

Waterbody Specification

WILT18 – Stockham Marsh, Wiltshire

Reference: WILT18-EB-PLA

Version: v01.00

Issued on: June 2025

Report details	
Site code	WILT18
Site name	Stockham Marsh, Wiltshire
Report title	Waterbody Specification
Report reference	WILT18-EB-PLA
Report version	01.00
Author	Sam Tay (Land Manager)
Checker	Hannah Tracey (Associate Ecologist)
Checker	Louise Sykes (Habitat Delivery Project Manager)
Approver	Jessica Allsop (Head of Land – South)
Date	June 2025

Disclaimer

To achieve the study objectives stated in this report, we were required to base our conclusions on the best information available during the period of the investigation and within the limits prescribed by our client in the agreement.

Where information is provided by others, Environment Bank shall bear no liability in respect of any advice given on the basis of that information. No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information. Thus, we cannot guarantee that the investigations (date, work, interpretation of that data or work) completely defined the degree or extent of e.g. species abundances, habitat management efficacy, conservation credit calculations and hence credit requirements, described in the report. Nor does Environment Bank accept any liability for any decisions made by the client on the basis of the information, consultancy or advice provided by Environment Bank.

Table of Contents

1	Introduction	4
2	Location of Waterbodies.....	4
2.1	Methodology.....	4
2.2	Proposed Location of Waterbodies	5
3	Design.....	5
4	Construction.....	8
4.1	Excavations	8
4.2	Spoil distribution	9
4.3	Vegetation establishment.....	10
5	Conclusions	10

List of Tables

Table 1: Approximate pond dimensions	7
Table 2: Indicative bulking calculations	9

List of Figures

Figure 1: Works Plan	15
Figure 2: Hydrology Assessment - Slope.....	16
Figure 3: Hydrology Assessment – Surface Depressions	17
Figure 4: Hydrology Assessment – Surface Flow	18

1 Introduction

Environment Bank Ltd (EBL) are proposing to create a Habitat Bank at Stockham Marsh, Wiltshire (EBL Reference: WILT18) centred at grid reference ST 9990 7671. The Site is 67.80 ha and comprises 11 fields which are currently undergoing transition from arable to pasture. The Site boundary is shown on Figure 1.

Habitat Banks are projects focused on habitat creation and enhancement to increase biodiversity and restore nature at scale. The aim of this project is to create an area of varied habitats to provide new opportunities for wildlife within the area.

A key component of the project is the creation of 12 new ponds, two ditches and a culvert alongside the establishment of species-rich Lowland meadows, Other broadleaved woodland, Other neutral grassland and Mixed scrub. Un-polluted ponds are a haven for wildlife and support many aquatic invertebrates, wetland plants, amphibians and fishes, many of which are now rare and threatened. Ponds are also vital habitats for terrestrial species providing sources of food, nesting sites for birds, flowering plants for pollinators and drinking water for mammals.

The capital works and initial habitat creation stage is being undertaken between January 2024 and December 2027, with waterbody creation scheduled between July and October.

2 Location of Waterbodies

2.1 Methodology

A desk-based hydrology assessment was undertaken by Viridian Logic in May 2023. The Viridian Logic platform model uses collated biophysical data notably; the Digital Elevation Model (Ordnance Survey), soil texture (British Geological Survey), and Peak monthly precipitation (WorldClim), to output data on slope (Figure 2) surface depressions (Figure 3), and surface flow indicator (Figure 4). The outcomes of the assessment were used to identify the surface water flows across the Site and to help the micro-siting of new waterbodies.

Observations on the ground (e.g. areas of waterlogging), knowledge of historic land use and presence of historic land features, locations of nearby off-Site waterbodies and statutory designated sites, and anecdotal evidence gathered from the Landowner have also been considered in the micro-siting of new waterbodies.

A feasibility study was undertaken by Jane Moon, a hydrologist from Hydro-morph Nature Based Solutions, on the 20th September 2023. Please see accompanying report “WILT18-EXT-HFR-v01.00 - Stockham Marsh Hydrological Feasibility Report”. This was used to inform the Flood Risk Assessment (WILT18-EXT-FRA-v01.00 – Flood Risk Assessment).

2.2 Proposed Location of Waterbodies

A series of 12 new ponds, shown on the plans as pPND02-pPND13 are proposed within the Site. pPND01 is an existing pond which will be retained in its current condition.

Ponds have been strategically proposed along the path of a surface water flow that has historically existed due to underground arable drainage. Ponds are therefore proposed in locations to intercept surface water flows, enabling the capture and storage of water within features of ecological importance.

Two ditches, shown on the plans as pDTC04 and pDTC05, are proposed within the Site. They have been strategically proposed to enhance existing drainage and capture surface water flows off areas with high slopes.

A culvert has been proposed to lie between pPND09 and pPND10 to alleviate flood risk to the existing bridleway and maintain passability in periods of high rainfall.

