



DESK STUDY REPORT
FOR THE SITE OF:

Hayling Billy Public House
117 Elm Grove
Hayling Island
Hampshire
PO11 9ED

1 OF 3

COMPLETED ON BEHALF OF:
McCarthy and Stone Retirement Lifestyles Ltd.

BY



Ref. 15-67729
08 January 2016



DESK STUDY REPORT

CONTRACT: Hayling Billy Public House
117 Elm Grove
Hayling Island
Hampshire
PO11 9ED

Order Number: 254572

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REPORT NO: 15-67729

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DATE: 08 January 2016

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EXECUTIVE SUMMARY

This executive summary contains an overview of the key findings and conclusions. No reliance should be placed on any part of the executive summary until the whole of the report has been read. Other sections of the report may contain information that puts into context the findings that are summarised in the executive summary.

Brief	Prepare a Desk Study Report for a site comprising The Hayling Billy Public House on Hayling Island in Hampshire.
Proposal	It is proposed to redevelop the site with a block of retirement apartments. Details of the proposal have not yet been determined.
Site Conditions	The property comprises a single building occupying the central north area of the site. Most of the remainder of the site is hard surfaced with macadam and is currently used as a car park. Small grassed areas surround the car park beside the south-east, south-west and north-west boundaries. The site is generally open on all sides and is not secured, the southern boundary is marked by a brick wall, beyond which is a public footpath. Several large trees are located on the site several of which have tree protection orders.
Adjacent Site Conditions	A Garage is present from 12m north and small row of shops are noted east of the site along Elm Grove however the surrounding land is mainly residential.
Site History	The site was open land from the earliest reviewed record of 1866 with residential dwellings first shown on site in 1898. In 1968 a single large building is first denoted on site as the Hayling Billy (PH). The surrounding land has historically and is presently mainly residential dwellings.
Geology	Superficial – River Terrace Deposits (undifferentiated) – sand and gravel Bedrock – London Clay Formation – clay, silt and sand
Hydrogeology	Secondary (A) Aquifer within the superficial deposits and Unproductive Strata within the bedrock deposits.
Hydrology	The closest potentially sensitive surface water receptor is drain noted as running from 50m north-west.
Consultations	GroundSure Investigations – GeoInsight and EnviroInsight – 22/10/15 Havant Borough Council – Environmental Protection – 23/12/15 Havant Borough Council - Building Control – Dave Read – 05/01/16
Potential Contaminants	Expected Asbestos Containing Materials in the buildings. Low potential for PAH, TPH & VOCs, from current and historic onsite car parking.
Conclusions	Historical and current on site land uses may have resulted in contaminants being present on site which will require investigation, risk assessment and possibly mitigation. It is considered likely that traditional foundations may be suitable for the proposed buildings subject to ground investigation. The Shrink-Swell potential of the ground will need to be considered when designing foundations. Building Control have advised crate soakaways may be suitable for use on site however soakaway testing will be required to confirm this.

Recommendations

Site investigation required at the appropriate time to characterise contaminants that may be present on-site and to confirm ground conditions.

Asbestos survey required of all buildings.

On site Tree Protection Orders require confirmation.

1.0 INTRODUCTION

1.1 Instructions

- 1.1.1 Instructions were received from Miss K Hill of McCarthy & Stone Retirement Lifestyles Ltd. on 22 October 2015 to prepare a Desk Study Report for a site comprising The Hayling Billy Public House off Elm Grove on Hayling Island in Hampshire.
- 1.1.2 Due to complications with the site status, works on this site were put on hold several times over the following months. ACS received confirmation of recommencement of works on site on the 14 December 2015.

1.2 Proposals

- 1.2.1 It is proposed to redevelop the site with a block of retirement apartments. At the time of preparation of this report it is understood a planning application for the proposed development had not been submitted.

