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SUMMARY

The study area possessed little of architectural merit but the following points can be drawn;

- A concrete building dating to 1940 was used as a grading plant importing stone via a series of conveyors and then discharged the stone onto waiting ships via a purpose-built jetty.

- The equipment was of little antiquity probably dating to the 1970s, as were the concrete piers supporting the conveyor.

- A brick hut containing the switchgear and a corrugated sheet building were functional buildings of relatively recent date

1. INTRODUCTION

1.1 Project origins

Clwyd-Powys Archaeolopgical Trust (Development Control) was consulted by Conwy Borough Council regarding a planning application for the demolition of a jetty, conveyor and associated buildings at Llanddulas Quarry, Abergele Road, Llanddulas; Planning Application No. 378501.

The study area was located at SH 89700 78300 (figure 1).

The scheme has the potential to remove buildings of special architectural and historic interest. The development proposal will remove extant buildings and equipment and as a result, a condition has been placed on planning consent requiring a programme of archaeological building recording to be undertaken prior to the development taking place.

The curatorial authority has requested a programme of building recording equivalent to Level 2 as described by English Heritage *Understanding Historic Buildings A Guide to Good Recording Practice, 2006*.

Figure 1. Location of survey. (OS copyright licence no. 100044205).

The programme of archaeological building recording required documentation of three extant industrial buildings, the conveyor, concrete piers and a jetty, subject to safe working conditions. These study buildings are located below (figure 2).

