

# **GOLDEN HILL FORT**

## **FRESHWATER**

### **ISLE OF WIGHT**

Analytical Record (RCHME 1996) LEVEL III  
Report prepared April/May 2007

SITE NAME:	Golden Hill Fort.
MONUMENT TYPE:	Barracks
SUB-DESCRIPTOR:	sunken, fortified.
NAT. MON. NO.:	22062
NGR:	SZ 3388 8784
PARISH:	Freshwater
DISTRICT:	Isle of Wight
LOCAL PLANNING AUTHORITY:	Isle of Wight Council

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## **1.00 INTRODUCTION**

- 1.01 Golden Hill Fort is a Grade 1 Listed Building and was a fortified "Defensible Barracks", built as part of the Palmerston defences [see Appendix A], which were constructed from 1862-1871.
- 1.02 Occupying a prominent position overlooking much of the land west, east and south towards Afton Down, the fort is a local landmark, that today lies south of the main road, Colwell Road. In 1862, the War Department bought an extensive area of poor grassland and rough gorse, on which to build this and cleared the surrounding vegetation to allow an uninterrupted and free field of fire all around for some distance.
- 1.03 The fort is a hexagonal building, sunken in the ground, such that its flat roof, which acted as a gun and small arms platform, was level with the surrounding ground level. As with many barracks, the fort was hidden from public view and was not clearly visible [unlike Queen Victoria's barracks in East Cowes which has an ornamental facade and is designed to be seen]. This was deliberate. It was sunken in the ground to present as small a target as possible and to allow the guns on the roof to have a clear, level field of fire, thus ensuring no dead ground was provided where an enemy might seek cover.
- 1.04 The design and construction of this fort or barrack was based on conventional, traditional ideas of fortification that had been prevalent in Europe for at least a century and were now soon to be superseded by new concepts with the development of yet larger guns, long shells and new types of explosive charge in the last two decades of the 19<sup>th</sup> century. Thus Golden Hill Fort represents in some ways an old style of thought in building forts, somewhat based upon a German School of permanent fortification, that was rapidly finding itself in its last years of validity [see Appendix B]. However, it also features some new concepts, that had been proposed more vociferously in the last years of the 1850s and early 1860s: ideas about ventilation and public health.
- 1.05 It was designed as a land fort to fulfil several roles. Primarily, it served to provide barrack accommodation for the troops manning the three coastal forts and four batteries that protected the Needles passage, the "back door into the Solent", and another route of attack on Portsmouth Harbour. In addition, it acted as protective defence against a rear attack from the landward side, in a similar vein to the row of forts on top of Portsdown Hill, built to prevent an attack overland to the north of Portsmouth. It also developed a role as a training centre for various types of military units. Finally, it also acted as a central base for the local area in times of war.
- 1.06 The buildings are simple and functional and do not have any significant depth of detail. As in other Victorian military buildings, ornamentation is to be seen on a small scale in the sandstone window sills, granite coping stones etc. The proportions and style of the original narrow windows harmonise well with the massive brick walls to give the impression somewhat of a Roman military

building or gatehouse. The symmetrical nature and rational order of the plan reflects the discipline and order of the military. This would reinforce the nature and purpose of the establishment on the recruits and soldiers.

- 1.07 The plan of fort itself is spatially simple and self-contained: it is a single military construction that sits in a huge excavation on the top of a commanding hill. When extra facilities or accommodation were needed, it was necessary to construct supplementary buildings outside the fort to the north and north east, and so a small temporary mini-barracks sprung up on the north- eastern fringes. Since this was not a fort or a battery, that was required to adapt to the ever changing technology and military ideas of the times, Golden Hill Fort has remained relatively intact and is little changed from its original plan. Where change has occurred, it has been in the function rather than the form of the rooms.

## **2.00 GEOLOGY and TOPOGRAPHY**

- 2.01 The southern border of the parish is fringed by a long, high ridge of chalk which extends from the Needles through to Freshwater Bay or Gate and onwards east to terminate at Culver Cliff near Bembridge. The eastern boundary is formed by the River Yar that rises at Freshwater Bay in the south and proceeds in a northerly direction before joining the Solent at Yarmouth. The western edge is represented by cliffs that run from The Needles to Cliff End while the northern boundary is the low slumping cliffs of Norton.
- 2.02 The Freshwater region is very nearly an island, separated by a river estuary that extends northwards from Freshwater Gate on the southern shore of the island as far as Yarmouth in the north. This tidal estuary or creek derives from the River Yar and in effect it cuts the Freshwater presqu'ile off from the rest of the Island. The Yar is tidal as far as Freshwater causeway, south of which it becomes marsh wetland.
- 2.03 The northern half of the parish is dominated by two high points: Golden Hill itself at almost 60 metres and a hill, which rises a quarter of a mile to the north with Hill Farm on its summit at only 48 metres above sea level. Otherwise the landscape is characterised by gently sloping land terminating in low slumping cliffs on the west and a gentle slope down to reed beds and mudflats of the Yar estuary on the east.
- 2.04 The geological formation which forms the bedrock of most of the northern part of the parish belongs to the Solent Group [Osborne and Headon beds of White, 1921] To the north of the fort site, there is a long ridge that underlies Hill Farm and consists of a large finger of Bembridge Limestone in an approximate south-west/north-east alignment.
- 2.05 Below this, there is a thick sequence belonging to the Headon Hill Formation and it is this layer that overlies most of this area. The thickest members, namely the Osborne Marl, Cliff End and Colwell Bay Members, consist of multi-coloured stiff clays, marls and mudstones with subordinate sand



horizons. Between the Osborne Marl and the Cliff End Members, there is the Lacey's Farm Limestone, which comprises a thin sequence of marly limestones, sandy limestones and calcareous sandstones.

- 2.06 The area of Golden Hill is situated on the Osborne Marls member, which comprises red and blue/green mottled clays. Due to poor drainage, the local soils are poor and slightly acid, resulting in a heathland landscape, from which Heathfield Farm and Heathfield Lane have derived their name. The clay nature of the soil on high ground means that the land here is slowly permeable and therefore seasonally wet, resulting in cycles of very dry hard ground and wet, boggy areas. This has encouraged the growth of gorse, brambles, blackthorn and, in places, rushes to produce heath and rough land. Indeed many forts encouraged the growth of thorny shrubs around the perimeter to act as a further barrier, similar to barbed wire.

*On the crest of the and the immediate slope before it, as also to cover caponieres, hedges of holly (Ilex aquifolium) will make a very difficult obstacle; and in sandy soils the common furze (Ulex Europeus), when occasionally shorn and trimmed, is likewise convertible to impenetrable hindrances; and where and when required, both may be cut down low without losing the defensive property. ... Where neither holly nor furze can be procured, yew hedges (Taxus baccata) are likewise very difficult to force, and hornbeam-tree (Carpinus betulus) and blackthorn (Prunus spinosa) may be made to answer in Europe. All these plants require only in the first instance proper selection and preparation of the soil, and subsequently careful trimming and watching.*

[Aide-Memoire to the Military Sciences. Framed From Contributions Of Officers Of The Different Services, And Edited By A Committee Of The Corps Of Royal Engineers In Dublin, 1846. Part D. E. F. Dam - Ford. Volume I, Part II. London: John Weale, 1846.]

- 2.07 The tithe map shows that the only watercourse in the area arises near or under one of the industrial units of Norton Green Industrial estate and then flows in an easterly direction down the side of Colwell Road to reach the River Yar.

### **3.00 HISTORICAL BACKGROUND of FRESHWATER PARISH**

- 3.01 The parish of Freshwater developed as an early Saxon parish, with the local church, All Saints, as its social and religious centre. This church still contains certain pieces of Anglo-Saxon work, but
- 3.02 Until the 20<sup>th</sup> century, the whole area comprised a number of scattered small hamlets and settlements, and their dispersed nature only emphasised further the rural, introverted character of this region. The isolated geographical position of Freshwater also reinforced the insular frame of mind of the local inhabitants. Communication with Yarmouth was by means of a rowing ferry; the bridge was not built until 1860. Access by road was only available by a detour to the south across the causeway near Freshwater church or via the shingle neck of land that connected the Freshwater presqu'ile with the Island 'mainland'. The opening of the bridge route via Yarmouth made Freshwater easily accessible and this was further augmented by the opening of the railway route from Newport to Freshwater in 1888.

- 3.03 The majority of the inhabitants were directly or indirectly involved in agriculture, that, in some areas of Freshwater, still remained tied to the traditional medieval strip field system. The 1837 Tithe map shows that about 80% of the enclosed farmland was under arable cultivation while the Downs still provided rich pastures for sheep. There were several small fishing communities as well as a small amount of employment available in the digging of chalk, sand and tobacco pipe clay. The only significantly substantial houses in the area were King's manor, Afton Manor and Farringford house.
- 3.04 The Freshwater area was still sparsely populated in the 1850s and early 1860s, just before Golden Hill Fort was built. However, the rapid development of Totland and Colwell as seaside resorts in the 1870s and 1880s saw an infilling between the small settlements as buildings sprung up in the central area of Freshwater. Many trades and services were established to supply and maintain the growing number of residents and holiday visitors. The population saw two significant increases: one, accompanying the building of the forts in the 1860s, and the other in the 1880s.
- 3.05 For detailed account, see Appendix C.

#### **4.00 THE PHASES OF DEVELOPMENT**

##### **PHASE 1: *pre 1863 - The Site***

- 4.01 Before Golden Hill Fort was constructed, the whole of the surrounding local area was known as Goldings, and tended to produce both rough grassland and gorse. The area does not derive its name from either laburnum or the gorse itself (as some commentators have claimed), although it is by happy coincidence that the thick gorse bushes on this hill do lend the area a golden appearance in spring when their yellow flowers bloom in such profusion.
- 4.02 Kokeritz records the earliest reference in 1299 as "*Gauldoune*", which occurs in a royal survey, and concludes, "Its first el. [element] seems to be OE gafol 'payment, tax,' as in Gaveldone ... the land on the down was apparently subject to some kind of tax." [The place-names of the Isle of Wight, Helge Kokeritz. Uppsala : Appelberg, 1940.] The place name element 'dūn' is an Old English term used to signify 'a hill', later becoming the Middle English word 'doun' – 'a hill, an expanse of open hill-country'. [English Place-name Elements. Part 1 (A - IW) Smith, A. H. (Gen. Ed.) Cambridge University Press, 1956.]
- 4.03 In another royal survey of the manor of Freshwater in 1608, the area is referred to as "*The Gauldon Common*" and is being used as pasture for sheep.

*Original Survey of manor of Freshwater, Isle of Wight, co. Southampton, by Commissioners, 7 October 7 James I, with signatures of jury.*

*Manor of Freshwater, Isle of Wight*

*Survey taken there on 7 October 1608 by the oaths of the tenants there ... [names listed] ...who say upon Oath that:*

*Joan Hinde, wife of John Hinde, clerk, holds by Letters Patent dated 12 June 1590 all the capital messuage and farm of Freshwater viz: house now rebuilt (6 spaces), barn (4 spaces), stable (3 spaces) ...[fields listed] ... Galdon Meade pasture - 9 acres separate pasture for sheep called The Gauldon Common - 120 acres own life and Robert Urry's all wood reserved Item upon the premises are growing 200 timber trees, containing 150 loads and of fyre wood 200 loads.*  
[NA E315/388/2]

- 4.04 The area was part of the Manor of King's Freshwater, now known as Kings Manor Farm. Due to the poor nature of its clay soil, from early date, it became common land for grazing sheep, collecting timber and furze for fuel and for providing a supply of clay. A large brickworks was established on its eastern edge next to Copse Lane in the mid 19th century.

## **5.00 THE PHASES OF DEVELOPMENT**

### **PHASE 2: 1863 – 1888 - Construction and occupation for defence role**

All photographs accompanying the text are shown as a number in bold type in brackets, thus **[01]**. The image can be found in the Site Inspection Photographic Images section in the appendices.

- 5.01 The fort survives in a remarkably intact condition and the masonry fabric is essentially complete.
- 5.02 In 1863, construction of the fort began with the excavation of a large hexagonal hole, the clay sub-soil being cast up at the edges of the hole and spread down the slope on all sides to form the glacis. This glacis suffered from poor drainage and between 1864-86, large sections of it slipped into the moat. Brushwood and clay drainage tiles were introduced into the glacis to cure this subsidence issue, a problem common to heavily soaked, badly draining clay sub soils. A sunken hexagonal two-storey barracks in brick was built on the floor of the hole around a central parade ground, which was “gravelled”. **[84, 85, 86, 87, 88, 89, 90, 91]** The outer margin of the hole adjacent to the fort walls formed a dry moat with escarps 31 feet high. The walls of the fort are made of large, sturdy clamp-fired red brick laid in English bond, which may have been made in situ in clamp kilns from the clay dug from the hole. The origins of the bricks are uncertain, and could well have been made on site from the clay excavated from the hole in which the fort sits. The bricks are clamp bricks and the nature of clamps allows this firing technique to be set up wherever there is any suitable clay. The advantage of clamp-firing is therefore that the cost of transporting the bricks to the site would be negligible, whereas until the advent of railways, transport constituted usually the largest cost in any expenditure. The railway did not reach Freshwater until 1888.
- 5.03 The brick walls of the first floor are carried up into barrel-vaulting **[01]**. The flat roof above was formed from a concrete with a weak cement matrix, sealed

with a thin cement render. Over this, a one centimetre layer of asphalt, containing coarse, comminuted flint as a matrix, was applied as an additional waterproofing system [02] . Originally, the armaments of the fort were to be secured with 18 light guns behind 9 foot earth parapets [03] . The earth parapets were built closer to the edge than at present and, due to poor drainage, much of these earth parapets slipped into the ditch. By 1886, the plan was revised and six 40-pound rifled breach-loading guns were prepared in the salient angles in barbettes with iron traversing rails. To make this bombproof, a layer of earth was again laid over the top of the area in front of the firing steps and gun emplacements to form an earth parapet, which sloped off more gently towards the front edge. A gutter formed in the top of the cornice drained water off the roof and led it to down-pipes connected to drainage holes cut through the granite cornice.

- 5.04 One story caponiers were built on three of the salient angles: north, south-east and south-west and these are fitted with loopholes only. They ended in a counterscarp chamber, set perpendicularly with the caponier, and containing latrines. Their purpose was to enfilade the ditch with small arms fire along the barrack curtain wall. Vaulted brick ceilings are covered with a pitched tiled roof, the intervening space being filled with loosely consolidated concrete.
- 5.05 Internal stairs are original and are constructed using granite steps, iron balusters and a hardwood banister rail. The quality of these staircases are of note. The pavement round the edge of the parade ground and all public corridors were paved with sandstone flagstones [04] , while the floors of all rooms were laid with wooden boards [05 & 06]. These are still in situ in a number of rooms.
- 5.06 The corbelling course at first floor level, that took the first floor joists, is constructed laying the two upper courses of bricks offset from the wall to form a two course step, and this the supports a squared sandstone, on which rests the joists [07]. Original ceilings are all lathe and plaster [08].
- 5.07 Originally, access to this military area was via an entrance situated north east of the fort at the west end of More Green [Norton Green]. There are a number of brick outbuildings here, used today as light engineering and craft workshops. The two northerly buildings have some decorative features as well as carefully crafted brickwork that is not in keeping with plain functionality of the workshop opposite. In addition the War Department boundary stones start with No.1 and 2 at this point.
- 5.08 Originally, a stable with a gun shed on the west side stood near the entrance to Colwell Road. To the north west of the gun shed, adjacent to a rising bend in Colwell Road, an area for soldier's gardens was laid out. Further west, where a small stream originated, there was a well. In 2007, this site is now covered by a large industrial unit. However to the west of this, the location of the stream can be identified from an area of boggy ground covered in rushes and willow trees. This stream is shown both on the map of Isaac Taylor [1759] and John Andrews [1769]. To the east of the fort, an "Exercising Ground for Troops" was set up.

- 5.09 A water supply was derived from rainwater falling on the roof: the water of the outer gutter descended to a large brick cistern sunk under the moat on the eastern side to the north of the eastern caponier. The inner gutter and the roof of the veranda [09] delivered water to a brick cistern under the parade ground. The water in this cistern was raised by a wind pump to two cisterns on the roof [10], from where the water travelled by gravity to where it was needed. There was also a "*Deep Well*" in the chamber before the south east caponier. Waste water and sewerage from drains round the perimeter wall and the internal gutter surrounding the parade ground was led under the south western moat to a "cess pit" 600 feet from the fort. An "irrigation drain" curved round towards the east and then southwards to disposed of the waste water. The main purpose of the caponiers was to serve as latrines, but, in the event of attack, they formed protected galleries from which to direct musket fire laterally along the moat from gun loops. The north caponier contained "Prisoners latrines"; the south west caponier, "Womens Latrines"; and the south east caponier, "Soldiers Latrines" [11]. On the roof of each caponier, there was a cistern for holding water to flush the toilets [12]. The original functions of the rooms can be seen from Plan 2.
- 5.10 There were three military roads fanning out from Golden Hill Fort. Road "No.1" ran north east past a number of out-buildings on the north side to meet with Colwell Road; road "No. 2" led north to the main road (Colwell Road) at its junction with Hill Lane; and road "No. 3" ran north west to join Colwell Road opposite Monks Lane. [1920 O.S. map] The roads at Golden Hill Fort were constructed like the road between Cliff End battery and Fort Victoria: it has a base layer of well rammed local gravel with a tightly consolidated surface of hard stone from the mainland, each stone being approximately one inch in diameter. The surface still exists today in remarkably good condition, while the military roads near the fort are now under tarmac.
- 5.11 The fort was entered through a tunnel with a coal storeroom let off on its east side. Originally there was a drawbridge over a small section of moat built inside the ditch itself parallel to the northwest wall. Large wooden doors allowed admittance to a wide entrance passage with a guardroom on the east side.
- 5.12 Golden Hill Fort shows evidence that the recommendations of both the barrack commission and contemporary treatises on ventilation were taken into consideration when being built [see Appendix D]. The barrack rooms are aligned longitudinally so that one end with a window forms part of the outside wall, while the other end opens out onto the interior of the fort through an arched opening containing a double door flanked either side by a window [14 & 15]. Above the outside window there is an inlet covered with an iron grill. An inlet also allows air in under the floor, both at ground and first floor level. Next to the upper right corner of each exterior window, there is a small rectangular metal grill that covers the inlet of a vent [16], one brick in size, that runs through the wall of each barrack room [17] and emerges in the corner of the base of the fireplace [18]. Another vent exits in the upper soffit of the fireplace in the opposite corner [19].

- 5.13 Some of the fireplaces show evidence of how they were adapted from the use of an open fire to a stove fitting. Several of the rooms have arched fireplaces, which have been lowered by the insertion of a horizontal sandstone lintel about 6 inches below the original top. The gap was infilled with brick. [20] Often, the new lintel was made up of two thin sandstone slabs, each with a semi-circular cut in one side, such that when fitted together in the fireplace, the two stones formed a circular hole to accommodate the flue chimney of a stove [21]. In the soffit of some fireplaces, there is a prominent inch thick steel plate above it, the function of the plate was to become hot with the heat from the fire, and then to transfer the heat by means of convection and the vaulting to men on the opposite side of the chamber, the air to do this was drawn in from the outside by ducting.
- 5.14 By 1907, a small revetment wall had been built at the base of the escarpment to contain the foot of the outer side of the ditch.
- 5.15 Lighting was originally by candles and oil lamps, but by 1907, this had been taken over by gas lamps with gas supplied by the Freshwater Gas Company. As a source of power, the fort relied wholly on coal originally, but later wood stores and a battery store are evident in 1897.

## **6.00 THE PHASES OF DEVELOPMENT**

### **PHASE 3: 1888-1903 - *School of Gunnery - instructional role***

- 6.01 In 1888, the fort was host to the Western District School of Gunnery, which was established "for instruction in the defence of a Coast Fortress and Channel ...". Structurally, this development resulted in very little change to the fabric of the fort. There were some minor changes in function of a number of rooms in the south block, possibly reflecting the larger number of soldiers being accommodated at the fort for training and two of the ground floor barrack rooms were converted into "Dining Rooms". However, there was a significant addition of buildings outside the fort within the War Department boundaries, commensurate with extending the role of the fort to include accommodation of trainees as well as the garrison troops for the forts and batteries. This rise in fort population figures is reflected in the Census Returns [see Appendix F: Census Returns for Golden Hill Fort].
- 6.02 Along the exterior of north wall of the fort, a "Workshop" and a "Fire Engine" house was built on the west of the entrance. This was a timber construction with a corrugated iron roof. On the east side of the entrance, a 32 foot "Skittle Alley" was erected with timber walls and a slate roof. This also had two small store rooms attached.
- 6.03 To the north of the fort, a Drill Hall and a "School of Instruction" were constructed to accommodate the new requirements for training [22 & 23]. The School of Instruction was a brick built building with a slate roof. The walls sat on an 8 course plinth with an asphalt damp-proof layer with English bond brickwork below and stretcher bond above. The windows were of wooden sash type but were replaced with metal casement windows at a later date.

There is a brick porch entrance all in English bond with an original doorway that has been partly bricked up and a metal casement window inserted. All window openings have two half brick segmental arches. The Drill Hall was constructed entirely in English bond with eight large archways spanning the entire length of the building. Brick piers separate each arch, which are now bricked up with an inserted metal casement window in each, except for the first and last arch which are entirely bricked up.

- 6.04 A pump house was built to the east of the latter. This pump house may have been used to pump water up to the fort to support the water system if it came under pressure when extra troops were billeted at the barracks. The pump house was installed near the well to pump water up to the cistern in the parade ground, while the 10,000 gallon reservoir in the moat still collected rainwater supplies from the roof. The well near the south east caponier had been walled in to form a separate room, the pump room. However, due to the increased population of military personnel, when the fort became a gunnery training school, the new demand for water was supplied by a main from the Freshwater and Yarmouth Water Works\*, and possibly the pump house to the north of the fort was built to assist in raising water up to the fort.

\* Kelly's Directory 1904: "The Freshwater and Yarmouth Company's works are at Afton, at the foot of the Downs; the water is obtained from a tidal spring, which yields 140,000 gallons daily."

- 6.05 A number of storehouses and workshops were set up near the old entrance [24, 25 & 28], where one building, next to the entrance shows unusually good brickwork for a supposed outbuilding: a carefully constructed, gauged flat arched window within a large, wide segmental arch [26 & 27]. All these new buildings, built outside the fort itself, were intended to supplement the facilities of the fort. The arrival of the School of Gunnery did not entail any significant alterations to the fabric of the fort.

- 6.06 In 1897, to the north, across the main road (Hill Lane), a new hospital was constructed [29], consisting of three blocks, one of which was a large house built to serve as an administration block [30]. This hospital grouping was surrounded by an iron paling fence on a bank with a ditch on the outside of it. In 1912, two of the hospital blocks were turned into quarters and a mess for Royal Garrison Artillery officers. The building on the north east of the compound became quarters for two medical officers. A row of terraced houses were also built to the west of the new hospital, to serve as married quarters and the ground floor married quarters within the fort became Company offices and stores. Today, only a southern group of four houses remain [31], the northerly portion having been replaced with a modern row. A new hospital, the "Reception Hospital", was built to the west of the Drill Hall, presumably in 1912, to replace the loss of the main hospital.

- 6.07 To the east of the fort, two long barrack blocks were constructed with a roadway immediately on its north running west to the fort [39]. A row of fir trees was planted along the northern edge of this road. Between these two blocks, a roadway ran north to join the north east military road. To the south of these, various small huts were erected as toilets, cook house and ablutions

rooms. In the 1901 Census, the name was filled in as “Golden Hill Fort (including Hut Encampment)”, emphasising the inadequacy of the main fort for quartering all the soldiers stationed in the area. The additional troops being sent to Golden Hill Fort for training were thus quartered in the encampment to the north east. The trade directories show that it would seem that the highest ranking officers preferred to rent properties in the Freshwater area [see Appendix E: Kelly’s Directory 1904] rather than live on the fort itself: that luxury was allowed to the more junior officers. This is reflected in the reduction of individual rooms for officers, which was reduced from seven in 1879, to six in 1896 and stood at five by 1907, although a room had been converted into a “Billiard Room” for officers.

## **7.00 THE PHASES OF DEVELOPMENT**

### **PHASE 4: 1939-1945 - *Wartime defence and troop barrack/billet role***

- 7.01 The fort did not undergo any significant alterations to its fabric from 1903 till the Second World War. In 1940, the fort accommodated both The Royal Jersey Militia and the Hampshire’s 50th (Holding) Battalion. In 1941, the fort became an army depot for the Royal Army Service Corps, while in 1945, it became extra barrack accommodation for troops of the 42 Water Transport Unit RASC, stationed at Fort Victoria. The large influx of troops using the fort during the war led to the building of a toilet block, projecting from the south angle of the fort [32]. It was built between late 1939 and 1940: a 1938 plan of the fort shows no sign of it, nor does the 1939 Ordnance Survey map, but it is clearly shown on RAF aerial photos of 1940. The block is a two story brick building with a flat concrete roof. The bricks were made by Pritchett at the Rookley yard. The first floor is supported on reinforced steel joists as is the concrete roof [33]. Possibly this was built in two phases, as the ground floor brick walls are in English bond, while the first floor walls are in stretcher bond.
- 7.02 Another addition to the fort saw an upper floor constructed on top of the north caponier [34]. The walls were of brick, which were tied into the brickwork of the fort, leaving the joining slots as scars today. It was topped with a flat concrete roof similar one on the new southern toilet block [35]. This may also have housed more latrines.
- 7.03 A number of partition walls in the canteen, forming a store and a lobby, had been removed since 1907 [37]. An original archway between the canteen and the tap room was partially infilled with a single skin brick wall to form a single doorway [36].
- 7.04 By 1939, the skittle alley had been removed and the additional barrack accommodation to the north east of the fort had been remodelled: eight separate accommodation blocks had been raised to the north and east of the ablutions row. The footings for these buildings are still visible in the undergrowth and are evident from the tightly packed, dense blackthorn cover in certain places.



- 7.05 At some point between the war and 1962, when the Army left the fort, the earth cover of the roof was removed in an attempt to prevent damp and the roof and exposed rear of the parapet and firing steps was painted white. Perhaps it was at this same time that a dry lining layer was fitted to the walls of many of the barrack rooms [38], in order to help prevent the damp penetration. The nails and ghost marks of the battens can still be seen in many areas.

## **8.00 THE PHASES OF DEVELOPMENT**

### **PHASE 5: 1969-1984 - *Conversion to an industrial estate***

- 8.01 The Army relinquished the fort in 1962, and the premises were sold in 1964. The building was left unoccupied until 1969, when the fort was converted into an industrial estate for light industry. To provide larger premises for each unit, certain walls and doorways in the original married quarters especially were altered. The central corridor was blocked up in a number of places [40, 42 & 43], while the lateral dividing walls were demolished to provide long rooms like the soldier barrack rooms [41]. Doors were knocked through in several places to provide indoor access to both rooms belonging to a unit [44].
- 8.02 In the officers quarters, two new doorways were punched through a partition wall, while existing original doorways were blocked. The partition wall that ran laterally through this wing was also removed. All these alterations were intended to create a useful industrial space, equivalent to two barrack rooms worth of space.
- 8.03 Two of the three caponiers were demolished during this time [45].

## **9.00 THE PHASES OF DEVELOPMENT**

### **PHASE 6: 1984-1985 - *Conversion to an tourist attraction***

- 9.01 In 1984, the fort was converted into a tourist attraction with a tea room [The Colonnade Tea Room], a pub [The Lord Palmerston] and a museum. The fort was partially restored with display areas, display signs and a museum. Some light industrial units were also permitted. Cosmetic alterations [new paint work for pub and tea room] are evident, as is some minor conversions to rooms near the entrance to accommodate kitchen and bar equipment. A metal fire escape was fitted inside the north angle. Some modern toilet facilities were also installed. Again very little of the fabric of the rest of the fort was altered during this time.

## **10.00 ARCHITECTURAL AUDIT: Survey date: 05 – 04 – 2007**

### **10.01 FLOOR SURFACE**

Sandstone flag pavement, skirting interior of building with squared granite kerbstones. The parade ground was originally compacted gravel but now has a layer of tarmac covering it.

- 10.02 Paving is bedded on concrete made of shingle and crushed brick. This rests on a 1 inch layer of clayey sand, which overlies the natural clay, a mottled salmon

red and blue-grey clay [47]. Communal passageways are paved with large sandstone slabs [04]. Living rooms are floored with wooden floorboards [03]. Most ground floor rooms have had wooden floors replaced with concrete.