1.3 Scope of Works / Report Limitations

- 1.3.1 The report is based upon a review of historical maps and information gained from an internet supplier of site specific environmental information. Other information has been obtained from consultations with the Local Authority, Environment Agency website, a review of geological, hydrogeological and hydrological maps and a Site Walkover Survey.
- 1.3.2 This report includes details of the site history and environmental setting and includes discussion regarding potential pollutant linkages and a preliminary risk assessment.
- 1.3.3 It should be appreciated that information may exist which invalidates the recommendations made in this report. The information contained in this report is intended for the sole use of McCarthy & Stone Retirement Lifestyles Ltd. ACS take no responsibility for the use of this information by any other party or for uses other than those described in this report.
- 1.3.4 No liability can be accepted for information in other data sources or conditions not revealed by the works undertaken in preparation of this report.

1.4 References

1.4.1 The following documents have been referred to in the preparation of this report:

BS: 10175 2011+A1:2013. Investigation of Potential Contaminated Sites. Code of Practice. BSI 2011.

CIRIA, Construction Industry Research and Information Association (2001). Contaminated Land Risk Assessment. CIRIA 552.

CIRIA, Construction Industry Research and Information Association (2007). *Assessing Risks Posed by Hazardous Ground Gases to Buildings*. CIRIA 665.

CIRIA, Construction Industry Research and Information Association (2009). The VOCs Handbook – Investigating, Assessing and Managing the Risks from Inhalation of VOCs at Land Affected by Contamination. CIRIA 682.

Department of the Environment (1994). A Framework for Assessing the Impact of Contaminated Land on Groundwater and Surface water. CLR Report No 1 Volume One.

Department of the Environment (1994). A Framework for Assessing the Impact of Contaminated Land on Groundwater and Surface water. CLR Report No 1 Volume Two.

Department of the Environment (1994). Guidance on Preliminary Site Inspection of Contaminated Land. CLR Report No. 2 Volume One.

Department of the Environment (1994). Guidance on Preliminary Site Inspection of Contaminated Land. CLR Report No. 2 Volume Two.

Department of the Environment (1994). Documentary Research on Industrial Sites. CLR Report No 3.

Department of the Environment (1994). Sampling Strategies for Contaminated Land. CLR Report No. 4.

Department of Environment and Rural Affairs (2012). Environmental Protection Act 1990: Part 2A. Contaminated Land Statutory Guidance.

Department for Environment, Food and Rural Affairs and the Environment Agency (2002). Potential Contaminants for Assessment of Land. R&D Publication CLR 8. Environment Agency 2002.

Environment Agency (2004). Model Procedures for the Management of Land Contamination. CLR Report No. 11.

2.0 SITE CONDITIONS

- 2.1 The site (National Grid Reference SZ 7218899713) is located on the western side of Elm Grove on Hayling Island in Hampshire. A site location plan is included in Appendix A.
- 2.2 Further site location details are shown below:
- | | |
|------------------|-----------------------|
| OS X (Eastings) | 472188 |
| OS Y (Northings) | 99713 |
| Lat (WGS84) | N50:47:33 (50.792498) |
| Long (WGS84) | W0:58:38(-0.977183) |
| mX | -108779 |
| mY | 6551541 |
- 2.3 The site covers some 0.33 hectares (3300m²).
- 2.4 A site walkover was conducted by an ACS Geo-Environmental Engineer on 15/12/2015. At the time of writing the site was occupied as an operational public house called "Hayling Billy". The Client advised that the site was sensitive and discretion was required; for this reason only an external visual inspection was possible. The site is irregular shaped in plan and is generally level. Access to the site is from Elm Grove to the east and St Mary's Road to the north-west; two rows of white bollards split the car park preventing a through route.
- 2.5 *Hayling Billy Pub*
The property comprises a single building occupying the central north area of the site. Signage on the outside of the building denotes it as "Hayling Billy", with writing on the gable of an entrance porch denoting "Entrance to Bar & Lounge". The building comprises a one and two storey brick masonry constructed building. The central part of the building is two storeys in height with a pitched tiled roof and the south elevation clad with plastic panelling; surrounding the central section, to the north-east, east, south and west comprises single storey flat roofed construction. An open porch with a pitched tiled roof is located on the southern side of the building. A wooden smoking shelter is located on the eastern side of the building with a pitched tiled roof.
- 2.6 Most of the site is hard surfaced with macadam and is currently used as a car park; at the time of writing many cars were present and it appeared that the car park was being used by offsite businesses. Spaces are denoted separately NMA & BW which are believed to relate to the NMA Car Centre next door and Bentley Walker Ltd beyond Elm Grove Road. An NHS Hayling Community Responders trailer is parked in the car park.
- 2.7 Small grassed areas surround the car park beside the south-east, south-west and north-west boundaries. A Children's Play area is located in the south of the site and is separated from the carpark by a low picket fence. Various tree stumps and pub benches are located around the perimeter of the site forming an informal barrier. To the north-west of the site are two fenced grassed areas, the larger of which appears to be a secured Beer Garden / Smoking area, with a smaller private garden in the north-east corner with an associated greenhouse. The site is generally open on all sides and is not secured, the southern boundary is marked by a brick wall, beyond which is a public footpath.