3 Design

3.1 Ponds

Ponds will have 'drawdown' zones which will be able to hold water during the spring and autumn high-water levels. Where possible, hummocks will be created in the 'drawdown' zone to create pools and varying water levels. These 'drawdown' zones will be between 10-30 cm in depth.

Ponds will be deepest towards the centre with depths of up to 80 cm (dependent on the depth of the subsoil) and more regular 'drawdown zones' varying in width between 1 and 3 m around the ponds' circumference.

The approximate dimensions of the 12 proposed ponds are provided in Table 1 and on Drawing 1, although exact location and dimensions may be micro-Sited during on site excavations and dependent on ground and soil conditions. Two example pond designs are shown on Drawing 2.

3.2 Ditches

Two ditches totalling a length of 268m are proposed Traditional trapezoidal ditches will be excavated to a depth of 70cm – 1 metre, varying the depth and slope of the banks to benefit as many species as possible. The banks will be seeded with native grasses and wildflowers to prevent erosion and enhance biodiversity. Where needed, they will be plug planted with appropriate wetland species using aquatic plants from local donor sites.

The approximate dimensions for the two ditches are provided in the accompanying document WILT18-EB-PLA-Indicative Ditch Cross Sectional Drawing, although exact location and

dimensions may be micro-sited during on site excavations and dependent on ground and soil conditions.

3.3 Culvert

A culvert of 30m is proposed to facilitate continued access to an existing footpath, which currently regularly floods. The culvert will consist of excavating space for a 600mm or two 300mm pipes that will convey water away from the areas it currently accumulates, alleviating flooding on the footpath, ensuring it remains passable during and after heavy rainfall.

The inlet to the culvert will be dug into the ground to ensure there will be no inlet undermining and reduce flood water pooling upstream of the entrance. The culvert will be covered with coarse permeable aggregates to protect the pipes and continue to allow for some natural infiltration of water into the ground.

An indicative cross-sectional drawing can be found in the accompanying document WILT18-EB-PLA-Indicative Culvert Cross Sectional Drawing.

Table 1: Approximate pond dimensions

Dimensions		pPND02	pPND03	pPND04	pPND05	pPND06	pPND07	pPND08	pPND09	pPND10	pPND11	pPND12	pPND13
Total Area (m ²)		4508	921	1285	1986	6344	5352	3740	180	1556	1024	1693	921
Drawdown zone	Length at longest point (m)	97	39	47	69	108	99	74	21	68	41	65	39
	Width (m)	3	2	3	3	3	3	3	1	3	2	2	2
	Area (m ²)	734	213	386	515	885	876	636	49	486	222	339	213
	Depth (mm)	300	300	300	300	300	300	300	300	300	300	300	300
Deep area	Length at longest point (m)	92	36	54	63	101	94	67	18	61	36	62	36
	Area (m ²)	3774	709	899	1471	5458	4477	3104	131	1070	801	1355	709
	Depth (mm)	800	800	800	800	800	800	800	800	800	800	800	800
Volume m3		1620	315	417	666	2316	1922	1337	60	501	354	593	315

4 Construction

4.1 Excavations

All excavation works will be undertaken under ecological supervision at appropriate times of the year to avoid any impacts to protected and/or notable species namely nesting birds. Works will follow best practice pollution prevention principles and guidance.

A suitable contractor with extensive experience has been appointed to carry out the works, with references and experience working on similar projects. All works will comply with relevant regulations.

The ponds and ditches will be created using machinery appropriate to the scale of works with some manual digging in shallow areas, if required. The works will be undertaken by a single bulldozer and 13 tonne digger which will remain on site during excavation to minimise traffic movements and damage to soil. The ponds will not be lined, and no drainage pipes will be required.

Existing drainage pipes have been identified which will be partially blocked as part of proposed development. The drainage will remain in situ and surface water allowed to enter the drains, with targeted block points to fill the ponds. This will reduce the amount of water discharges off the land and not adversely impact surrounding land. The purpose is to capture surface water within the ponds, thus alleviating flooding downstream.

Pond vegetation will be allowed to establish naturally and will be fenced off from grazing livestock in the first two years after creation. If the edges of the ponds become over-poached, fencing will be erected around the ponds to protect ponds from grazing animals.

4.2 Pollution Control Measures

Spill kits tailored and relevant for each machine are to be kept within the cab of that machine. Each kit should contain a 'boom' to intercept surface films on flowing water and 'mats' for absorbing spilled liquids. Where possible, the kit should contain sufficient mats to match the volume of the largest quantity per machine. A larger spill kit will be kept in the site compound. Plant nappies will be used under all machinery overnight to catch any drips.