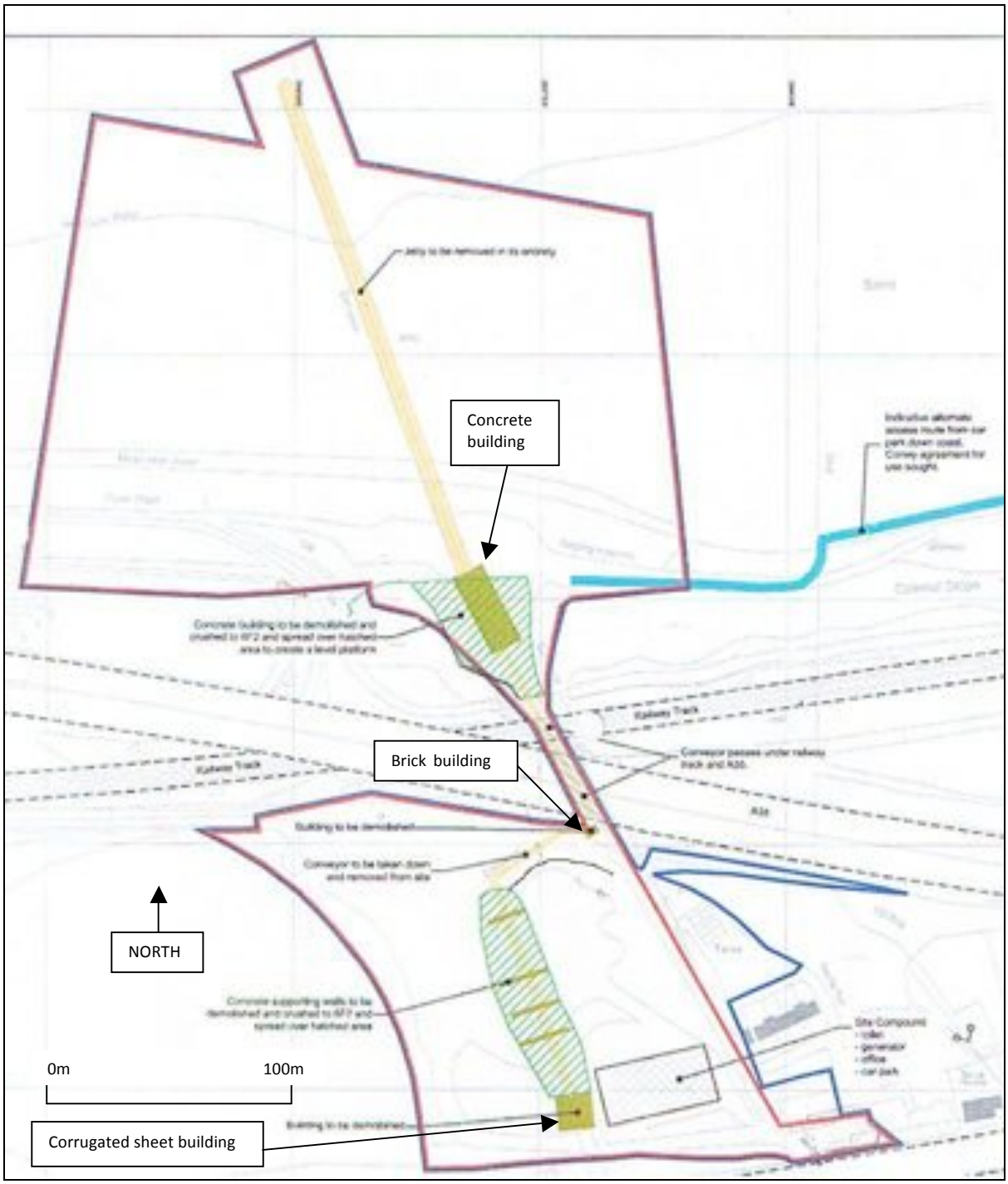

Figure 2. Location of study buildings

2 HISTORICAL CONTEXT

2.1 Historical background

Llanddulas quarry was in operation in 1880, illustrated in detail on the First edition Ordnance Survey map.

The map shows the following salient aspects;

- A former jetty on the site of the modern jetty

- A tramway that is still extant and was partly occupied by the conveyor as it neared the jetty
- A quarry that the conveyors traversed via a series of concrete piers
- Stone buildings just east of the tramway and near Abergele Road that are still extant
- Extensive quarrying south of Abergele Road

