

## ARCHAEOLOGICAL RECORDING AT KNOWLE BATTERY, ST BUDEAUX, PLYMOUTH

By MARC STEINMETZER<sup>1</sup>

*Excavations were conducted in 2015 at Knowle Battery, part of a chain of mid-19th century fortifications defending the north-eastern approaches to Plymouth. Elements of the western gorge walls, and the remains of two expense magazines were exposed. The work has also thrown new light on the defences of the battery by exposing evidence for a gun aperture in the flank section of the western gorge wall.*

### INTRODUCTION

Knowle Battery (Fig. 1) lies on the north-east side of the parish of St Budeaux, between Agaton Fort to the west and Woodland Fort to the east, north of Ringmore Way. It consists of a large, irregular four-sided fortification, including a large guardhouse. The western wall and original entrance has been demolished above ground-level and therefore only part of the battery complex is protected by designation as a Scheduled Ancient Monument (No. 842, National Listing No. 1002614).

Prior to the granting of planning permission for the construction of a new primary school in 2014 to replace the existing post-war school which was to be demolished, a programme of documentary research and trial pit excavations was required by Plymouth City Council and Historic England. This was designed to determine the location, extent and quality of preservation of archaeological deposits surviving within the battery, and the potential impact of the proposed scheme. It demonstrated that although archaeological deposits had been removed from many parts of the site by the post-war school buildings the western gorge wall appeared to be preserved along the southern edge of the redevelopment area, with other structures probably surviving around the fringe of the 1950's buildings (Salvatore 2014; Steinmetzer 2014). As a result, a watching brief was undertaken during the demolition of the standing post-war buildings.

### HISTORICAL BACKGROUND

Knowle Battery is one of the so-called Palmerston Forts constructed around Plymouth and named after Henry John Temple, 3rd Viscount Palmerston. Following successive invasion scares in 1852 and 1853 the first set of forts were constructed around Portsmouth. Within a year the Crimean War had broken out and the British were fighting alongside the French (Woodward 1998, 42). This *rapprochement* was not to last however and by the late 1850s Britain had once more become suspicious of French intentions. Following the French war against Austria and the launching by the French Navy of the iron-clad *La Gloire* in November 1859, which rendered all existing coastal batteries obsolete overnight, Lord Palmerston set up a Royal Commission to report on the defences of the United Kingdom (Bracken 1931; Ellis *et al.* 1997; Woodward 1998).

These fortifications represented the largest maritime defence programme since the

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<sup>1</sup> Oakford Archaeology