- 2.8 Several large trees are located on the site. A large Pine tree is located beside the western boundary; an Oak and two Lime trees are located in the north-east corner of the site and a row of seven Lime trees is located along the south-western boundary.
- 2.9 Access beyond the north of the building was not possible; this area is secured by a large wooden gate. Various materials were being stored in the car park beside the gate including pallets, tyres, a trailer and bins. It would appear that further materials are stored in the area beyond the gate however these were not inspected. Part of this area appears to be covered in a clear (glass or plastic) roof and appears to be a service entrance for the pub.
- 2.10 *Adjacent Land Uses*
- Beyond the north-west of the site are two blocks of residential flats along St. Mary's Road; on the far side of St. Mary's Road are detached residential properties. Beyond the north-east of the site a row of run down commercial properties are situated beside Elm Grove Road, the closest of which abuts the site and may be of residential use. Beyond the eastern boundary is Elm Grove Road, past which is Bentley Walker Ltd a seller of electrical goods. Adjacent to the southern boundary is a public footpath, beyond which is N.M.A Car Centre Ltd who are specialists in Camper Vans. To the rear of N.M.A are a row of workshops believed to be used for vehicle maintenance. Many vans were parked on the site and so visual observation of the hard standing was not possible, a front covered area is present, beneath which, further vans are parked. Beyond the south-western boundary is a public car park connected to the adjacent footpath.
- 2.11 Photographs of relevant site features are included as Appendix B.

3.0 SITE HISTORY

3.1 Ordnance Survey Maps have been obtained to provide details of the history of the site and surrounding areas. A chronological description of the maps is shown in Table 1, below. The descriptions focus on features which are considered to be relevant to the proposed development. Copies of the maps are included as Appendix C.

Dates	On-Site Features	Off-Site Features
1866-1867	The site is open land agricultural land which appears to have been divided into rectangular plots. A footpath runs through the centre of the site from north to south.	Roads are present beside the south-west and eastern site boundaries. Several wells are noted in the area surrounding the site: 12m east, 15m east, 45m south, and 75m north. A Smithy is noted 88m north.
1896-1898	Two pairs of semi-detached dwellings are present beside the eastern boundary with two pumps denoted beside these buildings. Smaller outhouses are noted in the rear gardens of these properties and adjacent to the northern boundary.	A number of further wells and pumps are now shown in many of the surrounding residential gardens. An additional Smithy is denoted 136m north. St Mary's Church and Grave Yard is shown from 214m north.
1907-1908	No changes considered relevant.	Allotment Gardens are shown 100m east of the study site. The land surrounding the site to the north and south is becoming increasingly residential with most houses being situated along Elm Grove.
1931-1932	Deciduous trees are noted sporadically through the western section of the site.	The Grave Yard has now extended to lie within 175m north of the study site.
1940-1957	No changes considered relevant.	No changes considered relevant.
1968-1972	The site is now shown with a large building denoted Hayling Billy Public House. Small areas of deciduous trees are noted beside the north-eastern and south-western boundaries, a small outbuilding is noted in the south-east corner of the site.	A Garage is noted 121m north. An Electricity Sub-station is noted 112m north. A Nursery is noted 180m north-east. A raised Pond is noted 180m west. A drain is noted from 50m north-west.
1979	No changes considered relevant.	The surrounding area is now mostly residential.
1980	Trees are no longer denoted on the site.	Unspecified Works are shown 100m north and 135m north-east.
1990-2014	No changes considered relevant.	No changes considered relevant.