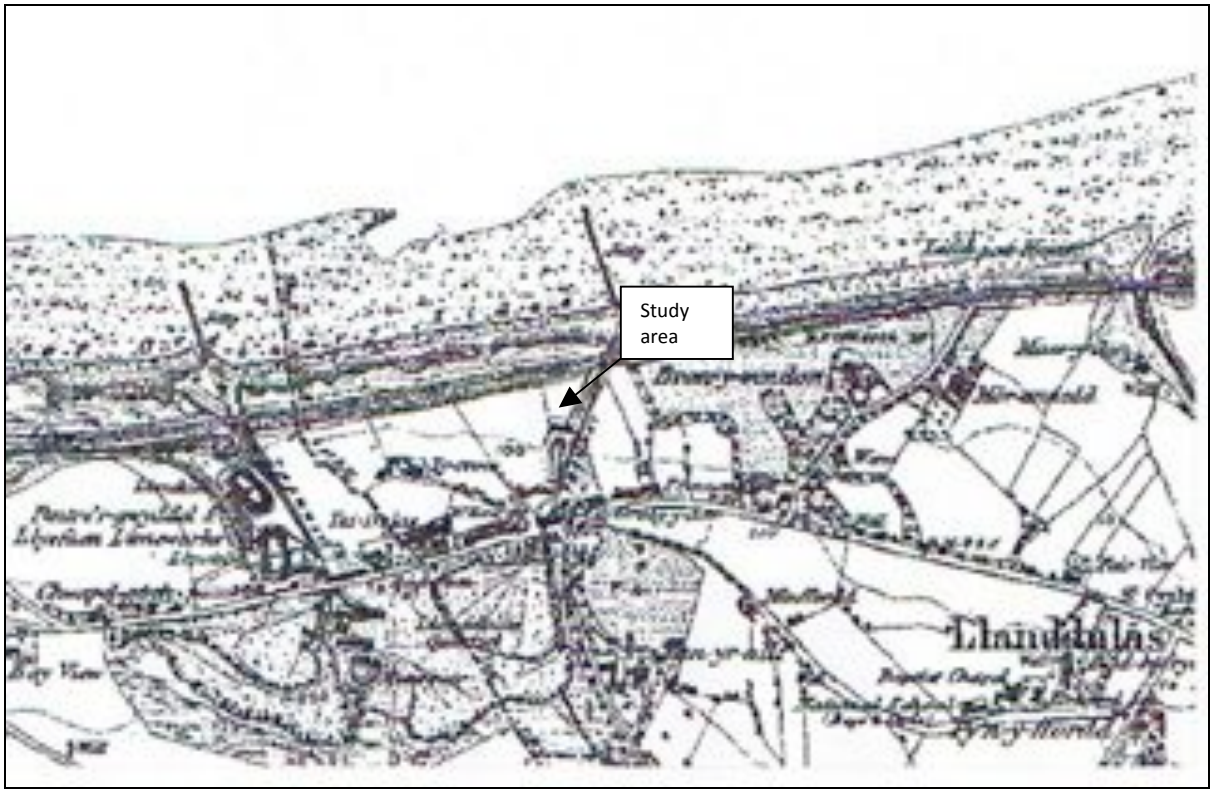

Figure 3. Ordnance Survey First Edition map of 1880

Quarrying of limestone had clearly become firmly established by 1880, probably beginning during the earlier 19th century.

This industry continued into the late 20th century when the quarry became redundant. Part of the site has been used for landfill, but the area under study has been left redundant and unoccupied.

3 RESULTS

3.1 Methodology

The buildings in the study area were surveyed on August 16th 2011 by Gerry Martin using tapes, a Disto measuring device and hand-held GPS equipment.

The survey comprised of the following elements:

- A jetty
- Conveyors
- Concrete piers
- A concrete building
- A brick hut
- A pre-fabricated, corrugated sheet building

Access to the concrete building, the jetty, the conveyors and the pre-fabricated building was prohibited due to their dangerous condition, the buildings being secured by chains and razor wire.

The reporting has been organised in a manner that parallels the industrial process, namely the quarrying of stone through to its removal at the jetty. The study area did not encompass quarrying, the first element being the arrival of the stone at a corrugated sheet building.

The survey comprised of scaled photographic recording of the interiors and elevations of the principal buildings where possible, with detailed photography of any worthy architectural elements.

The corpus of the following report is formed from these notes and photographs.

3.2 Survey results; corrugated sheet building

The corrugated sheet building due for demolition was inaccessible (figure 4); a pile of debris precluding access into the building where extant machinery was present.

The building located at SH 89718 78283 comprised a steeply pitched, 60 degree angle, corrugated sheet roof (figure 5) formed from galvanised steel consisting of twenty four x four sheets, measuring 2.30m x 0.66m in size, resting on a one metre high rubble stone wall with cement mortar.

The building was 16.00m x 14.52m in size and approximately 4.00m in height with access only through the southern gable that comprised of a corrugated sheet outshut with a central entrance that protruded southwards by 2.00m.

Figure 4. South elevation of corrugated building

Figure 5. East elevation showing corrugated roof

Figure 6. North elevation of corrugated building

Figure 7. Compound area with buildings removed

The northern end of the building (figure 6) allowed the conveyors to exit through an off-centre aperture approximately 2.50m in width.

East of the study building (figure 7) was a flat area where temporary or pre-fabricated structures were once present. These ancillary buildings presumably were associated with the processing of the stone.

3.3 Survey results; concrete piers and conveyor

The conveyor discharging from the corrugated sheet building traversed a deep void retained by roughly hewn stone blocks (figure 9) that appeared to be a quarry on the First Edition Ordnance Survey map of 1880.

Four concrete piers measuring 19.00m in width and 0.60m thickness and standing to a height of 12.60m assisted by two steel piers supported a steel gantry that carried the conveyor (figure 8).

The piers were formed from shuttered concrete (figure 9) each panel being 2.10m x 0.60m. Constructed since 1970, the piers were located at SH 89680 78390.

Figure 8. Gantry with conveyor

Figure 9. Concrete pier supporting gantry

In order to accommodate the fall in the slope, the conveyor dropped steeply to ground level (figure 8) whereupon the conveyor rested on the ground. Dog-legged north-eastwards (figure 2), a second conveyor carried the transported rock (figure 10) towards the course of the former tramway. The conveyor in this location had been removed leaving a series of redundant concrete piers 2.00m x 0.60m in size and approximately 0.80m above the ground.

Figure 10. Conveyor at base of gantry

Figure 11. Disused concrete piers

This central area possessed a rubble stone retaining wall forming a broad arc that probably formalised an earlier 19th century quarry face (figure 12). Iron retaining links had been tied into the wall (figure 13).