If there is pollution/spill from a machine, the machine should be made safe and shut down. A spare plastic tub is stacked with chemicals in vehicles: this should be used to contain ongoing leaks/drips, e.g. from hydraulic hose. The spill kit material is to be used to absorb and contain the spillage. The incident becomes an emergency when the volume of spillage cannot be contained, if an important habitat is significantly damaged or if a large spillage reaches a watercourse. Any pollution incidents will be reported to the Environment Agency Hotline on 0800 80 70 60.

We do not anticipate sediment movement during the build window due to the nature of the project. However, should we be forecast high rainfall that could mobilise sediment in surface water pathways through the western ditch and into the Cade Burna, a silt curtain should be setup to prevent the washout of sediment downstream from works. These barriers are strategically installed within the working area to intercept and trap any suspended sediment that may be mobilised during in-channel works. The geotextile allows water to pass through while retaining fine particles, thereby preventing sediment from being transported downstream and protecting water quality. This method is effective in minimising the risk of silt pollution and is routinely implemented as part of our best practice for in-stream construction and restoration activities.

4.3 Spoil distribution

It is proposed that spoil from excavation activities will be used to create hummocks around the ponds and evenly distributed within the proposed scrub and woodland areas outside of flood zone 2&3. Where appropriate, south-facing scrub bunds will be created suitable for basking reptiles and invertebrates. During excavation, the storage of excess spoil will be in a position away from the ponds avoiding surface water nutrient leaching.

Table 2 shows the expected amount of excavated spoil and the deposition quantity. However, these numbers are indicative only and actual quantities will depend on soil conditions. Any minor surplus of soil will be spread across the features.

Table 2: Indicative bulking calculations

	Volume (m ³)	Bulked excavation quantity (m ³)
pPND02	315	410
pPND03	957	1244
pPND04	666	865
pPND05	2,316	3,011
pPND06	1,922	2,499
pPND07	1,337	1,738
pPND08	60	78
pPND09	501	651
pPND10	354	460
pPND11	593	770
pPND12	315	410

	Volume (m ³)	Bulked excavation quantity (m ³)
pPND13	1,620	2,106
Total	10,955	14,241

4.4 Vegetation establishment

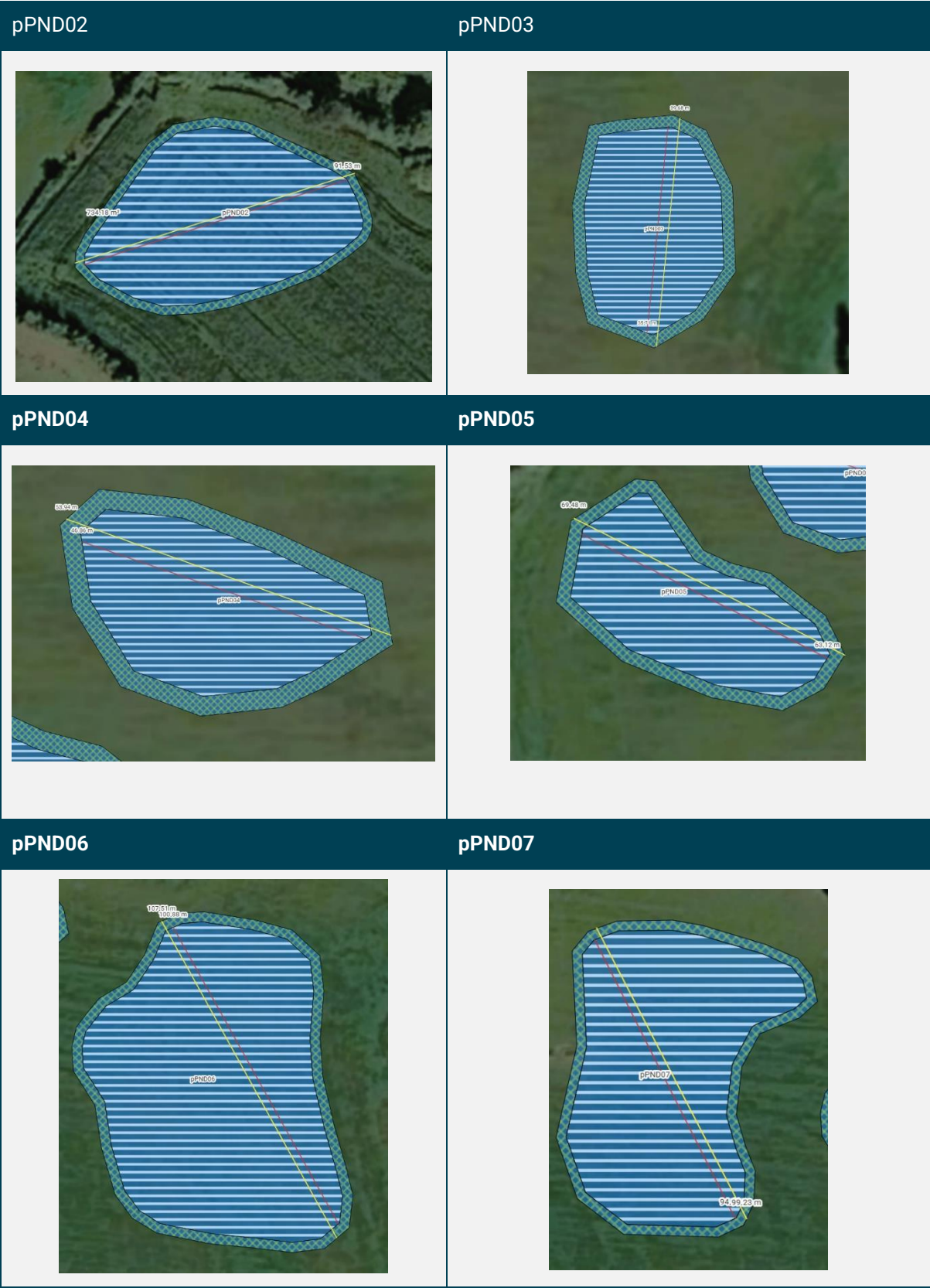
Pond vegetation will be allowed to establish through natural regeneration. Temporary fencing may be erected around the ponds to minimise damage to establishing vegetation and prevent over-poaching. Plug planting of pond species may be undertaken if required.

