the Phase 0 area in previous phases of ground investigation have been reviewed. Ground conditions across the area were found to predominantly comprise natural soils of sandy gravelly silts, clayey, gravelly sand and sandy silty gravels underlain by sandstone bedrock. Isolated areas of Made Ground were encountered comprising reworked silts and gravels with minor anthropogenic inclusions.

Perched groundwater was encountered during the historical investigations from 0.2 metres below ground level in both the Made Ground and superficial deposits. Inflows were recorded as 'seepages' to 'rapid ingress'.

Free phase hydrocarbon contamination is not expected to impact the works due to the historical remedial works that have been carried out. There may be instances where soils exhibit hydrocarbon staining or hydrocarbon odours, neither of which are considered to prohibitive to the GCN ponds.

5 Potential Ground Conditions Constraints

5.1 Pond Construction

The following potential ground conditions constraints associated with the required end use of the ponds have been identified.

- Contaminated soils encountered within pond excavation, which could reduce pond water quality;
- Contaminated groundwater encountered within pond excavation, which could reduce pond water quality;
- Formation of ochreous precipitate due to interception of iron-rich groundwater from the sandstone bedrock, which could reduce pond water quality;
- High permeability of the soils and/or bedrock, preventing the pond from retaining water.

5.2 Exposure of Ground Workers to Residual Contamination

There is the potential for ground workers involved in pond construction to be exposed to residual contamination via:

- Dermal contact with contaminants in soil, soil-derived dust and in perched water or groundwater during excavation;
- Ingestion of contaminants in soil, soil-derived dust, and in perched water or groundwater during excavation;
- Inhalation of contaminants in vapours and/or soil-derived dust during excavation.

It is reasonably assumed that in accordance with the COSHH Regulations 2002, personnel involved in the works will be provided with appropriate PPE to mitigate potential exposure to residual contamination.

6 Conclusions and Recommendations

6.1 Site Suitability

The proposed Phase 0 ponds are located on the southwestern periphery of the former oil refinery, away from the main processing and bulk storage areas. The ponds are located in areas which have undergone intrusive investigation and validation for both a residential and public open space end use.

On this basis, ground conditions are not anticipated to be prohibitive to the formation of the proposed GCN Phase 0 ponds in their intended locations.

6.2 Watching Brief

As with any brownfield site, there is the potential for ground conditions to vary between exploratory hole locations. For this reason, excavation of each pond will be subject to a watching brief by a suitably experienced geo-environmental engineer who will monitor excavation arisings for evidence of contamination. In the event that gross contamination is encountered, the relevant pond location may need to be adjusted.

6.3 Management of Contaminated Materials

Any contaminated arisings from the pond excavations should undergo the relevant chemical analysis and disposed of at a suitably licensed facility in accordance with relevant legislation.

