FEARNA STORAGE

# Fearna Pumped Storage Hydro Scheme EIA Report

## Appendix 8.7.1.2 – Peatland Drone Survey Assessment

## February 2025

## Quality Information

| Prepared by | Checked by | Approved by |
|---|---|---|
| ADLnature | Chris Pasteur | Fraser Allison |

## Revision History

| Revision | Revision Date | Details | Authorised |
|---|---|---|---|
| 01 | February 2025 | Issue to ECU | Fraser Allison |

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# West Glenquoich Estate

## Drone Survey for Assessment of Peat Reinstatement and Restoration

ADLnature

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14th February 2025

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# Contents



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## Introduction

This document aims to outline the findings of the drone survey conducted on Glen Quoich and the subsequent investigation to determine possible locations to relocate peat on the estate for use in reinstatement and restoration of degraded areas of habitat. The document will detail areas of the survey, and the findings of the fill analysis conducted on the 3D models produced.

## Survey Location and Data Collection Methodology.

The drone survey was undertaken on the Glen Quoich Estate on the 29th, 30th, 31st January and the 6th of February. The areas identified for survey had been pre-determined in an earlier discussion with Chris Pasteur (Cairneyhill Ltd), Fraser Allison (Gilkes), Colin Morrison (ADLnature) and Ewen Kennedy (Stag Infrastructure). The map below details the original areas that were to be investigated for their potential to accept relocated peat. When at the location, the surveyor (Richard Breach, ADLnature) conducted additional drone surveys on nearby areas where it was determined there was potential.