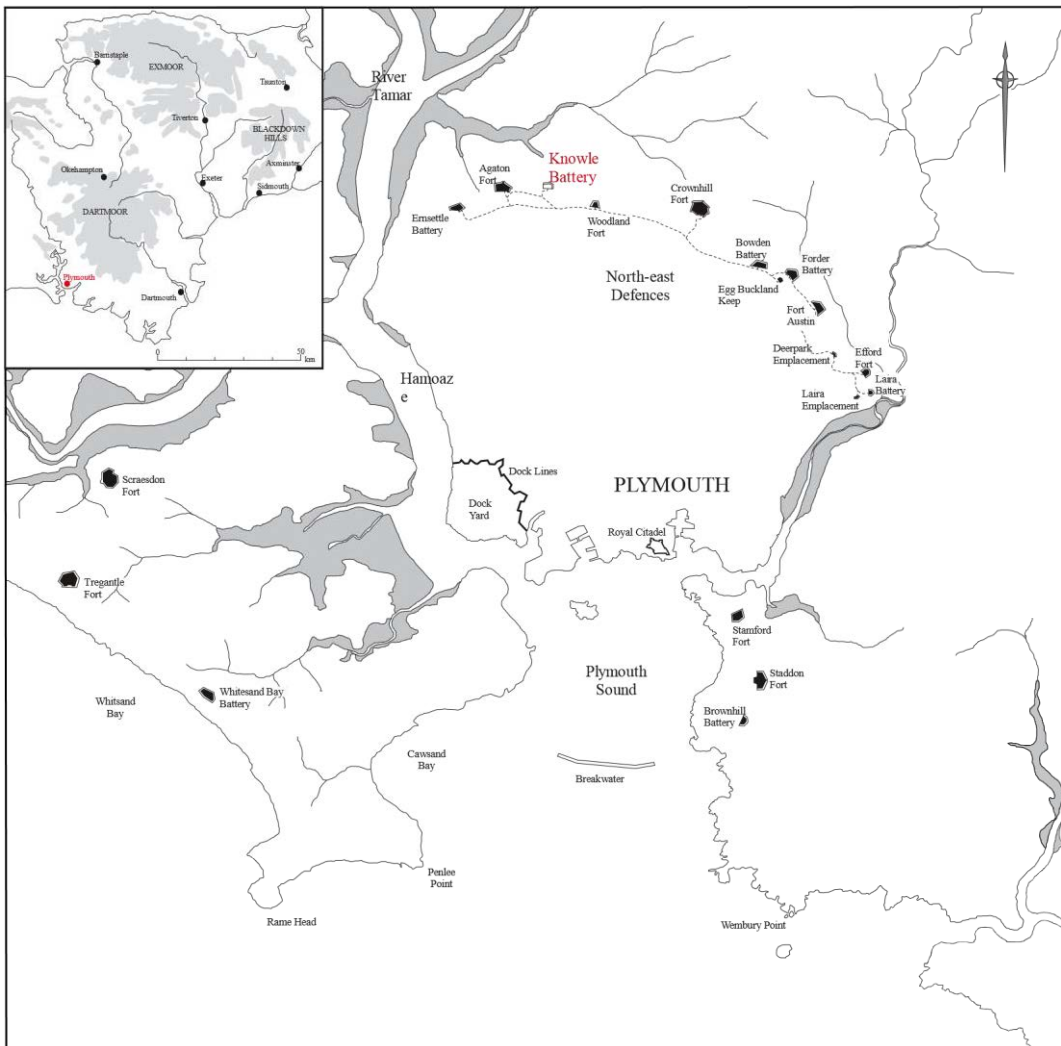


Fig. 1. Location of Knowle Battery, Plymouth.

initiative of Henry VIII in 1539–40. The programme built upon the defensive works already begun at Plymouth and elsewhere and recommended the improvement of existing fortifications as well as the construction of new ones. There were eventually some 70 forts and batteries in England which were due wholly or in part to the Royal Commission. These constitute a well-defined group with common design characteristics, armament and defensive provisions. They remain the most visible core of Britain's coastal defence systems of the 19th century. They were constructed at Plymouth in the period 1860 to the early years of the 1870s. However, following the defeat of the French army in the Franco-Prussian War of 1870–71 the threat of invasion from France, against which the fortifications had been built, rescinded; as a result of this they are known colloquially as 'Palmerston's follies' (Woodward 1998, 119–29).

The landward-facing forts at Plymouth, designed to prevent capture of the Royal Dockyard by a French invasion force approaching from the rear, stretched from the River Tamar in the west to the Laira Estuary in the east. There were 11 forts or batteries in this defensive chain with the focal point in the centre at Crownhill (Fig. 1). All the forts and batteries were connected by an embanked military

road and further forward by earthworks and ditches. At one point in the system defended barracks to the rear at Egguckland Keep were linked by an underground tunnel to Forder Battery (Pye and Woodward 1996, 180–82).

Knowle Battery was built on the western side of Crownhill between two other forts of the chain, Agaton to the west and Woodland to the east, on open farmland overlooking the Forder Valley and Budshhead Creek. The design was by Capt. Du Cane and construction began in 1863 and was completed in 1869. The battery was protected to the north by a ditch and *glacis* and to the rear by a wall and heavily defended guardhouse. A small gateway with a drawbridge, located to the west of the guardhouse, provided access. The battery was originally designed with an earthen rampart with embrasures for 13 guns in an open battery