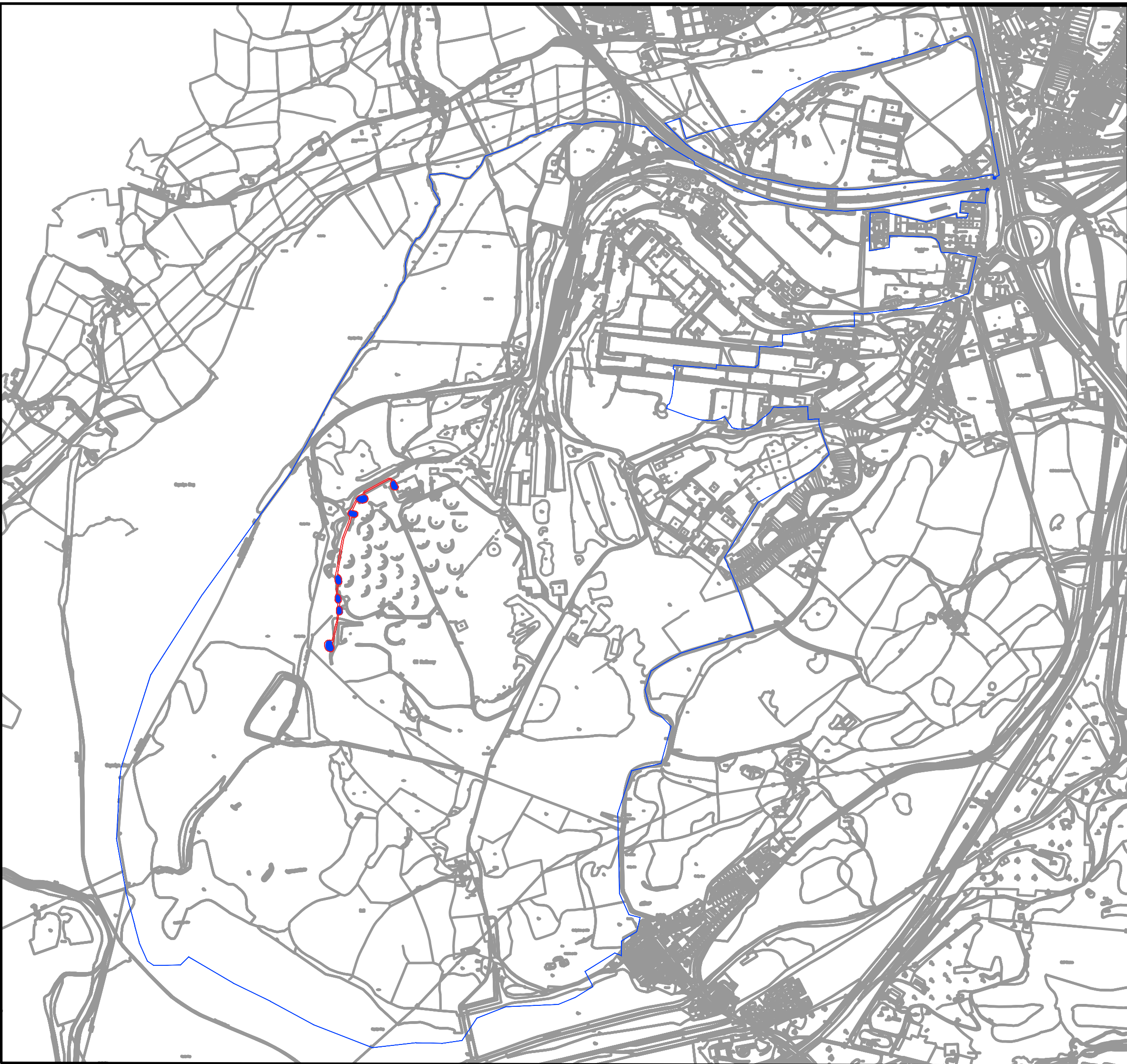
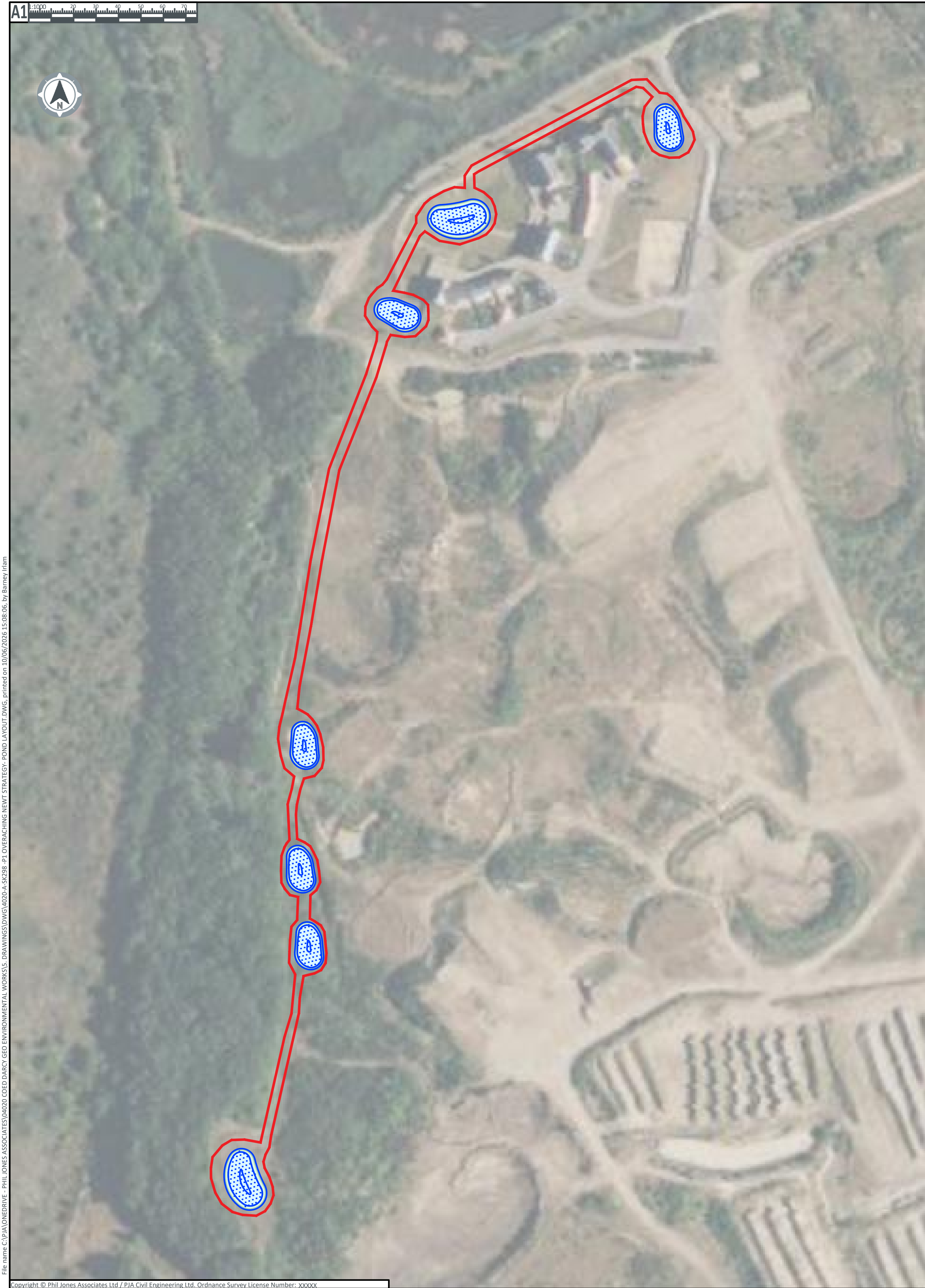
6.4 Mitigation of Risks to Human Health