10.03 Floor of washroom is constructed from iron H-section joists [48]. The floor is no longer extant but was made from reinforced concrete, similar to the concrete walkways of the veranda [14]. The iron reinforcing mesh was a diamond lattice arrangement. There is a horizontal bitumen mark running along southern wall, showing where the wash basins were positioned [49]. The waste water from these basins were led to a down pipe that ran down through a small brick wall in the ground floor cook room.

10.04 Evidence for cook-room: two rooms with quarry tiles covering floor. Cook-room has raised inner doorway into small entrance lobby, while main doorstep has shallow u-shaped gutter cut across [50].

#### 10.05 **FIRST FLOOR STRUCTURE**

Upper floor joists supported on corbelling that runs the whole length of each room. Corbelling is a multiform structural composite, formed from two lower jettied courses of brick with an upper 3 inch thick sandstone slab, forming bed/sill for joist [07 & 51]. Lower brick corbel offset by 65mm; upper brick corbel offset by a further 60mm; and the sandstone sill extends 135mm from the wall. A wooden wall plate overlaid this and the wooden joists rested on this. A bracing strut spans the gap between each joist and these are arranged in a zig-zag pattern the length of the room [52].

#### 10.06 **GROUND FLOOR STRUCTURE**

Suspended floors in ground floor rooms, mounted on brick cross load-bearing walls, two bricks in width, 4 courses high and topped with a single row of bricks along the axis [83]. Slate damp-proof on top.

#### 10.07 **CEILINGS**

Ceilings of ground floor rooms - lathe and plaster [08]. Ceilings of first floor rooms open to brick barrel vaulted roof and pierced by two large circular air vents [53], the bottom end of which is screened by a large iron disc, suspended under the vent by four iron bolts [54].

#### 10.08 **VENTILATION**

Ventilation system: air vent ducts lead through fabric of walls to exterior wall where a perforated cast iron vent cover is fixed [17]. Large air bricks on outside wall correspond with ventilation of under floor spaces. On the first floor, ventilation channels lead from outer wall to base of fireplaces [18 & 19], while another channel exits at the top of the fireplace and leads through the wall to a vent higher up [20 & 21]. In summer, this provided additional ventilation for the barrack room, while in winter, the incoming fresh air was warmed by the stove before being expelled into the room via the higher internal vent.

#### 10.09 **DOORWAYS AND WINDOWS**

- Doorstep of each room formed from one piece of granite with small iron circular slot embedded in middle to receive retaining bolt of left-hand door. Each doorway has a double door arrangement [15 & 16]. Many door steps have noticeable wear on right hand side of door threshold.
- 10.10 Blocks of sandstone used for window sills: first floor sills are heavily eroded, especially on west facing side [56]; ground floor sills still intact.
- 10.11 External windows: originally grouped in pairs or threes, forming a unit. Each window unit has one long, complete sandstone sill. Ground floor windows have a flat under-cambered arch, one and a half bricks in height, no keystone, with one and a half brick wide soffits [59].
- 10.12 First floor windows have a round arch, one brick in height, no keystone, with one and a half brick wide soffits. The arrangement and form of these windows suggest an Italianate style popular in the mid to late 19<sup>th</sup> century. This architectural fashion often meant the use of narrow windows with round arches, grouped in pairs or threes. The style was espoused by Prince Albert in the design of Osborne House and certainly the influence of Osborne is visible in the architecture of many of the more wealthy houses, particularly in Ryde [57 & 58] and Ventnor. It also reached as far as the artisan houses built in the 1880s and 1890s in East and more especially West Cowes, where a pair of windows, both with round arches, were inserted in the front, first storey room. Osborne House was built in 1851 and, given the scope of its architectural influence, the design of the windows of Golden Hill Fort are closely reminiscent of this Italianate style.
- 10.13 All existing original windows were all double-hung sashes in wood frames. Two types of sash weight are found: some have a square section and others a round section.
- 10.14 Two windows either side of salient angle of fort on first floor covering caponier: small square recessed window: straight jamb on side facing away from caponier; splayed jamb, consisting of a two stepped brick reveal on caponier side. Sill also consists of a two stepped brick reveal. Inner and outer lintel formed of sandstone slab corresponding with the two brick step reveal [60].
- 10.15 All windows fitted with a paired shutter arrangement - each shutter itself is cast iron with wooden panelling on one side. When open, both shutters sit in a recess in window jamb, which has moulded wooden architrave [61]. When closed, the shutters are held secure by three hooks with the iron side facing into the room. Each shutter has a narrow rectangular slot cut out of its lower outer edge, such that, when closed, it marries up with a corresponding slot on the other shutter, thereby forming a rifle loophole [62].

#### 10.16 **WALLS**

Walls covered in lime plaster which has been removed.

Evidence in certain rooms for dry-lining: nails in series of parallel, horizontal linear alignments - dirt marks and carpenter red pencil marks reveal width of battens[39]. 480mm centres between battens. Damp-proof course formed from a bitumen layer [63].

#### 10.17 **FIREPLACE**

Fireplace: built into fabric of wall so that front is flush with room wall. Lintel is formed from a segmental arch, and in some cases the arch has a curved relieving strip of wrought iron to support arch. There are a few examples of such fireplaces having the top of the opening lowered by the insertion of a long sandstone slab across the width of the opening and the gap above infilled with brick [21 & 55].

- 10.18 Some of the fireplaces show evidence of how they were adapted from the use of an open fire to a stove fitting. Several of the rooms have arched fireplaces, which have been lowered by the insertion of a horizontal sandstone lintel about 6 inches below the original top. The gap was infilled with brick. Often, the new lintel was made up of two thin sandstone slabs, each with a semi-circular cut in one side, such that when fitted together in the fireplace, the two stones formed a circular hole to accommodate the flue chimney of a stove [22]. In these cases the original fireplace chimney flue has been lined with a series of ceramic pipes leading up through fabric of wall.

- 10.19 Several fireplaces in the married quarters still have an original cast iron mantelpiece above [65].

#### 10.20 **STAIRS**

Stairways inside the barracks are constructed with granite steps and iron balusters and handrails [64]. The stairs in the officers quarters have iron balusters with a hardwood handrail (mahogany?). The roof is reached by means of two circular stairs: one in the north east corner and the other in the south west corner. Both have iron banisters and granite steps [77].

#### 10.21 **ROOF**

The roof is made from loosely consolidated, weak concrete, on top of which there is a then render. At a later date, this has been covered in a 1 centimetre thick layer of asphalt, containing a coarse, comminuted flint matrix, as an additional waterproofing system [02]. The two domed stairwells to the roof have the same covering [66].

#### 10.22 **ROOF COPING**

The coping round the exterior edge of the roof is formed from a series of rounded granite gutter coping stones [02 & 82]. A circular hole is cut through to allow a cast iron down-pipe, which descends to a drain at the foot of the wall at the bottom of moat.

#### 10.23 **TOILETS**

Base of urinals in caponier is visible. The positions of the toilet pans and cubicle partitions can be identified [67]. Cistern on flat caponier roof for flushing purposes [12]. The inside of caponier end was lit by skylight. A cantilevered lavatory jetty projects out from the first storey at the north west corner with ornamental iron support brackets [68]. Individual toilets existed for officers adjacent to exterior wall at end of passageway between rooms.

10.24 In new toilet block, toilet pans and partitions are visible [33 & 34]. New toilet block has steel joists supporting concrete first floor and flat concrete roof. Walls are breeze block and brick.

#### 10.25 **VERANDAH**

Cast iron veranda: ground floor pillars are topped with Corinthian fluting [69]. Walkways are made from concrete units with iron reinforcing mesh made from iron wire in a diamond pattern [14]. First floor pillar meets cast iron principal rafter which abuts against top part of interior brick wall. Rafter has moulded gutter on top side that receives waste water from downpipe that descends from roof through granite cornice [70].

#### 10.26 **SHELVING**

In the married quarters, there are arched recesses, the height of a doorway, with evidence of shelf fixings (i.e. pairs of nails in alignment on either side of the jamb) At a later date these have been knocked through to form a passageway .

#### 10.27 **FURNITURE**

Cast iron boot scrapers extant at some doorways on ground and first floors [71]. Cast iron fire surrounds and mantelpieces. Dumb waiter [R. Waygood & Co. LONDON] [81]. Upper slate shelves of larder [72]. Iron ceiling rose for light fitting. Iron hooks and rack [75]. Wooden letter box in entrance passage. Bell pull outside officers quarters. Panelling above toilet cubicles in officers quarters.

#### 10.28 **PAINT SCHEME**

It seems that the green was the earliest colour used for painting woodwork of door and window frames, doors, panels, floorboards etc. Window sills have an pinkish orange layer covered with a later black layer.

#### 10.29 **GRAFFITI**

Graffiti cut into brick in entrance tunnel of all ages - from 19th century to 1990s [76].

#### 10.30 **CAPONIER**

Gun loopholes [11 & 13]. Scars of a row of water closets along counterscarp wall [67]. Urinals opposite either side of entrance [67]. Cast iron cistern on roof [12].

#### 10.31 **COALROOM**

Situated in the linking tunnel through the glacis bank, this vaulted room has a series of pairs of vertical grooves, cut into the wall opposite each other, forming sections. There is a number chiselled into the brick at the top of each section [5, 10, 15, 20, 25, 30, 35, 40] possibly noting the tonnage of coal stored.

#### 10.32 **MAGAZINE**

The magazine for the fort was located in the north east corner of the fort next to the guard-room. This was isolated from the adjoining rooms and three light boxes that provided illumination are still extant. These are small chambers set in a wall with access from both sides of the wall. The outside is closed by an iron door, while the side connecting with the magazine area has a glass screen fixed into a brass frame [80]. The ceiling of the chamber was formed from a whole sandstone slab with a hole cut into it to allow for a tin funnel-shaped smoke vent. A candle or oil lamp was placed inside the chamber and the door shut. Light passed through the glass screen and provided illumination for the magazine room. The glass partition screens of all three are missing but one original door still remains with “No. 11 LB” stencilled on the inside [79].

#### 10.33 **AMMUNITION HOIST**

The ammunition hoist consisted of four upright timber rails (of U section) set vertically in a circular shaft that descended from the top of the roof stairwell to the ground floor [77]. One of the rails is now missing. A large circular ring is fixed in the granite keystone of a brick domed roof, which covers the stairwell; this ring took the tackle of the lifting mechanism [78].

#### 10.34 **REVETMENT WALL**

By 1907, a small revetment wall was built at the base of the escarpment to contain the foot of the outer side of the ditch.

#### 10.35 **ENTRANCE**

The entrance is a passageway with a flat ceiling and leads directly into the central parade ground. At the inner end, there is a doorway on either side giving access, on one side, to the guard-room and, on the other, to a mess kitchen. Both doors have neat, finely-executed gauged round arches of three bricks width and one and a half bricks high. Opening onto the east side of the passageway near the gate, there is a large double-hung sash window with a flat gauged arch, allowing the guard to monitor and supervise both entry and departure from the fort. The main gate comprises two thick wooden doors, studded with large square-headed nails [73]: this was the pattern for a typical fort door, from at least the 18<sup>th</sup> century [74]. There is even evidence on the doors of the iron wicket fixed for protection.

*“... the fourth figure represents a gate ... each side turns upon a strong iron pivot, standing on an iron socket, and are fastened above to the wall, with hooks and hinges, much in the usual manner of common doors; the outside is covered with iron bars, in the manner represented here, for about eight feet high, and the parts between the bars, are drove full of diamond headed nails, to prevent their being cut open: In one of these gates, is made a wicket, in order to pass through, when there is any danger of surprize, and in the morning before the party of men, that is sent out to reconnoitre and see whether any enemy appears, is returned;*

*the upper part of the gate is left plain, without any iron because there is no danger of cutting there.” [A treatise containing the practical part of fortification. John Muller. London, 1755.]*

- 10.36 The walls of all but one of the three prisoner cells have been removed to form one large room with the guardroom. The magazine room is still extant but the neighbouring corridors have been altered slightly when this area became the kitchen unit for a pub.

## **11.00 ACKNOWLEDGEMENTS**

Thanks are due to Sean Cousins of Golden Hill Homes Ltd. for allowing access to the fort and providing copies of historic plans.

## **12.00 SOURCES OF INFORMATION**

- 12.01 Very little documentary evidence concerning Golden Hill Fort exists, either in the local record office or national repositories.
- 12.02 Several plans exist in the National archives, while the Royal Engineers Library also possess a number of plans. The National Monuments Record Service also possess some plans and diagrams, as well as aerial photographs.
- 12.03 Contemporary treatises and commentaries on the subject of barracks, military engineering, hygiene and public health can be consulted at the British Library or online. The Times newspaper was also useful for contemporary public opinion and interest in the fort-building programme.
- 12.04 Information on Freshwater parish was derived from various sources at the Isle of Wight Record Office: Crown Surveys, church records, hearth tax, tithe map and schedule, 19th century guide books, Worsley's history, contemporary paintings and engravings.
- 12.05 There is some useful information on the history of the fort contained in the one secondary source that exists on the subject: Cantwell and Sprack's *The Needles Defences*.
- 12.06 See bibliography on following pages.

# APPENDICES

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## **Appendix A: Palmerston's Fortification Programme**

In the 1850s, concerns that France was planning to invade England aroused a great deal of political and military anxiety and served to increase heightened tensions. The launch by the French of the first ironclad warship, *La Gloire*, also heightened the tension, caused by French military involvement in Italy in May 1859 with the intention of ousting Habsburg influence in Italy and preparing the peninsula for some form of unification and self-government. Improvements in armaments had resulted in the development of rifled muzzle loading [RML] and rifled breech loading [RBL] guns, effectively increasing the punching power and range of the new guns.

The adoption of steam power in ships such as *La Gloire* also meant that ships were not so dependent on the wind and tides, and thus, where nature had played a vital role in the defence of parts of the English coast, as at the Needles passage into the Solent, these areas suddenly became significantly more vulnerable. In the channel between Hurst and Norton, a drop in the wind or a change in its direction could well mean a ship failed to work the tide and ended up virtually at a standstill or, worse, going backwards, thus providing the gunners of Hurst castle or Carey's Sconce (later Fort Victoria) with a sitting duck as a target.

And so in 1859, a Royal Commission on National Defence was appointed to inquire into the "present state, condition, and sufficiency of the fortifications existing for the defence of the United Kingdom". It noted that the long-held opinion, which believed a strong fleet alone would suffice for the security of Britain's coastline, was insufficient for the defence of the country. As a consequence, the necessity of defending dockyards was considered imperative, especially since the landing of an enemy was admitted to be difficult. Despite this, the commission realised that neither the fleet, the existing standing army, nor the volunteer forces were sufficient to secure the coasts against invasion. It then indicated that either an increase in the army or fortifications was necessary and compared the costs of the two. Vital points such as royal dockyards were recommended for renovation of their existing defences and the extensive building of new forts was also proposed. Indeed the recent experience of the British in the Crimea War further had strengthened the military's conviction that strong fortifications were the best coastal defence. Unlike the previous programme of coastal defence works, the Martello Towers of 1805-1812, these coastal fortifications, later to be dubbed "Palmerston's Follies", were substantial and significant constructions. £7,005,000 was recommended as the estimated sum needed for the erection of works, while £500,000 would be set aside for the arming of the forts.

The Portsmouth area was to have the largest amount spent on it at £2,070,000 with 1,267 guns and barrack accommodation for 8,820 men. Portsmouth Dockyard was relatively secure from a sea offensive, with a both sides of the harbour entrance well fortified. Until the 19th century, the town and dockyard was also defended from an attack from the land by the Hilsea lines and both the town and the dockyard were defended by stout fortifications. However, the increasing range of guns meant that the enemy could seriously damage the dockyard from some distance. Consequently, in order to prevent a land attack by an enemy who had landed further up the coast in Sussex and then circled round to attack Portsmouth from the north over the South Downs, a series of eight forts were built in an arc round Portsmouth and Gosport. Britain's military and naval experience in the Crimean War, both in Crimea and the Baltic, urged a strong, coastal fortifications. Indeed, the defensive strength of Kronstadt on



Kotlin Island near St. Petersburg, had deterred the combined Anglo-French fleet on several occasions. Here the channel was defended by a number of forts built in the sea on the sand shoals of the area, making it very difficult for a naval assault. A similar idea was behind the sea forts at Spithead off Portsmouth. The keen public interest surrounding the building of the "Spithead Forts" was reflected in national newspapers of the time, such as *The Times*, that kept up regular articles and correspondence on the subject from 1862 till 1865.

The symbiotic nature of the defensive relationship between Portsmouth and the Isle of Wight was not lost on the military defence planners and commentators of the time. As well as comments in contemporary newspapers, journals and magazines also stressed the useful defensive role played by the Island concerning the maritime defence of Portsmouth.

*Portsmouth, the chief naval harbour of the English in the Channel, is by nature protected against the attack of a hostile fleet, so as no other could easily be, and this mainly through the relative position of the Isle of Wight, which is thrown out before it, and covers its entire front. Henry III gave much attention to this harbour, and since his time it has gradually grown to be what it now is, and even quite recently much has been done to strengthen it. The entrance into this harbour may be effected from the east or west, and on both courses it is for large ships practicable only at the flood tide, and then only with the help of pilots and buoys. It is protected by detached casemated forts, which lie both on the Isle of Wight and on the mainland, and command the water at point-blank.*

*The harbour and the road of Spithead are spacious enough to afford room for the largest fleets; the Arsenal so complete that ships may thence be provided with all requisites. The guns, however, with which the works are armed are somewhat too light, considering that during the last year all the naval powers have been taking measures to arm their ships as heavily as possible. Availing themselves of their experience during the recent Russo-Turkish war, the English have placed many detached batteries on the Isle of Wight, of which one of the largest lies near the Needles. Should a hostile fleet make its way so far as this, the difficulty of hitting the passage (which scarcely could be found were the buoys to be removed and no pilots forthcoming), would obstruct their progress. Nothing would be left to the enemy under such circumstances, except to gain possession of the Isle of Wight, and thence, after taking the strand batteries, to annoy the road and harbour. [The United Service Magazine, Annie Barnes. 1859 p.4]*

The Needles passage was considered the 'back door' route through to Portsmouth harbour and its dockyard and rendered Portsmouth vulnerable to naval attack if not secured. It was of great concern to the military authorities, which is witnessed by the comparatively numerous forts and batteries lining the coast between the Needles and Bouldnor, east of Yarmouth. These batteries would allow a continuous, rolling barrage of fire on any enemy ships proceeding up the Needles passage. The elevated batteries provided for dropping fire onto vulnerable decks and superstructures, while the sea level forts at the base of the cliff on the north side of the Needles and Fort Albert allowed point blank and ricochet firing at the hulls of the ships. Golden Hill Fort provided barrack accommodation for the troops stationed at these forts and batteries and also protected them from any infantry land assault in the rear.

However, by the time the last fortification in this area was completed in 1872, the French threat had passed with France's defeat in 1870 in the Franco-Prussian War. After the surrender, France was occupied for many years with internal political matters and the perceived threat posed by France faded.

## **Appendix B: A Note on Fort Design and Construction in the early and mid 19<sup>th</sup> Century.**

The design of Golden Hill Fort was based on a school of standard fort design principles from the first half of the nineteenth century, that borrowed from the German school of permanent fortification, and examples of similar construction is evident in several military manuals of the time.

The overall design for Golden Hill Fort was an adaptation of the accepted standard pattern for coastal forts, which required vaulted chambers with casemates and embrasures towards the sea, surmounted with earthen ramparts, behind which were mounted guns in barbette. It was recommended that the scarp or front walls of these sea forts were stone or brick and that troop accommodation was placed behind the gun chambers facing onto a parade ground:

*“These batteries in our own and European works consist of a series of arched bomb-proof chambers which serve for the service of the guns alone; or else they receive such dimensions that the portions of the chambers immediately in rear of the mask wall are appropriated to the service of the battery, and the rear portions are converted into quarters, store rooms, and other necessary purposes for the garrison.*

...

*The chambers are usually formed of segmental brick arches of 120°, which rest upon stone piers built back perpendicular to the mask wall. In the example given, the arches, c, have a uniform thickness of 3 feet exclusive of the roof-shaped capping, which is generally of rubble and beton, and covered on top by the earth of the parapet and rampart. The stone piers, E, are 6½ feet thick, and are pierced with arched communications, F, a few feet in the rear of the mask wall, so placed as to give the gun carriage a wider traverse by allowing it to run under this opening.*

...

*When the casemates serve also as quarters for the garrison, the rear, towards the parade, is closed by a brick or stone parade wall, which forms the front wall of the quarters. A brick partition wall separates the quarters from the gun gallery. Arched recesses and flues are made in the piers for chimneys, and the parade wall, the sides of the piers, and soffit of the arch, are suitably finished to give a dry and well ventilated dwelling.”*

**An Elementary Course Of Military Engineering. Part II. Permanent Fortification. Mahan, D. H. New York: John Wiley & Son, 1870**

In *Elementary principles of fortification* by John Hyde, published in 1860, many of the features relevant to Golden Hill Fort are mentioned in this description of casemates, which were still at that time a necessary element in forts, especially coastal defences:

*“Guns mounted on the open ramparts of a fortress, even when well traversed, are liable to be speedily destroyed by an enemy's vertical and enfilade fire. The only known means by which this can be prevented, is by placing the guns in casemates or vaulted apartments of masonry, solid enough and strong enough to resist the effects of the fall and explosion of heavy shells.*

*And, although there are many objections against the general introduction of casemented batteries, they seem to be outweighed by the imperious necessity of protecting the guns from enfilade and vertical fire. Fr, in all recent constructions and projects for new fortifications, casemated cover for the guns is unsparingly adopted.*



Where the fort faced landwards and there was a moat or glacis to protect the front wall, then barrack rooms could be placed at the front of the wall, since they were out of direct line of fire. At Golden Hill Fort, as there was no requirement for guns in the lower stories, since they were below ground level, the whole length of the chambers were given over to barrack accommodation. The roof retained its parapets and artillery positions. The lower gun chambers were dispensed with, and loopholes pierced the scarp wall. At Golden Hill Fort, to admit sufficient light for ordinary barrack living, sets of narrow windows were inserted in the outer wall instead and the loopholes were provided by slots cut into iron shutters, which would close off the windows in event of attack.

Mahan, in his previously mentioned work, gives details of a defensible barrack [see Figs. 51 and 52 below], that can be easily identified in Golden Hill Fort:

*“In our service, Pl. 7, Figs. 51, 52, when casemated quarters are constructed of two stories, the upper one alone is covered with a bomb-proof arch, the floor between the two being of timber and constructed in the ordinary way.*

*In Fig. 51 is shown a plan on A D, Fig. 52, bomb-proof casemated quarters in rear of a scarp wall, and of a counterscarp gallery, both arranged with loop-holed defences. Fig. 52 is a section and side elevation on C D, Fig. 51, showing the rampart and parapet over the arch, and the fire-places and chimneys in the piers of the arches. The floor of the second storey is of timber. The rear or parade wall is pierced with doors and windows.*

*In Fig. 53 is shown the plan of a casemated defensive barrack from an Austrian authority. The front wall, A, is arranged and pierced for cannon, each arched chamber for one gun. The end wall is loop-holed for musketry, and the rear wall, C, has windows and doors.”*

**An Elementary Course Of Military Engineering. Part II. Permanent Fortification. Mahan, D. H. New York: John Wiley & Son, 1870.**

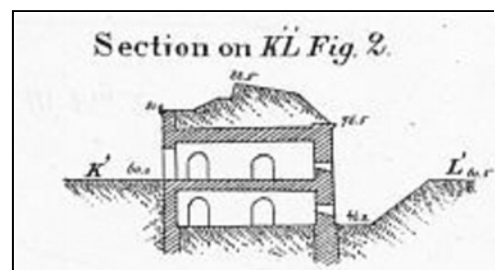
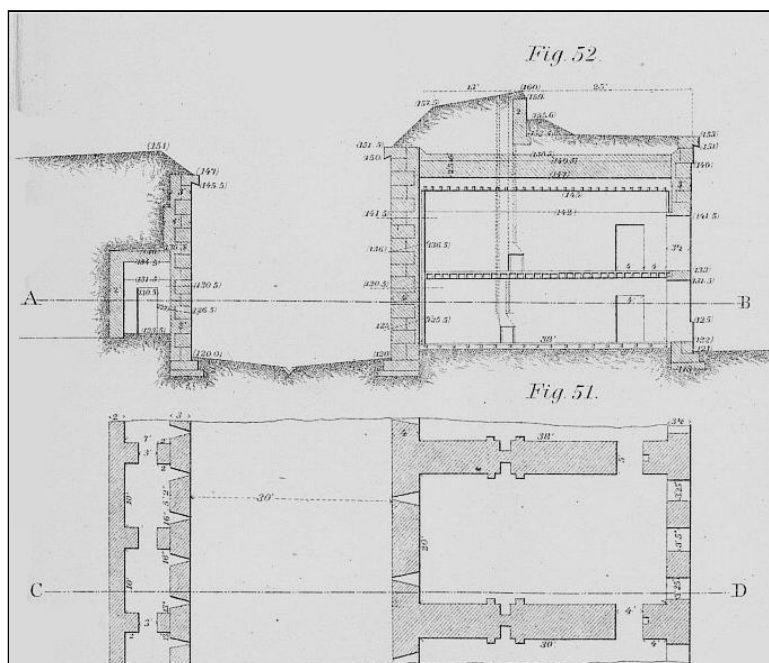


Fig. 3 [above]: Section through barrack accommodation in a land fort.

Fig. 4 [left]: Section through and plan of a fortification with a land front. The two living chambers with fireplaces can be seen with loopholes through the scarp wall. A counterscarp gallery is shown, whereas at Golden Hill Fort, this is where the side of the moat slopes down.

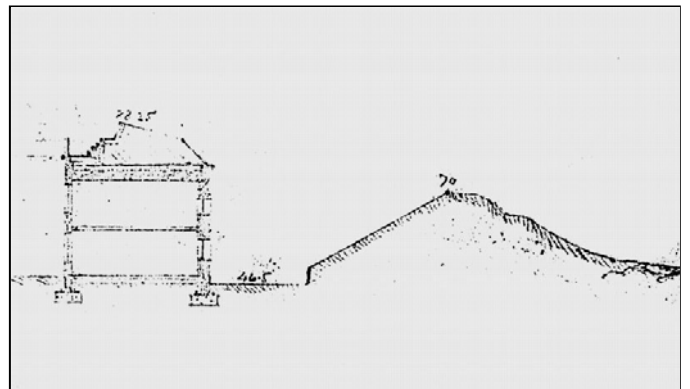
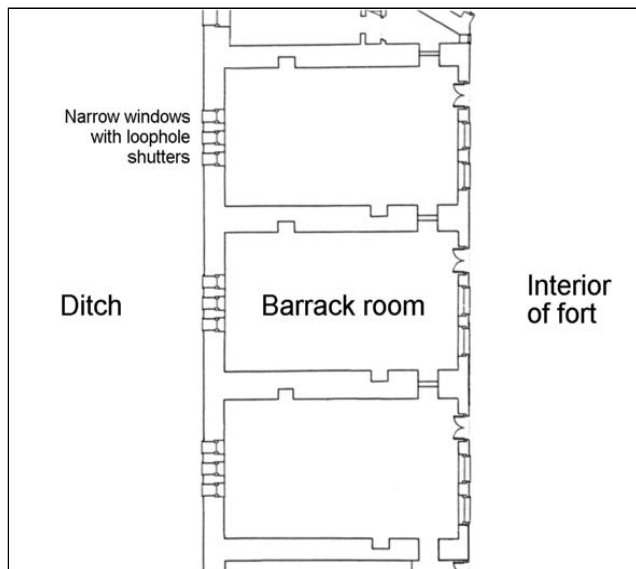


Fig. 5 [above]: Section through south-east wing, ditch and glacis of Golden Hill Fort shown on 1904 plan. Compare with Fig. 3 above.

Fig. 6 [left]: Plan of ground floor of south-east wing of Golden Hill FOro for comparison with the plan drawing in Fig. 4 above.

Another work, commenting on the “German System” of fortification that was exerting influence on fortification design in the first half of the 19th century, it noted that according to this new style of fort design, *“the object has been to compose fortresses of single independent works, capable of affording a lasting resistance; but which are mutually connected, according to circumstances, by intermeditae lines, thus forming a net of works expressly adapted for a step by step struggle for the possession of the ground; ...”* The engineer chooses various strategic points to defend.

