WEIR ON THE LAKE, SOUTH ORMSBY HALL AND PARKLAND

Design and Access Statement

December 2023

Planning Submission and

Listed Building Consent

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CONTENTS

1.0 INTRODUCTION

1.1 THIS STATEMENT

This Design and Access Statement is to support a planning and listed building consent application submission for the replacement of the existing weir with a new structure, fish and eel pass, hydropower unit, footbridge, landscaping and associated works at the northeast boundary of the lake at South Ormsby Hall and Parkland.

The existing weir is in poor condition and was subsequently subject to emergency maintenance works in November and December 2023. The proposal is for a new weir integrating a fish slot in the weir crest and corresponding rock ramp fish and eel pass. The application also includes proposed works to improve flood water management with a grass-covered spillway and landscape bunds (refer to Flood Risk Assessment). An underground hydropower system is concealed by one of these bunds. A private-use footbridge is also proposed at the northeast end of the rock ramp.

In the design of the proposed scheme, we have carefully considered the following planning guidelines:

- National Planning Policy Framework 2023
    - 14. Meeting the challenge of climate change, flooding and coastal change
    - 15. Conserving and enhancing the natural environment
    - 16. Conserving and enhancing the historic environment

As well as local planning policies:

- East Lindsey Local Plan - Core Strategy - Adopted July 2018
    - SP23. Landscape
    - SP24. Biodiversity and Geodiversity
- LCSP Strategic Action Plan 2019 –2024 - Delivery Plan - Adopted July 2019
    - 1.b. Maintain, restore and enhance the characteristic habitats and associated species of chalk streams in Lincolnshire by working with land managers

And Publications by the Environment Agency:

- Weir Removal, Lowering and Modification: A Review of Best Practice
- Elver and Eel Passes: A Guide to the Design and Implementation of Passage Solutions at Weirs, Tidal Gates and Sluices (withdrawn)
- Environment Agency Fish Pass Manual (withdrawn, now held by Institute of Fisheries Management)
- Chalk Stream Strategy (with CaBA and other partners)

This Design and Access Statement should be read in conjunction with the supporting documents from consultants submitted with the application. These documents, reports and surveys have informed the design of the proposals:

- Planning Statement (produced by WSP)
- Flood Risk Assessment (produced by Stantec)
- Heritage Impact Assessment (produced by Austin Heritage Consultants)
- Ecological Appraisal (produced by Ecology & Forestry Ltd)
- Arboricultural Report (produced by Barnes Associates)
- Specification For A Programme Of Archaeological Monitoring And Recording (produced by Allen Archaeology Ltd)

1.2 THE SITE LOCATION

The site is located in the East Lindsey District Council Area, Lincolnshire and is part of the South Ormsby cum Ketsby Parish. The site location is approximated to the postcode LN11 and is located at OS Grid Reference TF 36924 75653.

The site is part of the wider South Ormsby Estate and a short walking distance from South Ormsby Hall and also sits within the Lincolnshire Wolds AONB. The site is located within the curtilage of the Grade II listed South Ormsby Park.