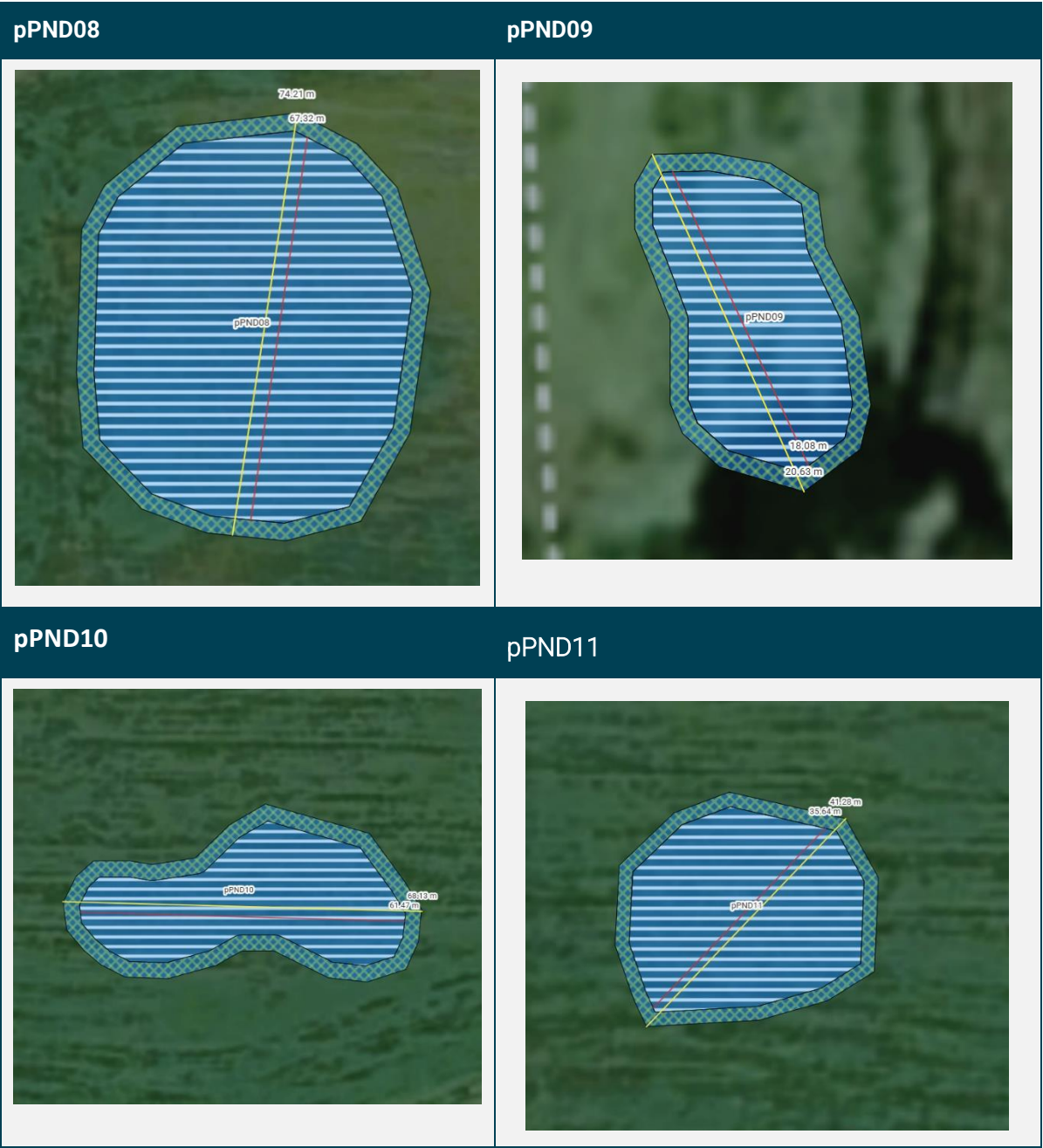
5 Conclusions

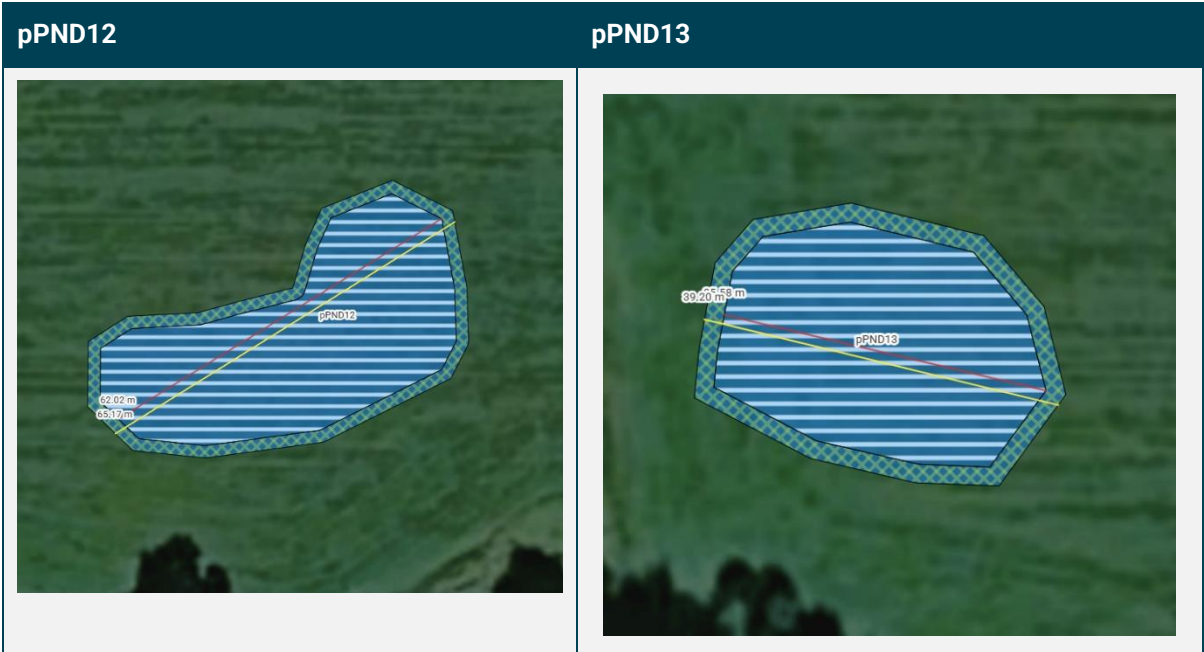
Waterbody creation works will be temporary and short term. No spoil will be used to create bank reprofiling or left within Flood Zones 2 and 3.

Once created, the waterbodies will provide a valuable water source for grazing animals as well as creating opportunities for a myriad of local wildlife including birds, mammals, amphibians, reptiles and invertebrates within the farmed landscape.