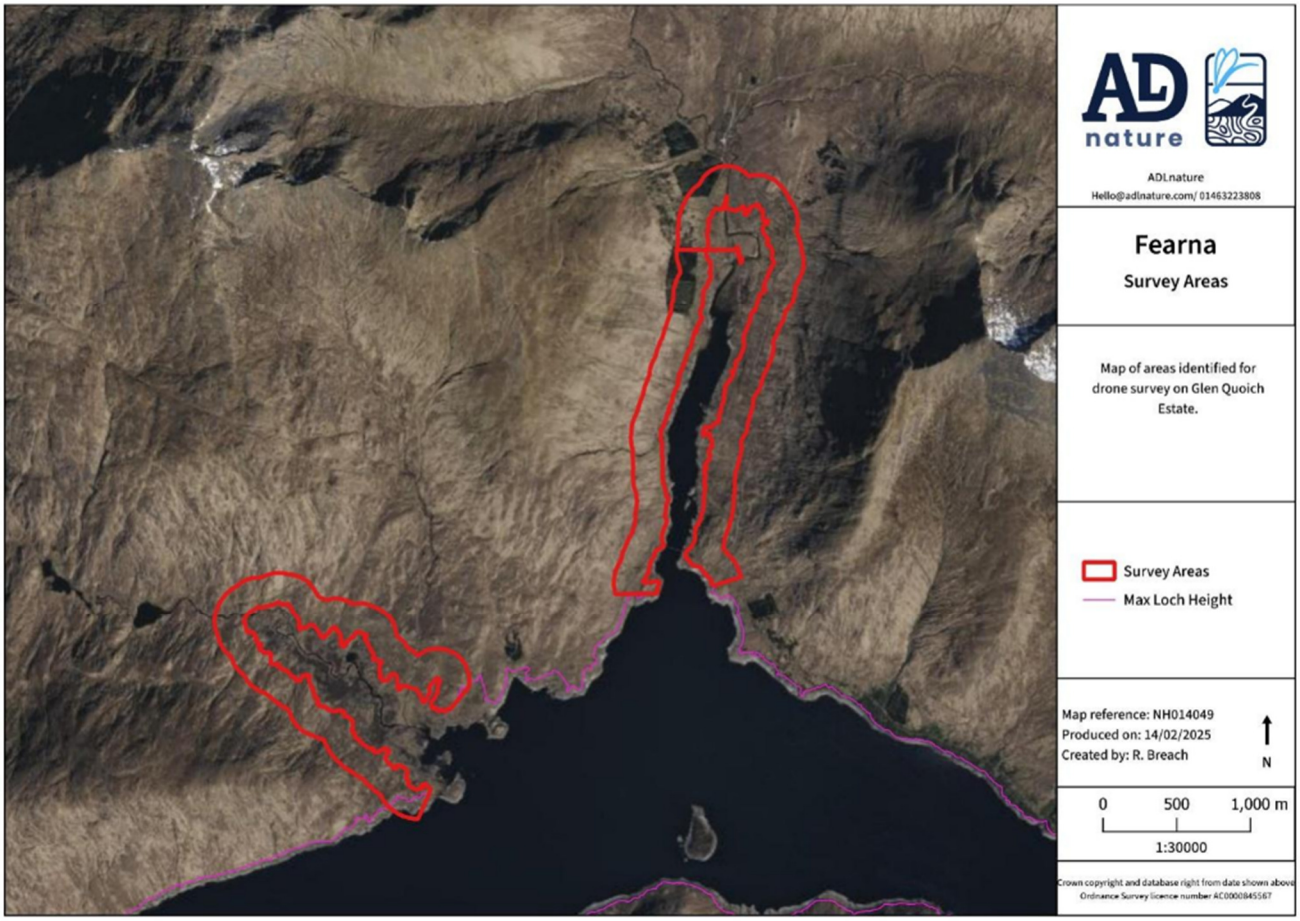


*Figure 1 - Map of areas to be surveyed on Glen Quoich*

For the survey, a DJI M3E was used alongside a DJI RTK 2 base station for increased global positioning accuracy. The maps and models were created by using an initial NADIR flight path, followed by multiple oblique flight paths in order to create a highly detailed 3D model of the sites identified. Weather was mixed during the surveys between days of overcast, and days of clear skies and bright sun. This did not negatively impact the quality of the orthomosaics and models that were produced.

After the maps had been processed, a desk-based study was undertaken to determine areas that could be potentially used for peat infill with the use of bunds at a maximum height of 2.5m in height. Areas for potential infill were restricted by the maximum height of the loch which is 196m above sea level.

## Results

The desk-based study identified a total of 81 potential locations for peat infill with an estimated cumulative total of 293,426.69 $m^3$. See table (Figure 2) and map (Figure 3) for site reference below.

Across all drone surveys conducted and processed, the average GPS trust in each processing report was 0.02m. Across the surveys conducted, the average GSD (Ground Sampling Distance, cm/px) was 1.86 cm/px.

The calculations were conducted using a fill analysis tool, which was done by determining a base plane 2.5m higher than the lowest elevation of the identified area to account for a maximum bund height of 2.5m. The tool used estimates an accuracy of 1-2% however we advise an error tolerance of +/- 10% to account for any potential errors in area identification or possible errors within the terrain of the model produced.