Figure 12. Retaining wall

Figure 13. Retaining link

3.4 Survey results; brick hut

Located at SH 89711 78910 was a pink brick building (figure 14) without a roof possessing a small pink brick annex on its western side and built on a concrete platform. This building measured 6.05m x 3.40m and stood to a height of 2.81m.

The buildings plain walls lacked any embellishment (figure 15) probably constructed during the 1960s or 1970s and contained the switchgear for the conveyors that was still present albeit vandalised. This building probably replaced an earlier structure as the brick hut butted an earlier concrete wall.

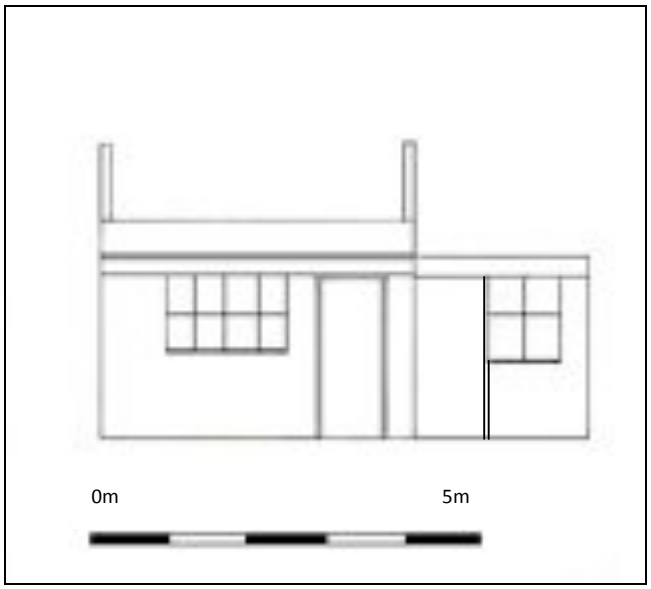

Figure 14. Elevation of brick hut looking north

Doors were missing whilst all the windows within steel window frames had been broken. All the other elevations did not yield windows or doors (figure 16).

Figure 15. Brick hut looking south

Figure 16. West elevation of brick building

3.5 Survey results; conveyors and tramway

From the brick hut, the conveyors maintained a north-west to south-east alignment respecting the course of a former tramway that is now a sheltered lane. The extant conveyors diverged, an upper conveyor delivering the stone to a concrete building whilst a lower conveyor returned southwards (figure 17).

The conveyors possessed covers and comprised a continuous rubber belt propelled by rollers beneath (figure 18).

Figure 17. Tramway

Figure 18. Covered return conveyor

3.6 Survey results; concrete building

The principal building of architectural interest and due for demolition was a large concrete structure that appeared to grade the rock before its delivery to the jetty followed by onward transportation by cargo ship.

Via an upper conveyor, the rock was delivered to an upper stage within the concrete building. Most probably utilising a series of hoppers, the rock was graded through a series of meshes, the smallest material accumulating at the base of the structure.

Three conveyors emanated from the northern end of the structure, depositing the rock via a large hopper and then onto a single conveyor that continued along the jetty.