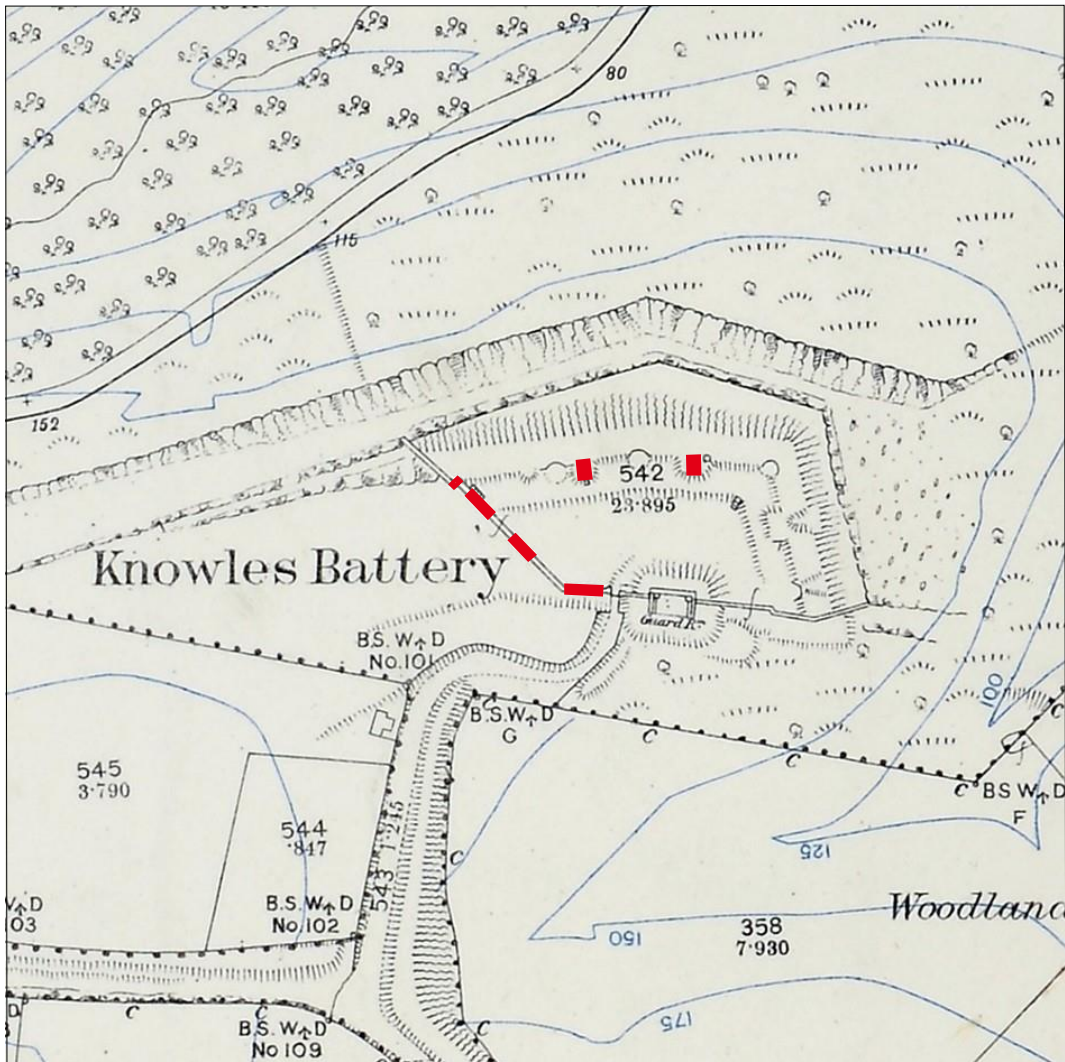


Fig. 2 Knowle Battery in 1896 with recently exposed elements highlighted.





Fig. 3. Knowle Battery in 1949 (Plymouth Central Library Records).

and a single gun in a Haxo casemate, a free-standing casemate built on top of the rampart, with three expense magazines in traverses and a reserve magazine in the guardhouse. The 30 ft high gorge wall was flanked by a cannon and five rifle loop-holes in each side of the two-storey guardhouse (Pye and Woodward 1996, 172–73).

The battery is shown for the first time on the 1896 OS map (Fig. 2), when four open and one casemated gun positions are shown. During the Second World War Knowle Battery was used as base by the RAF for the barrage balloon system defending Plymouth (Pye and Woodward 1996, 172).