Table 1. Historical map summary.

3.2 Internet Search

- 3.2.1 Online records note a steam engine of the former 'Hayling Billy' Line was situated in the south-east corner of the site for 13 years circa 1966. The engine is recorded as having been sold circa 1979 and therefore removed from the site.
- 3.2.2 We have not found any records to suggest that the railway line ever ran through, or in close proximity to, the study site.

4.0 GEOLOGY

- 4.1 On-line geological maps from the British Geological Survey have been reviewed.
- 4.2 On site superficial deposits are recorded as River Terrace (undifferentiated) of sand and gravel with local lenses of silt, clay or peat.
- 4.3 The bedrock beneath the site is recorded as London Clay Formation of clay, silt and sand.
- 4.4 The London Clay Formation mainly comprises bioturbated or poorly laminated, blue-grey or grey-brown, slightly calcareous, silty to very silty clay, clayey silt and sometimes silt, with some layers of sandy clay. It commonly contains thin courses of carbonate concretions ('cementstone nodules') and disseminated pyrite. It also includes a few thin beds of shells and fine sand partings or pockets of sand, which commonly increase towards the top of the formation. At the base, and at some other levels, thin beds of black rounded flint gravel occur in places. Glauconite is present in some of the sands and in some clay beds and white mica occurs at some levels.
- 4.5 *BGS Borehole Records*
- 4.5.1 SZ79NW92
9m west – Standing water at 5.214m
0.00m – 0.61m Tarmac – Hardcore
0.61m – 1.67m Firm sandy brown mottled clay
1.67m – 2.28m Stiff brown/grey clay
2.28m – 3.66m Fine brown/grey sand
- 4.5.2 SZ79NW91
45m south-west – Standing water at 5.570m
0.00m – 0.76m Topsoil and fill material
0.76m – 2.13m Soft to firm brown/grey sandy clay with some small flints
2.13m – 2.44m Very sandy brown clay with some flints
2.44m – 3.96m Fine brown sand
- 4.5.3 SZ79NW90
50m south – Standing water at 5.229m
0.00m – 1.06m Firm brown sandy clay
1.06m – 1.37m Soft mottled clay
1.37m – 2.13m Coarse grey sand small medium gravel, some clay
2.13m – 3.96m Coarse brown sand, flint cobbles, medium gravel

- 4.5.4 SZ79NW93
93m north – Standing water at 5.039m
0.00m – 0.76m Topsoil and fill material
0.76m – 2.28m Soft to firm brown mottled clay
2.28m – 3.66m Fine light brown sand

- 4.5.5 Copies of the borehole logs are included in Appendix D.

5.0 HYDROGEOLOGY AND HYDROLOGY

- 5.1 The Environment Agency Groundwater map shows the site to be situated above a Secondary (A) Aquifer within the superficial deposits and Unproductive Strata within the bedrock deposits.
- 5.2 Secondary (A) Aquifers are; permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.
- 5.3 Unproductive Strata are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.
- 5.4 The site is within a Minor Aquifer High Groundwater Vulnerability Zone and within a Eutrophic Nitrate Vulnerable Zone.
- 5.5 The river water flood map obtained from the Environment Agency website indicates that the site is more than 100m from an area classed as being at high risk of flooding from rivers or the sea.
- 5.6 Mapping indicates a drain runs from 50m north-west.
- 5.7 Copies of the Environment Agency Maps are included as Appendix E.