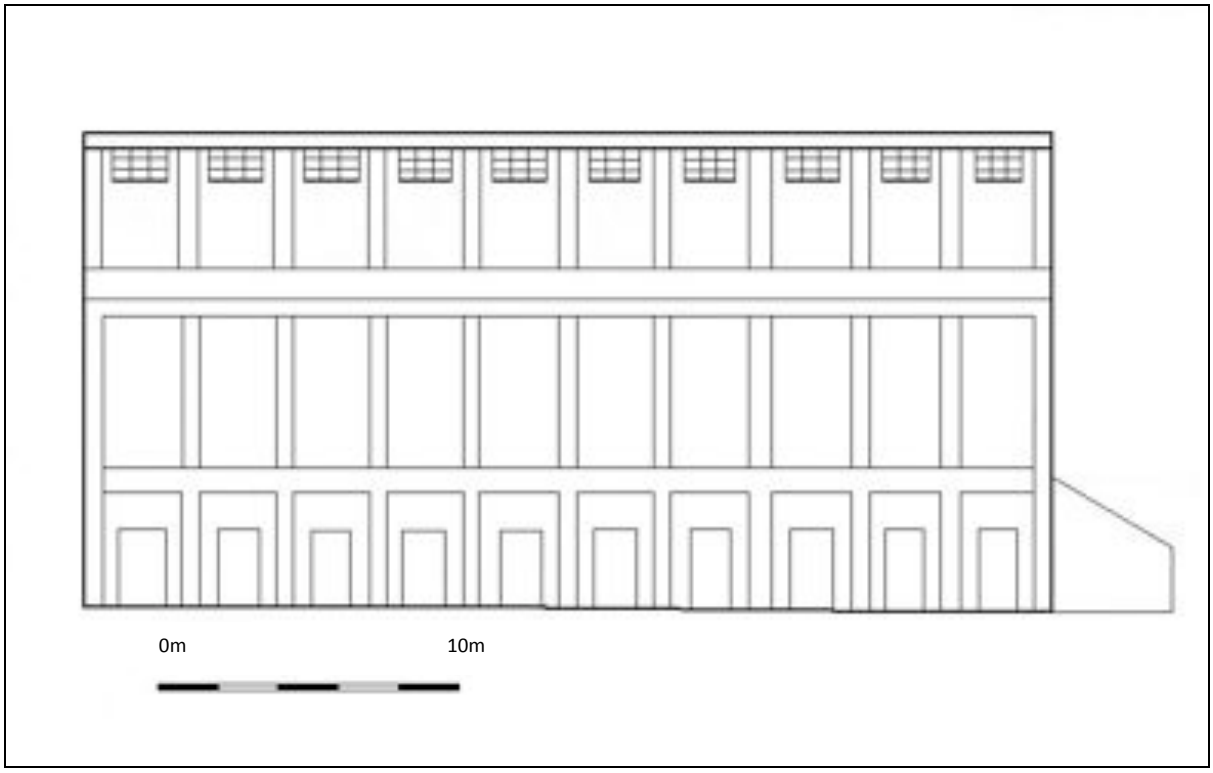

Figure 19. Eastern elevation of the concrete building

Eastern elevation

Figure 20. Ground floor bay

Figure 21. Concrete building looking south-west

The eastern elevation (figure 19) measured 31.16m in length and was constructed from shuttered concrete throughout. The ground floor comprised ten bays 2.50m in width and 3.70m in height formed from eleven reinforced, square concrete columns 0.56m x 0.56m.

Each bay (figure 20) yielded an opening 2.50m in height and 1.24m in width blocked by a metal grille within a concrete panel 0.12m in thickness.

A mid stage (figure 21) consisted of concrete panels filling the space between the eleven concrete columns, the building slightly tapering inwards. Most probably this area was occupied by machinery or the grading meshes.

The upper stage (Figure 21) possessed a series of ten windows with metal frames but with no remaining glass respecting the ten bay configuration established on the ground floor. Each light measured approximately 0.60m x 0.30m.

Western elevation

The western elevation (figure 22) repeated the structural arrangement described on the eastern elevation. However, on the upper stage only the third and seventh windows were original, the others replaced with grilles whilst the ninth window was closed with bricks.

Figure 22. Concrete building western elevation

Figure 23. North side

Northern elevation

The northern elevation (figure 23) repeated the bay arrangement as described but originally contained four bays at ground floor level later reconfigured to three bays. On the upper stage, only three windows covered by grilles were present.

A corrugated sheet outshut protected a series of three conveyors and a hopper

Southern elevation

The southern elevation measuring 14.54m in width repeated the bay configuration described above except only three bays measuring 4.10m in width were present.

The ground floor was open displaying a series of hoppers (figure 24).

On the upper stage a conveyor entered through a central aperture with an extant window to the east and a window replaced with a grille to the west (figure 25).

On the mid-stage a concrete cartouche bore the date 1940, presumably the date for the construction of the building (figure 26).