Drawing 1: Approximate Pond Dimensions







Drawing 2: Example Pond Design

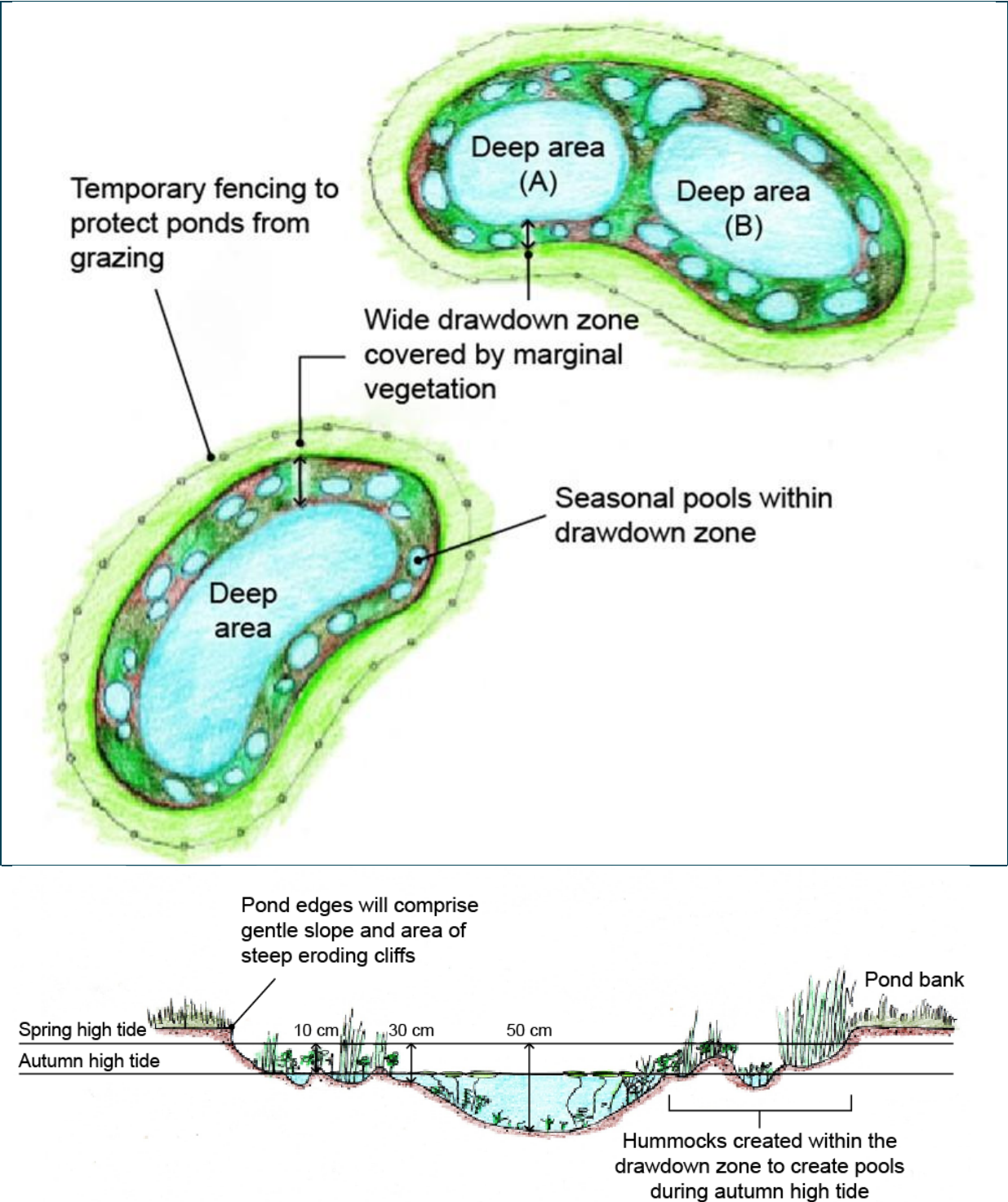


Figure 1: Works Plan