Fig 1. Aerial view of South Ormsby

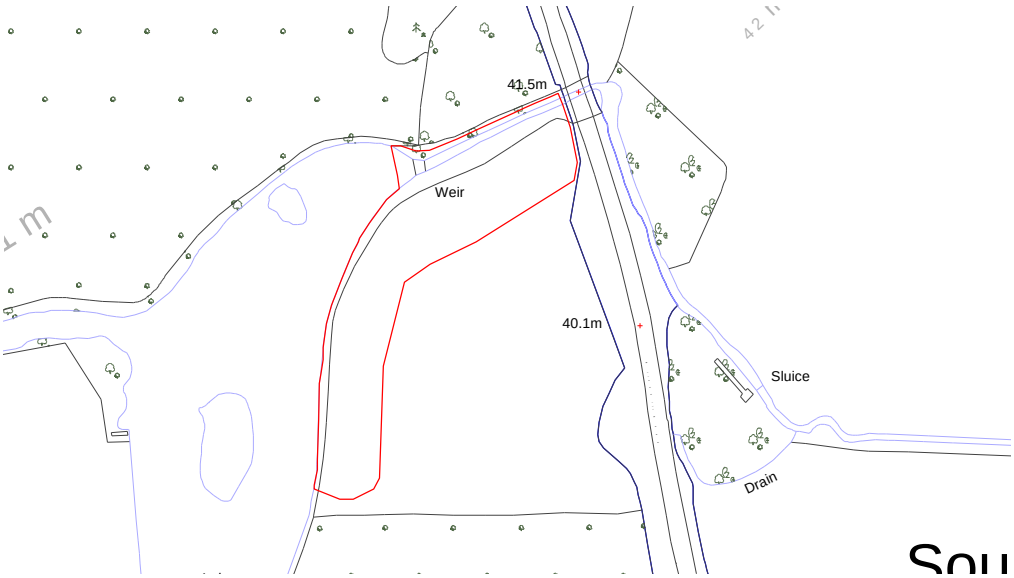

Fig 2. Location map (NTS)

1.3 THE APPLICANT

The Thornes family have been living in Lincolnshire for many years after initially choosing the area primarily for its open character and rural nature. Having permanently relocated to South Ormsby, they are currently in the process of restoring the Grade II* listed South Ormbsy Hall. Being keen walkers and passionate about local communities, they are eager to promote the landscape and work with local people to regenerate the estate in terms of its economic sustainability, building fabric, biodiversity and local community.

South Ormsby Estate is looking to make South Ormsby and the surrounding area more economically active, and is actively looking to repair community infrastructure, build up local skill levels, train people to become more economically active and share with others their beautiful surroundings.

To support the area's biodiversity, the new weir will include a fish and eel pass. This allows access to the lake and wider habitats through a rock ramp design that is accessible to all chalk bed fish, including elvers and bullheads. The application removes the barrier of the weir, improving chalk stream connectivity.

1.4 THE DESIGN TEAM

Takero Shimazaki Architects is an award winning practice specialising in high quality context-driven architecture. In March 2016, t-sa was awarded the BD Refurbishment Architect of the Year and received RIBA awards for both Curzon Bloomsbury and Leicester Print Workshop projects, which were both refurbishments. The practice's work is currently focused on the sensitive and sympathetic re-working of existing buildings and structures.

Notable achievements include endorsement by the Dorking Preservation Society for a new house in Abinger Common, Surrey. The site is located in an Area of Outstanding Natural Beauty and is adjacent to 'Goddards', a very well regarded house designed by Edwin Lutyens in the late 1800's.

Fig 3. Osh House by Takero Shimazaki Architects

The following consultants part of the Design Team are:

- Hydrology and Structural Engineering, Stantec
- Landscape Architect, Southern Green
- Ecology, Ecology & Forestry Ltd
- Planning Consultant, WSP
- Heritage Consultant, Austin Heritage Consultant
- Archaeology Consultant, Allen Archaeology Ltd
- Arboriculture Consultant, Barnes Associates

2.0 SITE ASSESSMENT

2.1 SITE HISTORY

Burrell Massingberd (1719-1802) commissioned plans for the park and gardens at South Ormsby from Edward Gardner of Dunston in 1749. These plans show a rectilinear lake and island with a disjointed channel on the northeast corner where the present-day weir now sits (Fig 4). It is possible that the lake manipulated and combined a local stream and moat in the area. A 1756 plan by Joseph Spence shows a sinusoidal lake (Fig 5), which is shown fully in an 1888 Ordnance Map (Fig 6). Both are closely similar in shape to the existing lake.

A structure on the site of the present-day weir is first illustrated in a series of annonymous paintings from the 18th century as a rock cascade (Fig 7 - 8). A structure is formally identifed as a 'weir' on the 1888 OS Map. The existing weir is a stepped brick and concrete structure with modern brick piers and wing walls (Fig 9 - 11).