Figure 24. Hopper on ground floor

Figure 25. Southern elevation, concrete building

Figure 26. Cartouche bearing date 1940

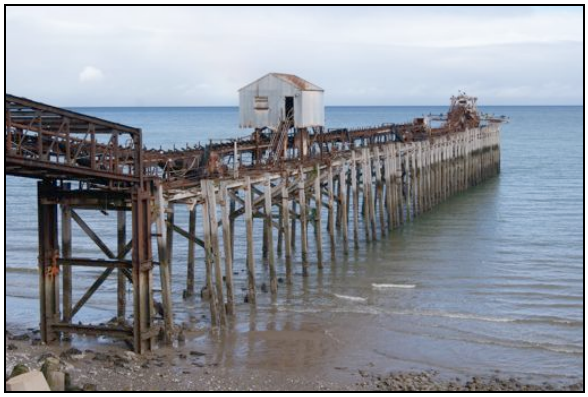

Figure 27. Jetty looking north-westwards

3.7 Survey results; the jetty

The jetty comprised 45 sets of timber stilts approximately 8.00m in height and 6.00m in width, the feet slightly splayed at an 85 degree angle and cross-braced by further timbers at every third set (figure 27). The jetty was approximately 200m in length. Access was prohibited, razor wire and a steel barrier being present.

The jetty constructed from steel girders possessed no decking, the piers carrying a continuous rubber conveyor belt. At the end of the jetty were two terminals or gantries protruding approximately 3.00m associated with loading stone cargo.

Straddling the jetty on a small gantry was a corrugated sheet hut 6.00m x 6.00m and 2.00m in height with a steep pitched corrugated roof 1.00m in height (figure 28) accessed by a steel stairway.

Linking the jetty with the concrete building was an arrangement of three conveyors surmounted on a steel girder gantry 2.60m in height above the ground that discharged onto a single conveyor (figure 29) via a large hopper.

Figure 28. Hut on the jetty

Figure 29. Conveyor linking the jetty

3.8 Survey results; Discussion

The architectural elements examined within the survey probably belonged to two distinct phases; a period around 1940 when the tramway was abandoned and a second phase during the 1970s when new conveyors were introduced and concrete piers carrying the line constructed.

The study area had been utilised as a quarry since the 19th century. A tramway transported stone from a southern quarry to a jetty whereupon it was loaded onto sailing vessels. This practised continued into the 20th century.

Around 1940, the existing facilities either required improvement or enlargement necessitating the construction of a grading plant and a longer jetty in order to cope with deeper draught ships. These developments can be summarised as follows;

- The grading plant, a cast concrete building dated 1940, housed machinery that was later replaced with modern hoppers.

- The tramway probably became defunct replaced by a series of conveyors that led at least as far as a brick hut, a later construction replacing an earlier building sited at the same location.

- The jetty was probably re-built with steel girders forming a cage for the rubber conveyor thereby discharging stone from the grading plant to waiting ships.

During the 1970s, the conveyors may have been extended southwards towards a corrugated sheet building, or the course of former conveyors replaced by a new conveyor supported on poured concrete piers.

Wholesale refurbishment probably occurred with the construction of a bespoke brick hut that contained the switchgear for the conveyors.

Recently, the transportation of stone by sea ended, the machinery abandoned and the conveyors partly removed.

The concrete building dated 1940 possessed no architectural merit but has some local historical interest regarding the quarrying industry in 20th century North Wales as it indicated significant capital investment in the plant.

The brick hut and the corrugated sheet building as well as the concrete piers were probably built little more than 40-50 years ago and possessed no architectural merit being functional, utilitarian buildings solely used for industrial purposes.

The conveyor machinery and rubber conveyor belt probably correspond to the refurbishment undertaken in the 1970s and have no obvious cultural interest.

4 ARCHIVE

The archive has been compiled in accordance within a generic project design and the guidelines set out by English Heritage (1991) and the Institute of Field Archaeologists (1994, 2007 and 2008).

The archive for this project will be deposited with the appropriate archaeological curator. This archive has been assembled in accordance within the protocols of Management of Archaeological Projects (MAP2).

5 ACKNOWLEDGMENTS

I am grateful to Anne Thompson for her assistance with the report and commissioning the work. Peter Taberner allowed me access to the site and answered my questions on the recent history regarding the study area. Matt Hays provided copies of photographs taken by RCAHMW during 2008.

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