An aerial photograph (Fig. 3) taken in 1949 provides a further glimpse of Knowle Battery and although the photograph is of relatively poor quality enough detail is clearly discernible. The battery was released in 1952 by the MoD and Knowle Primary School built within the interior (Salvatore 2014). This involved the demolition of the western gorge walls along with the original entranceway, and the completion of associated landscaping works (*idem.*). Since then part of the glacis to the north and east has been truncated by Ringmore Way and Budshead Road and much of the setting of the battery lost to the encroachment of housing estates (Salvatore 2014).

## THE SITE

### **The western gorge wall**

The battery was defended, in addition to the main northern and eastern earthen ramparts, by a major masonry wall to the south and west. Only the eastern section of the gorge walls, up to the guardhouse,

and a small section of the western gorge wall survives today above ground. However, the position of the demolished western wall was uncovered by the works (Fig. 4). The wall sections exposed were constructed of irregularly coursed large to small size local stone rubble bonded with light yellowish white lime mortar with frequent quartzite flecks. The walls were 1.7 m thick and the interior face had been built against the bedrock. Above the natural ground the ramparts were built up with earth and shillet presumably excavated from the ditches and *glacis*. The surviving section of the eastern gorge wall survives to its full height and retains evidence for rifle loop-holes, allowing a tentative reconstruction of the western elevation from the fragmentary sections uncovered during the works (Fig. 5).

The ditch in front of the western gorge wall has been infilled and the external levels raised significantly since the 1950s. The cannon and rifle loop-holes in the western elevation of the guardhouse, now partly covered by modern material, would originally have provided enfilading fire across the western ditch and covered the approaches to the drawbridge.

Finally, the remains of a single opening in the flank section of the western gorge wall (Fig. 6) were exposed. At the centre of the elevation three rusticated granite ashlar blocks defined a possible aperture for a cannon or rifle. The opening had subsequently been infilled and the upper section of the elevation rebuilt using smaller local stone rubble. This evidence, together with additional evidence from a 1949 aerial photograph which seemingly shows at least two gun openings in the flank section of the western gorge wall, suggests a defensive arrangement broadly similar to that identified in the south flank section of the



Fig. 4 Exposed section of western battery wall, looking northeast (2m).