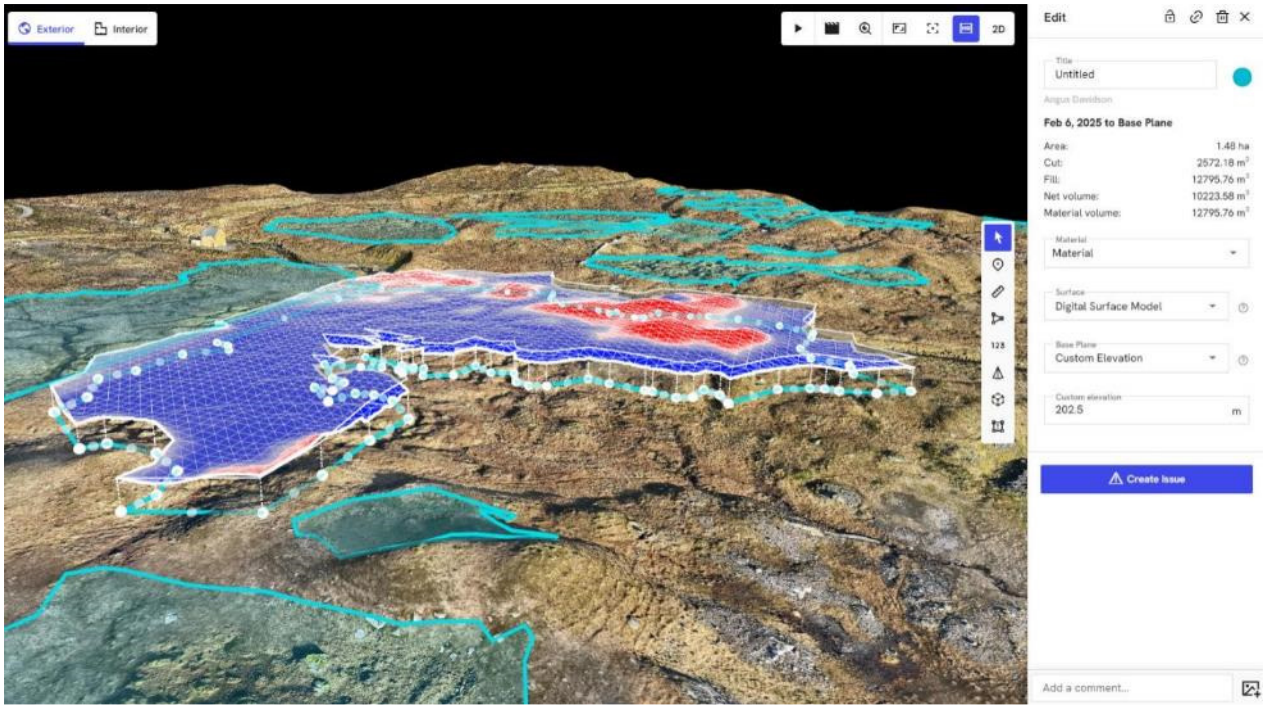


*Figure 2 - Example of fill analysis in West of Loch North*

The additional reports provided show the locations of these areas along with their corresponding values for volumes, for each individual area surveyed. They are titled corresponding to the area of the survey, with can be cross referenced with the results table in Figure 3 and the map in Figure 4. The sites that are identified with blue symbology on the maps show locations that have a steepest known gradient of less than 5°, with locations containing a gradient of between 5°-15° being identified as yellow. According to NatureScot, areas of peatland with a slope angle greater than 5° are at risk of peat slide (NatureScot 2023, Section 2.1).

| Survey | No. of Plots | Volumes ($m^3$) |
|---|---|---|
| West of Loch North | 19 | 75,782.25 |
| West of Loch South | 10 | 56,639.81 |
| Track to Bothy West | 10 | 26,041.01 |
| Track to Bothy East | 17 | 58,446.57 |
| Quarry 1 + Airfield | 19 | 61,495.12 |
| Quarry 2 + Bothy Area | 5 | 13,813.41 |
| Quarry South (North East of Bridge) | 1 | 1,208.52 |
| **Total** | **81** | **293,426.69 $m^3$** |

*Figure 3 - Table of Fill Analysis Results*

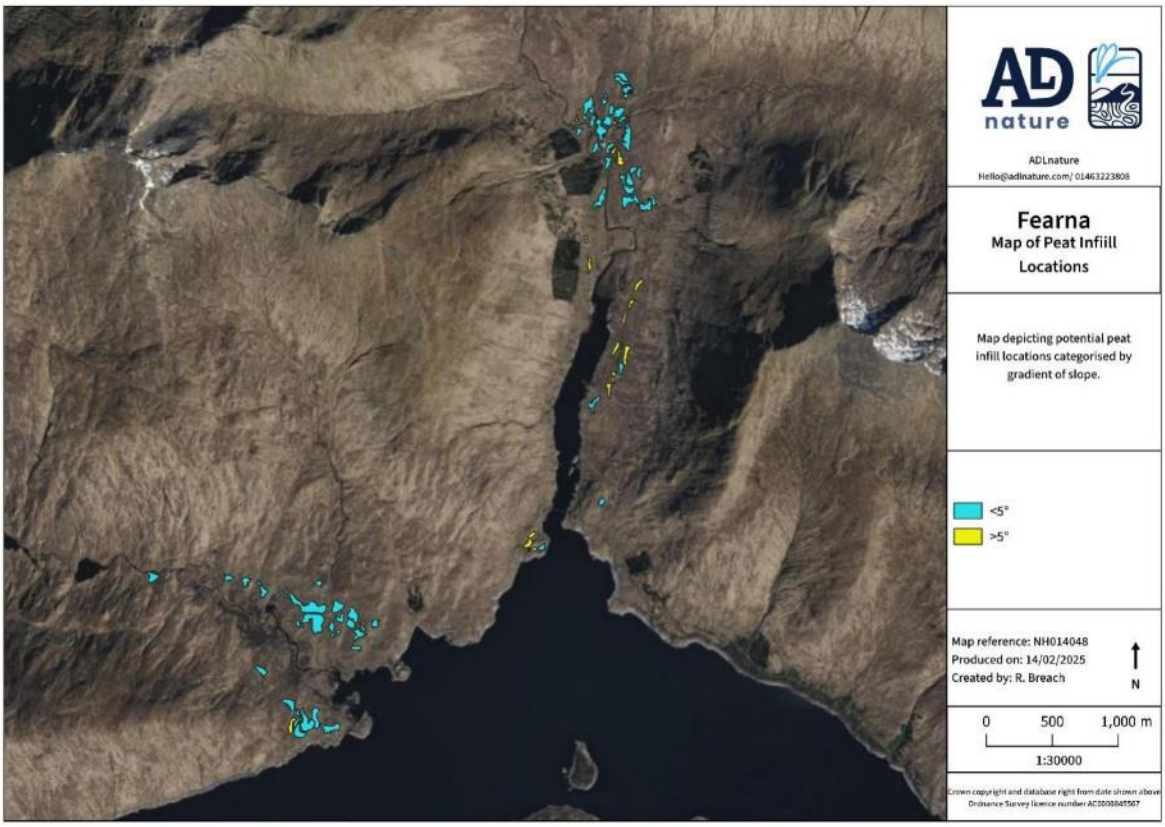


*Figure 4 - Map of potential peat infill locations categorised by gradient of slope*