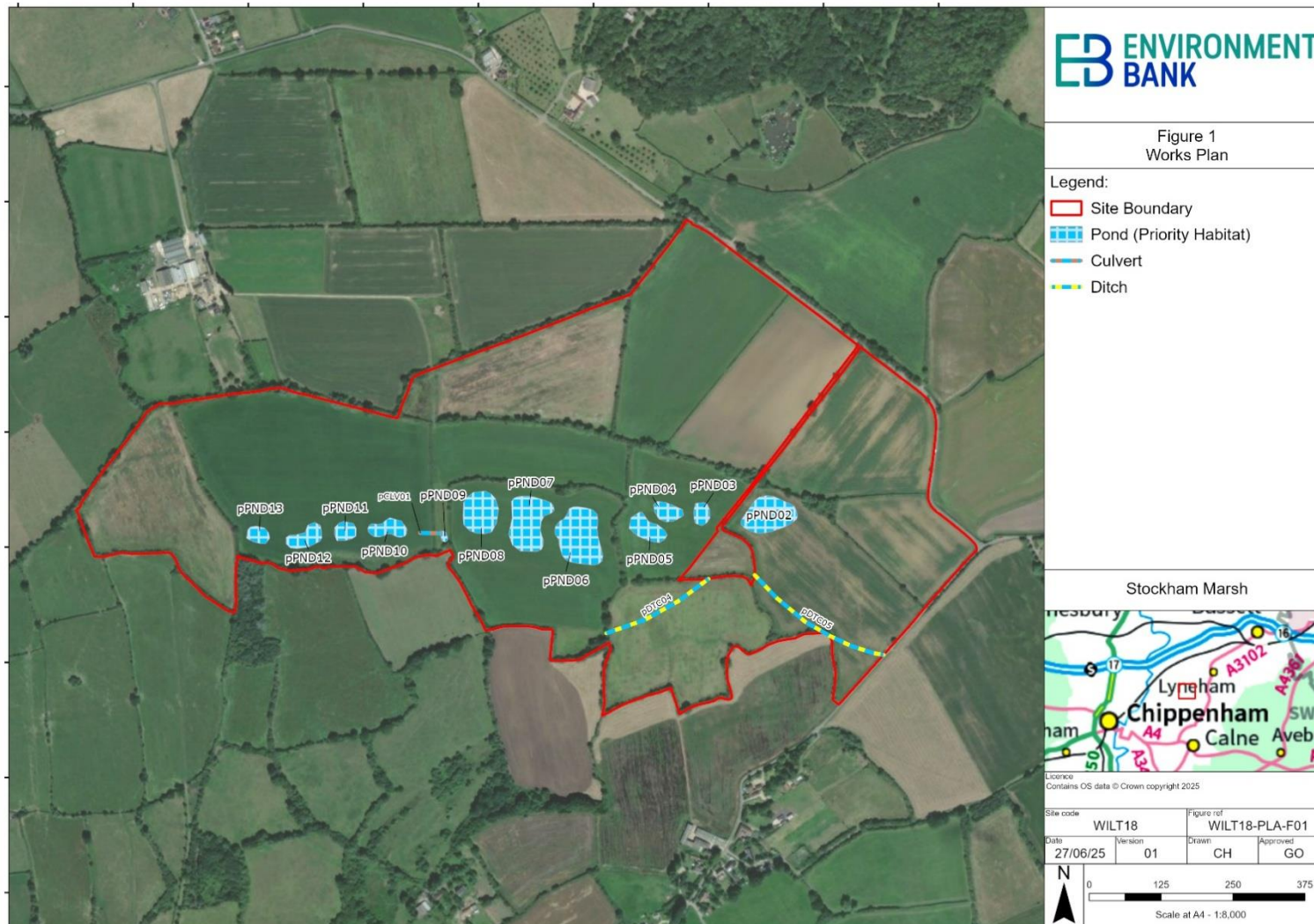


Figure 2a: Hydrology Assessment – Slope

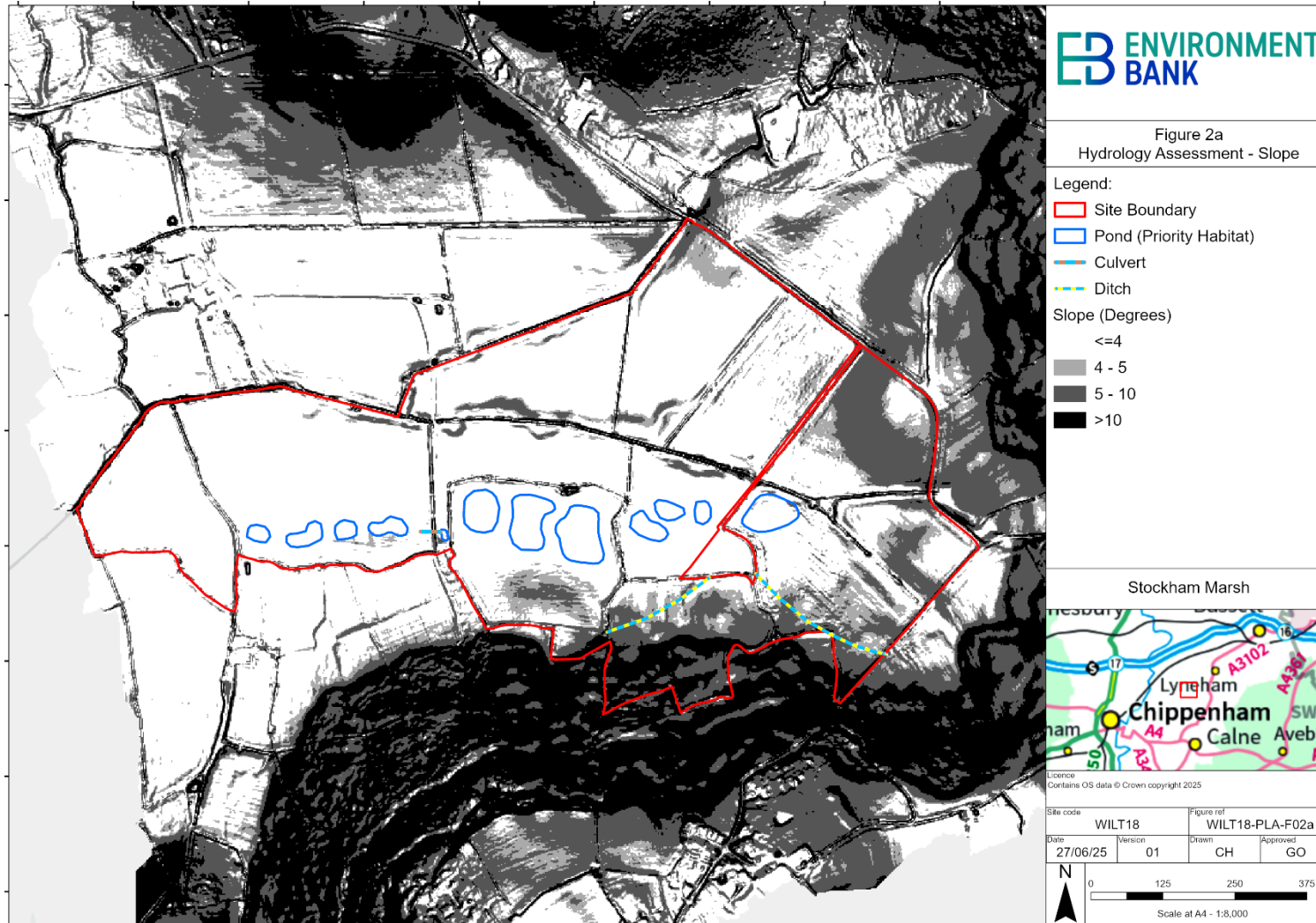