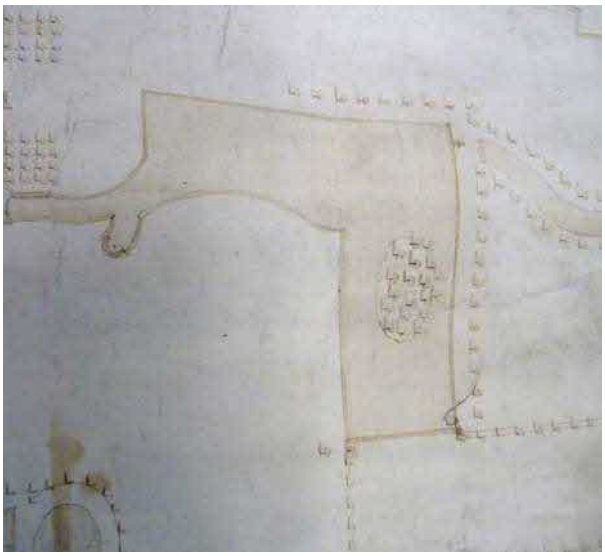

Fig 4. Edward Gardner of Dunston's proposed lake plan, 1749

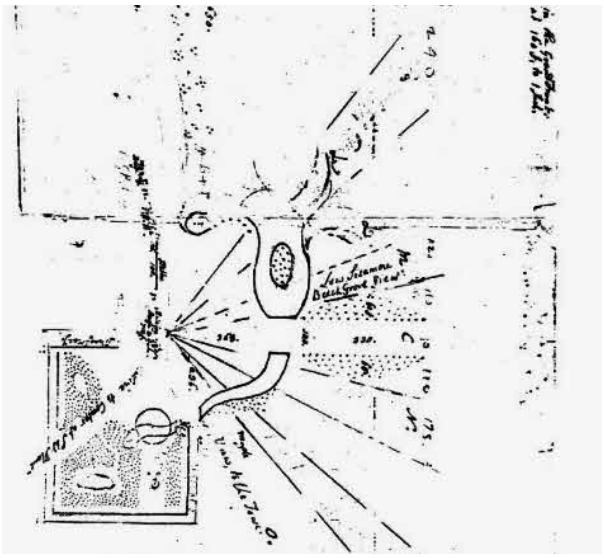

Fig 5. Joseph Spence's proposed lake plan, 1756

Fig 6. 1888 OS Map identifying the weir

Fig 7. Anonymous and undated painting, 18th century

Fig 8. Anonymous and undated painting, 18th century

2.2 EXISTING SITE PHOTOGRAPHS

Fig 9. Upstream view of the weir from south bank

Fig 10. Downstream view of the weir from south bank

Fig 11. Downstream view of the weir from north bank

2.3 PLANNING HISTORY

There is no planning application history pertaining to the weir. East Lindsey District Council were notified of emergency works required to repair the existing weir in December 2023.

An application for ‘Restoration of existing lake, associated landscaping and erection of railings and fencing to a maximum height of 1.2m’ was approved on 25 Jun 2021 (Reference N/160/00284/21).

3.0 DESIGN STATEMENT

3.1 WEIR

The application is part of the wider restoration of the South Ormsby Estate. The proposed weir aims to enhance the biodiversity of the lake and surrounding chalk streams as well as improving flood water management.

The existing weir is comprised of concrete and brick steps with embedded rocks (Fig 12). A series of brick piers support two screens intended to prevent large debris entering the Oester Dale and a sluice/penstock structure. The latter controls the flow into a drawdown pipe when operating normally. However, recent heavy rainfall has highlighted water flowing underneath the weir, scouring the concrete structure and compromising both the function and structural integrity of the weir (Fig 13). Whilst temporary emergency works have addressed the issue in the short term, a long-term solution is critically required to replace the weir and prevent downstream flooding.

Fig 12. Existing weir viewed from downstream when operating normally

Fig 13. Existing weir, November 2023, highlighting water passing underneath the weir

Taking inspiration from the historic paintings of the cascade, the proposed weir and associated rock ramp and landscaping are designed to be natural in appearance. This ambition is considered along with the need for the weir to safely perform its role maintaining the lake water levels for many generations.

To achieve this, the proposed stone-capped weir crest sits 200mm above the normal lake water level. A number of boulders are proposed adjacent to the weir in the lake, akin to the historic paintings. The temporary cofferdam necessary to carry out the works is retained to create a suitable bed to hold these boulders in place, cut down to below water level. The weir is slightly angled with backfilled curved sheet piles to the north to echo the serpentine edges of the surrounding lake. These are concealed with coir rolls to further integrate the required works into the landscape.