Ground workers should be made aware of the potential to encounter contaminated soils in the pond excavations, and risk assessments and method statements should address possible contaminants such as hydrocarbons, metals, and asbestos. Suitable PPE should be provided to ground workers in accordance with the COSHH Regulations 2002, and good hygiene practices will be required.

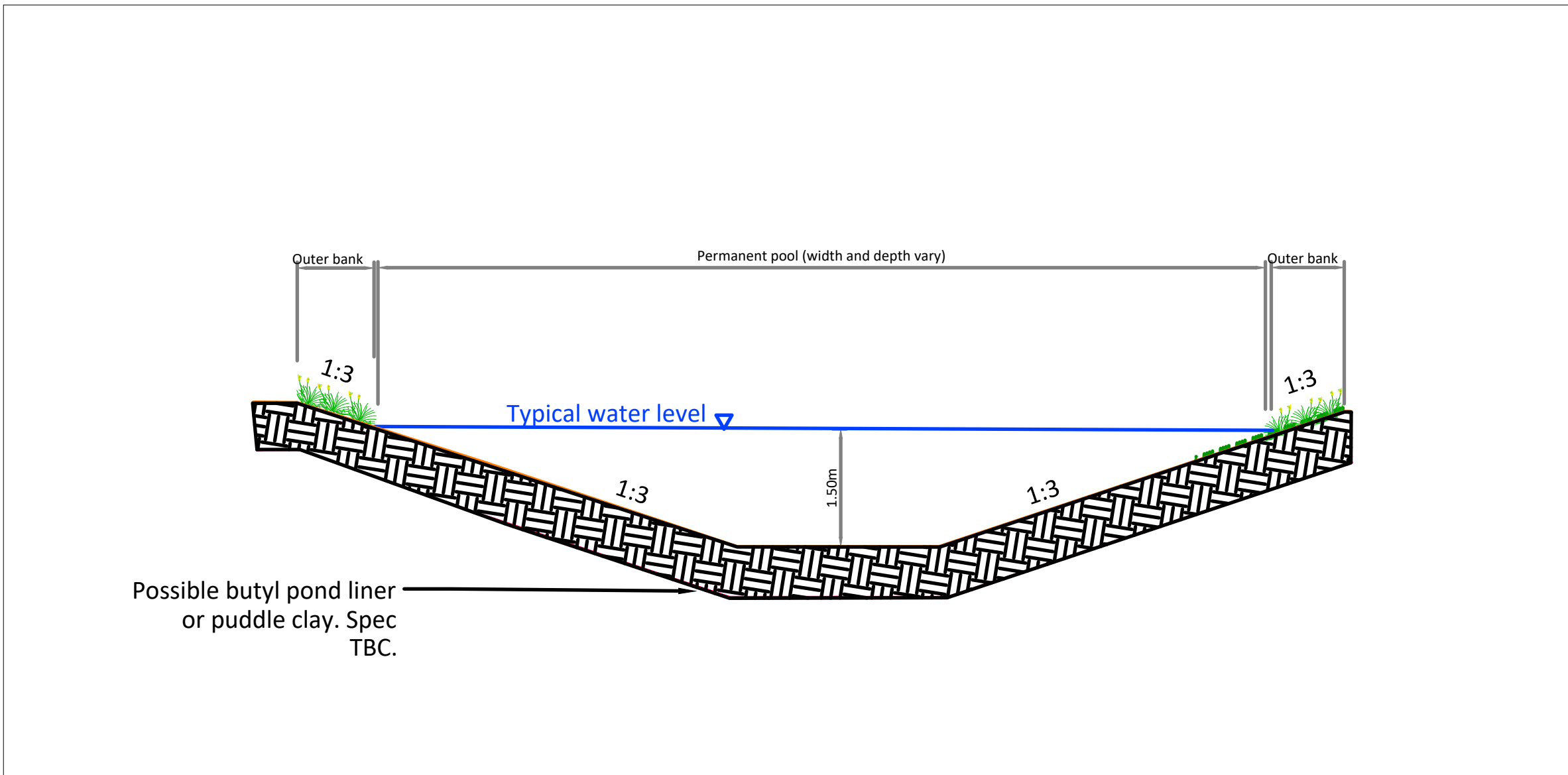
6.5 Pond Performance and Follow-Up Measures

Once the required pond has been formed in each location, the ponds should be monitored for one month to confirm that they retain water and that the water remains free from hydrocarbon sheens and oil. If the pond does not retain water, or if there is evidence of contamination from the surrounding soils, lining with a low-permeability cohesive soil or a synthetic liner will be required.

Appendix A Drawings



Insert 1: Site boundary within wider ownership boundary



Insert 2: Indicative cross section of proposed ponds

CDM Note

These drawings have been produced with reference to the CDM Regulations 2015. Please note that these are pre-construction phase drawings and should be subject to further design risk management as required in accordance with Regulation 9.

Key

- Site Boundary (Approximately 0.54 Hectares)
- Proposed Pond Location
- Revantage Site Ownership Boundary

Rev	Date	Revision Note	Drw	Chk	App
P1	01/06/2026	Revised Pond Locations	BI	CS	CS
PO	05/06/2026	FIRST ISSUE	BI		

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Client

Revantage

Project
Coed Darcy
Overarching GCN Strategy

Title
Phase 0: Site Boundary and Proposed Pond Layout

Drawing Issue Status
For Planning

PJA Ref	Scale @ A1	Date
04020	1:1000	10-06-2026

Drawing No.	Revision
04020-A-SK298a- P1	P1

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