6.0 CONSULTATIONS

6.1 **GroundSure EnviroInsight Report – 22 October 2015**

A GroundSure EnviroInsight Report was commissioned for the site, a copy of which is included as Appendix F. Environmental issues considered relevant to the redevelopment of the site are summarised below.

The aerial photograph accompanying the report is dated August 2013 and shows the site containing the structures that are currently present.

Part 1 – Historical Industrial Sites

There are eight potentially contaminative past land uses within 500m of the search boundary. These include:

- ▶ 30m N - Smithy – 1896
- ▶ 38m N - Smithy – 1896
- ▶ 57m S – Fire Station – 1990
- ▶ 72m N – Smithy – 1896
- ▶ 77m N – Unspecified Works – 1990
- ▶ 85m N – Smithy – 1866
- ▶ 136m NE – Smithy – 1896
- ▶ 210m N – Grave Yard – 1866

There are eight historic Unspecified Tanks dating from 1968-1996 within 500m of the study boundary from 321m to 360m south.

There are 30 historic Energy Features are recorded within 500m of the study site boundary. All relate to Electricity Substations from 115m north.

Four historic Garages are recorded between 1968 and 1986, all situated 103m north.

There are four records of potentially infilled features within 500m of the study site:

- ▶ 210m north – Grave Yard – 1866
- ▶ 351m south-west – Pond – 1907
- ▶ 351m south-west – Pond – 1931
- ▶ 351m south-west – Pond – 1938

Part 2 - Environmental Permits, Incidents and Registers

There are two records of environmental permits for Part A (2) and Part B Activities. These are:

- ▶ 17m east – Current Permit for Dry Cleaning
- ▶ 495m south – Current Permit for Dry Cleaning

There are two records of National Incidents (List 2) within 500m of the study site.

Distance	Date	Pollutant	Description	Water Impact	Land Impact	Air Impact
132m SW	January 2002	Atmospheric Pollutants and Effects	Smoke	None	None	Minor
132m SW	January 2002	Atmospheric Pollutants and Effects	Smoke	None	None	Minor

Table 2. National Incidents (List 2)

Part 3 – Landfill and Other Waste Sites

There is one Historic Landfill recorded within 1500m of the study site. This is situated 593m south-east and is recorded as having received Inert Waste.

There are two Environmental Agency licensed waste sites within 1500m of the study site. These are:

- ▶ 1064m N – Composting Facility
- ▶ 1483m N – ELV (End of Life Vehicles) Facility

Part 4 – Current Land Uses

There are 13 records of potentially contaminative industrial sites within 250m of the site. These are;

- ▶ 12m S – NMA – New Vehicles
- ▶ 76m S – Hayling Island Fire Station – Fire Brigade Stations
- ▶ 107m N – Unspecified Works or Factories
- ▶ 121m NE – Hayling Garage – Vehicle Repair, Testing and Servicing
- ▶ 121m S – Computer Repair Centre – Electrical Equipment, Repair and Servicing
- ▶ 128m N – Electricity Substation
- ▶ 130m S – Hayling Garage – Vehicle Repair, Testing and Servicing
- ▶ 141m SE – Southpest Services – Pest and Vermin Control
- ▶ 171m S – Hayling Islander – Published Goods
- ▶ 198m S – Electricity Substation
- ▶ 233m S – Motorcentre – Vehicle Part and Accessories
- ▶ 249m S – Hayling Print Ltd – Published Goods

One Petrol Station is recorded 127m north (Hayling Garage) noted as Obsolete

Part 5 & 6– Geology, Hydrogeology and Hydrology

Artificial Ground and Made Ground – None

Superficial Ground and Drift Geology (including a 50m buffer) – River Terrace Deposits – Sand, Silt and Clay

Bedrock and Solid Geology (including a 50m buffer) – London Clay Formation – Sand, Silt and Clay

Aquifers within the superficial deposits

- ▶ On site – Secondary (A)
- ▶ 211m N – Secondary (A)

Aquifers within the Bedrock Deposits

- ▶ On site – Unproductive
- ▶ 211m N – Unproductive
- ▶ 238m S – Secondary (A)

There is one surface water abstraction licence 832m east of the study site used for spray irrigation (storage).