The proposed weir location is approximately 2m further into the lake than the existing weir. This is to ensure the sheet piles required to form the weir do not disturb the roots of the Grade A Horse Chestnut trees on the site, respecting the found ecology. Similarly, the proposed weir includes a fish slot to allow for fish and eels to move freely between the lake and the Oester Dale (see section 3.2).

Fig 14. Artist's impression of the proposed weir, rock ramp fish and eel pass and landscaping viewed from the north bank looking towards South Ormsby Hall

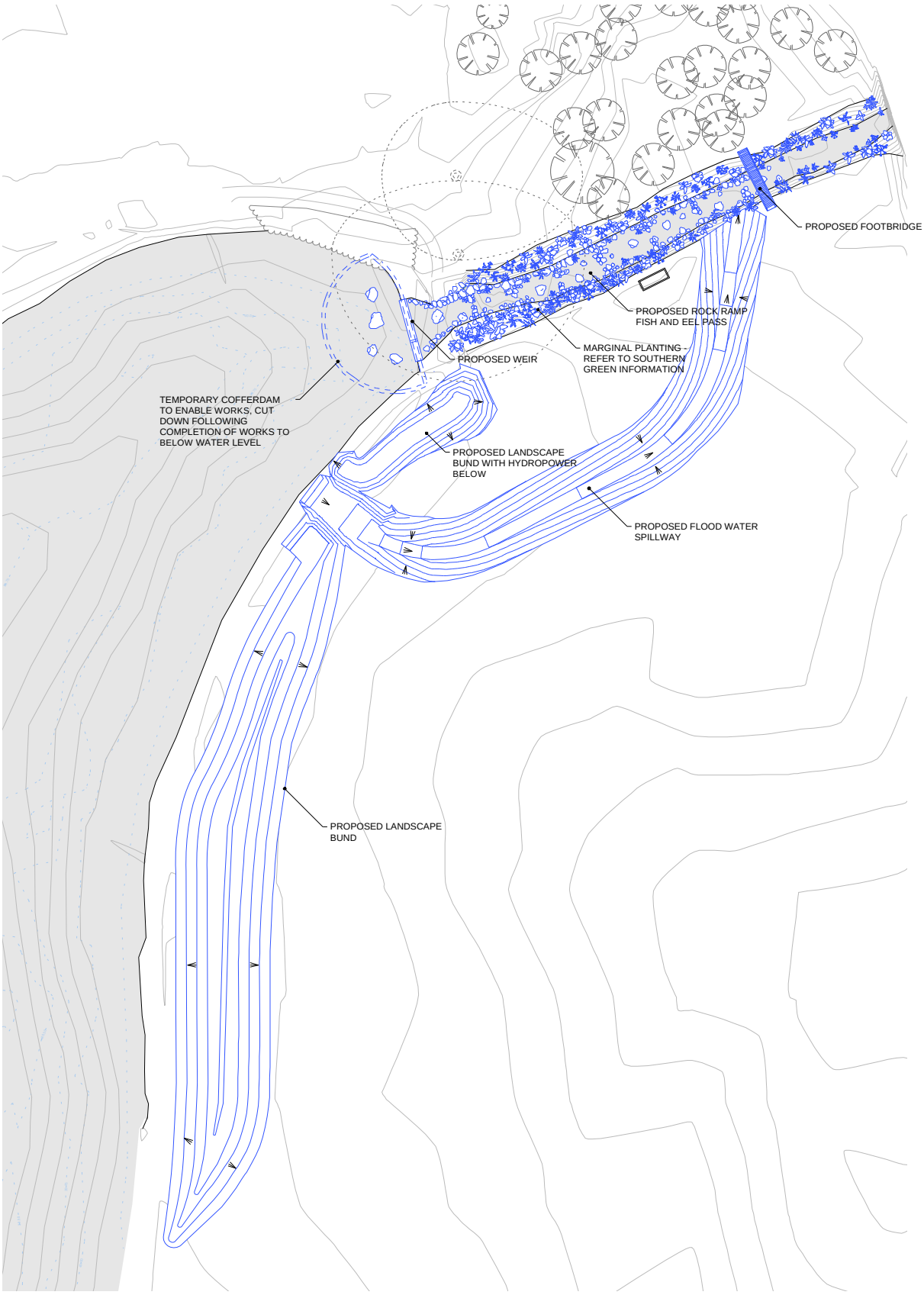

Fig 15. Proposed site plan indicating the design elements discussed in this report: weir; rock ramp fish and eel pass; landscape bunds and spillway; footbridge (NTS)