*“These points are made the main posts of the station. Casemated defensive barracks are constructed on them, in the form of round towers, or isolated angular castella, according as the range to be commanded from them may require the one or the other: they are built, according to circumstances, with two or three stories, and are furnished on the top with a gun-platform, sheltered by a parapet, which, in the manner of a cavalier, is to overlook and command the surrounding country.”*

**Aide-mémoire to the Military Sciences: Framed from Contributions of Officers of the Different Services. Originally edited by a Committee of the Royal Corps of Engineers. 1847-49. Lockwood and Co. London, 1860.**

Mahan, in his previously mentioned work, gives more detail about this German system of fortification:

#### *“Recent German Fortifications*

*181. In the large additions made to the fortifications of the German States, since the general peace in Europe in 1815, the German engineers have for the most part of these new structures embraced the ideas put forth in the works of Montalembert and Carnot, adopting for the plan of their enceintes the polygonal system with flanking caponnières, combining with these numerous casemates for defence, for bomb-proof shelters, for quartering the troops and preserving the munitions and other stores.*

184. *The defensive barrack is usually arranged for two or three tiers of covered fire, and an upper one with an ordinary parapet and terre-plein on which the guns are uncovered and destined for the distant defence. The two upper tiers of covered fire are for artillery, to sweep the interior of the work, and to reach by curvated fires the approaches on the exterior. The lower tier is loop-holed for musketry to sweep the interior. The barrack is surrounded by a narrow ditch on the interior, and this, when necessary, is flanked by small caponnières placed in it, which are entered from the lowest story.*

195. *The defensive barracks, forms one of the most distinctive features in the organization of the German fortifications. The plan of these works may be any figure to suit the object to be subserved by them. When placed in the gorge of an independent work and serving as a keep to it, their plan is usually semicircular.*

*The barrack consists of one or two stories of arched chambers for covered fire, and an open battery on top with an earthen parapet and terre-plein.*

*The arched chambers are formed by connecting the front and rear walls of the barrack by transversal walls which serve as piers for the arches of the ceiling, the soffits of which are either cylindrical or conoidal, according as the piers are parallel or otherwise. The chambers are about 18 to 20 feet wide, and 60 feet in depth; their height, under the crown of the arch, from 9 to 11 feet. The arch of the highest chamber is 2 1/2 feet thick, and being covered with a capping and the earth of the open battery on top, is bomb-proof. The arches of the lower stories are 1 1/2 feet thick. The front wall of the barrack is usually 6 feet, and is pierced in each chamber with one embrasure and two loop-holes. The rear wall is three feet thick, and has a window in each chamber for light and ventilation. Openings for ventilation are also made in the front wall just beneath the crown of the arches. Doorways are made through the transversal walls to form a communication between all the chambers. These are sometimes placed along the centre of the piers, at others near their extremities, so that the chambers being divided by slight partitions into two compartments for the quartering of troops, there will be a continuous hall either along the centre, or near the rear wall, upon which all the apartments open. The barracks are, otherwise, arranged with all the requisites for lodging the troops comfortably and healthfully. The lower story of the barrack is surrounded by a narrow ditch. A draw-bridge across this ditch secures the entrance to the barrack at the gorge."*

**An Elementary Course Of Military Engineering. Part II. Permanent Fortification.** Mahan, D. H. New York: John Wiley & Son, 1867.

Golden Hill Fort was based on these principles of bomb-proof casemated barracks, and can be seen to correspond with many of the features of the German System. It differs in that it was an independent structure, that was not part of a system of inter-related defensive lines, that provided mutual support. The casements were not designed for guns but for musketry and small arms, as were the caponiers, since it was designed to repulse an infantry assault. However, its closed hexagonal form, with bomb-proof casemated chambers and gun emplacements on the roof behind earthen ramparts, are closely reminiscent of elements of German fortifications.

## Appendix C: Historical Note on Freshwater Parish

Until the 20th century, the Freshwater region was a predominantly agricultural area, made up of scattered, small hamlets and farmsteads, dispersed throughout Freshwater Isle amongst a mixture of enclosed and open field systems. There was no single focus to the settlements in the area and therefore, even in the 19th century, there existed no significant nucleated settlement. From Saxon times, the development of the settlement pattern had resulted in a polyfocal pattern, based on a loosely associated and dispersed collection of settlements. The parish therefore consisted of small pockets of habitation, centred on a 'green': More Green, Freshwater Green, Pound Green, Sheepwash Green, Middleton Green, Stroud, Easton, Norton and the settlement round the parish church. However, there were two areas of significant settlement: one centred around School Green and another crowding around the west end of the parish church, in what is today Church Place. Small fishing hamlets existed at Freshwater Gate, Brambles Chine and Norton. The population of the whole region fluctuated around the 500 mark during the 17th century.

By the 17th century, the area of Freshwater Isle was a mixture of enclosed fields and the traditional, open field system, divided up into individual strips. Indeed, even in 1837, there were areas of the old medieval strip system in existence among the enclosed fields that dominated the Freshwater landscape. These patches of the open field system were situated in the south of the parish: Headon Common Field, Stone Wind Field, Windmill Field, Little Common Field and Easton Field. However, the names of various other former common fields are identifiable in various leases; fields such as North Field, Norton Field, West or Weston Field, Sutton Field, Heath Field, Fernhill Field and Noad Acre Field. These were large, open common fields, in which the tenants held a strip or various strips of land, which were often scattered throughout, so that everyone had an equal chance of both the more fertile and poor agricultural soil. A 1608 royal survey of Freshwater clearly shows this communal open-field system still intact; many of the tenants have holdings within a number of the common fields. A good example of this strip system can be found in William Prince whose holding consisted of small enclosures and strips in the large common arable fields:

*William Prince holds by copy dated 5 Oct 1587 1 tenement formerly in tenure of Richard Syde viz. house (3 spaces), barn and stable (4 spaces), orchard, garden and curtilage 1 acre*

*Rodds Close 3 acres  
New Close 4 acres  
Yorks Parrock 3 roods  
Hatcher Close 3 roods  
Bunse Close 1 acre  
Upper Shores Close 3 roods  
Lower Shores Close 2 roods  
Utter Greenhill 1 acre  
Inner Greenhill 1 acre  
arable land in Eastfield 6 acres  
arable land in Northfield 4 acres  
arable land in Heddenfield 3 acres  
arable land at the Maynes 2 roods  
arable land in Farnhill 1 acre 1 rood  
arable land in Warden 1 ½ acres  
one parrock 2 roods  
arable land next Tresfords 2 roods*

own life, Henry Thring, Joan Thring  
rent 13s 4d  
annual value £8 0s. 0d.  
[PRO E315/388]

Even by the mid 19th century, some of these open, strip fields still existed in the southern part of the Freshwater area and many of the enclosed fields are long and thin, suggesting remnants of the former individual, open-field strips. Even today, remains of the boundaries of this strip system can be seen in the area of Stonewind Farm.

Great chalk cliffs formed the southern boundary of the parish and ran from Freshwater Gate to Alum Bay. They were inhabited by all manner of seabirds and could be dangerous to the cattle that grazed the grassland on top.

*"The parish of Freshwater from the point where Worsley's Tower formerly stood, opposite to Hurst Castle, round to Freshwater gate, is fortified by those stupendous promontories of Chalk, known by the name of Freshwater Cliffs. The height of these cliffs is indeed prodigious; being in some places six hundred feet above the level of the sea. To form a just conception of their magnitude, they should be viewed from the sea, at the distance of about a quarter of a mile; when the most lofty and magnificent fabrics of art, compared with these stupendous works of nature, shrink in idea to Lilliputian size. These cliffs are frequented by immense numbers of marine birds, puffins, razor-bills, willocks, gulls, cormorants, Cornish choughs, daws, starlings, and wild pigeons; some of which come at stated times to lay their eggs and breed, while others remain there all the year. The cliffs are in some places perpendicular, in others they project and hang over in a tremendous manner; the several strata form many shelves, these serve as lodgments for the birds, where they sit in rows, and discover themselves by their motions and flight, though not individually visible. There are many chasms and deep caverns that seem to enter a great way into the rocks, and in many places the issuing of springs form small cascades of rippling water, down to the sea; sheep and lambs are seen grazing in the lower parts of the cliff, near the margin of the sea; the cliffs have sometimes proved fatal to them, as well as to other cattle who have ventured to graze too near the edge; from which, hounds in the ardour of the chase, have to their mutual destruction driven and followed their game."*

[History of the Isle of Wight by Sir Richard Worsley. London, 1781]

The downland, known as High Down, that also ran along the southern edge of the parish on top of these cliffs, provided valuable pasture for sheep. Certain areas were only useful as 'waste' and therefore became commonland: the cliffs from Alum Bay round to Norton and the furze heath of Golden Hill area. The pound was situated at Pound Green and attended by a piggard. Headon Hill, also known as Headon Warren, had been the site of a rabbit warren from an early date, farmed by a warrener who had lived in a Warren House at Headon Hill.

By using the Hearth Tax records, the population of Freshwater Isle can be estimated at around five hundred in the last half of the seventeenth century. The majority of this population earned a living from agriculture: in the wills for Freshwater, most people are described as 'husbandman' or 'yeoman'. Between 1571 and 1700, a total of 110 of all the wills give a person's occupation. 39 are described as 'Yeoman', while 36 are given the term 'Husbandman', thus allowing that almost 75 percent of the population were involved primarily in agriculture. The other occupations are allied agricultural trades, such as blacksmith, miller and carpenter, and service trades, such as grocer and butcher. Only 9 mariners are listed. Some also found an additional source of income by descending the cliffs on ropes either to catch sea birds or to collect samphire. The birds were sold for their feathers and as bait for crab pots.



*"The country people take the birds that harbour in these rocks, by the perilous expedient of descending by ropes fixed to iron crows, driven into the ground: thus suspended, they with sticks beat down the birds as they fly out of their holes; a dozen birds generally yield one pound weight of soft feathers, for which the merchants give eight pence; the carcasses are bought by the fishermen at six pence per dozen, for the purpose of baiting their crab-pots."*

**[History of the Isle of Wight by Sir Richard Worsley. London, 1781]**

Samphire was collected for pickling in barrels, before being sent up to the London market. In the early 17th century, the digging of pipe clay also occupied some of the inhabitants of Freshwater. The pipeclay was exported to London to be used in the manufacture of tobacco clay pipes. This same pipe clay was also in demand for making the crucibles in which molten glass was contained during the glassmaking process. Some inhabitants were employed in digging the white sands at Alum Bay for use in glassworks for making clear crystal glass. But apart from these seasonal occupations, most of the inhabitants were occupied in work in the fields and on the farm.

Being somewhat isolated from the rest of the Island, an agrarian outlook and psyche shaped their way of thinking, their values, their lifestyle and culture. The population of Freshwater were tied to an agrarian calendar, that had changed little in centuries, and their lives were shaped by the seasons, agricultural events and religious holidays and festivals. The church figured highly in all of their lives and much of their psychological world and mental maps revolved around the parish church. The rector or curate presided over their births, marriages and deaths. He looked after their spiritual and emotional well-being and, being one of the few educated men in the area, he was an obvious source of advice. He was a guardian of local morality and was required to monitor people's behaviour and thoughts.

Originally, there had been only two means of access to Freshwater Isle: by ferry boat at Norton across the mouth of the Yar estuary to Yarmouth, and by foot across a narrow neck of land called Freshwater Gate at the southern end of the creek formed by the River Yar, which extended from Yarmouth southwards, effectively cutting off Freshwater Isle from the 'mainland' of the Island itself. This neck of land most probably consisted of a bank of shingle that separated the sea to the south from the marshes of the upper reaches of the Yar estuary to the north. Brannon, writing of Freshwater Gate in the mid 19th century, wrote:

*"A low narrow bank of shingly pebbles that are thrown up by the furious waves, here interposes between the briny element and the spring-head of the river Yar, which is supposed to have given the inappropriate name of "Freshwater" to this part of the Island: it rises in a meadow nearly opposite the hotel, and taking a northerly direction, communicates with the Solent Channel at Yarmouth: of course, if ever the present shallow barrier of shingles should be removed, this quarter will then be completely insulated, as is said to have been the case some centuries back."*

**[Vectis Scenery by G. Brannon. Wootton, 1824]**

However, by the 17th century, another communication link had been added in the form of a causeway, that extended from near the parish church across to Afton. That the bridge, known as Black Bridge, at Easton did not exist is clear from Sir John Oglander's comments on the defence of the Island against the French. In 1629, the gentry of the Island were petitioning the Privy Council for money to repair existing forts and to build new fortifications. They were also keen to establish a last line of defence, a sort of natural citadel, to which they could retreat in the event of a successful landing.

*"In Januarie 1629 the gentlemen of owre Island concluded to goe to London to petition his Matie for moneyes to haue owre castells and fortes some amended others where most nede requyred, newe*

*erected; and also for to haue 2 places of retrayte if so wee shoulde be beaten; Videlcet - Freshwater for owre cattel and ye mayne bodie of owre companies; and Yarmouth for ye better sorte of people where they myght by bote have intercorse one with ye other; the fortifyinge of which places of retrayt myght be doone by cuttinge of Freshwater Gate; and Yarmouth by ye cuttinge of ye nicke of land betweene ye 2 seaes with drawe brydges and half moones to secure ye passages".*

At some point, Black Bridge was built over the Yar marshes thus avoiding the longer route to the south via Freshwater Gate. Although by late Elizabethan times, the causeway across from Afton to Freshwater church had been constructed [both Mercator's map of 1595 and Speed's of 1611 show a passage here], Oglander did not even consider this, presumably because of the ease with which it could be broken open. This causeway was possibly constructed as the dam wall for a tide mill that existed at the east end of the causeway. When exactly the mill was built is uncertain, but certainly it existed by the mid 14th century. By 1694, this was described as a "water corn mill".

Like Bembridge Isle, Freshwater suffered from a lack of suitable watercourses for powering a water mill. This meant that by the 13th century, a windmill had been built in the area, where the inhabitants could take their grain to be ground. In 1300, a new windmill was built: either a rebuild of the existing one or one on an entirely new site. Certainly by 1769, there were two windmills operating in the area: one on a hill, east of Weston Farm, and another near Freshwater Green. The stocks for the area were located outside the churchyard gate, where the miscreant could be assured maximum exposure to the view of the inhabitants. Any artisans, such as bakers and butchers, were most certainly situated near Freshwater Green or in Church Place, near the parish church.

Chalk was quarried from pits along the north edge of Tennyson Down for use on the fields or for burning into lime in order to make mortar for building. Two limekilns, possibly dating to the 17th century, can still be seen on Moons Hill. Certain strata of chalk was solid enough to be used in building and many of the old stone cottages and farm buildings have an element of chalk block in their construction. Hard, ferruginous sandstone, which occurs in thin layers amongst the softer sands, was also used in construction of walls, while from Headon Hill and Cliff End, Bembridge Limestone blocks were acquired. This availability of different types of stone meant that many of the more humble dwellings and farm buildings are invariably made from a variety of these stones, usually chalk block and sandstone (often so laden with iron as to be termed 'ironstone').

Roads were little more than single-carriage trackways, whose surface had been strengthened with a coating of compacted gravel of variable thickness. Where potholes appeared in the thinner sections, further gravel or gathered stones were deposited in the holes. Gravel terraces around the parish church and at Easton provided a convenient source of gravel. There were also good deposits of plateau gravel on the top of Headon Hill, where numerous depressions and overgrown pits testify to mining activity of this source over the ages. In the Freshwater region, roads often opened out into the large open space of the green on reaching hamlets; here the road became part of the green.

The nature of roads in the area can be seen in Helen Allingham's 19<sup>th</sup> century paintings of the cottages of Freshwater. The roadway is made of compacted gravel and is only wide enough for one cart. There are no definite edges or kerbs and so grass and weeds grow right up to the roadway, which therefore varies in width.

The building of the forts and batteries in the Freshwater region and the consequent influx of troops into the area during the 1860s and 1880s can be seen to have affected the development of Freshwater in the population figures, where a significant rise in the population is evident at that time [see graph 1 in

Appendix E]. Not only was there a large military presence, but this was also one factor contributing to the demand for a wide range of ancillary service trades, which attracted an increase in the civilian population too.

## Appendix D: Significance of Ventilation in Barrack Construction

During the 1850s, there was a growing outcry against the poor conditions faced in barracks and hospitals and this was regularly fuelled by public opinion in the press. Even some top army officers were outspoken in their condemnation of the state of Britain's barracks. In his diary, General Sir Charles James Napier wrote:

*26th - Inspected the 96th and 79th, two fine regiments, and got another lesson on the necessity of fresh air: the 79th are all pallid, their chests are affected and they have many men in hospital. The 96th all healthy. The latter are in well-ventilated barracks, the former in a cursed Manchester mill; large rooms full of men and only ventilated by single panes of glass: this is one of the ways in which poor factory children are destroyed. What mad oeconomy to have bad barracks for troops: health, spirits, discipline, everything suffers, even their loyalty; yet government will not lay out a penny while they give £70,000 for royal stables, and £2000 a year to Lord Monteagle.*

[*The Life and Opinions of General Sir Charles James Napier, G. C. B.* By Sir William Francis Patrick Napier. John Murray, London. 1857]

The proper provision of barracks was a relatively new development of the previous fifty years, originating in a national programme of barrack building in the last decade of the 18th century. Conditions worsened in barracks during the first half of the 19th century, due to poor construction, lax hygiene and poor diet. The conditions in hospitals, especially in field hospitals, also declined, reaching a head in the 1850s, resulting in the reforms of such people as Florence Nightingale.

An example of a typical letter, denouncing "the frightful barrack abomination", appeared in *The Times*, written by a Lieutenant-General W. Napier, pointing out that the efforts made by Sir Charles Napier, one time Commander in Chief in India, who had striven to build "*model barracks*". In his work, entitled "*Indian Misgovernment*", Napier summed up the problem: "*The barrack sacrifices soldiers' lives and happiness to a fallacious, dishonest economy.*" Later on, he describes how soldiers had died like "*rotten sheep*" in a barracks in Bombay in clear view of the authorities. He pointed out that "*losses by battle sink to nothing, compared with those inflicted by improperly constructed barracks and the jamming of soldiers - no other word is sufficiently expressive.*" Napier recommended 1000 cubic feet for each soldier sleeping in a room in tropical climates. Poor barrack accommodation "*kills more soldiers than the climate, more than hard drinking, and one-half of the last springs from the discomfort, the despair caused by bad barracks.*"

In 1857 a commission to inspect barracks and military hospitals was appointed to investigate the state of barracks and any associated problems and was charged with suggesting recommendations for improvement. The commission took three years investigating various barracks around the country, before publishing their findings in April 1861. Over-crowding; poor, defective ventilation; bad drainage; insufficient means of cooking and cleanliness; and sub-standard construction were all highlighted as contributory factors in the ills of barracks. It had been noted that there was a significantly alarming surplus in deaths in the army on home service, compared to the average rate of deaths among civilians in England and Wales: 17.5 deaths per annum in every 1000 among the soldiery, as opposed to 9.2 deaths per annum in every 1000 among civilians. This indicated two areas that needed alteration: the material condition of barracks and the way of life of soldiers. The commission laid down general principles on which to build future barracks, as well as improvements in existing ones.

A definite standard of accommodation was laid down, which was to later form the basis of the first issue of the *Barrack Synopsis* in 1865. In 1845 it had been ordered that each soldier should receive 450 to 500 cubic feet at home stations, but the commission found that some barracks gave as little as 250 cubic feet per man. It recommended an allotted space of 600 cubic feet per man. The commission observed that "*The health of a barrack is dependent on free moving air outside and inside its walls, and anything which interferes with this prime condition of health will act injuriously on the men.*" It therefore stressed the importance of arrangement and situation of the barrack blocks in relation to each other. The commission found that the problems of overcrowding and poor ventilation were universal. They condemned those responsible for the overcrowding: "*They have not been aware that if above a certain number of men are placed in a given cubic space, the lives of some of these men, and the health of others, are certain to be sacrificed. They have not considered that to this overcrowding and its concomitant want of ventilation a large part of the excessive army mortality is due.*" Various ways of ventilating a barrack room were considered, and the commission commented favourable on both Arnott's and Sheringham's ventilators. Various plans were sent in to the Commission for ventilating barracks and hospitals and the commission summarised them as follows:

*"The plans submitted to us were as follow:- 1. Method of propelling air into barrack-rooms by fan-wheels and screws driven by steam, or by other mechanical means. 2. Method of extracting air from barrack-rooms by the draft of a heated flue, or by mechanical contrivances. 3. Methods of removing air by shafts or openings, variously planned and arranged."*

The chosen method that was finally decided was to remove part of the used air by shafts carried up vertically, relying on the greater lightness of the escaping air compared to the outside air to carry it away, while the remaining part of the air was to be removed by the chimney-flue. Fresh air was to be introduced partly by direct inlets, and partly by inlets connected to a chamber behind the fire so that in winter a portion of the fresh air entering the room would be pre-warmed.

Treatises appeared at this time reflecting the commission's findings. In *A Treatise on Hygiene: With Special Reference to the Military Service*, William Hammond made certain recommendations for the arrangement of space that are uncannily similar to Golden Hill Fort:

*"In permanent barracks 600 cubic feet of air, if the ventilation is properly looked after, will be found ample, and in temporary structures, ventilated at the ridge, 400 or 500 will be sufficient.*

*As measures of health, every barrack should be provided with bath-rooms, ablution-rooms, and mess-rooms. The dormitories should be of such a size as to contain a company with the space above mentioned. Fifty square feet should be allowed to each man. The windows and doors should be large, and the barrack should be surrounded by a veranda, in which the men can walk during inclement weather".*

The area of each barrack room [20 ft by 35ft] is 700 square feet, which for 14 men, is exactly 50 square feet each!

Hammond recommends 'ridge ventilation' but where this was not possible, he also suggested Dr. Arnott's system:

*"In apartments in which it is impossible to secure ridge ventilation, a great deal can be done by the construction of flues, by which the foul air is removed from the room. One of the best of these, and one which can readily be adapted to permanent buildings, is that of Dr. Arnott, and which is shown in Fig. 70.e smoke would enter, are prevented.*

*It consists of a metal box inserted into the chimney near the ceiling, and over which a perforated metal plate is placed. When a fire is lighted in the fire-place or stove connected with the chimney, the vitiated air is drawn from the room through the opening. Over the inner face of the perforated plate a piece of silk fastened by the upper edge is placed, so that the downward currents into the room, by which smoke would enter, are prevented.*

*A very good means of ventilation, so long as the wind blows, consists in flues through which a current of air is excited by the tendency to a vacuum created by cowls placed at their summit”.*

## Appendix E: Kelly's Directories

### Kelly's Directory 1894

#### NORTON

Lane Major A. L. , R. A., Hill Lodge

Wingfield-Stratford Major Cecil Vernon, R. E., Norton Lodge

#### COLWELL & COLWELL BAY

Richmond Lieut. G., R. E., The Avenue.

Walford Major W. S., R. A., vWarden lodge, Colwell bay.

#### TOTLAND BAY

Hoblyn Capt E. F., R. A. Florence villa.

### Kelly's Directory 1895

#### NORTON

Ellender Corpl. Wm., R.A., Norton grn.

Lane Major A. L., R.A., Hill Lodge.

Saunders Col. Arth. A., R.A., Cracknalls.

Wingfield-Stratford Major Cecil Vernon, R.E., Norton Lodge.

#### COLWELL

Hunt Charles (master gunner) R. A. 2 Brambles Cottages, Colwell bay.

McCreery Surgeon Lt. Col Nathaniel Warden View

Walford Maj. Wm.S., R.A. Warden Lo.

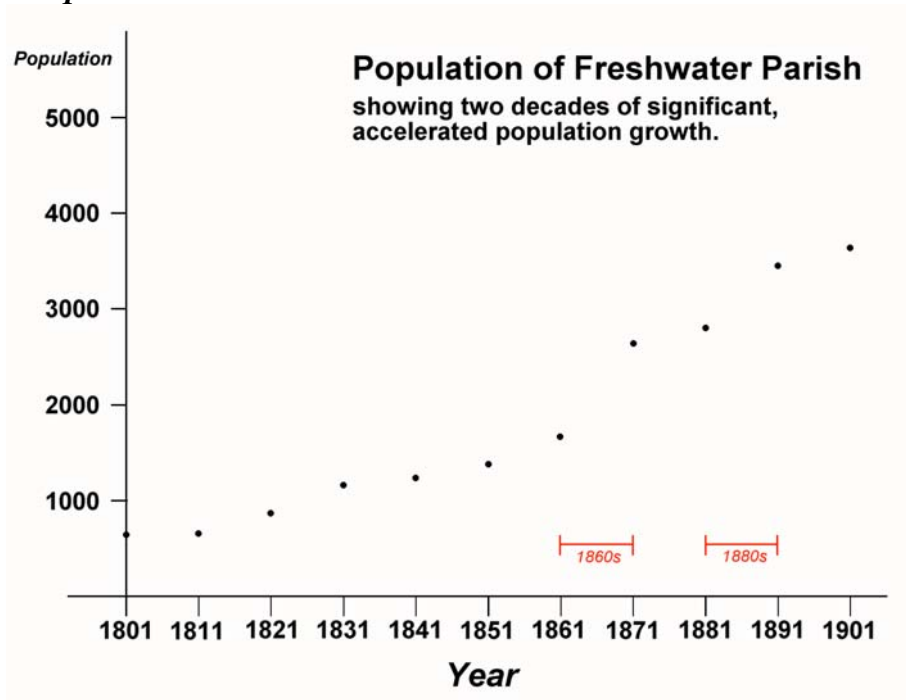
#### TOTLAND & TOTLAND BAY

Richmond Lt. George R.E. Grayingham, The Avenue.

#### FRESHWATER STATION

Lowe Capt. Francis Manley R.A. Brooklands House , School Green.

**Graph 1**





## Appendix F: Census Returns for Golden Hill Fort

Census Year	Military Personnel	Civilian [wives/children/guests]	Private Soldiers	Total
1871	121	41	107	162
1881	100	45	72	145
1891	78	25	64	103
1901	213	30	169	243

[Fort designed for 8 officers, 128 other ranks and 14 hospital patients]

Ranks mentioned included Gunner, Trumpeter, Bombardier, Corporal, Sergeant, Battery Sergeant Major, Surgeon and commissioned officers. By 1901, these were joined by Lance Corporal, and Company Sergeant Major. Domestic titles included Canteen Steward, Officers Mess Butler and Officers Mess Servant and Cook for the Officers Mess, who in each case was the wife of one of the men also serving at the fort.

**Table of Accommodation** [from: 1879 plan]

	F.O. Commr	Field Offrs	Officers	Staff Serjts	N.C.O.s and Privates	Married Soldiers	Hospital Patients	Horses		Capacity of Water Tanks Gallons
								Officers		
Cavalry										10,000 gallons and a well
Royal Artillery	1	1	4	2	110	15	24	3		
Infantry										
Total	1	1	4	2	110	15	24	3		

Cubic space per man 542 cub. ft. Patients 1085 cub. ft.

**Table of Accommodation** [from: 1907 plan]

	F.O. Commr	Field Offrs	Officers	Staff Serjts	Serjts Unmd in Separate Room	N.C.O.s and Privates	Married Soldiers	Hospital Patients	Horses		Capacity of Water Tanks Gallons
									Officers		
Cavalry											17,450 rainwater not used
Royal Artillery	1	1	5	1 Ramc	6	210	17	24	3		
Infantry						5	2				
Total	1	1	5	1	6	217	19	24	3		15,366

Cubic space per man 625 cub. ft. Patients 1912 cub. ft.