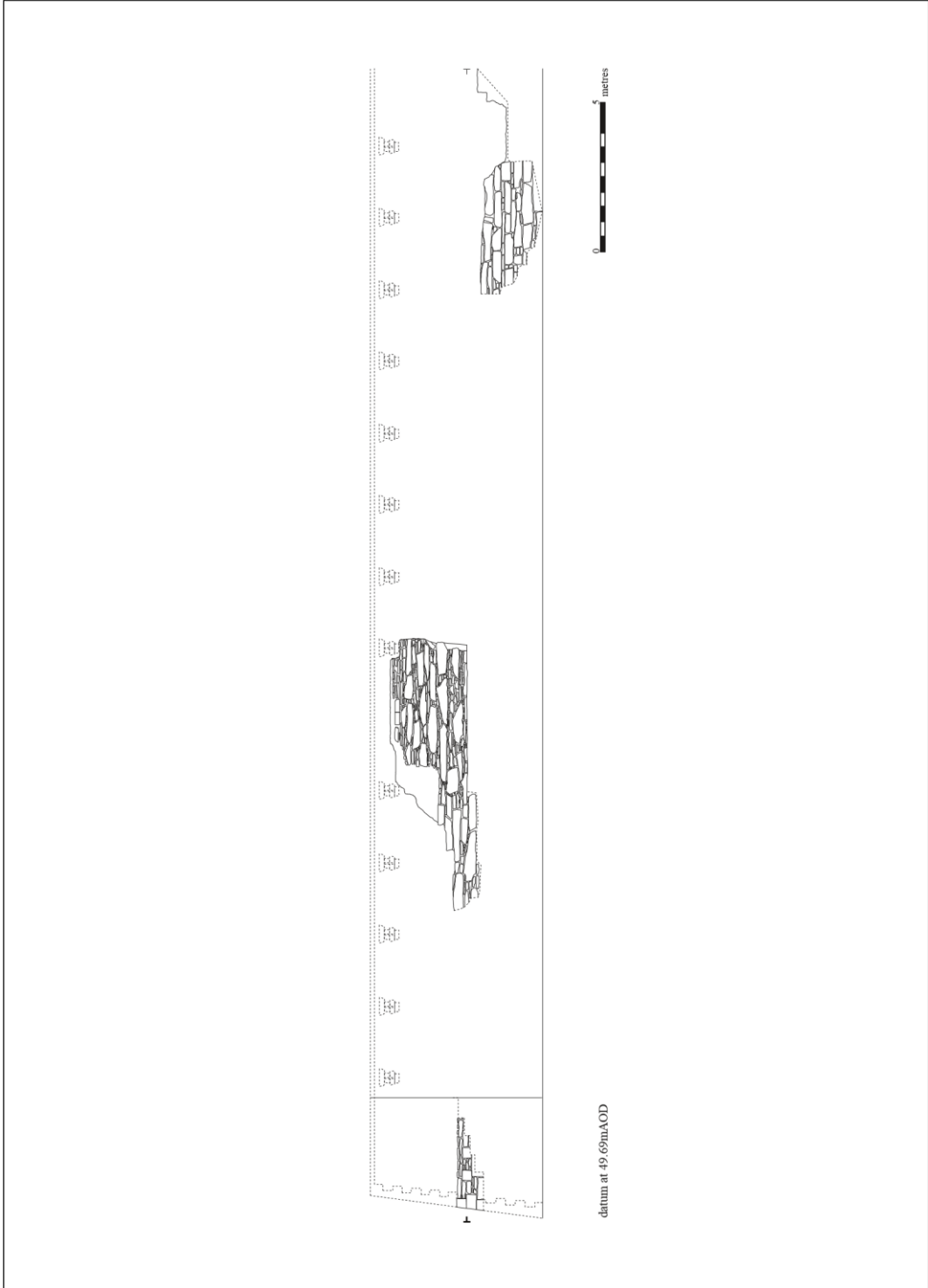


Fig. 5. Reconstruction of the western elevation of Knowle Battery showing sections exposed during the works.





Fig. 6 View of the flank wall with granite detail (centre) indicating location of gun opening, looking north-west (0.5 m scale).

gorge wall at Ernesettle Battery at the extreme western end of the line. Although heavily overgrown, this fortification has an above ground flanking gallery located at the southwest corner. The possible nature of the defensive arrangements at both Ernesettle and Knowle is illustrated by the *caponiers* at Crownhill. Although much larger and elaborate examples they clearly illustrate the cannon and rifle arrangement defending the ditch and curtain walls.

### **The expense magazines**

The remains of two expense magazines were exposed on the north rampart. Although the eastern expense magazine had been severely truncated by post-war activity, it was possible to recover the plan of the western magazine (Figs 7 and 8). The staggered entrance into the magazine and the multiple doorways would have provided additional protection to the gun crews and munitions stored inside the second chamber. Surviving examples at Woodlands Fort and Crownhill, for example, exhibit a number of different access arrangements and layouts. This may reflect the adoption of improvements or changes in design over the relatively long period between 1863 and 1872 during which the forts and batteries were constructed.