3.2 FISH AND EEL PASS

Based on previous records, the Oester Dale downstream of the weir supports three fish species: brown trout (Salmo trutta), bullhead (Cottus gobio) and European eel (Anguilla Anguilla). An electro-fishing survey of the lake was carried out as part of the lake restoration (N/160/00284/21). The survey found crucian carp and eel present. Whilst this indicates fish and eels are able to pass the current weir, it remains a barrier to easy passage and the movement of other aquatic fauna. This is particularly important for eels and elvers, listed as Critically Endangered on the global IUCN Red List of Threatened Species. Barriers to fish passage are further identified as a key issue by the Lincolnshire Chalk Stream Project Strategic Action Plan 2019 –2024.

The proposed demolition of the existing weir allows for fish and eel access to the lake and wider chalk streams to be improved. To support this, a rock ramp pass is proposed. The shallow gradient allows weaker-swimming species (eels and bullheads) to use the pass, in addition to stronger swimmers (carp and trout). Perturbation boulders are proposed to vary the flow of water down the ramp, creating rest spaces and areas of habitat. Locally-sourced gravel forms the bed of the ramp and native planting is proposed, further enhancing the biodiversity and ecology of the Oester Dale.

The design of the proposal echoes the cascade of the 18th century paintings through a contemporary, ecologically beneficial proposal. The ramp design follows a number of precedents from the Environment Agency (Fig 16), South Cumbria Rivers Trust (Fig 17) and South East Rivers Trust (Fig 18). The latter precedent is one of a number of rock ramps introduced into chalk streams in order to improve habitat connectivity and improve in-stream habitat as part of the Hogsmill Connectivity Project.

Fig 16. Before (above) and after (below) images of Aubourn Rock Ramp, River Witham, Lincolnshire. A rock ramp fish and eel pass completed nearby to South Ormsby.