**Table of Accommodation** [from: 1937 plan]

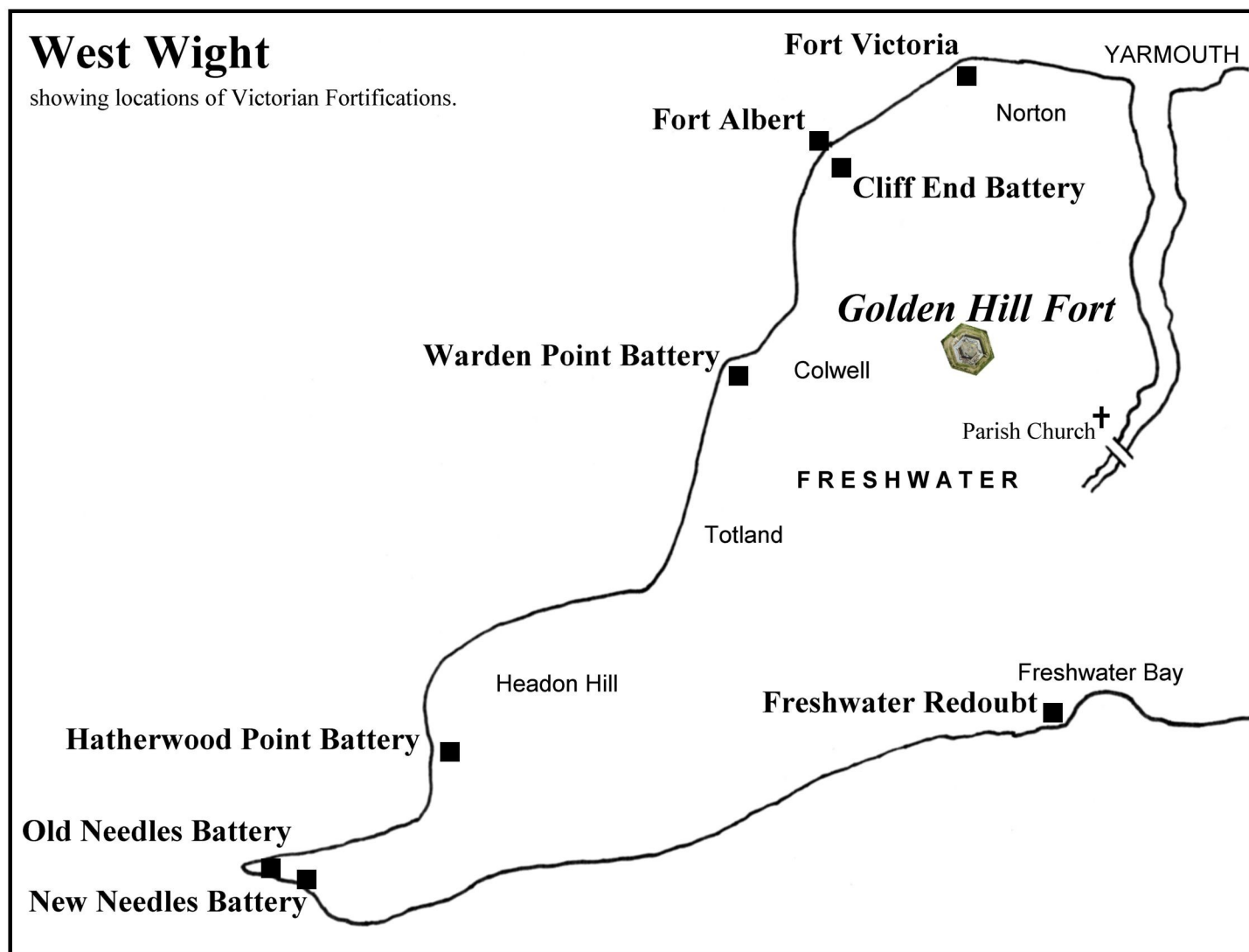
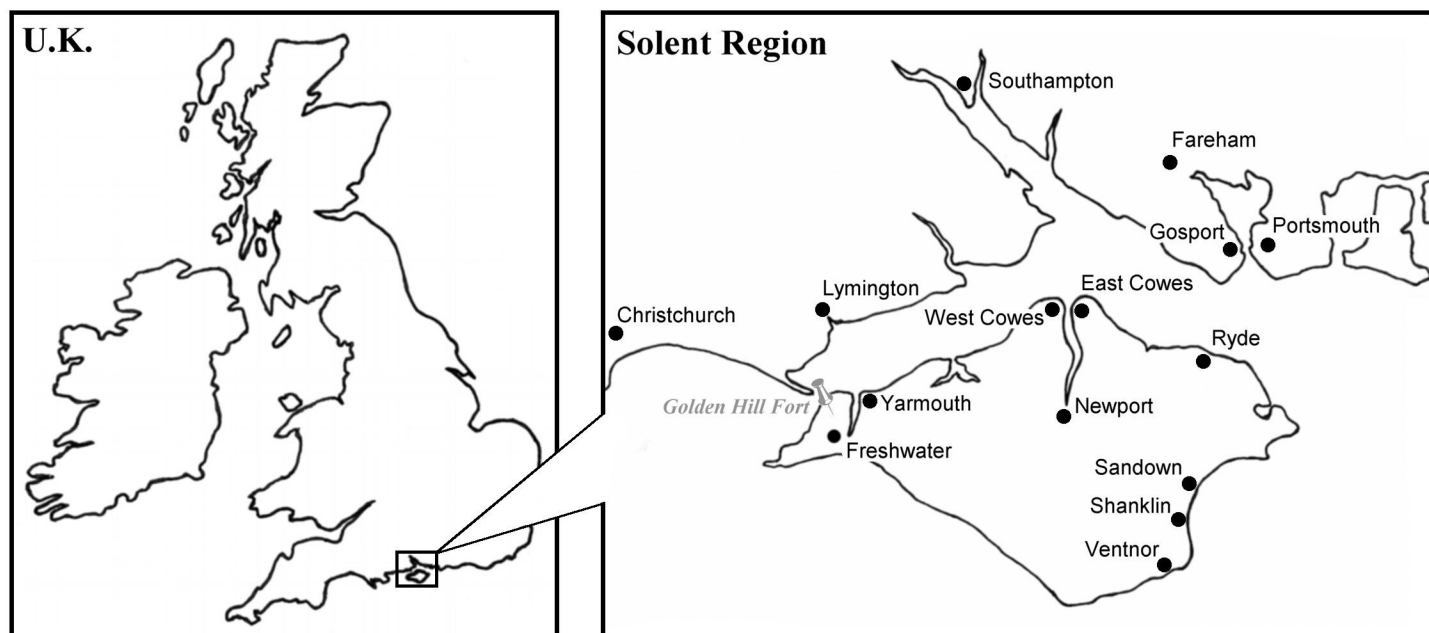
	F.O. Commr	Officers	Staff Serjts	Serjts Unmd in Separate Room	N.C.O.s and Privates	Married Soldiers	Horses		Hospital Patients	Capacity of Water Tanks Gallons
							Officers	Troop		
Cavalry										17450 rainwater not used
Royal Artillery		4		9	157	16	3		3	
Infantry										
Departmental						2				
Total		4		9	157	18	3		3	45,803

Cubic space per man: Barrack - 600 cub. ft. Hospital - 1433 cub. ft.

## **Appendix G:        Historic Maps and Plans**

- i**        Location map.
- ii**       Map of Hampshire including the Isle of Wight by Isaac Taylor, 1759.
- iii**       A Topographical Map of the Isle of Wight in Hampshire, 2" to 1 mile, John Andrews, 1769.
- iv**       Map of Tithe Award of Freshwater Parish, 1837.
- v**        Ordnance Survey, 1909.
- vi**        Ordnance Survey, 1939.
- vii**       Plan 1: Golden Hill Fort, ground and first floor. 1879.
- viii**      Plan 2: Golden Hill Fort, ground and first floor. 1897. [WO 78/2662/6 & WO 78/2662/7]
- ix**       Plan 3: Golden Hill Fort, ground and first floor. 1904.

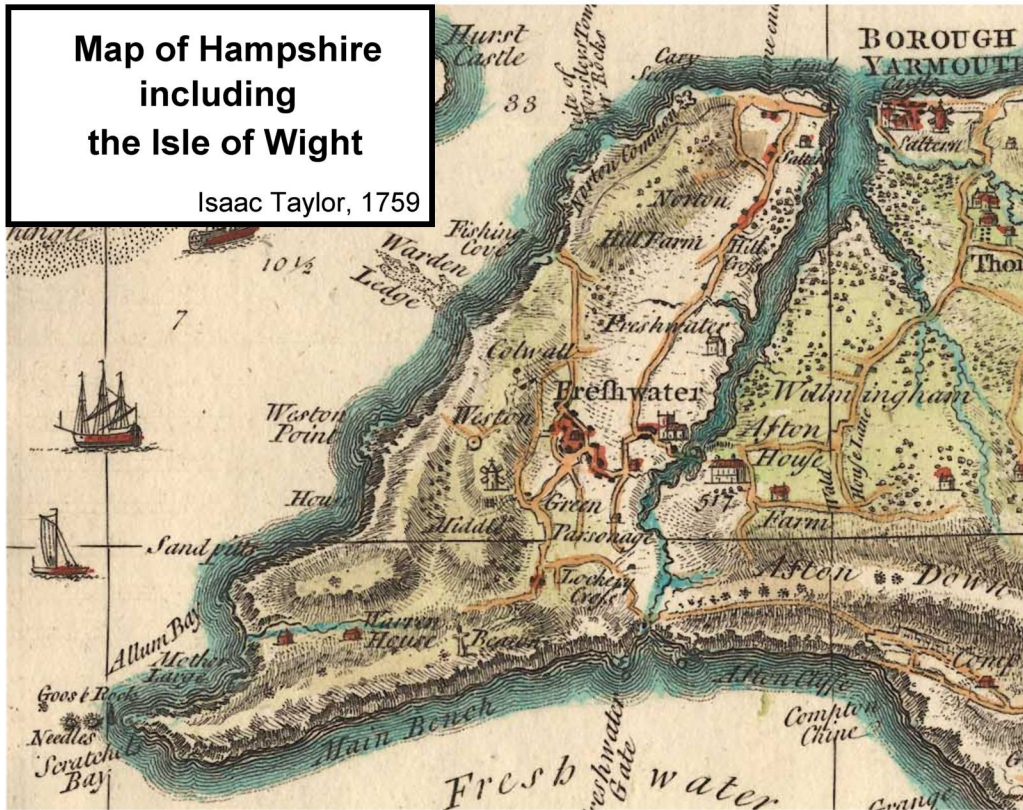
# LOCATION MAP



## 18th century Maps of Freshwater Area

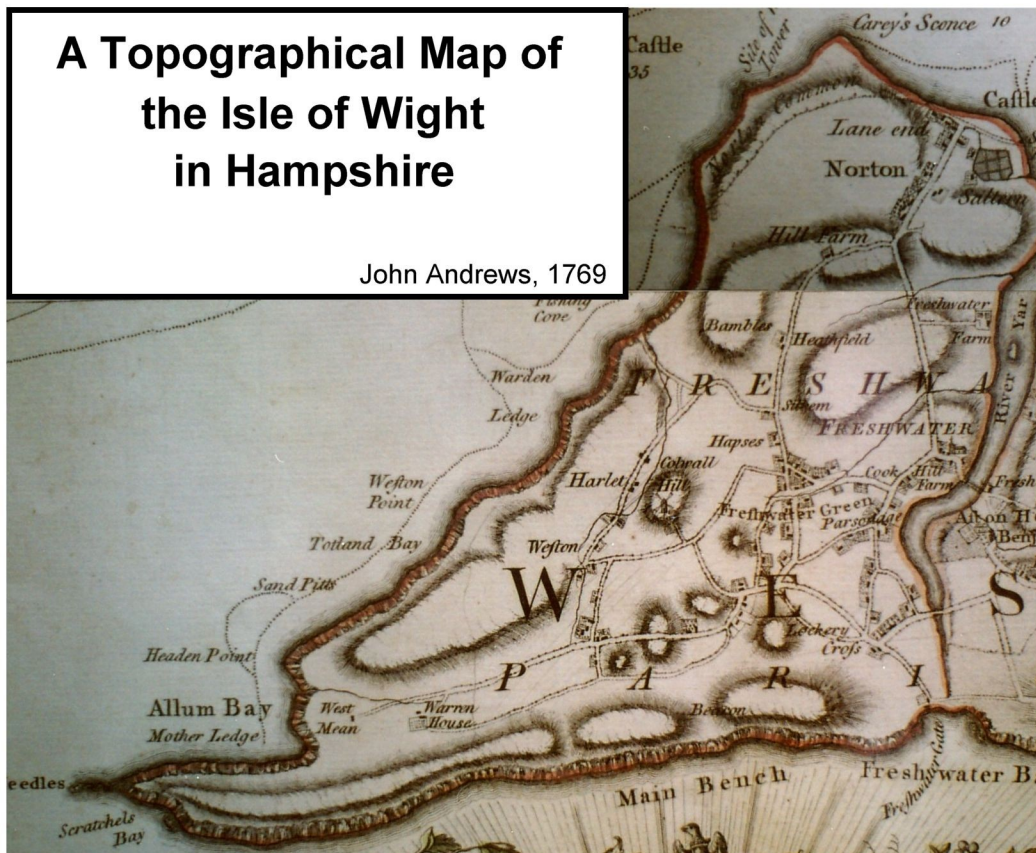
### Map of Hampshire including the Isle of Wight

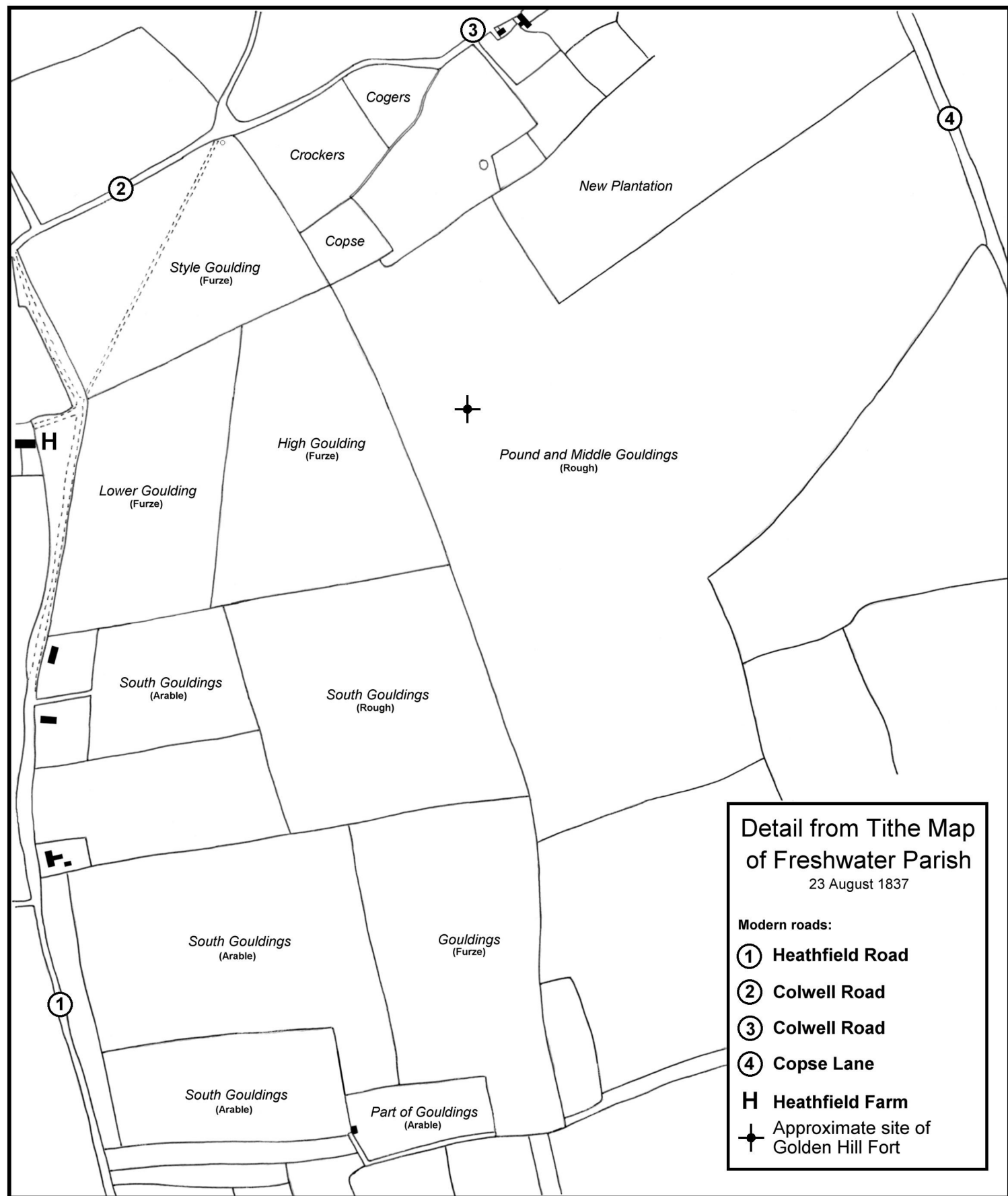
Isaac Taylor, 1759



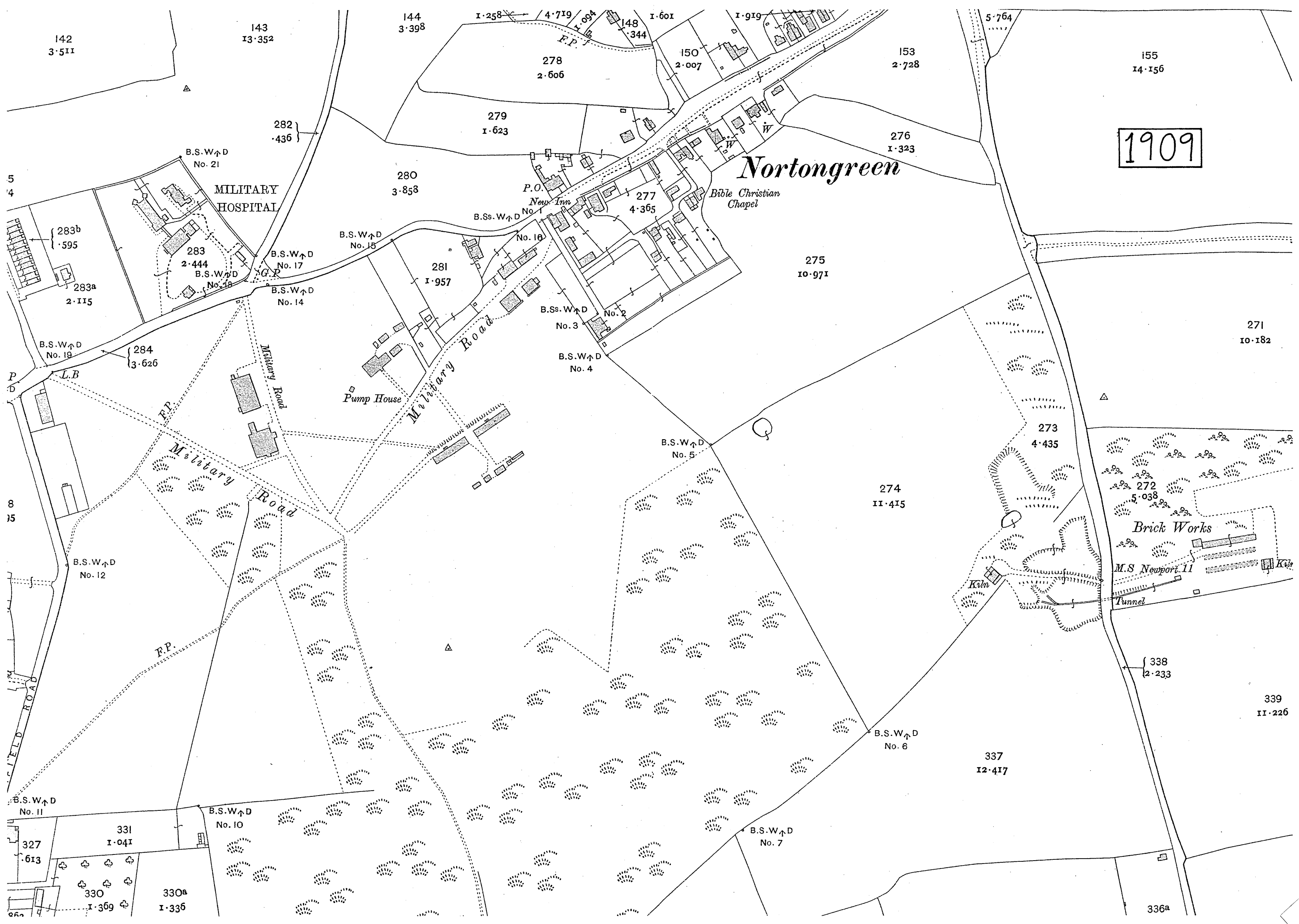
### A Topographical Map of the Isle of Wight in Hampshire

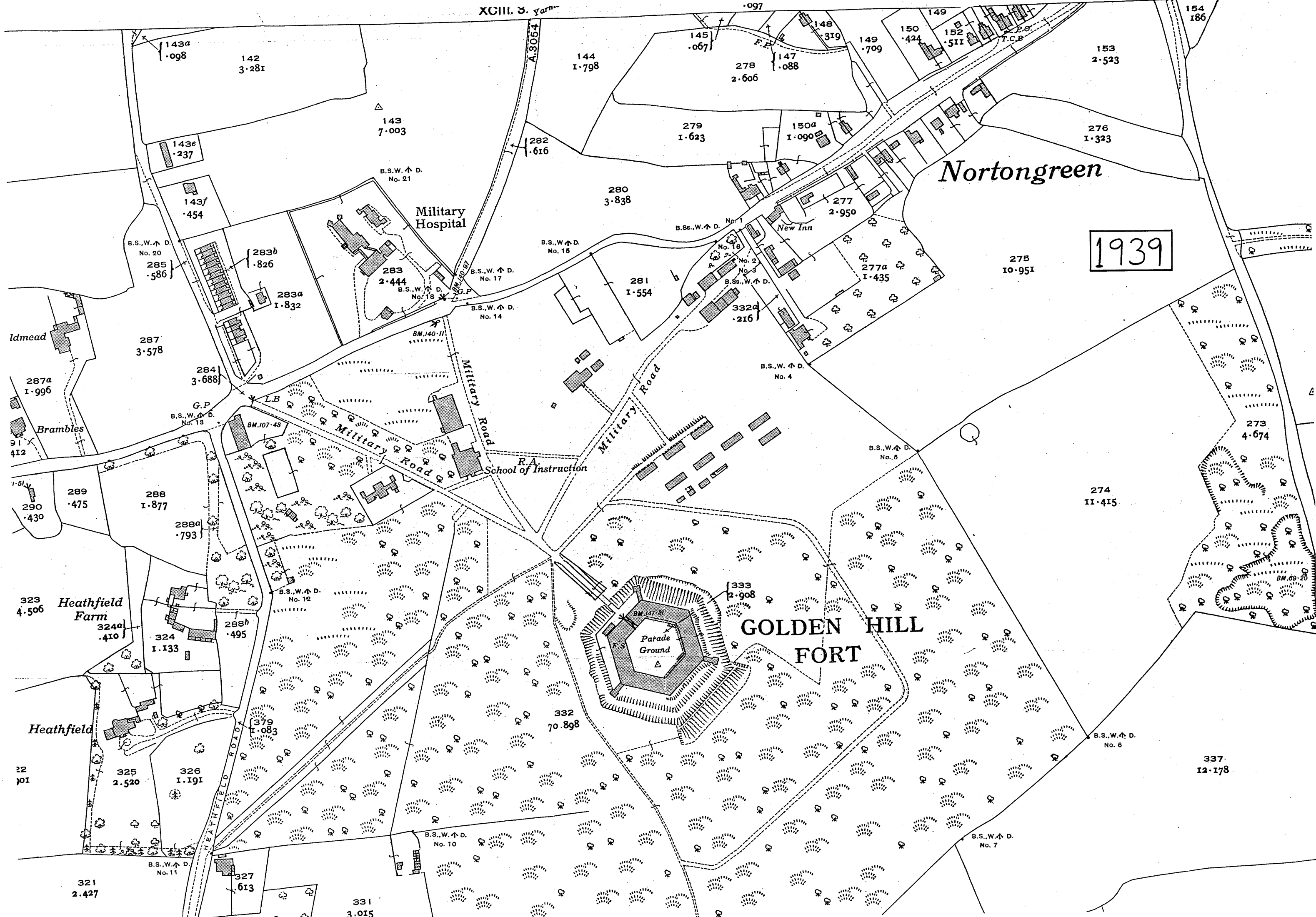
John Andrews, 1769











XCIII. 3. Yarn

.097

143a  
.098

142  
3.281

143  
7.003

144  
1.798

145  
.067

278  
2.606

147  
.088

149  
.709

150  
.424

152  
.511

153  
2.523

154  
186

143e  
.237

143f  
.454

B.S.W. & D.  
No. 20

285  
.586

283b  
.826

283a  
1.832

B.S.W. & D.  
No. 21

Military  
Hospital

283  
2.444

B.S.W. & D.  
No. 18

B.S.W. & D.  
No. 17

B.S.W. & D.  
No. 15

280  
3.838

281  
1.554

B.S.W. & D.  
No. 1

No. 16

No. 2

B.S.W. & D.  
No. 3

277  
2.950

277a  
1.435

Nortongreen

1939

275  
10.951

Idmead

287  
3.578

284  
3.688

G.P.  
B.S.W. & D.  
No. 13

BM. 107.43

LB

Military Road

Military Road

School of Instruction

Military Road

B.S.W. & D.  
No. 4

B.S.W. & D.  
No. 5

274  
11.415

273  
4.674

287a  
1.996

Brambles

91  
412

290  
.430

289  
.475

288  
1.877

288a  
.793

323  
4.506

Heathfield Farm

324a  
.410

324  
1.133

B.S.W. & D.  
No. 12

288b  
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Heathfield

325  
2.520

326  
1.191

22  
101

B.S.W. & D.  
No. 11

321  
2.427

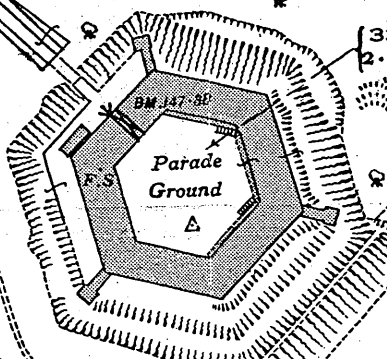
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.613

331  
3.015

B.S.W. & D.  
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332  
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333  
2.908



GOLDEN HILL  
FORT

B.S.W. & D.  
No. 6

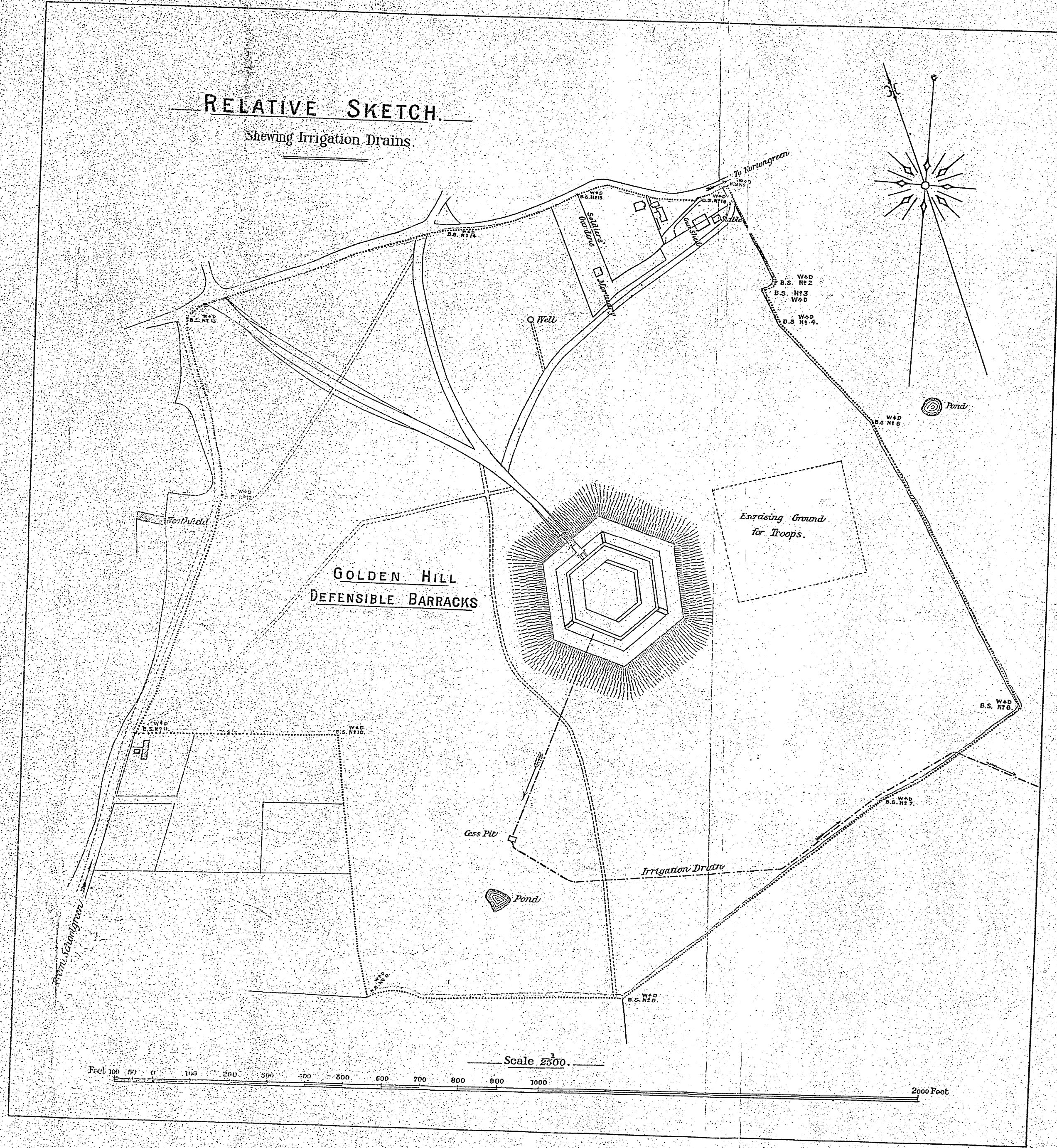
337  
12.178

B.S.W. & D.  
No. 7



GOLDEN HILL.  
DEFENSIBLE BARRACKS.  
ISLE OF WIGHT.

