WESTCOUNTRY MINES

& PROPERTY SURVEYS

MINING SUBSIDENCE CONSULTANTS

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A Report on a Site Investigation carried out at:

Community Roots Project
Carn View
Porthtowan,
Truro.
TR4 8FN

N.G.Ref: SW 6976 4665

For:

Community Roots Project
Carn View
Porthtowan,
Truro.
TR4 8FN

Our Ref: 70069 Date: October 2023

Completed by N.A.Pettett B.Eng. (Hons) ACSM

1.0 Introduction

1.1 This Site Investigation in respect of historic metalliferous mining activity has been carried out by Westcountry Mines and Property Surveys and follows a Documentary Mine Search report undertaken by Cornwall Mining Consultants Ltd (Their Ref: MK/CMS/139559, dated 19th September 2023) .

1.2 This report is confidential to the clients, the mortgage provider and any other professional advisors acting for or on behalf of the clients, and is specific to the subject property only. This report cannot be used for any purpose other than to that intended.

1.3 The objective of this investigation was to ascertain the presence or otherwise of any deleterious mining features, likely to present a risk to the proposed new detached barn at:

Community Roots Project
Carn View
Porthtowan,
Truro.
TR4 8FN

2.0 Location and Geology

2.1 The property, which currently comprises a Community Supported Agriculture (CSA) project based in Porthtowan Cornwall., is situated on the eastern outskirts of the village of Porthtowan, on the north coast of Cornwall. Throughout this report the reader is referred to the maps, plans and drawings (Figures 1, 2, 3 and 4).

2.2 The property is shown by the British Geological Survey to be situated on bedrock of the Porthtowan Formation. This is a sedimentary rock that consists of Interbedded slaty mudstones, grey and grey-green, and sandstones (turbidite). Subordinate sandstone beds are up to 2m thick, typical. It was formed between 382.7 and 358.9 million years ago during the Devonian period.

2.3 A turbidite is a type of sedimentary rock that forms when a large amount of sediment is carried by a fast-moving underwater current called a turbidity current. Turbidity currents can be triggered by earthquakes, landslides, or storms, and they can travel for hundreds of kilometres along the seafloor. As the current slows down, it deposits the sediment in layers that show a gradual decrease in grain size from bottom to top. This pattern is called a Bouma sequence or a turbidite sequence.

2.4 The emplacement of the proximal Carnmenellis Granite has caused widespread mineralization, principally in the form of sinuous, east northeast to west southwest striking and steeply inclined planar mineralised structures (lodes), which have been extensively exploited in the vicinity, principally for tin and copper ores.

2.5 The property is recorded to lie within the Sett (mine lease area) of a small 19th Century mine named as Old Wheal Basset, a copper and tin mine that operated from the early 19th century until 1867. Old Wheal Basset was later renamed Wheal Ellen and briefly reopened in 1907, but was ultimately unsuccessful. The mine is now a historical site that can be visited by the public.

2.6 The available maps and plans detailing the recorded mining activity in the area, are poor and sketch-like in nature and are not believed to show the full extent of the associated mining activity but do show some, shafts and workings in the general vicinity of the subject property, there are no recorded workings, or shafts, within the site boundaries.

3.0 Investigation

3.1 Based on the available information it was not possible to confirm whether, the proposed new barn, would be acceptably free from risks presented by unrecorded historic mining activity, therefore it was recommended that a Mining Site Investigation be undertaken.

3.2 The Investigation, which involved the excavation of two linear trenches, in a pattern designed to provide the optimum coverage for the anticipated lode structures and a pit for percolation tests, was carried out on 2nd October 2023.

3.3 Two linear trenches, totalling 26.0m were excavated perpendicular to the indicated lode alignments, in accessible areas to the north and south of the site for the proposed new barn. These were designed to intersect any possible linear mineralised structures and were excavated into more intact in-situ sandstones and mudstones. The trenches were excavated using a Hitachi Zaxis 65USB 360° tracked excavator after the investigation was completed the excavations were backfilled with the available arisings.

3.4 In addition to the linear trenches a pit dug for the purpose of percolation testing was inspected.

3.5 The site plan is shown as Figure 2 and on this are shown the approximate trench and excavation locations.

4.0 Results

4.1 Trench 1, excavated from south to north in the fallow agricultural area just outside and to the north of the Community Garden confirmed intact, weathered, fractured slate bedrock along its excavated length, with interstitial red/brown sandy clays, overlain by organic-rich clayey soil.

4.2 Trench 2, excavated from south to north in the central part of the Community Garden, just to the south of the site of the proposed new barn confirmed intact, weathered, fractured slate bedrock along its excavated length, with interstitial red/brown sandy clays, overlain by organic-rich clayey soil.

4.3 The test pit excavated adjacent to and north of Trench 2 confirmed the presence of intact horizons of fractured slate bedrock and iron stained vughy quartz.