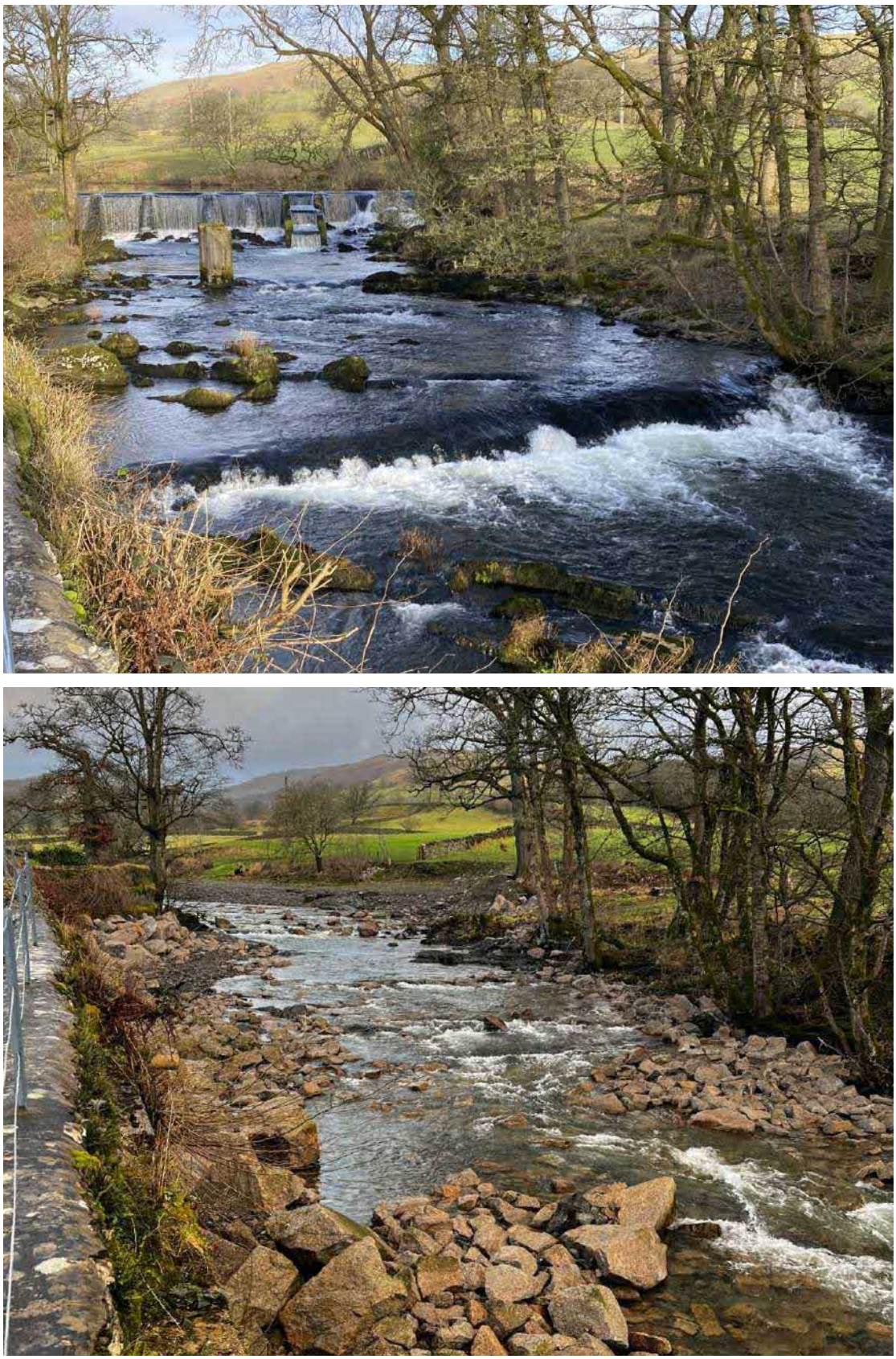

Fig 17. Before (above) and after (below) images of Bowston weir removal, River Kent, Cumbria. A 44% biodiversity net gain was reported following completion of the rock ramp.

Fig 18. Before (above) and after (below) images of A240 weir removal, Hogsmill River, Surrey. Rock ramps were used in multiple locations to reconnect the chalk stream as part of the Hogsmill Connectivity Project.

3.3 FLOOD MITIGATION LANDSCAPING

Previous flood risk assessments have identified that during periods of high rainfall the field to the south of the weir is liable to flooding. This is due to the low bank levels bordering the lake, causing flood water to flow uncontrolled down the field and towards Brinkhill Road.

This application proposes to raise the low banks through two landscape bunds, preventing uncontrolled flow over the fields. Instead, the proposed floodwater spillway directs excess flood flows down the channel and into the Oester Dale at the base of the rock ramp. The channel is designed for 100 year flood events including climate change. The proposal therefore greatly improves the flood water management of the existing weir to the benefit of local ecology and neighbours. The proposed landscaping is only modestly discernable from the existing topography of the field (Fig 19).

Fig 19. Artist's impression of proposed landscape bunds and grass-covered spillway

3.4 HYDROPOWER

The north-most landscape bund conceals an underground hydropower system below. It is proposed that at normal lake water levels, water will flow down the fish slot and into the rock ramp. As water levels rise, the water will first pass over the crest of the weir, then into the hydropower system and lastly into the spillway.

3.5 FOOTBRIDGE

The footbridge is designed to match the timber bridges proposed elsewhere in the park as part of the South Ormsby Hall planning application and listed building consent (N/160/01507/21).

4.0 ACCESS & ACCESSIBILITY STATEMENT

4.1 FOOTBRIDGE

The footbridge included in this application is on private land and is intended for private use and maintenance only. The footbridge is not connected to any footpaths and therefore does not create a barrier of access to any publicly accessible areas.

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