Zincographed and Printed at the School of Military Engineering Chatham,  
under the direction of Lieut. I. Darwin, R.E.  
Colonel Sir John Stokes, R.E.B.E. Commandant.  
1879.



- REFERENCE
- The Light Centre line denotes the travelled surface of Parades, Yards, and Roads.
  - The Grey tint denotes the Flag Flying.
  - The Underground Drains are represented thus.
  - The Drainage is conducted into Cess-pits.
  - The Cess-pits and Gratings to Underground Drains in Surface Cutters are denoted thus.
  - Note: The small Arrows indicate the direction of the fall in the drains.
  - The Green tint denotes the Grass Plots.
  - One Storey Buildings are tinted.
  - Two do do and marked.
  - Three do do do.
  - The Barracks are lighted internally by candles.
  - do do externally by Oil.
  - War Department Boundary shown thus.

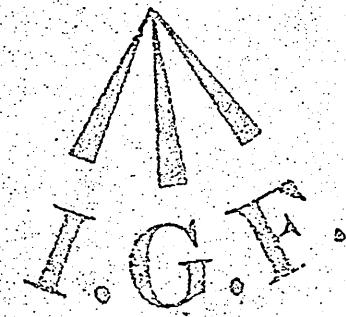
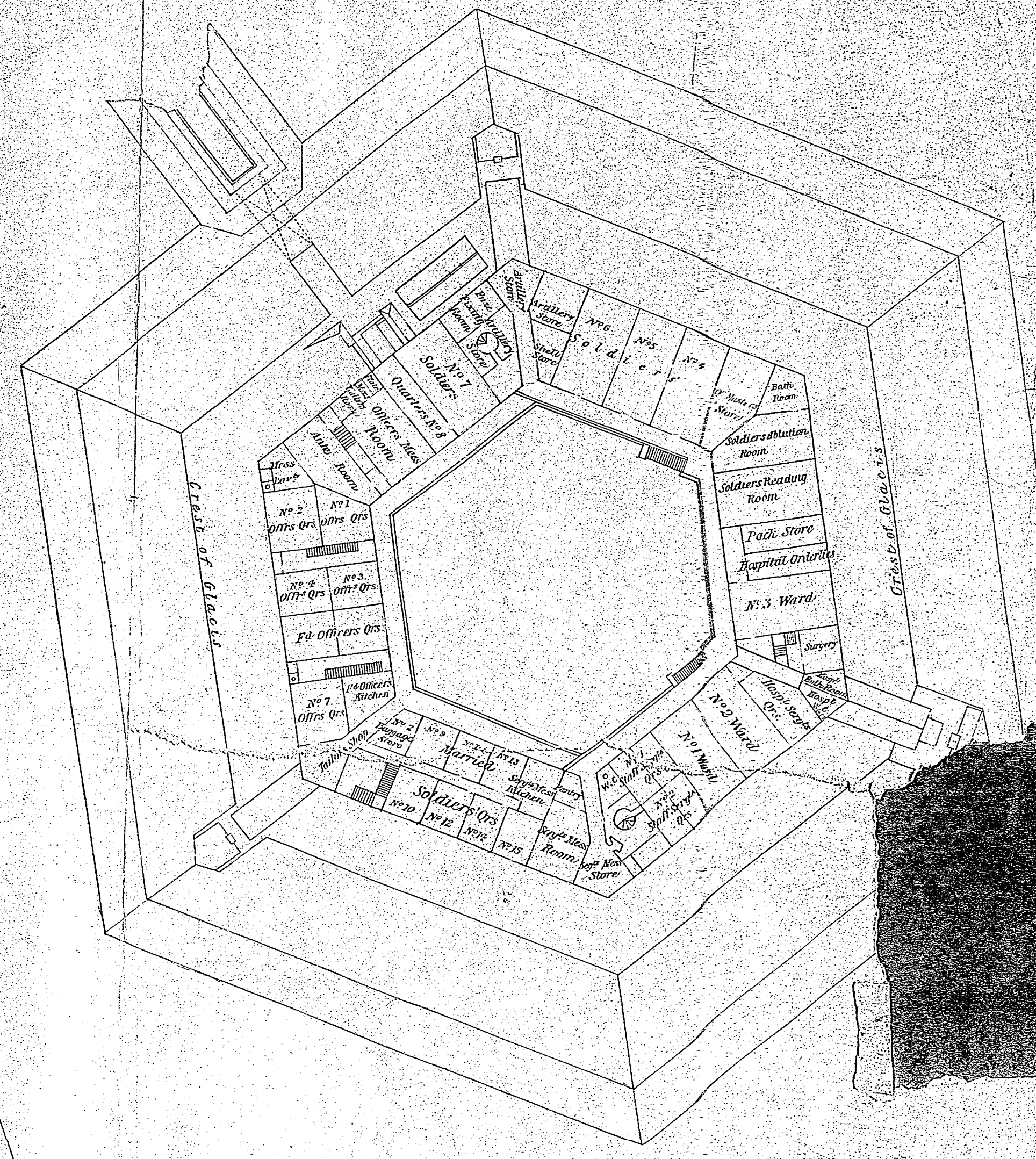
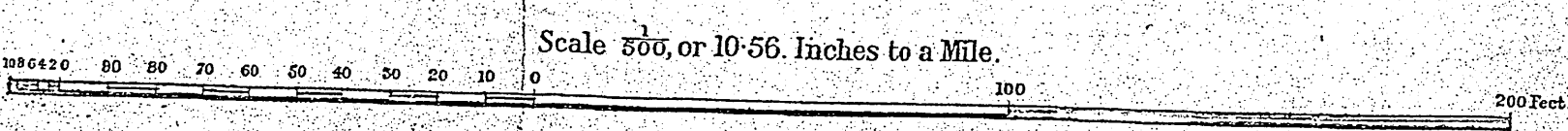
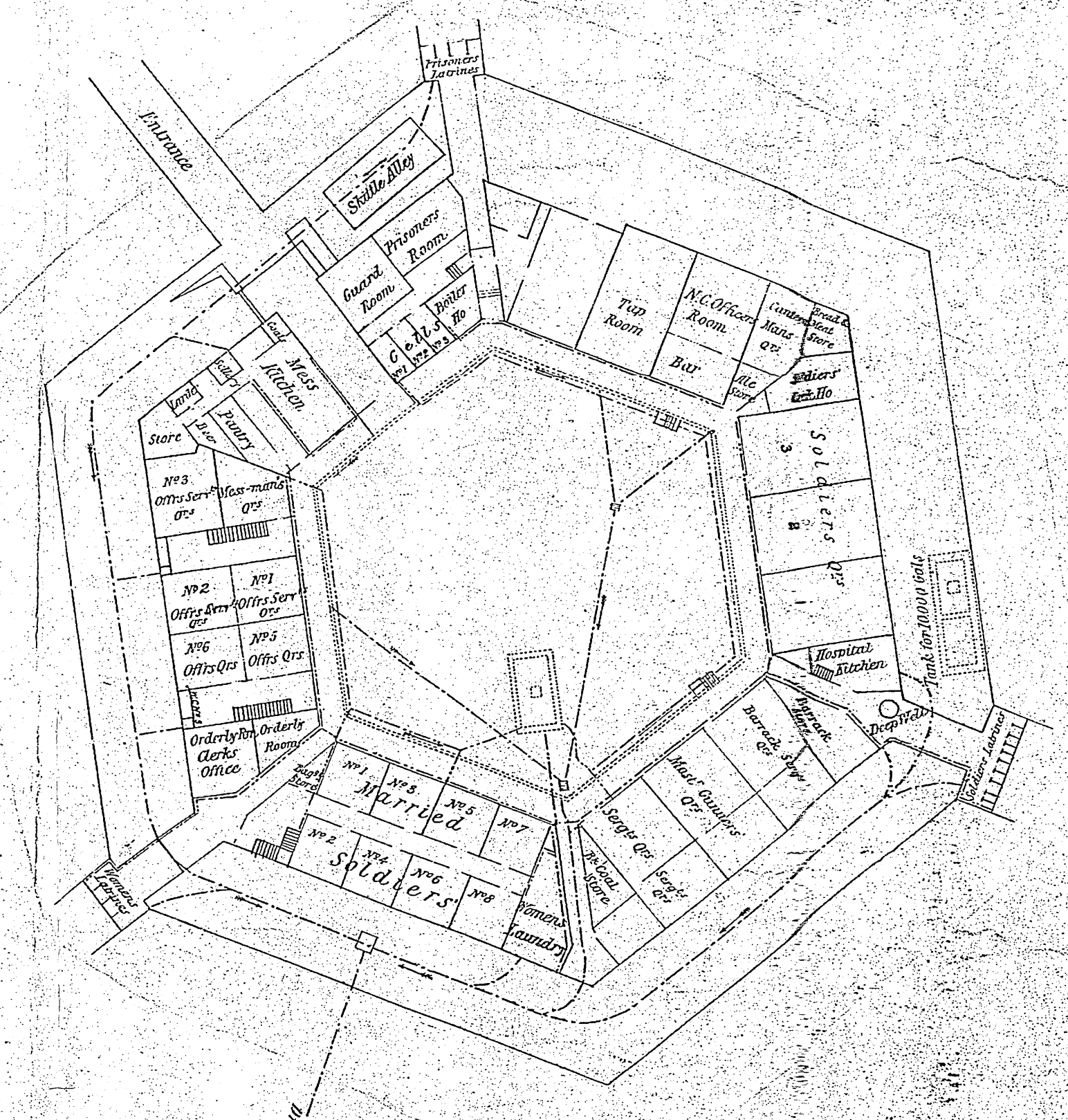


	Table of Accommodation									
	P.O. Field Genl. Offr.	Staff Offr.	Staff Privates	Warrior Soldiers	Officers	Traps	Hospital Patients	Quarters of Pioneer Regt. Barracks	Quarters of Water Works Barracks	
Cavalry	—	—	—	—	—	—	—	—	—	
Artillery	1	1	4	2	110	15	3	—	—	10,000 Gallons and 10 Wells.
Infantry	—	—	—	—	—	—	—	—	—	
Total	1	1	4	2	110	15	3	—	—	

Cubic space per man 542 cub. ft. Patients 1085 cub. ft.



U P P E R P L A N



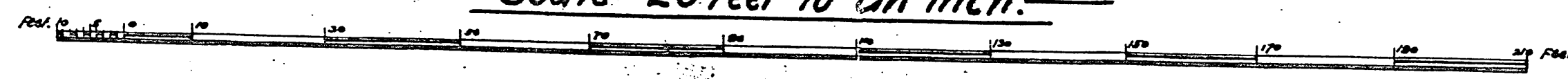
G R O U N D P L A N



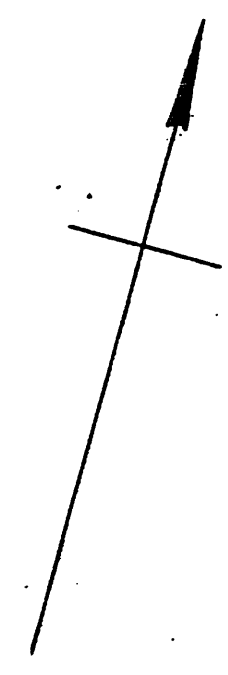


# GOLDEN HILL FORT. I.W.

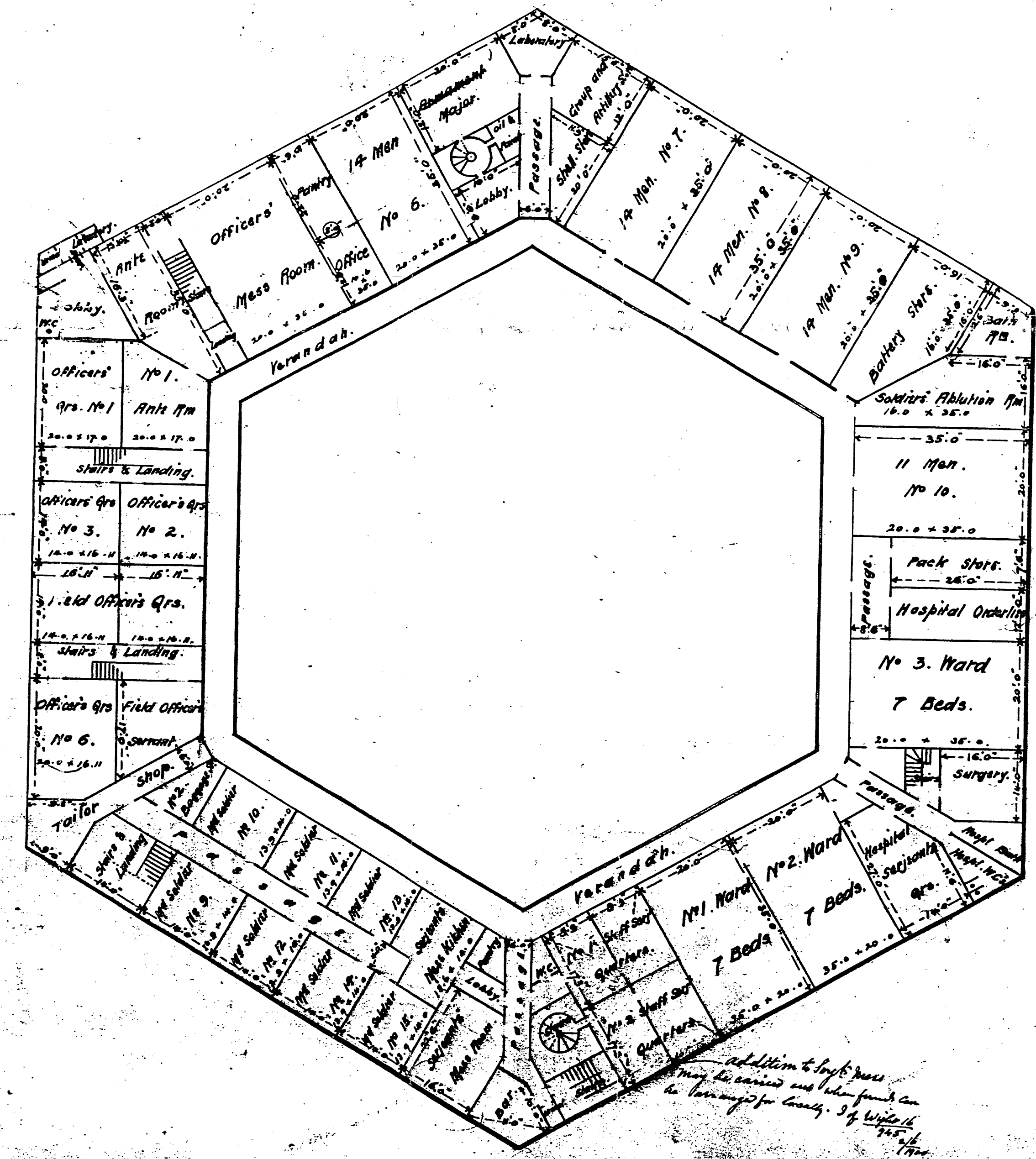
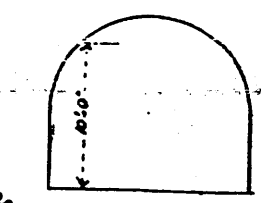
Scale 20 feet to an Inch.



## First Floor Plan.



Height of all Rooms arranged  
 Walls of Brick. Brick vaulted Roofs.

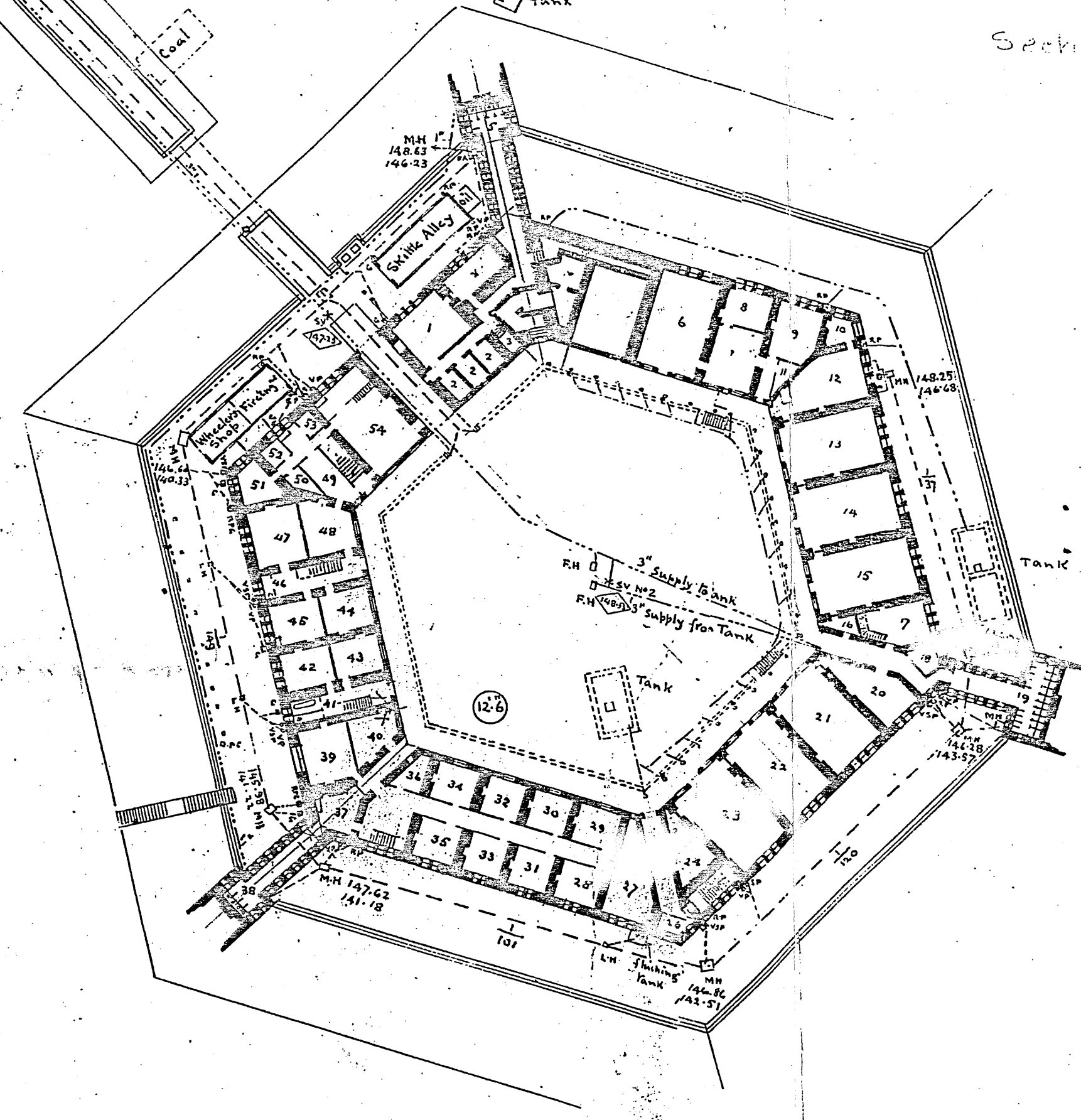
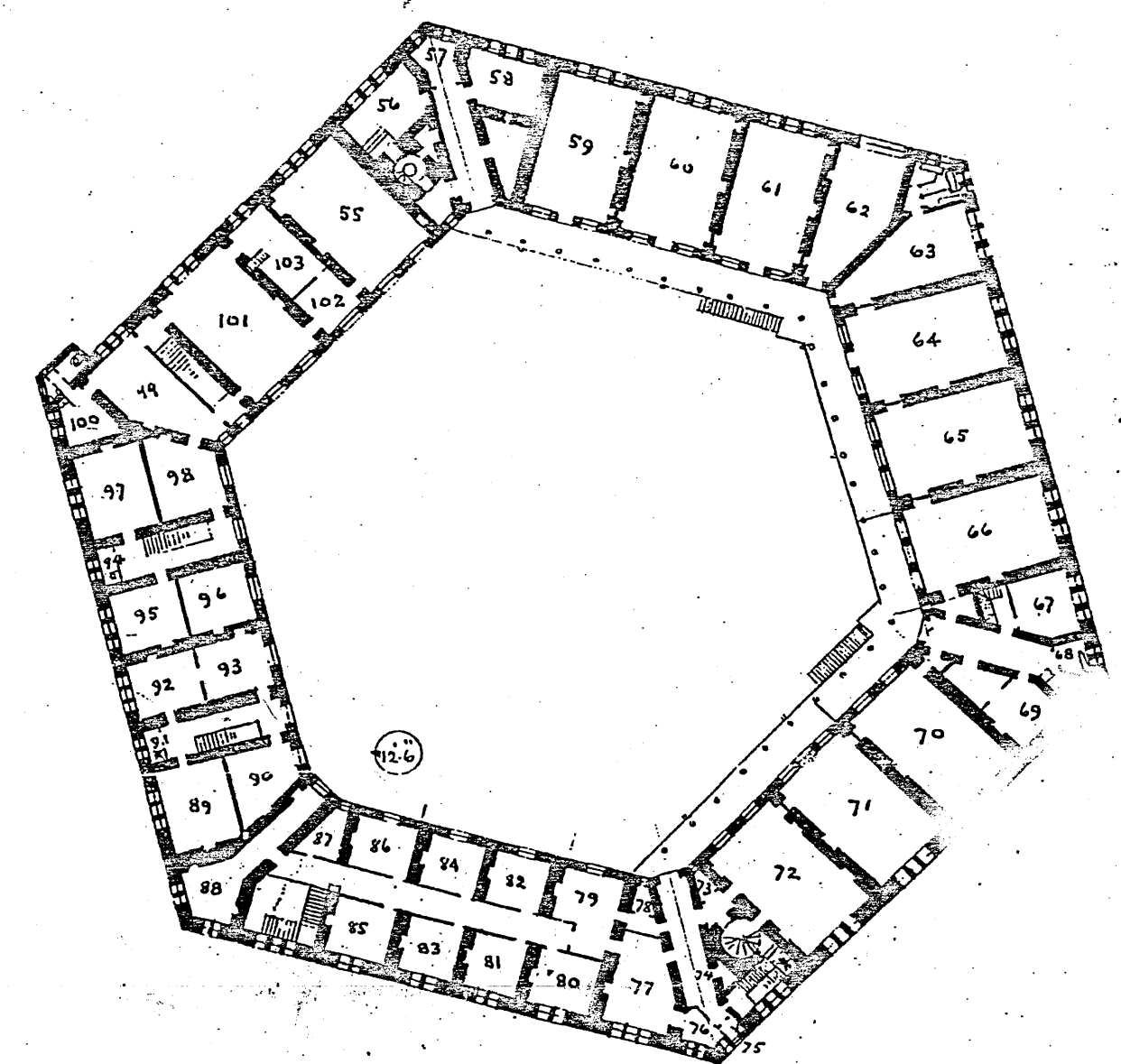
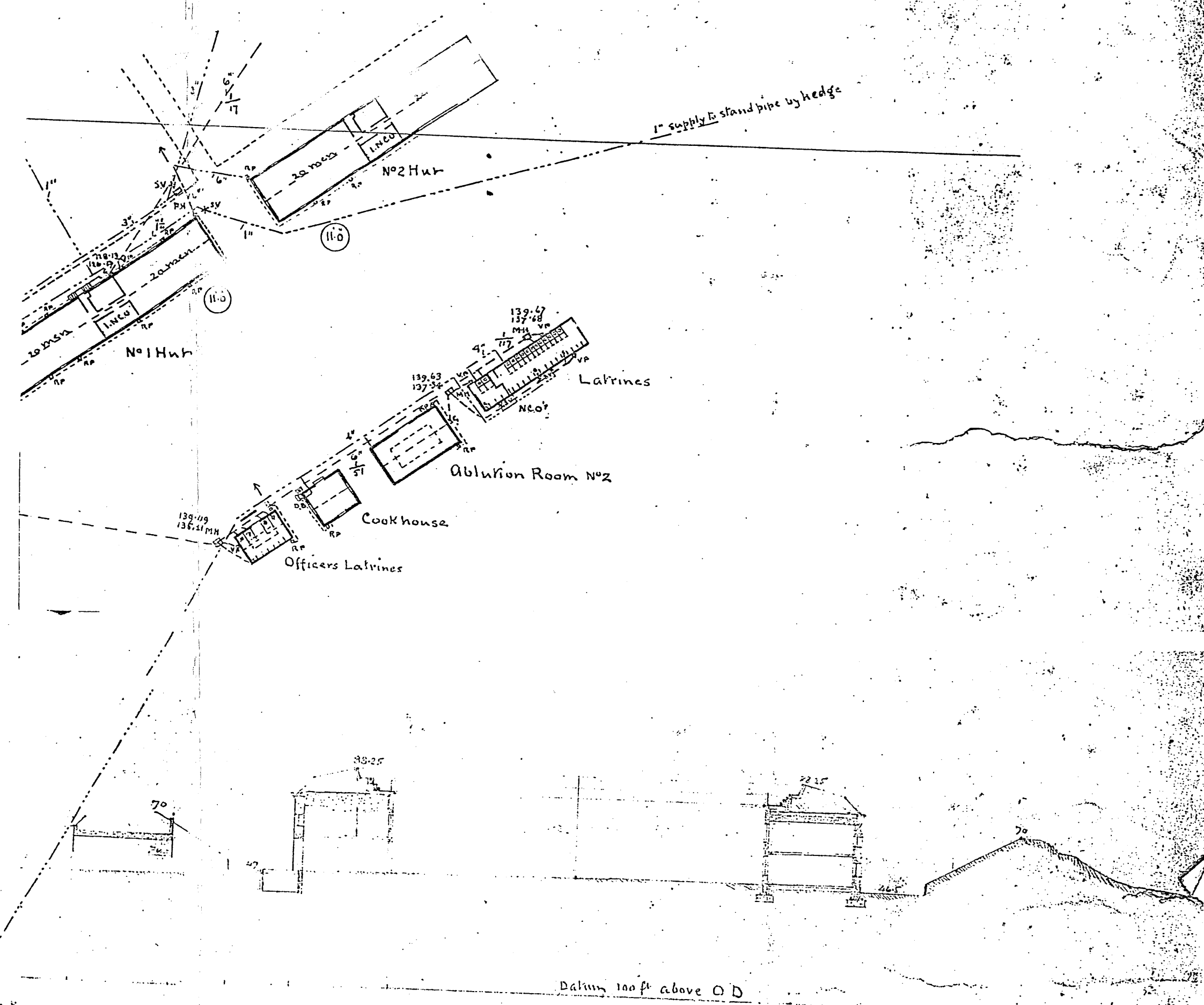
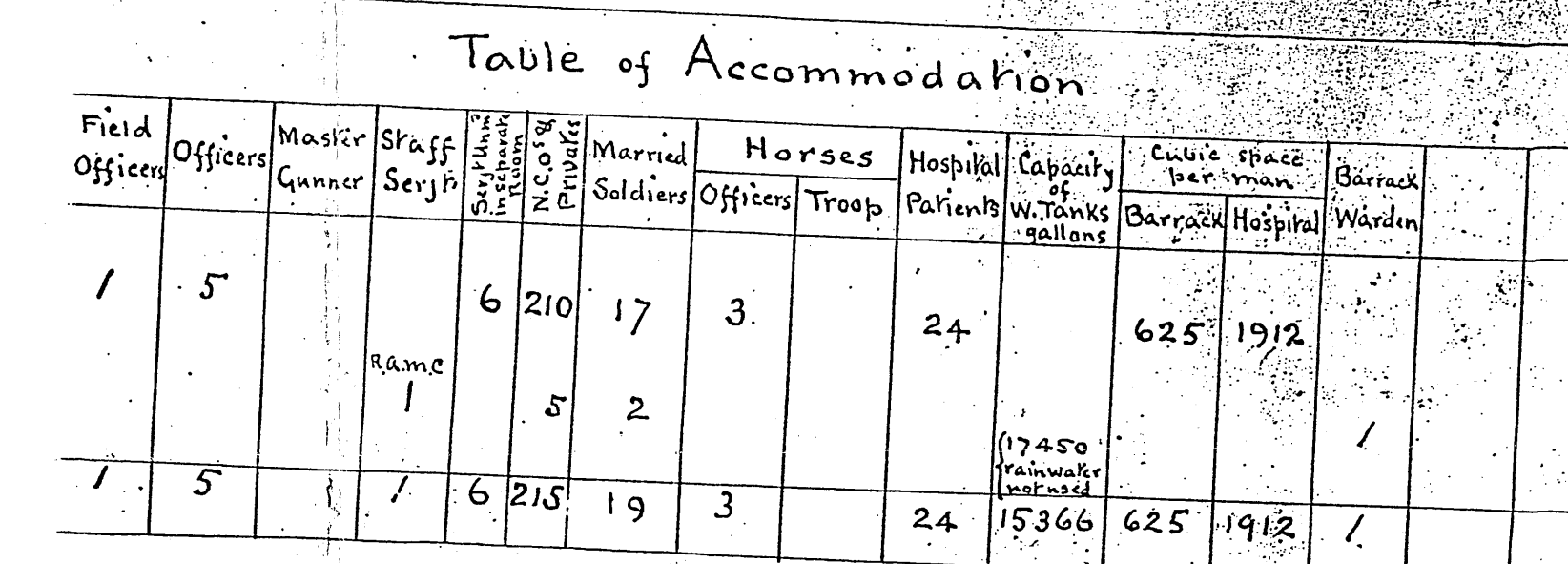