Figure 3: Hydrology Assessment - Surface Depressions

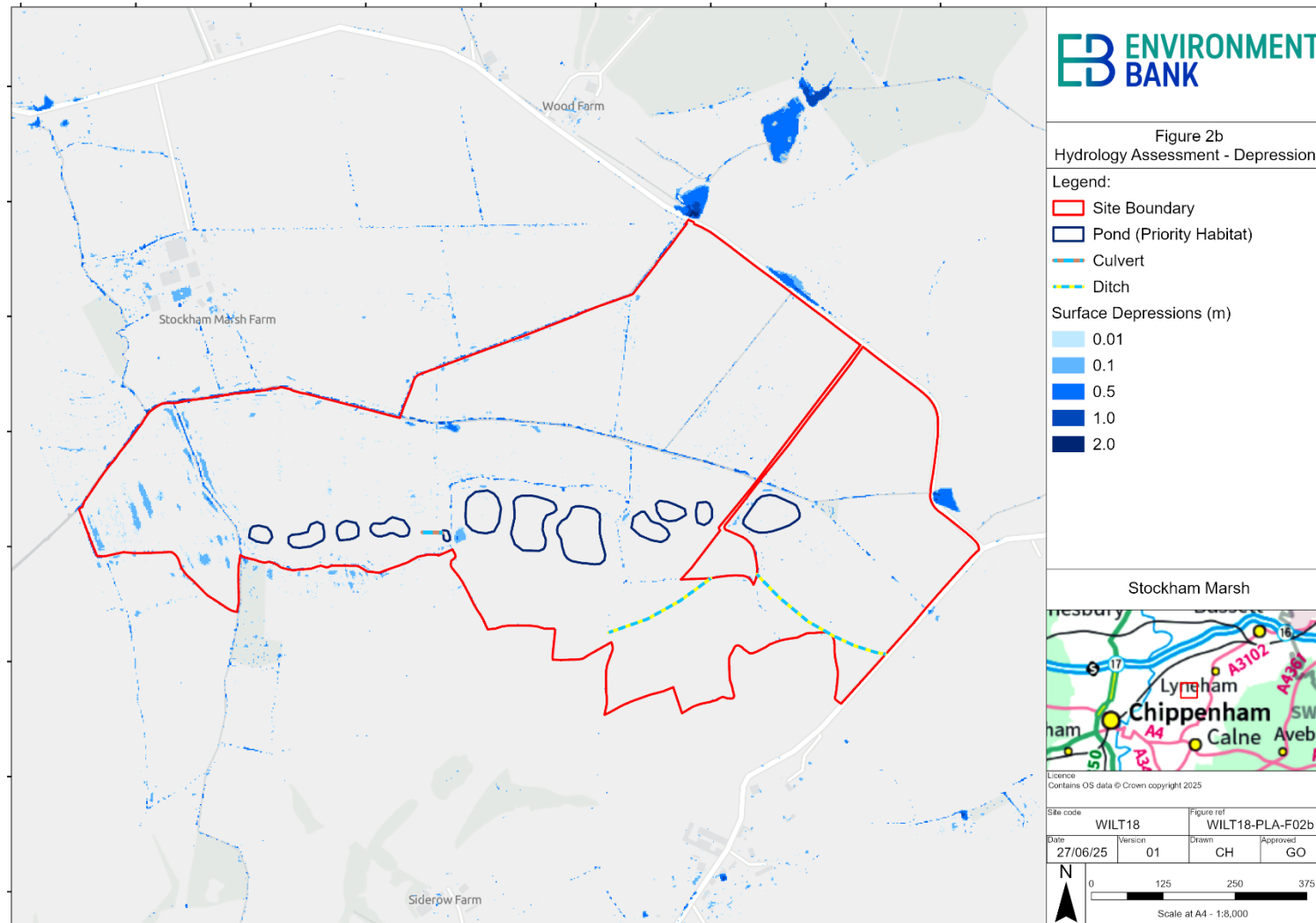


Figure 4: Hydrology Assessment - Surface Flow