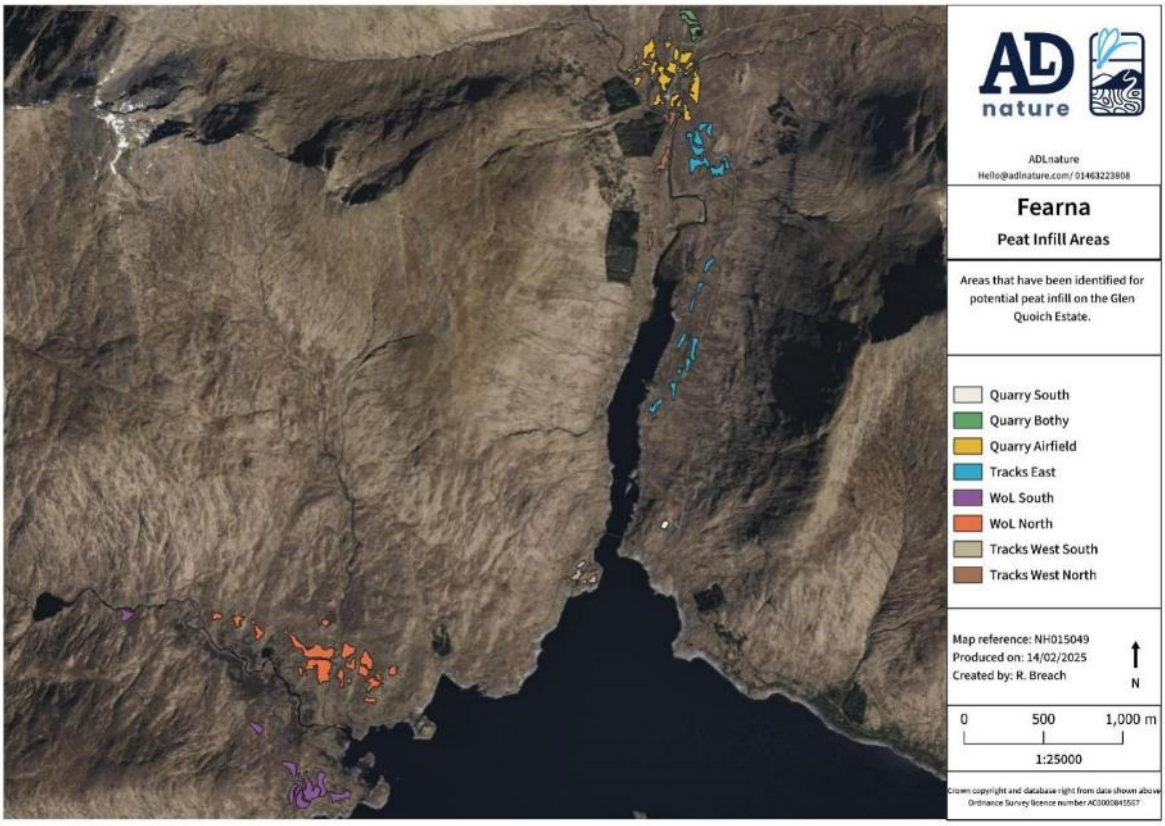


*Figure 5 - Map of Potential Peat Infill Areas*

The areas that have been identified within these results are by no means indicative of safe areas to use for peat infill, they are merely an estimation of possible locations that require further investigation to determine if they are suitable for peat infill with bunding.

Borrow pits/quarries have been adjusted in the above table (Figure 2) to only take into account material piling at a depth of 1m. The revised table below includes total values if the quarries/borrow pits were to be filled at 2.5m depth.

| Survey Area | No. of Plots | Volumes ($m^3$) |
|---|---|---|
| West of Loch North (WoL North) | 19 | 79,334.45 |
| West of Loch South (WoL South) | 10 | 56,639.81 |
| Track to Bothy West | 10 | 26,041.01 |
| Track to Bothy East | 17 | 58,602.2 |
| Quarry 1 + Airfield | 19 | 75,054.64 |
| Quarry 2 + Bothy Area | 5 | 14,650.36 |
| Quarry South (North East of Bridge) | 1 | 3,330.72 |
| **Total** | **81** | **313,653.19 $m^3$** |

*Figure 6 - Revised values of quarries/borrow pits at 2.5m depth*

### Links to Drone Survey Data

The links below provide access to the orthomosaics/3D models created by data captured during the drone surveys. This provides access to the fill analysis locations and can be viewed in 3D.

West of Loch North

West of Loch South

Track to Bothy West (South of Bridge)

Track to Bothy West North

Track to Bothy East

Quarry 1 and Airstrip

Quarry 2

Area North of Airstrip

Quarry 3