5.0 Conclusions and Recommendations

5.1 The investigation confirmed the presence of in-situ, undisturbed fractured, variably weathered sedimentary bedrock (slates) with interstitial red/brown sandy stony clays beneath the surface turf and soil throughout the investigated areas. No fill, voids, made ground or any other anomalous features, believed to be indicative of extractive or sub-surface mining activity, were encountered in any of the trenches. No indications to suggest the proximity of any economically mineralised structures (lodes) were encountered in any of the trenches. We have no reasons to believe that the proposed new barn is likely to be at any risks of subsidence, settlement or collapse related to historic metalliferous mining activity and in our opinion no further actions are required in respect of this, at this time.

5.2 It should be noted that the site is situated in an area in which intensive mineral prospecting activity has taken place. Should any anomalous features, such as areas of backfill or made ground, which may indicate unrecorded historic metalliferous mining activity, be encountered during any future site works, they should be inspected by a Mining Consultant, in order to assess any potential risks presented to any proposed development.

6.0 Limitations

This report is in respect of mining related activity it does not constitute a geotechnical assessment. The investigated area is delineated as the area covered by the excavations. Information obtained from the boreholes is used to infer the likely ground conditions between them and Westcountry Mines & Property Surveys cannot be held responsible for any anomalous features which could not, reasonably have been anticipated, or inferred, from the available data. This report is confidential to the clients, the Mortgage provider and other professional advisors acting for or on behalf of the clients, and is specific to the subject property only. This report cannot be used for any purpose other than to that intended.

Yours faithfully,

WESTCOUNTRY MINES & PROPERTY SURVEYS

GLOSSARY

Adit: horizontal tunnel driven from low ground to drain or ventilate mine workings in higher ground.
Crosscourse: sheet like geological feature striking across the general direction of the lodes.
Dip (underlie): angle of inclination of lode or rock structure from the horizontal.
Granite: igneous rock, crystalline compound of quartz, feldspar and mica.
Hornfels: Hornfels is a type of metamorphic rock formed when a sedimentary or igneous rock is exposed to high temperatures and pressures.
Kaolinisation: alteration of granite to clay and sand from solid rock.
Killas: general Cornish term given to sedimentary rocks.
Level: underground horizon on which tunnels are driven.
Lode: mineralised vein producing ore.
Outcrop: surface penetration of geological features such as lodes or rock formations.
Sett: area of ground leased for mining.
Shaft: vertical, or inclined, excavation to connect underground workings to surface, providing access.
Stope: void created by the extraction of ore and waste (gangue) minerals.

Trench Logs

Description of horizons:

Topsoil; dark, organic-rich clayey soil topped with turf

Sandy clay; Buff/orange stony, sandy clay with sparse cobbles of granite.

Hornfels: fractured angular cobbles of quartz/tourmaline with buff interstitial clay.

Trench 1 North

Data Point (Meters from north end)	Depth (beneath present surface)	Horizon
0	0.0m-0.3m 0.3m-1.1m 1.1m-1.2m	Topsoil Stony clay Weathered bedrock
2	0.0m-0.3m 0.3m-1.1m 1.1m-1.2m	Topsoil Stony clay Weathered bedrock
4	0.0m-0.3m 0.3m-1.1m 1.1m-1.2m	Topsoil Stony clay Weathered bedrock
6	0.0m-0.3m 0.3m-1.1m 1.1m-1.2m	Topsoil Stony clay Weathered bedrock
8	0.0m-0.3m 0.3m-1.1m 1.1m-1.2m	Topsoil Stony clay Weathered bedrock
10	0.0m-0.3m 0.3m-1.1m 1.1m-1.2m	Topsoil Stony clay Weathered bedrock
12	0.0m-0.3m 0.3m-1.1m 1.1m-1.2m	Topsoil Stony clay Weathered bedrock

14	0.0m-0.3m 0.3m-1.1m 1.1m-1.2m	Topsoil Stony clay Weathered bedrock

Trench 2 South (central)

Data Point (Meters from east end)	Depth (beneath present surface)	Horizon
0	0.0m-0.3m 0.3m-1.1m 1.1m-1.2m	Topsoil Stony clay Weathered bedrock
2	0.0m-0.3m 0.3m-1.1m 1.1m-1.2m	Topsoil Stony clay Weathered bedrock
4	0.0m-0.3m 0.3m-1.1m 1.1m-1.2m	Topsoil Stony clay Weathered bedrock
6	0.0m-0.3m 0.3m-1.1m 1.1m-1.2m	Topsoil Stony clay Weathered bedrock
8	0.0m-0.3m 0.3m-1.1m 1.1m-1.2m	Topsoil Stony clay Weathered bedrock
10	0.0m-0.3m 0.3m-1.1m 1.1m-1.2m	Topsoil Stony clay Weathered bedrock
12	0.0m-0.3m 0.3m-1.1m 1.1m-1.2m	Topsoil Stony clay Weathered bedrock