*Handwritten signature/initials*  
 2662/6  
 7/3

*Handwritten note:*  
 addition to layout given  
 may be carried out when funds are  
 the necessary for layout. S. J. Wright  
 1896

*Handwritten signature:* A. H. Weston  
 Col: R.E.  
 C.R.E. 1 of Wright  
 Feb 7 1896



[illegible]

- 1 Guard Room
- 2 Detention Rooms
- 3 Heating Chamber
- 4 Detention Room
- 5 Detention Latrines
- 6 Tap Room
- 7 Bar
- 8 NCO's Room
- 9 Dr. Quinlan Store
- 10 Dr. Quinlan Store
- 11 Store
- 12 Quarters
- 13 Bath Room
- 14 Dining Room
- 15 NCO's Room
- 16 Store
- 17 Serf Mess Room
- 18 Officers Mess (dined)
- 19 Mess Latrines
- 20 Vocal Room
- 21 NCO's Room
- 22 School
- 23 NCO's Room
- 24 Police Store
- 25 Dr. Store
- 26 Wood Store
- 27 Women's Wash House
- 28 Company Store
- 29 Company Office
- 30 Dr. N°3
- 31 Dr. Store N°2
- 32 Dr. Office N°2
- 33 Dr. Store N°1
- 34 Dr. Office N°1
- 35 Dr. Store N°4
- 36 Telephone Room
- 37 Manager's Room
- 38 Women's Latrines
- 39 Order Room
- 40 C.O. Office
- 41 WC Bath Room
- 42 Livery Room
- 43 Officers' Office
- 44 Serf's Office
- 45 Dr. N°2
- 46 YC
- 47 Officers' Serv' Office
- 48 Mess Men's
- 49 Pantry
- 50 Bar
- 51 Walkers Room
- 52 Larder
- 53 Wine
- 54 Officers Mess Kitchen

F. R. Reynolds.  
3.4.07  
Lt Col RE. 4 Col  
CRE. 105W

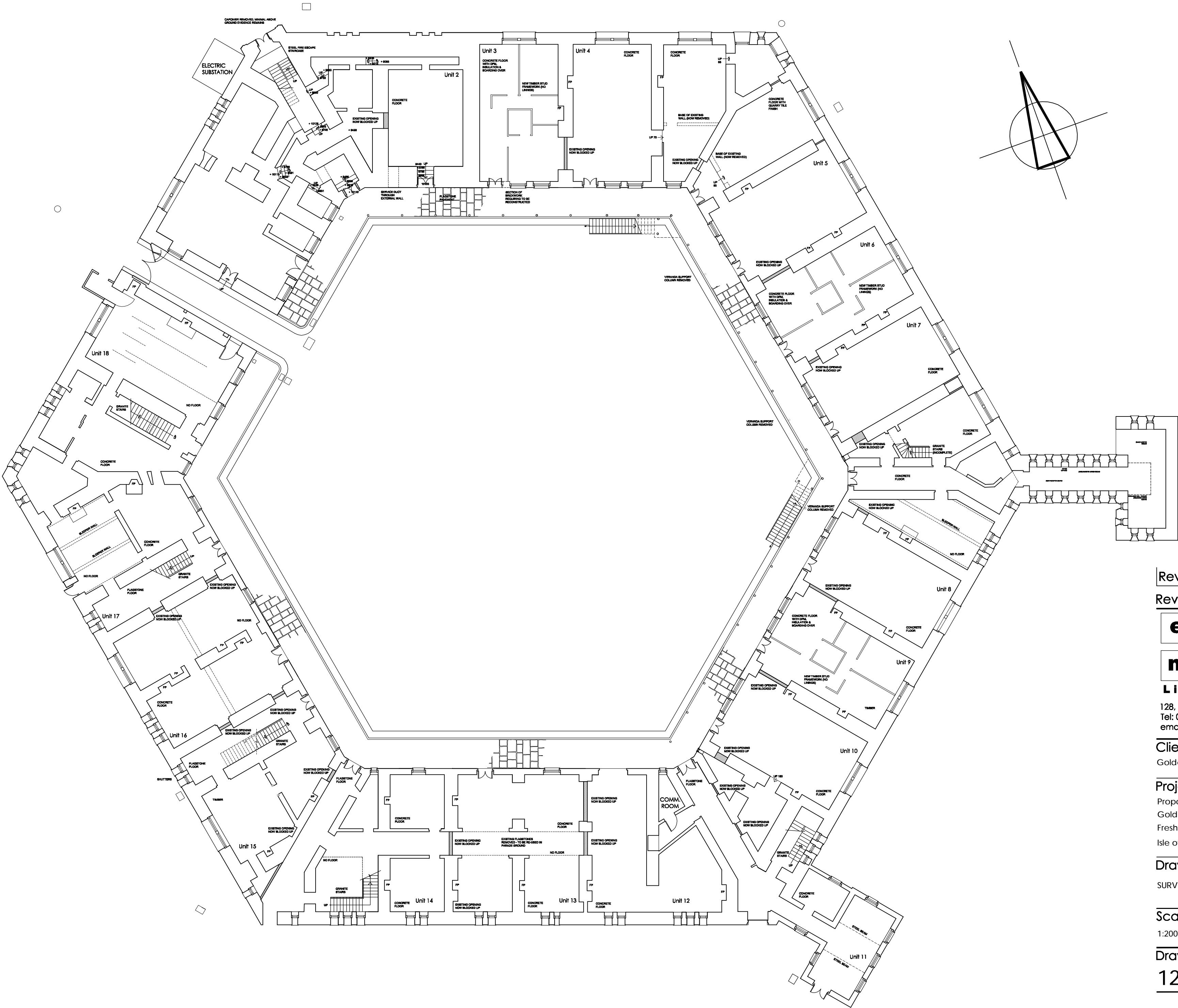
REFERENCE	
W-D Boundary	Shewn Thus
One storied Buildings	" "
Two, or Three storied Buildings	" 1
The heights of Rooms	" (A)
Foul Drains	" ————
Rainwater Drains	" ————
Surface gutters	" ————
Do. " Do. with gully trap	" ————
Gully Traps	" ————
Disconnecting Traps	" ————
Ventilating Pipes	" V.P. or V.A.
Fresh Air Inlets	" F.A.I.
Manholes, Cleaning Eyes, Lamp-holes	" M.H. C.M.H. C.E. L.H
Water Supply pipes	" ————
Water Meters	" W.M. M.
Fire Hydrants	" F.H.
Gas Pipes	" ————
External Gas Lamps	" L.G.
Down Pipes	" D.P.
Drying Traps	" D.T.
Level of ground above Ordnance Datum	" ————
Do. Manhole Covers at Inlets of Drains.	" ————
The Water is supplied by the Freshwater Works (Yarrowburn Water Works). The Gas by the Freshwater Gas Co	" ————

RAEV  
Tew+J  
1907



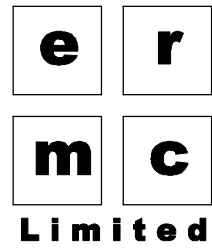
## **Appendix H:      Architectural Drawings**

PLANNING / BUILDING  
REGULATIONS SUBMISSION



Rev	Date	Item	By
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Revisions



Architectural Technologists  
Quantity Surveyors  
Project Managers  
Planning Supervisors  
Enviro-technology  
Design Consultants

128, Pyle Street, Newport, Isle of Wight. PO30 1JW  
Tel: 01983 539730 Fax: 01983 527587  
email: admin@ermc-ltd.co.uk www.ermc-ltd.co.uk

Client

Golden Hill Homes Ltd

Project Title

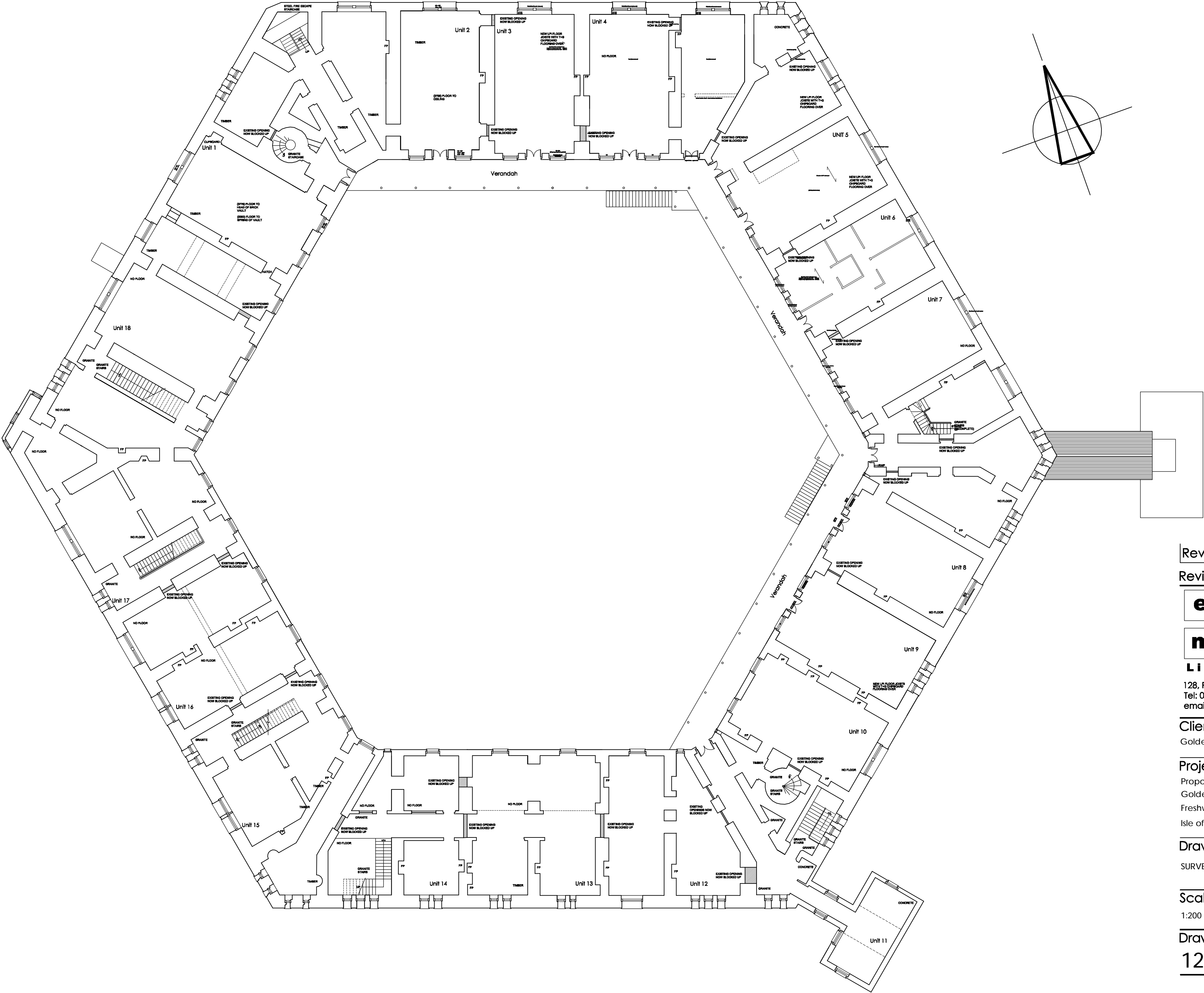
Proposed Conversion of  
Golden Hill Fort  
Freshwater  
Isle of Wight

Drawing Title

SURVEY - GROUND FLOOR PLAN

Scale	Date	Drawn
1:200	Jan 2007	BJDT

Drawing No.	Rev.	Ch'kd
1247- 01		



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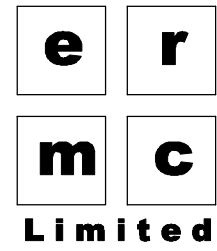
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PLANNING / BUILDING  
REGULATIONS SUBMISSION

Rev	Date	Item	By
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Revisions



Architectural Technologists  
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Tel: 01983 539730 Fax: 01983 527587  
email: admin@ermc-ltd.co.uk www.ermc-ltd.co.uk

Client

Golden Hill Homes Ltd

Project Title

Proposed Conversion of  
Golden Hill Fort  
Freshwater  
Isle of Wight

Drawing Title

SURVEY - FIRST FLOOR PLAN

Scale	Date	Drawn
1:200	Jan 2007	BJDT

Drawing No.	Rev.	Ch'kd
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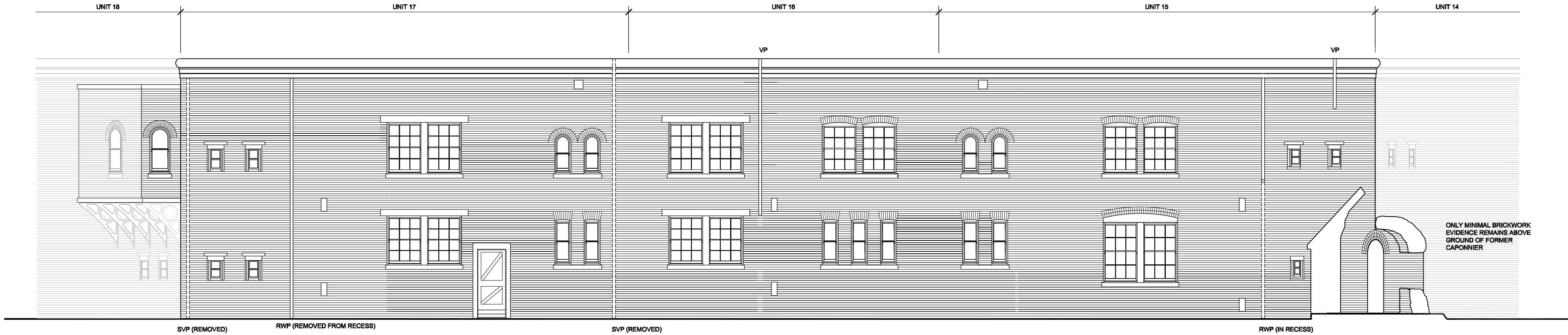
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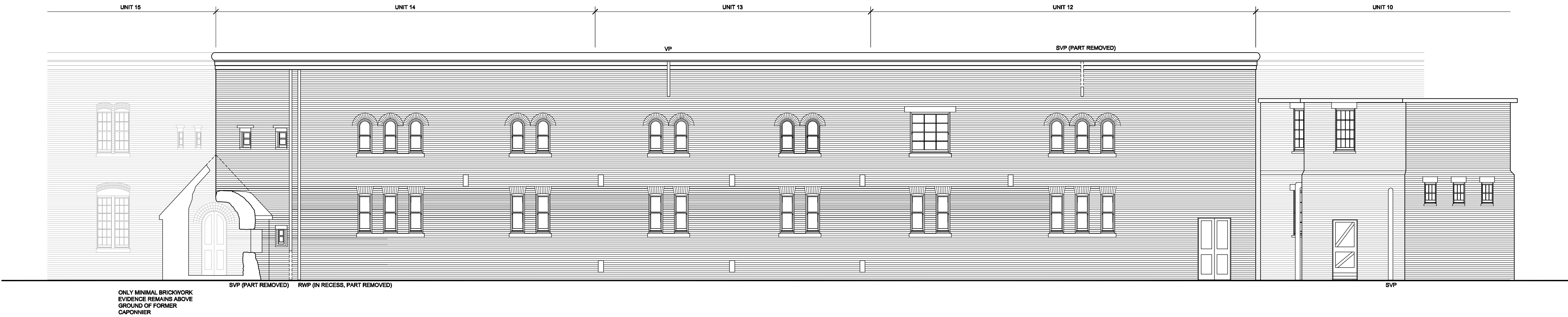




NORTH WEST ELEVATION

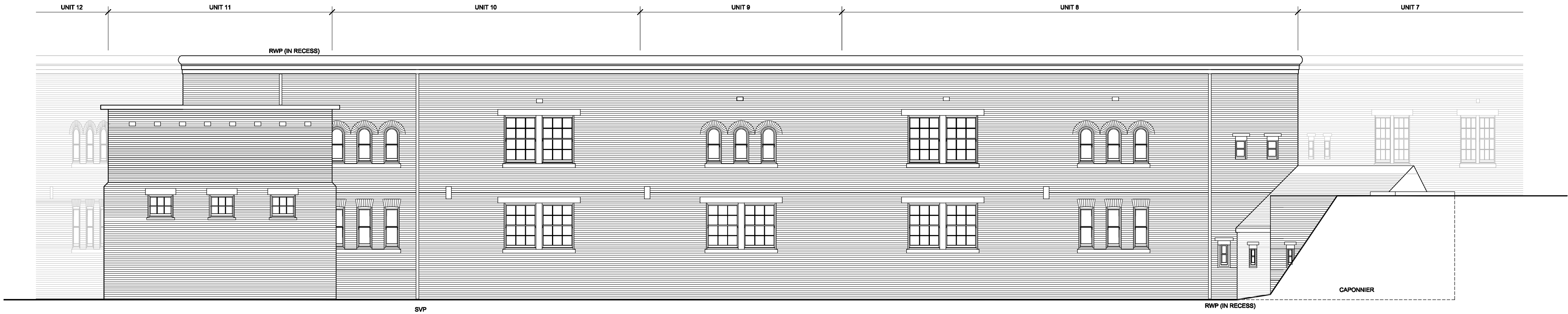


WEST ELEVATION

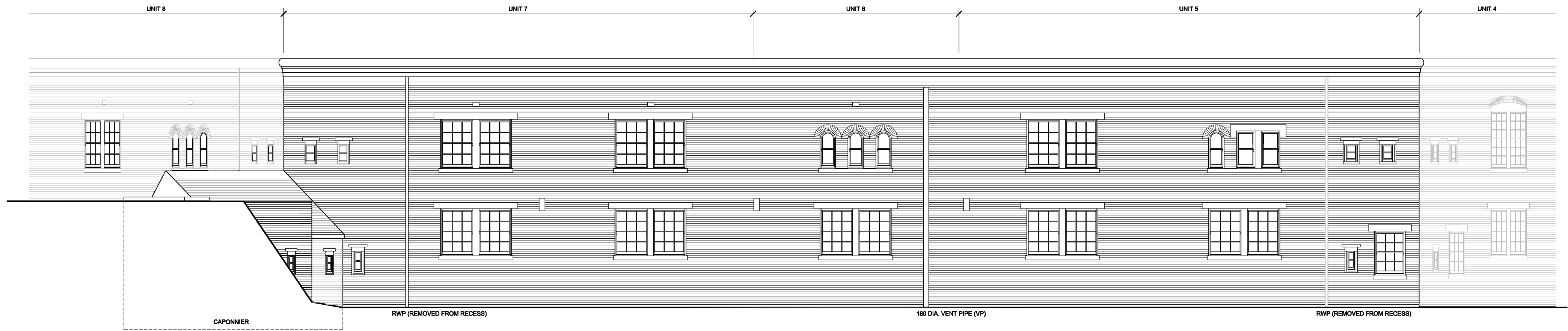


SOUTH ELEVATION

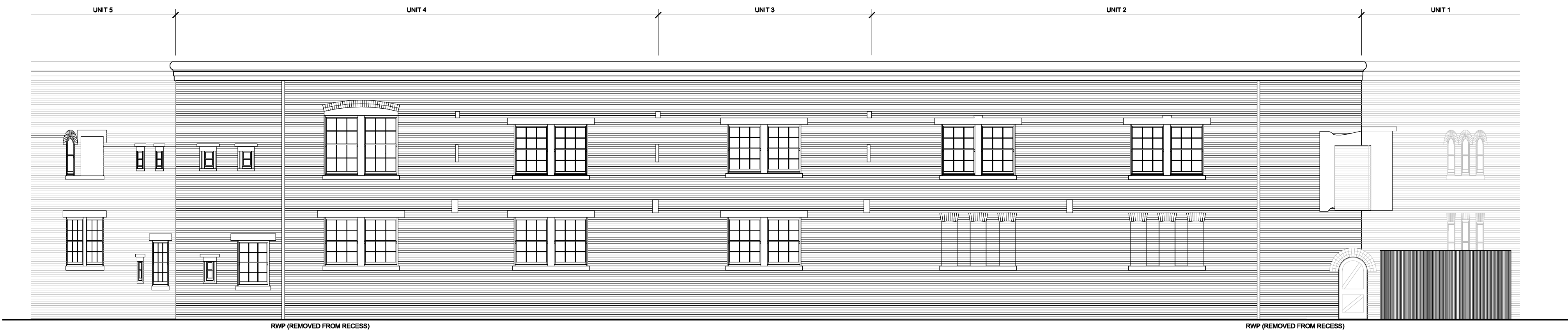
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Revisions			
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128, Pyle Street, Newport, Isle of Wight, PO30 1JW Tel: 01983 539730. Fax: 01983 527587 email: admin@ermc-ltd.co.uk www.ermc-ltd.co.uk			
Client Golden Hill Homes Ltd			
Project Title Proposed Conversion of Golden Hill Fort Freshwater Isle of Wight			
Drawing Title SURVEY EXTERNAL ELEVATIONS (sheet 1 of 2)			
Scale 1:100			
Date Jan 2007			
Drawn BJDT			
Drawing No. 1247- 04			
Rev.			
Ch'kd			
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SOUTH EAST ELEVATION



NORTH-EAST ELEVATION



NORTH ELEVATION

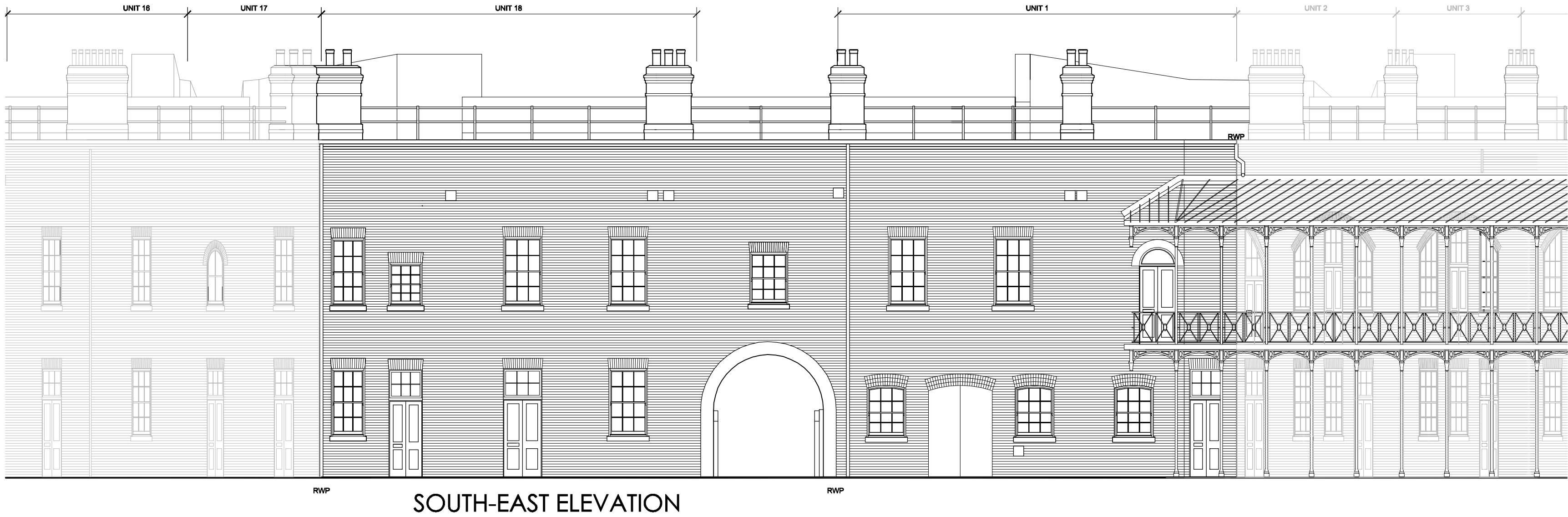
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128, Pyle Street, Newport, Isle of Wight, PO30 1JW Tel: 01983 539730 Fax: 01983 527587 email: admin@ermc-ltd.co.uk www.ermc-ltd.co.uk					
Client Golden Hill Homes Ltd					
Project Title Proposed Conversion of Golden Hill Fort Freshwater Isle of Wight					
Drawing Title SURVEY EXTERNAL ELEVATIONS (sheet 2 of 2)					
Scale 1:100		Date Jan 2007	Drawn BJDT		
Drawing No. 1247- 05		Rev.	Ch'kd		
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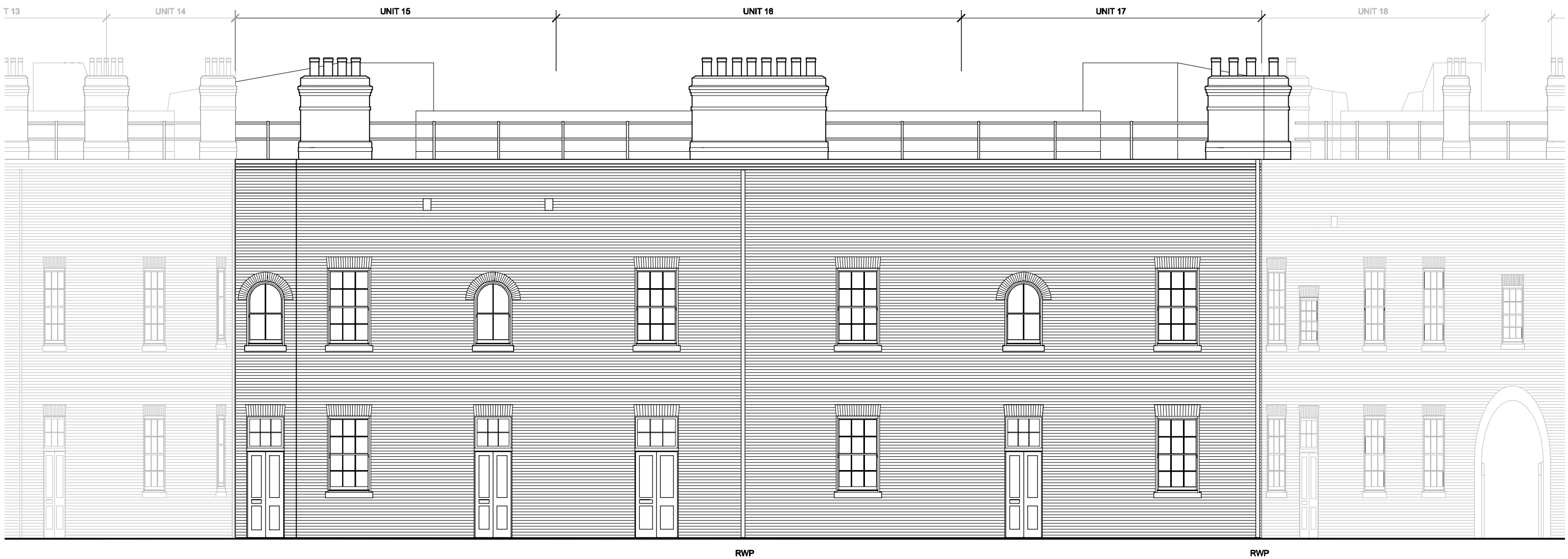
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This drawing is to be used only for the purposes intended as described in the Drawing Title box.