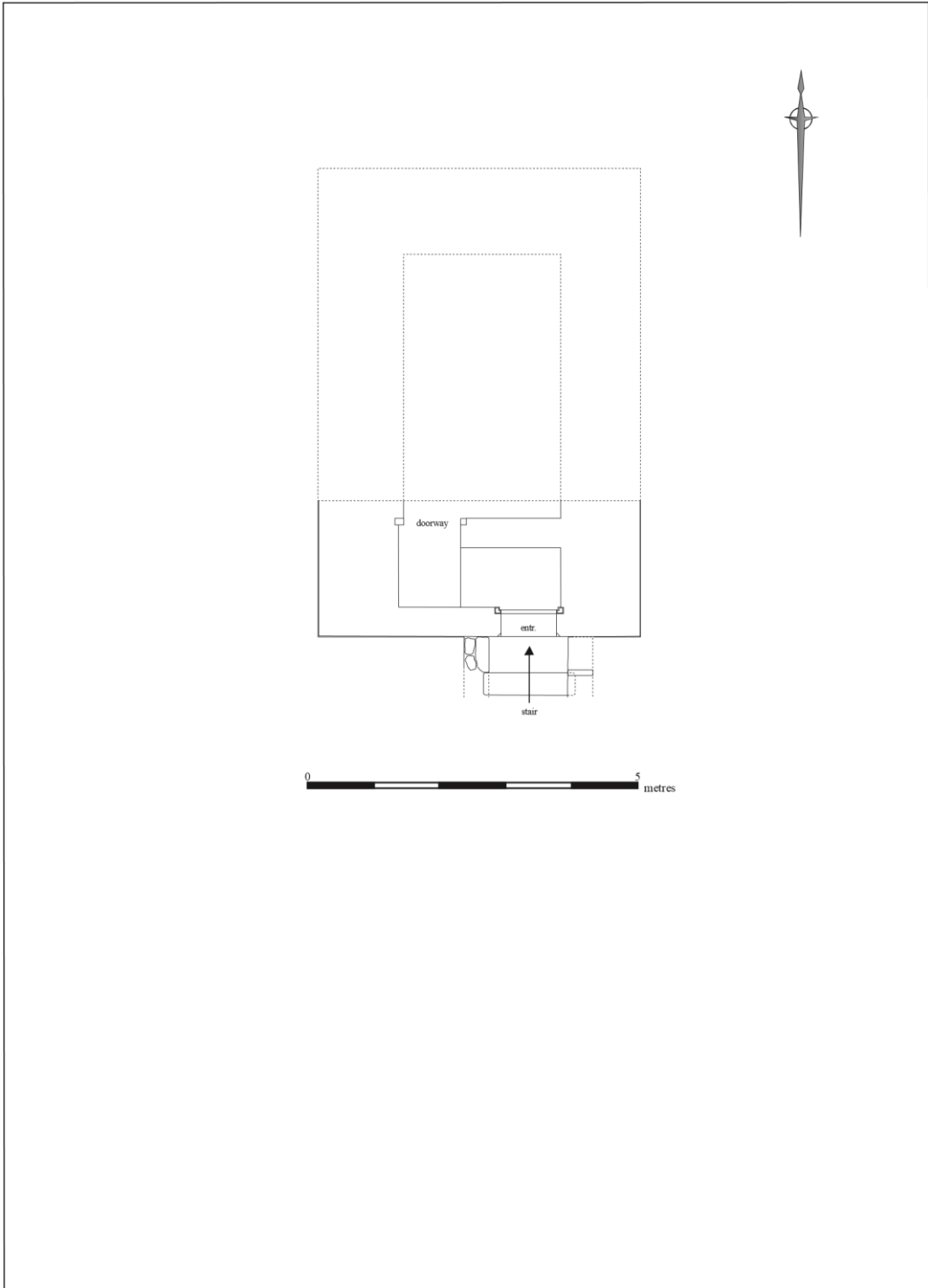


Fig. 7. Plan of western expense magazine. Plan of western expense magazine.





Fig. 8. View of the western expense magazine, looking south (1 m scales).

## CONCLUSION

Large tracts of the battery were dismantled or demolished in the 1950s in order to build Knowle Primary School, to serve one of Plymouth's expanding post-war housing estates. Nevertheless, the archaeological watching brief, conducted during the demolition of the old Knowle Primary School, has recovered important new information about the preservation of the western gorge wall and the layout of Knowle battery.

It seems almost certain that the flank section of the western gorge walls incorporated at least two gun openings at a level lower than the rifle gallery seen elsewhere at the top of the gorge wall. The exact nature of the defensive arrangement cannot be reconstructed from the evidence but may have been similar to that identified at Ernesettle and the larger and more elaborate examples at Crownhill.

Finally, the location and layout of two expense magazines on the north rampart has been identified, although the eastern magazine has been heavily damaged by post-war activity.

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