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EAST ELEVATION



NORTH ELEVATION



PLANNING/BUILDING REGULATIONS ISSUE

Rev	Date	Item	By
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Revisions

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<b>Limited</b>	Project Managers
	Planning Supervisors
	Enviro-technology
	Design Consultants

128, Pyle Street, Newport, Isle of Wight, PO30 1JW  
Tel: 01983 539730 Fax: 01983 527587  
email: admin@ermc-ltd.co.uk www.ermc-ltd.co.uk

**Client**  
Golden Hill Homes Ltd

**Project Title**  
Proposed Conversion of  
Golden Hill Fort  
Freshwater  
Isle of Wight

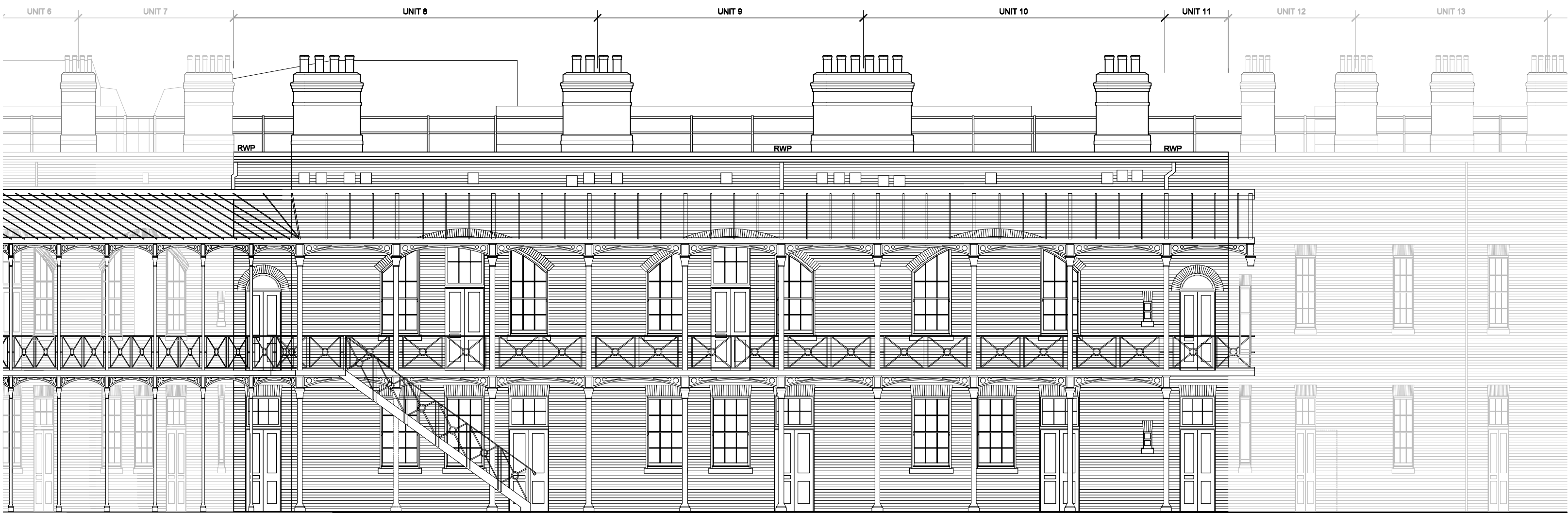
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SURVEY INTERNAL ELEVATIONS (sheet 1 of 2)

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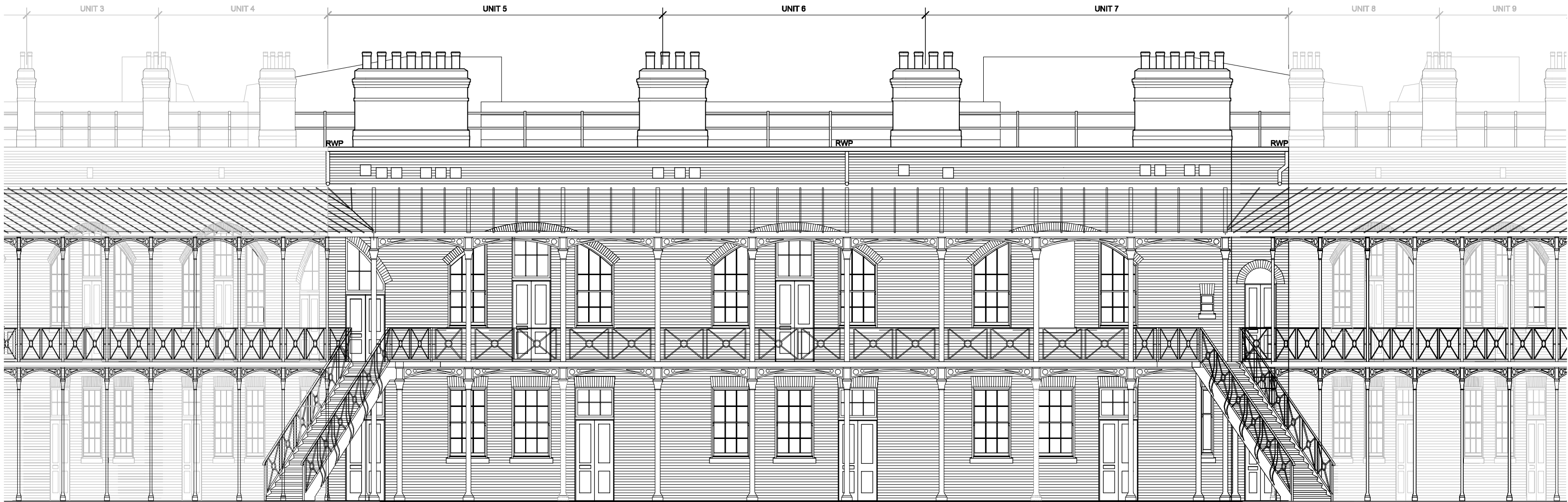
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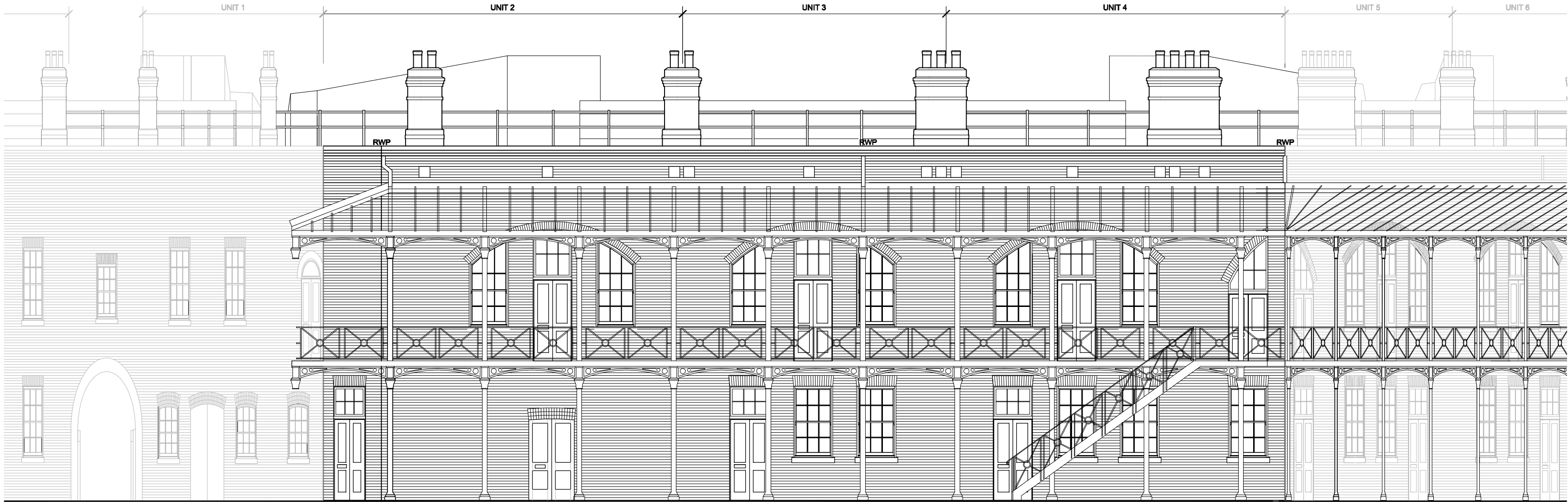




NORTH-WEST ELEVATION



SOUTH-WEST ELEVATION



SOUTH ELEVATION

PLANNING/BUILDING REGULATIONS ISSUE

Rev	Date	Item	By
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Revisions

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<b>m</b>	<b>c</b>	
<b>L</b>	<b>L</b>	
<b>imited</b>		

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Tel: 01983 539730 Fax: 01983 527587  
email: admin@ermc-ltd.co.uk www.ermc-ltd.co.uk

Client

Golden Hill Homes Ltd

Project Title

Proposed Conversion of  
Golden Hill Fort  
Freshwater  
Isle of Wight

Drawing Title

SURVEY INTERNAL ELEVATIONS (sheet 2 of 2)

Scale	Date	Drawn
1:100	Jan 2007	BJDT

Drawing No.	Rev.	Ch'kd
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1247- 07

## **Appendix I: Glossary**

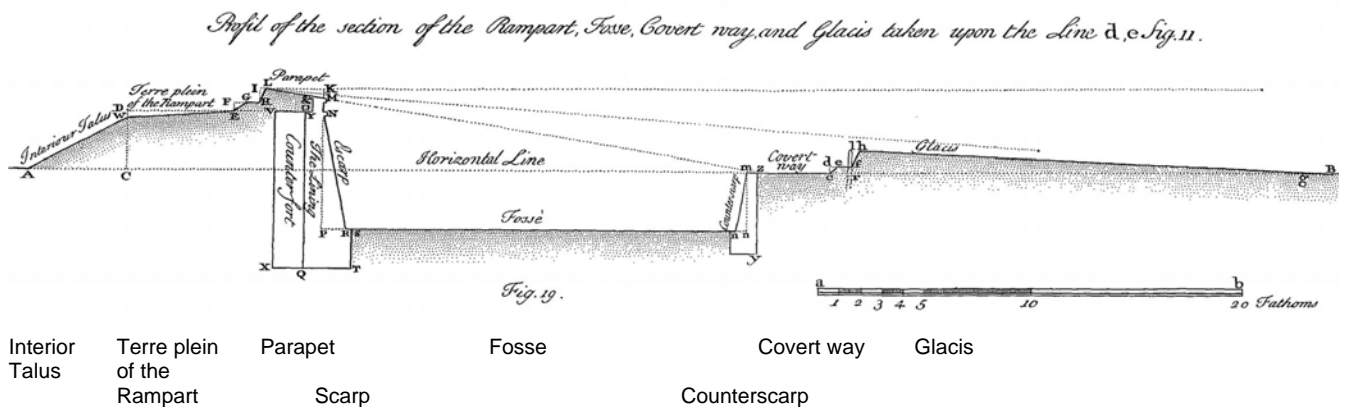
# GLOSSARY

<b>Banquette</b>	The step of earth inside the parapet, sufficiently high to enable the defenders standing upon it to fire over the crest of the parapet, yet be protected. Also known as a “footbank” or “footstep”.
<b>Barbette</b>	Any firing position that is designed to allow guns to fire over a parapet rather than through it, in which case the opening is known as an embrasure.
<b>Bombproof</b>	An earth covering to a roof or bastion that is designed to absorb the impact of a high trajectory shell hitting or exploding on it. It is of a certain thickness and is usually used over the rooms or magazines of a fort.
<b>BL</b>	Breech loading [gun].
<b>Caponier</b>	A covered passage across the ditch of a fortified place designed to shelter communication with the outer-works or to afford a flanking fire to the ditch in which it stands.
<b>Casemate</b>	In permanent fortifications a casemate was a vaulted masonry chamber within a rampart or wall. Casemates in permanent fortifications were used for a variety of purposes that included embrasured or loop-holed gun positions on the flanks of bastions, curtains, and in caponiers, storerooms and powder magazines, and quarters for the garrison.
<b>Coping</b>	The highest or covering course of a wall.
<b>Counterscarp</b>	The vertical or nearly vertical side on the outside of the ditch nearest the besiegers and opposite the scarp. It is generally faced or revetted in permanent works to inhibit the descent into the ditch.
<b>Counterscarp gallery</b>	A chamber or gallery set into the counterscarp of the ditch with loopholes for small arms to fire on any enemy that reaches the bottom of the ditch.
<b>Covert way</b>	A space running along the top of the counterscarp protected by an embankment whose outer slope forms the glacis. It serves as a protected walkway and assembly area for the defending infantry.
<b>Ditch</b>	The excavation around the works from which the earth for parapet and rampart is obtained. Ditches may be wet (moat) or dry, with the latter the preferred in 18th & 19th century forts.
<b>Fatigue duty</b>	Labour of a non-military kind done by soldiers (cleaning, digging, draining etc.)
<b>Guard-house Guard-room</b>	A house or room for the accommodation of a guard of soldiers, where defaulters are confined.

<b>Glacis</b>	A slope of earth, usually turfed, that inclines from the covered way or ditch towards the country. Its object is to bring assailants into a conspicuous line of fire as they approach the fort and to absorb shellfire.
<b>Laboratory</b>	<p>“That place where all sorts of fire-works are prepared, both for actual service, and for pleasure, viz. quick-matches, fuzes, portfires, grape-shot, case-shot, carcasses, hand-grenades, cartridges, shells filled, and fuzes fixed, wads, &amp;c.”</p> <p>[From: <b>An universal military dictionary, or a copious explanation of the technical terms &amp;c. Used in the equipment, machinery, movements, and military operations of an army. Capt. George Smith. London 1779.</b>]</p>
<b>Magazine</b>	In fortifications magazines more specifically referred to bomb-proof structures where explosive materials, particularly powder used to serve the artillery armament, were stored. Magazines in permanent fortifications were usually given one of two basic forms: a free standing vaulted structure on the parade surrounded by a protective wall and covered by a thick layer of earth; or a specially ventilated casemate within a rampart or masonry wall.
<b>Mess</b>	A number of persons who take their meals together or the place or room where they do this [mess-room]
<b>Orderly</b>	<p>An enlisted soldier assigned to attend and perform various chores for a commanding officer or group of officers.</p> <p><b>“ORDERLY book</b> Every company has such a book for the serjeants to write down both general and regimental orders, for the officers to read them”</p> <p>[From: <b>An universal military dictionary, or a copious explanation of the technical terms &amp;c. Used in the equipment, machinery, movements, and military operations of an army. Capt. George Smith. London 1779.</b>]</p>
<b>Orderly room</b>	A room for regimental, company, etc., business.
<b>Parade</b>	The interior ground surface of a fort, which serves as a drill and assembly area.
<b>Parade wall</b>	The interior wall of the rampart, which encircles the parade.
<b>Parapet</b>	Breastworks, walls, and bulwarks of earth, wood, brick, iron, stone, etc., located on the exterior edge of the rampart of the fort.
<b>Racer track</b>	The curved track set into the floor of a gun emplacement which enabled guns to be traversed more quickly
<b>Rampart</b>	The broad embankment or mass of earth surrounding a fortified place. A rampart forms the body of the place. The exterior wall is called a scarp (escarp) and the interior wall is generally the parade wall.
<b>RBL</b>	Rifled breech loading [gun].
<b>Revetment</b>	A retaining wall of masonry built for the purpose of holding back the earth of which the works are composed, e.g., for the scarp and counterscarp.

<b>RML</b>	Rifled muzzle loading [gun]. A gun which is loaded through its muzzle and has a rifled bore.
<b>Salient angle</b>	The projecting angle formed by the two faces of the bastion.
<b>Scarp</b>	The faces of the fort on the inside of the ditch.
<b>Tap-room</b>	A room where beer is served from the tap or cask.
<b>Terre-plein</b>	A clear and nearly level area immediately in rear of a protective structure , usually the rampart. In the masonry revetted rampart walls of land front permanent fortifications, the terre-plein of the rampart was usually about eight feet below the elevation of the interior crest of the rampart parapet and was 24 to 35 feet wide. The terre-plein served as an area where troops and materials could be either collected for the defence of the rampart or move from point to point on the rampart.
<b>Traverse</b>	To swivel a gun and its carriage, usually to point them at a target.

**Profile through a typical fortification showing various elements.**



From: **Volume 1. The elements of fortification. In two volumes. Containing the construction, attack, and defence of fortified places, regular and irregular. Translated and collected from the works of the most celebrated authors. London 1746.**

# GLOSSARY

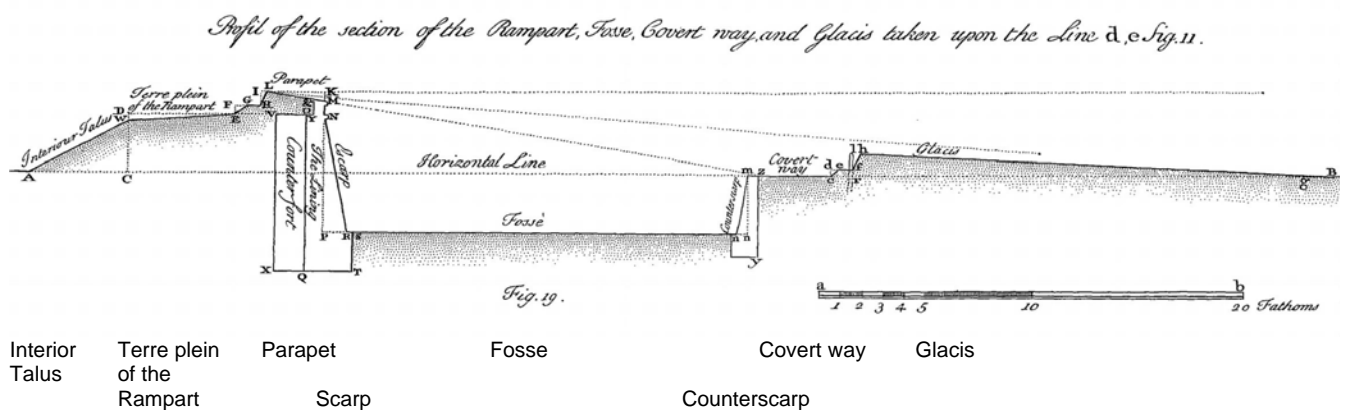
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<b>BL</b>	Breech loading [gun].
<b>Caponier</b>	A covered passage across the ditch of a fortified place designed to shelter communication with the outer-works or to afford a flanking fire to the ditch in which it stands.
<b>Casemate</b>	In permanent fortifications a casemate was a vaulted masonry chamber within a rampart or wall. Casemates in permanent fortifications were used for a variety of purposes that included embrasured or loop-holed gun positions on the flanks of bastions, curtains, and in caponiers, storerooms and powder magazines, and quarters for the garrison.
<b>Coping</b>	The highest or covering course of a wall.
<b>Counterscarp</b>	The vertical or nearly vertical side on the outside of the ditch nearest the besiegers and opposite the scarp. It is generally faced or revetted in permanent works to inhibit the descent into the ditch.
<b>Counterscarp gallery</b>	A chamber or gallery set into the counterscarp of the ditch with loopholes for small arms to fire on any enemy that reaches the bottom of the ditch.
<b>Covert way</b>	A space running along the top of the counterscarp protected by an embankment whose outer slope forms the glacis. It serves as a protected walkway and assembly area for the defending infantry.
<b>Ditch</b>	The excavation around the works from which the earth for parapet and rampart is obtained. Ditches may be wet (moat) or dry, with the latter the preferred in 18th & 19th century forts.
<b>Fatigue duty</b>	Labour of a non-military kind done by soldiers (cleaning, digging, draining etc.)
<b>Guard-house Guard-room</b>	A house or room for the accommodation of a guard of soldiers, where defaulters are confined.

<b>Glacis</b>	A slope of earth, usually turfed, that inclines from the covered way or ditch towards the country. Its object is to bring assailants into a conspicuous line of fire as they approach the fort and to absorb shellfire.
<b>Laboratory</b>	<p>“That place where all sorts of fire-works are prepared, both for actual service, and for pleasure, viz. quick-matches, fuzes, portfires, grape-shot, case-shot, carcasses, hand-grenades, cartridges, shells filled, and fuzes fixed, wads, &amp;c.”</p> <p>[From: <b>An universal military dictionary, or a copious explanation of the technical terms &amp;c. Used in the equipment, machinery, movements, and military operations of an army.</b> Capt. George Smith. London 1779.]</p>
<b>Magazine</b>	In fortifications magazines more specifically referred to bomb-proof structures where explosive materials, particularly powder used to serve the artillery armament, were stored. Magazines in permanent fortifications were usually given one of two basic forms: a free standing vaulted structure on the parade surrounded by a protective wall and covered by a thick layer of earth; or a specially ventilated casemate within a rampart or masonry wall.
<b>Mess</b>	A number of persons who take their meals together or the place or room where they do this [mess-room]
<b>Orderly</b>	<p>An enlisted soldier assigned to attend and perform various chores for a commanding officer or group of officers.</p> <p>“<b>ORDERLY book</b> Every company has such a book for the serjeants to write down both general and regimental orders, for the officers to read them”</p> <p>[From: <b>An universal military dictionary, or a copious explanation of the technical terms &amp;c. Used in the equipment, machinery, movements, and military operations of an army.</b> Capt. George Smith. London 1779.]</p>
<b>Orderly room</b>	A room for regimental, company, etc., business.
<b>Parade</b>	The interior ground surface of a fort, which serves as a drill and assembly area.
<b>Parade wall</b>	The interior wall of the rampart, which encircles the parade.
<b>Parapet</b>	Breastworks, walls, and bulwarks of earth, wood, brick, iron, stone, etc., located on the exterior edge of the rampart of the fort.
<b>Racer track</b>	The curved track set into the floor of a gun emplacement which enabled guns to be traversed more quickly
<b>Rampart</b>	The broad embankment or mass of earth surrounding a fortified place. A rampart forms the body of the place. The exterior wall is called a scarp (escarp) and the interior wall is generally the parade wall.
<b>RBL</b>	Rifled breech loading [gun].
<b>Revetement</b>	A retaining wall of masonry built for the purpose of holding back the earth of which the works are composed, e.g., for the scarp and counterscarp.



<b>RML</b>	Rifled muzzle loading [gun]. A gun which is loaded through its muzzle and has a rifled bore.
<b>Salient angle</b>	The projecting angle formed by the two faces of the bastion.
<b>Scarp</b>	The faces of the fort on the inside of the ditch.
<b>Tap-room</b>	A room where beer is served from the tap or cask.
<b>Terre-plein</b>	A clear and nearly level area immediately in rear of a protective structure , usually the rampart. In the masonry revetted rampart walls of land front permanent fortifications, the terre-plein of the rampart was usually about eight feet below the elevation of the interior crest of the rampart parapet and was 24 to 35 feet wide. The terre-plein served as an area where troops and materials could be either collected for the defense of the rampart or move from point to point on the rampart.
<b>Traverse</b>	To swivel a gun and its carriage, usually to point them at a target.

**Profile through a typical fortification showing various elements.**



From: **Volume 1. The elements of fortification. In two volumes. Containing the construction, attack, and defence of fortified places, regular and irregular. Translated and collected from the works of the most celebrated authors. London 1746.**

## Appendix J: List of Site Inspection Photographic Images

The position of each image is located on the **Photographic Image Plan**. All photographs accompanying the report text are shown as a number in bold type in brackets, thus **[01]**.

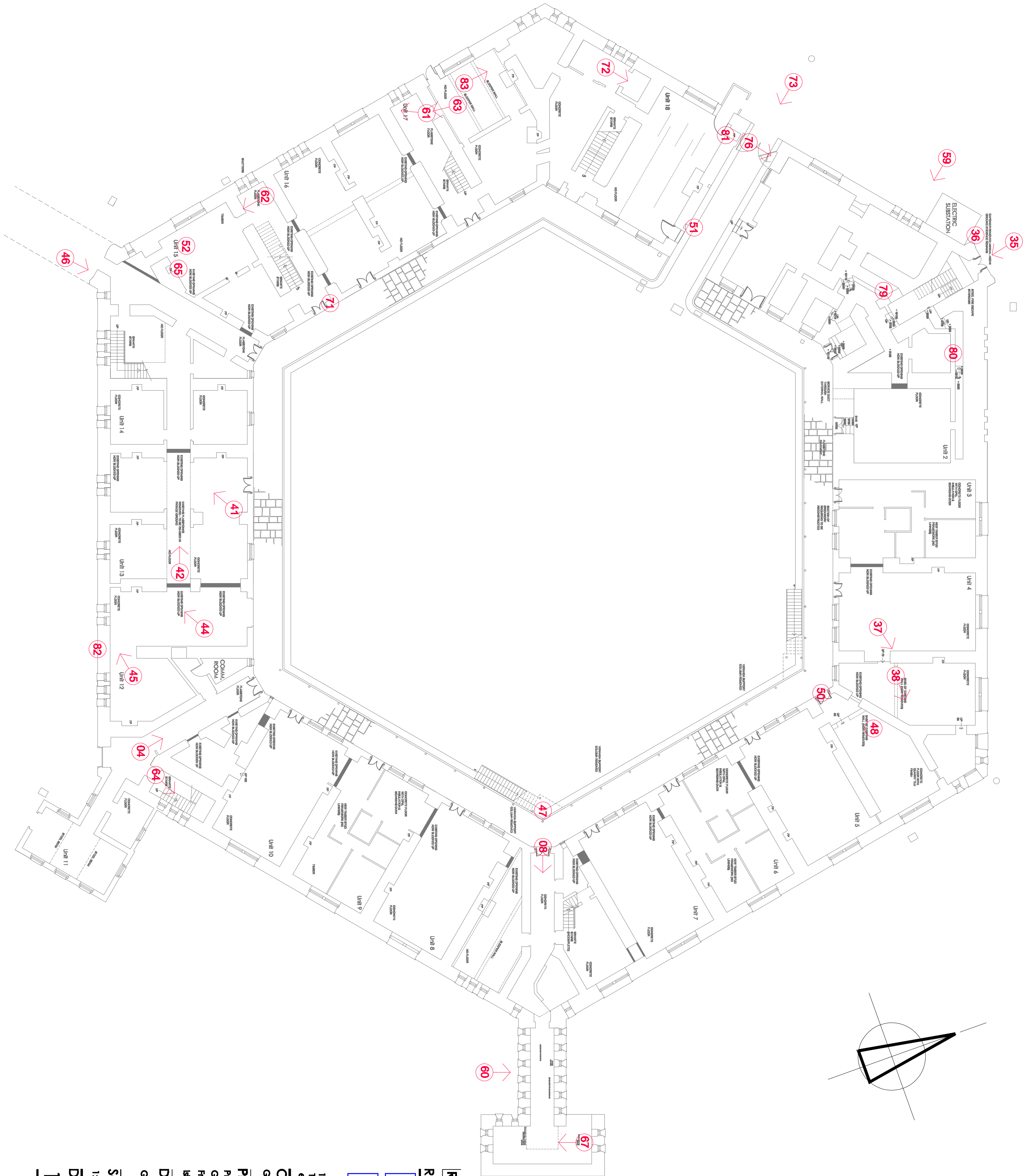
<i>Image Number</i>	<i>Description</i>
Image 01	Interior of barrack room showing vaulted brick ceiling.
Image 02	Aerial view of roof coping showing asphalt layer.
Image 03	Plan of original roof gun positions and earth ramparts.
Image 04	Passageway on ground floor : sandstone flagstones.
Image 05	Passageway on first floor : wooden floorboards.
Image 06	Floor of first floor barrack room showing original floorboarding.
Image 07	Brick corbelling of first floor with sandstone plinth.
Image 08	Original ceiling: lathe and plaster.
Image 09	Interior roof gutter and arrangement of down pipe with veranda
Image 10	Cistern on roof. Originally cast iron, now screened off with block wall.
Image 11	Existing caponier at east salient of fort. Viewed from north east.
Image 12	Caponier from above, showing cast iron water cistern and roofless skylight.
Image 13	Interior of caponier.
Image 14	Concrete floor of veranda. Floor of washroom was also of similar construction.
Image 15	Original entrance to a barrack room, showing door and window arrangement.
Image 16	Interior of barrack room looking towards interior of the fort. Sash windows and double door. Vaulted brick ceiling.
Image 17	Exterior wall of fort, showing coverings for internal vents.
Image 18	View along air vent from interior of building to the exterior metal covering, as seen in image 20, to the right of the gauged brickwork of window flat arch. This vent originates in base of fireplace as in image 22.
Image 19	Opening of air vent in base of fireplace.
Image 20	Interior view upwards of vent in soffit of fireplace.
Image 21	Altered fireplace with insertion of sandstone lintel and brick infill.
Image 22	View upwards into another altered fireplace showing the two shaped sandstone lintel pieces, formed to accommodate the flue of a stove. To the right can be seen the upper vent of ventilation system.
Image 23	View of Drill Hall. Viewed from south east.
Image 24	View of School of Instruction. Viewed from south east.
Image 25	View of out-buildings near Colwell Green entrance. Viewed from south west.
Image 26	View of stable block near Colwell Green entrance. Viewed from south east.
Image 27	Doorway of stable block. Viewed from south.
Image 28	Infilled doorway of stable block. Viewed from south.
Image 29	Originally there were two workshops: the one in the foreground with a separate workshop at the rear. At a later date, these were connected together, and an extension added on to north side of the nearest workshop.
Image 30	View of new hospital built in 1897 to the north of the main road [Hill Lane], now a masonic hall.
Image 31	Large house built near hospital, serving as an administration block. This later became the officer's mess.
Image 32	Terraced row that served as married quarters to north of fort and west of new hospital.
Image 33	New toilet block built on the south east salient angle of the fort.
Image 34	Interior view of the new toilet block.
Image 35	North east salient angle, showing site of demolished caponier and scar marks of upper storey built on top. The brickwork of is upper storey was tied into fort fabric. Remains of the flat concrete roof, similar to the one on the new toilet block, are visible [see image 34].

Image 36	Detail of upper storey: brick scars and concrete roof remnants.
Image 37	Large original doorway, with later single skin brick infill and doorway. View from the tap room through to the canteen room.
Image 38	Lobby to canteen room showing scars of removal of partition walls.
Image 39	Dry lining of barrack rooms. Batten nails and builders mark lines are visible.
Image 40	Remains of the footings of the barrack blocks, built to the north east of the fort. These are now covered in thick undergrowth.
Image 41	View of original married quarters, showing infilled central passageway, running from left side to blocked doorway. Originally a wall existed either side of this passageway, with a door to allow access to the room either side, identified by the fireplaces. These two walls were demolished and replaced with an steel joist to allow more room for the later industrial units.
Image 42	View from east to west along the original passageway. Either side of which were the married quarters. The walls adjoining this passage have been removed.
Image 43	View up to the roof of the first floor showing the scar marks of the original dividing walls for the married quarters. Blocked up access to passage can be seen on right. Vent holes in the vaulted ceiling are visible.
Image 44	Passageway in the married quarters on the ground floor with access blocked up.
Image 45	View of new access that has been knocked through from one room to another.
Image 46	Demolished caponier on south west salient angle of fort.
Image 47	Stratification under paving stones.
Image 48	Floor of washroom showing iron girders for floor joists.
Image 49	Fittings for wash sinks and bitumen sealing lines.
Image 50	Gutter in cookroom door step.
Image 51	Corbelling arrangement. This picture shows the ceiling of the entrance passageway.
Image 52	Under floor bracing for first floor .
Image 53	Vent in vaulted ceiling of first floor barrack room.
Image 54	Vent cover in place over vaulted ceiling of first floor barrack room.
Image 55	First floor fireplaces showing hot air vent opening above.
Image 56	Weathered window sill on first floor.
Image 57	Example of windows in Italianate style building in Ryde.
Image 58	Example of windows in Italianate style building in Ryde.
Image 59	Exterior window arrangement.
Image 60	Window over caponier.
Image 61	Shutter in situ in wooden window frame.
Image 62	Shutter arrangement with closed shutters showing loophole.
Image 63	Bitumen damp course on ground floor.
Image 64	Interior staircase.
Image 65	Cast iron fireplace and surround in officer's quarters.
Image 66	Top of domed roof on stairwell.
Image 67	Interior of counterscarp gallery at end of caponier, showing latrines: water closet positions on left and urinals on right.
Image 68	Officer's latrine in projecting toilet annex at north west corner of fort.
Image 69	Ornamentation on top of veranda column.
Image 70	Interior roof gutter and veranda roof structure.
Image 71	Foot scraper outside ground floor barrack room.
Image 72	Interior of larder with two of the remaining slate shelves.
Image 73	Main gate at entrance to fort.
Image 74	Picture of a gate from 18 <sup>th</sup> century manual on fortification and military engineering. [ <i>A treatise containing the practical part of fortification. John Muller, London 1755.</i> ]
Image 75	Interior of Armament Major's room with cast iron racks.
Image 76	Graffiti on a section of wall of the entrance passageway.
Image 77	View down ammunition hoist.
Image 78	View of the top of ammunition hoist showing iron ring for hoist tackle.
Image 79	Light box No. 11 LB illuminating the passageway to the ammunition hoist. Sandstone ceiling with the galvanised smoke vent is extant as is the door.

Image 80	Interior of the light box that illuminates the magazine, showing the brass window frame on the magazine side of the chamber.
Image 81	Interior of dumb waiter looking upwards.
Image 82	Outside cornice showing granite coping stone with downpipe.
Image 83	Brick supports for ground floor wooden suspended floor.
Image 84	North elevation.
Image 85	North-east elevation.
Image 86	South-east elevation.
Image 87	South elevation.
Image 88	South-west elevation.
Image 89	North-west elevation, west end.
Image 90	North-west elevation, east end.
Image 91	Internal view, north, north-east and south-east elevations.

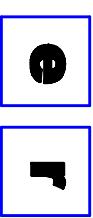
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Rev	Date	Item	By
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Revisions



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Client

Golden Hill Homes Ltd

Project Title

Proposed Conversion of  
Golden Hill Fort  
Freshwater  
Isle of Wight

Drawing Title

GROUND FLOOR PLAN - ARCHAEOLOGICAL IMAGE LOCATIONS

Scale	Date	Drawn
1:200	June 2007	KH
Drawing No.	Rev.	Chkd
1247-40		

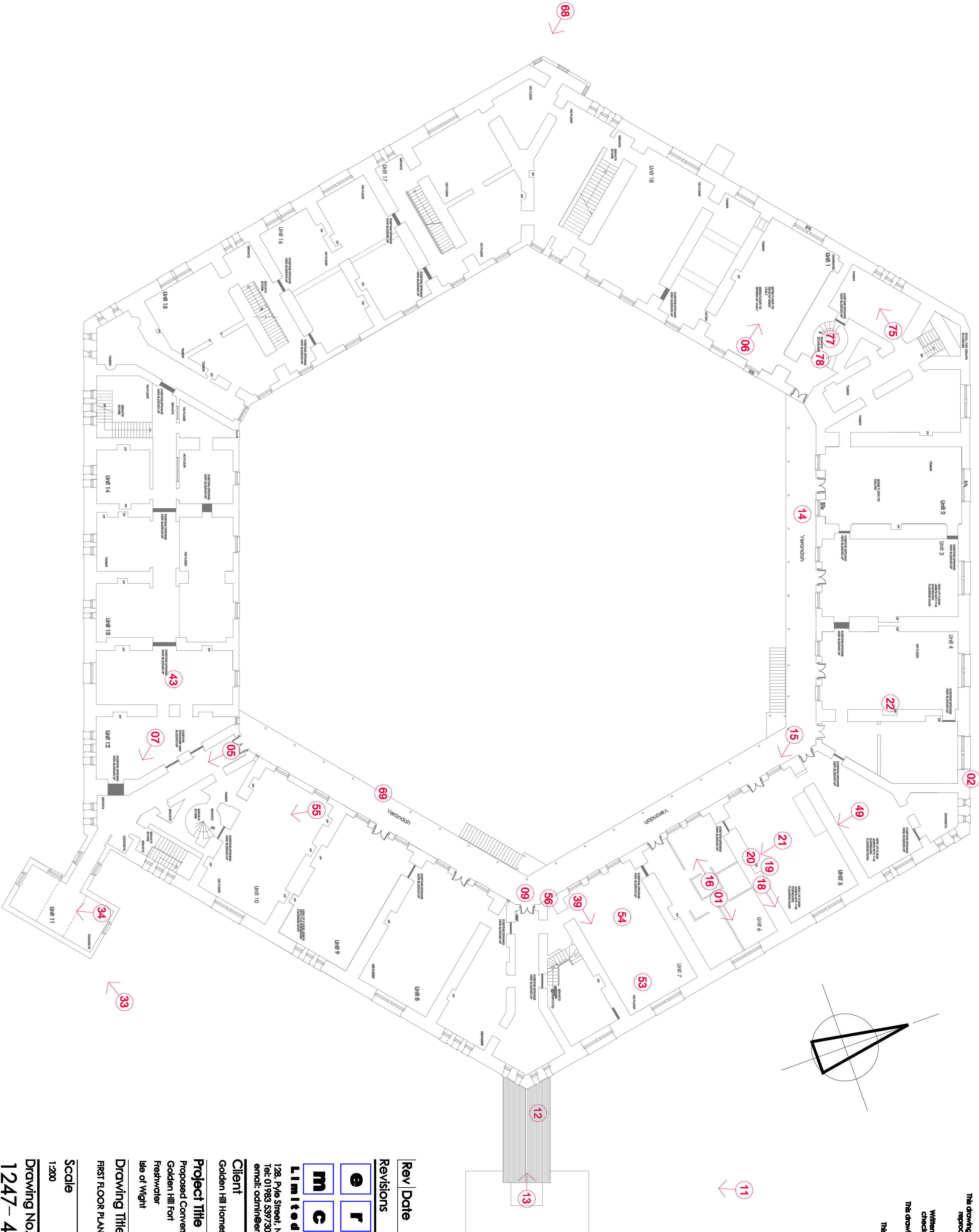
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**Client**  
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**Project Title**  
Proposed Conversion of  
Golden Hill Fort  
Freshwater  
Isle of Wight

**Drawing Title**  
FIRST FLOOR PLAN - ARCHAEOLOGICAL IMAGE LOCATIONS

Scale	Date	Drawn
1:200	June 2007	KH
Drawing No.	Rev.	Chkd
1247-41		

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Photographs taken on two site visits: 5<sup>th</sup> April 2007 and 12 April 2007.



Image 01: Interior of barrack room showing vaulted brick ceiling.



Image 02: Aerial view of roof coping showing asphalt layer.

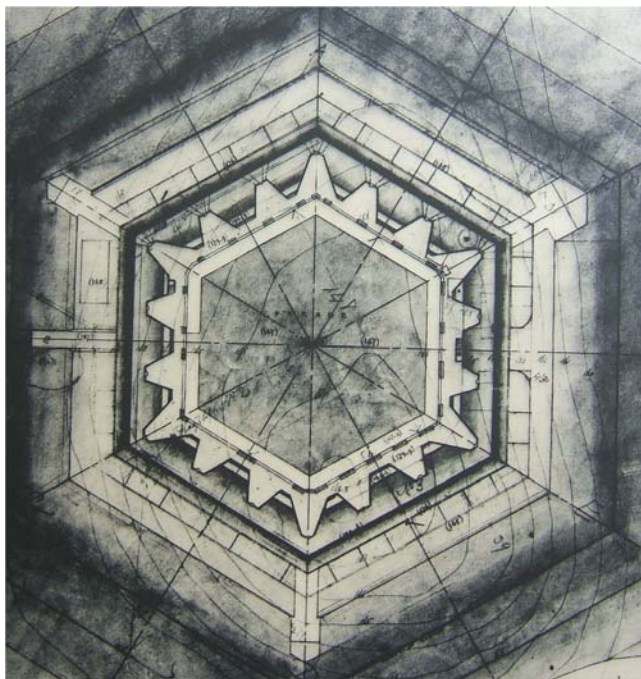


Image 03: Plan of original roof gun positions and earth ramparts.

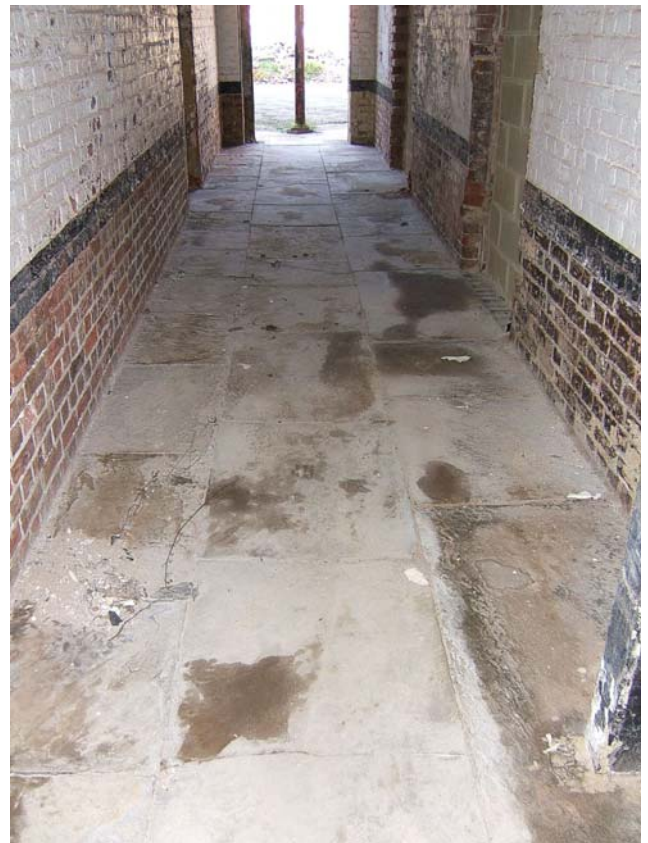


Image 04: Passageway on ground floor : sandstone flagstones.





Image 05: Passageway on first floor : wooden floorboards.



Image 07: Brick corbelling of first floor with sandstone plinth.



Image 06: Floor of first floor barrack room showing original floorboarding.



Image 08: Original ceiling: lathe and plaster.





Image 09: Interior roof gutter and arrangement of down pipe with veranda.



Image 10: Cistern on roof. Originally cast iron, now screened off with block wall.



Image 11: Existing caponier at east salient of fort. Viewed from north east.



Image 12: Caponier from above, showing cast iron water cistern and roofless skylight.



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Image 14: Concrete floor of veranda. Floor of washroom was also of similar construction.





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Image 18: View along air vent from interior of building to the exterior metal covering, as seen in image 20, to the right of the gauged brickwork of window flat arch. This vent originates in base of fireplace as in image 22.



Image 19: Opening of air vent in base of fireplace.



Image 20: Interior view upwards of vent in soffit of fireplace.



Image 21: Altered fireplace with insertion of sandstone lintel and brick infill.



Image 22: View upwards into another altered fireplace showing the two shaped sandstone lintel pieces, formed to accommodate the flue of a stove. To the right can be seen the upper vent of ventilation system.





Image 23: View of Drill Hall. Viewed from south east.



Image 24: View of School of Instruction. Viewed from south east.



Image 25: View of out-buildings near Colwell Green entrance. Viewed from south west.



Image 26: View of stable block near Colwell Green entrance. Viewed from south east.



Image 27: Doorway of stable block.  
Viewed from south.

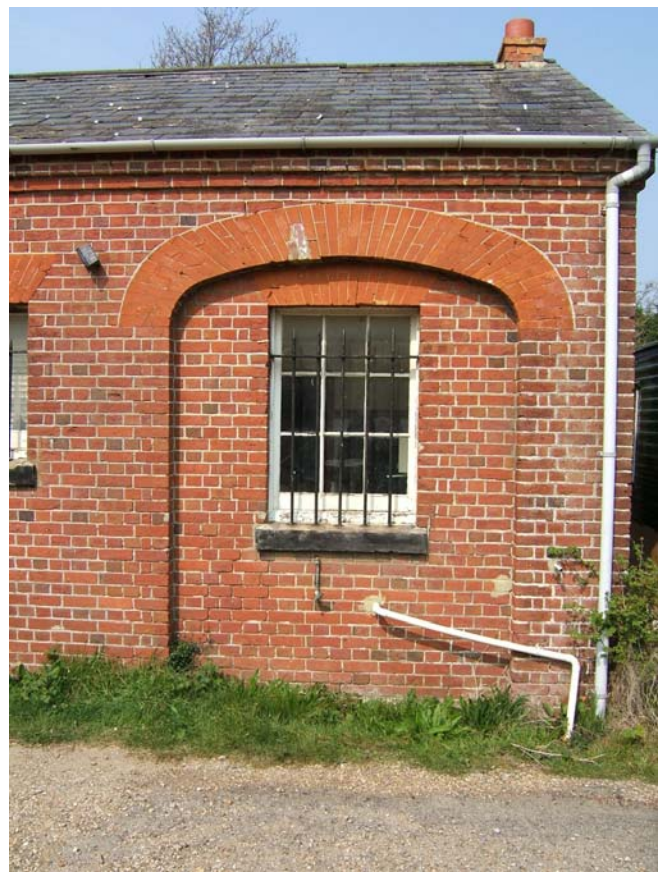


Image 28: Infilled doorway of stable block.  
Viewed from south.



Image 29: Originally there were two workshops: the one in the foreground with a separate workshop at the rear. At a later date, these were connected together, and an extension added on to north side of the nearest workshop.



Image 30: View of new hospital built in 1897 to the north of the main road [Hill Lane], now a masonic hall.





Image 31: Large house built near hospital, serving as an administration block. This later became the officer's mess.



Image 32: Terraced row that served as married quarters to north of fort and west of new hospital.



Image 33: New toilet block built on the south east salient angle of the fort.



Image 34: Interior view of the new toilet block.

Image 35:

North east salient angle, showing site of demolished caponier and scar marks of upper storey built on top. The brickwork of is upper storey was tied into fort fabric. Remains of the flat concrete roof, similar to the one on the new toilet block, are visible [see image 34].



Image 36: Detail of upper storey: brick scars and concrete roof remnants.





Image 37: Large original doorway, with later single skin brick infill and doorway. View from the tap room through to the canteen room.



Image 38: Lobby to canteen room showing scars of removal of partition walls.



Image 39: Dry lining of barrack rooms. Batten nails and builders mark lines are visible.



Image 40: Remains of the footings of the barrack blocks, built to the north east of the fort. These are now covered in thick undergrowth.





Image 41: View of original married quarters, showing infilled central passageway, running from left side to blocked doorway. Originally a wall existed either side of this passageway, with a door to allow access to the room either side, identified by the fireplaces. These two walls were demolished and replaced with an steel joist to allow more room for the later industrial units.



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Image 43: View up to the roof of the first floor showing the scar marks of the original dividing walls for the married quarters. Blocked up access to passage can be seen on right. Vent holes in the vaulted ceiling are visible.



Image 44: Passageway in the married quarters on the ground floor with access blocked up.



Image 45: View of new access that has been knocked through from one room to another.

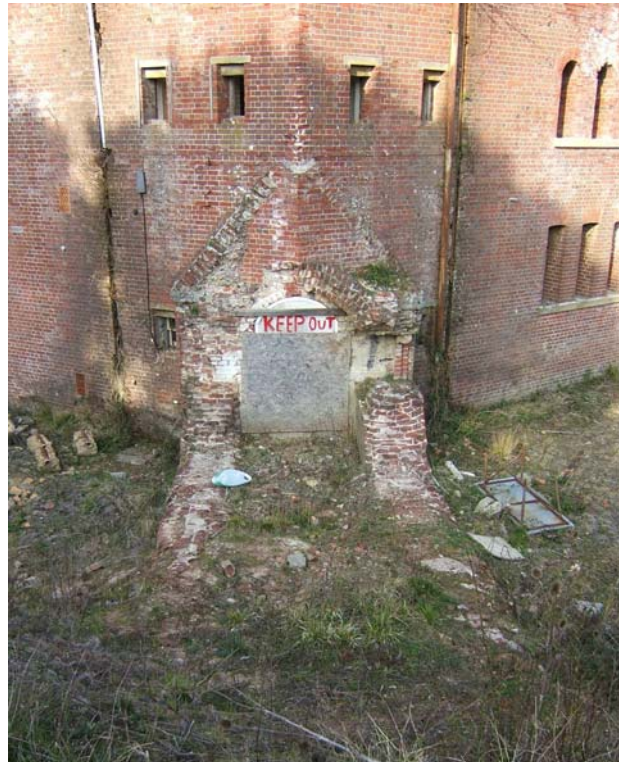


Image 46: Demolished caponier on south west salient angle of fort.



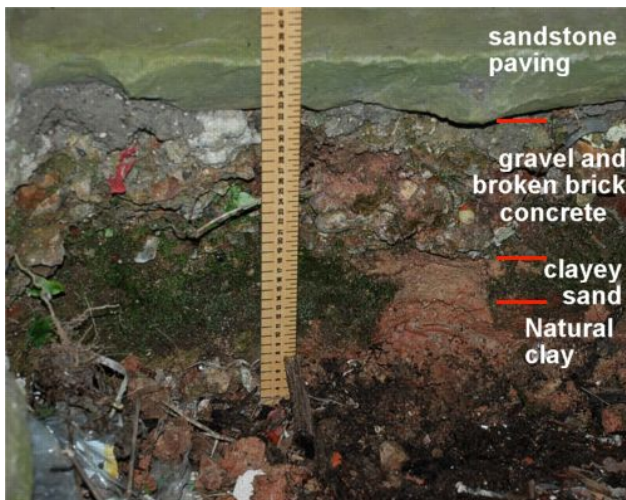


Image 47: Stratification under paving stones.



Image 48: Floor of washroom showing iron girders for floor joists. View from around floor.



Image 49: Fittings for wash sinks and bitumen sealing lines.



Image 50: Gutter in cookroom door step.



Image 51: Corbelling arrangement. This picture shows the ceiling of the entrance passageway.



Image 52: Under floor bracing for first floor .





Image 53: Vent in vaulted ceiling of first floor barrack room.



Image 54: Vent cover in place over vaulted ceiling of first floor barrack room.



Image 55: First floor fireplaces showing hot air vent opening above.



Image 56: Weathered window sill on first floor.



Image 57: Example of windows in Italianate style building in Ryde.



Image 58: Example of windows in Italianate style building in Ryde.





Image 59: Exterior window arrangement.



Image 60: Window over caponier.



Image 61: Shutter in situ in wooden window frame.



Image 62: Shutter arrangement with closed shutters showing loophole.





Image 63: Bitumen damp course on ground floor.



Image 64: Interior staircase.



Image 65: Cast iron fireplace and surround in officer's quarters.



Image 66: Top of domed roof on stairwell.





Image 67: Interior of counterscarp gallery at end of caponier, showing latrines: water closet positions on left and urinals on right.

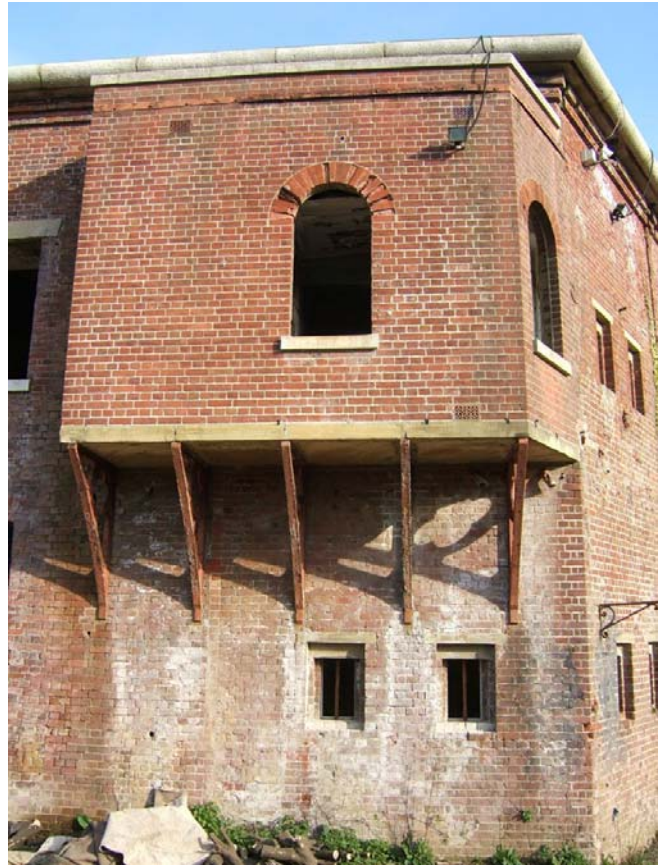


Image 68: Officer's latrine in projecting toilet annex at north west corner of fort.



Image 69: Ornamentation on top of veranda column.



Image 70: Interior roof gutter and veranda roof structure.





Image 71: Foot scraper outside ground floor barrack room.



Image 72: Interior of larder with two of the remaining slate shelves.



Image 73: Main gate at entrance to fort.

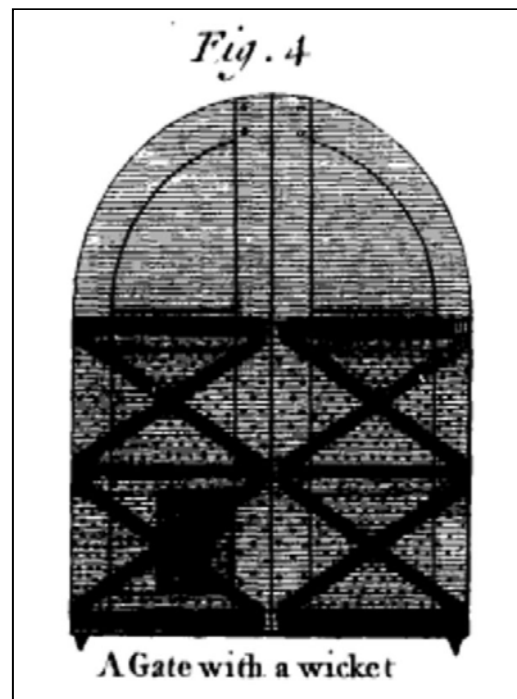


Image 74: Picture of a gate from 18<sup>th</sup> century manual on fortification and military engineering. [A treatise containing the practical part of fortification. John Muller, London 1755.]





Image 75: Interior of Armament Major's room with cast iron racks.



Image 76: Graffiti on a section of wall of the entrance passageway.



Image 77: View down ammunition hoist.



Image 78: View of the top of ammunition hoist showing iron ring for hoist tackle.

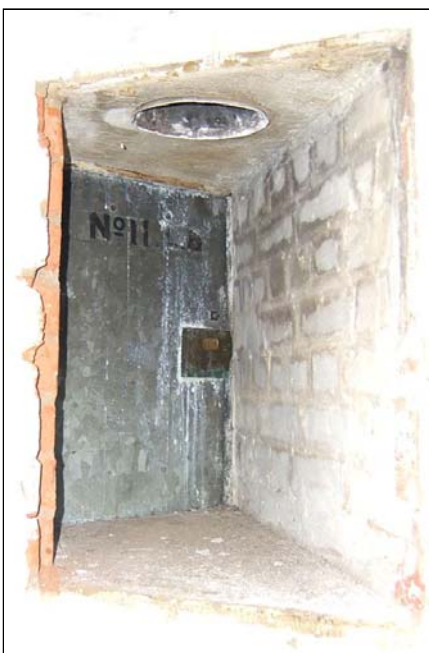


Image 79 [left]:

Light box No. 11 LB illuminating the passageway to the ammunition hoist. Sandstone ceiling with the galvanised smoke vent is extant as is the door.

Image 80 [right]:

Interior of the light box that illuminates the magazine, showing the brass window frame on the magazine side of the chamber.





**Image 81:** Interior of dumb waiter looking upwards.



**Image 82:** Outside cornice showing granite coping stone with downpipe.



**Image 83:** Brick supports for ground floor wooden suspended floor.





Image 84: North elevation.



Image 85: North-east elevation.





Image 86: South-east elevation.



Image 87: South elevation.





Image 88: South-west elevation.



Image 89: North-west elevation, west end.





Image 90: North-west elevation, east end.



Image 91: Internal view, north, north-east and south-east elevations.

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WO33/4 Memo by Burgoyne. The Defences of Portsmouth

WO33/7 The Defences of Portsmouth with reference to the long range and accurate aim of Armstrong's rifled gun.

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WO 78/2662/6 Golden Hill Fort, ground floor plan

WO 78/2662/7 Golden Hill Fort first floor plan

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### PLANS

MD95/02925 No. III of set of 10 Elevations and sections.

MD95/02926 No. II of set of 10 Foundations, ground floor, roof timber and floor plan.

MD95/02927 No. IX of set of 10 Annexes, plans and sections.

MD95/02928 No. X of set of 10 Annexes, sections and details.

MD95/02929 No. VII of set of 10 Disinfecting establishment plans, elevations and sections.

MD95/02930 No. V of set of 10 Elevations, sections and details.

MD95/09756 Ground and first floor Skeleton record plan (sheet 1 of 2)

MD95/09757 Skeleton record plan of married soldiers quarters RA officers married quarters gymnasium and stores (sheet 2 of 2)

*Corrected to date 8-7-1937 A. Cruikshank Lieut-Colonel R. E. C.R.E. Southern District 28-9-1937*

### Aerial Photos of Golden Hill Fort

6662	03 Sept. 1940	RAF
2314	06 May 1959	RAF
2693	16 Sept. 1958	RAF
8982	16 Sept. 1958	RAF
10994	10 March 1968	Ordnance Survey
11106	07 April 1969	Ordnance Survey
12415	30 March 1980	Ordnance Survey
15041	27 April 1996	Ordnance Survey

NMR 18748 frame 14	31 July 2000	English Heritage
NMR 18888 frame 01-09	31 July 2000	English Heritage
NMR 18870 frame 12	31 July 2000	English Heritage

The Times Newspaper

*Articles concerning the Spithead forts:*

- 23 June 1862, page 8
- 25 June 1862, page 12
- 1 May 1863, page 6
- 4 May 1863, page 12
- 25 August 1863, page 10
- 8 September 1864, page 9
- 9 September 1864, page 10
- 17 January 1865, page 10

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