Groundwater Vulnerability is recorded as;

- ▶ On site – Minor Aquifer / High Leaching Potential
- ▶ 24m E – Minor Aquifer/High Leaching Potential
- ▶ 118m NW – Minor Aquifer/High Leaching Potential
- ▶ 139m NW – Minor Aquifer/Intermediate Leaching Potential
- ▶ 211m N – Minor Aquifer/High Leaching Potential
- ▶ 252m N – Minor Aquifer/High Leaching Potential

There are three surface water features not represented on mapping located:

- ▶ 52m north-west
- ▶ 211m west
- ▶ 213m north

Part 7 – Flooding

The site is not within 250m of an Environment Agency Zone 2 or Zone 3 floodplain.

The on-site Risk of Flooding from Rivers and the Sea (RoFRaS) – Very Low

Groundwater Flooding Susceptibility Areas

There are BGS groundwater flooding susceptibility areas recorded within 50m of the site. They are related to Superficial Deposits Flooding and are recorded as having *potential below surface* for flooding. *Groundwater Flood Confidence Rating – Moderate*

Part 8 – Designated Environmentally Sensitive Sites

There are five Sites of Special Scientific Interest (SSSI) within 2000m of the study site:

- ▶ 698m E – Chichester Harbour
- ▶ 823m E – Chichester Harbour
- ▶ 962m S – Sinah Common
- ▶ 1170m NW – Langstone Harbour
- ▶ 1526m W – Langstone Harbour

There is one Special Area of Conservation (SAC) 698m east of the study site known as the Solent Maritime.

There are four records of Ramsar site within 2000m of the study site, all relate to the Chichester and Langstone Harbours.

There are two records of Local Nature Reserves (LNR) within 2000m of the study site:
1093m W – Hayling Billy
1941m NE – Gutner Point

There are two records of Areas of Outstanding Natural Beauty (AONB) both relate to Chichester Harbour from 425m east.

There are two Nitrate Vulnerable Zones are noted on site and 211m north.

Part 9 – Natural Hazards Findings

Maximum Shrink-Swell Hazard Rating – Low

Maximum Landslide Hazard Rating – Very Low

Maximum Soluble Rocks Hazard Rating – Negligible

Maximum Compressible Ground Hazard Rating – Negligible

Maximum Collapsible Rocks Hazard Rating – Low

Maximum Running Sand Hazard Rating – Low

The property is within a Radon Affected Area as between 1 and 3% of properties are above the action level however Radon protective measures are not necessary for new properties or extensions to existing ones.

Part 10 – Mining

There are no records of coal mining within 75m of the study site.

There are no records of non-coal mining areas within 50m of the study site boundaries.

There are no records of brine affected areas within 75m of the study site.

6.2 GroundSure GeolInsight Report – 11 September 2015

A GroundSure GeolInsight Report was commissioned for the site, a copy of which is included in Appendix G. Geological issues considered relevant to redevelopment of the site are described below:

Part 1 & 2- Geology

There is no Artificial / Made Ground within 500m of the study site.

Superficial deposits / Drift Geology:

- ▶ On site – River Terrace Deposits (undifferentiated) – Silt, Clay
- ▶ 211m N – River Terrace Deposits (undifferentiated) – Silt, Clay

Permeability of Superficial Geology:

On site - Maximum Permeability-High, Minimum Permeability-Low (Intergranular Flow)

Bedrock and Solid Geology with 500m of the study site:

- ▶ On site – London Clay Formation – Clay, Silt and Sand
- ▶ 211m N – London Clay Formation – Clay, Silt and Sand
- ▶ 262m S – Portsmouth Sand Member and Whitecliff Sand Member (undifferentiated) – Sand Silt and Clay

Permeability of Bedrock:

On site – Maximum Permeability-Moderate, Minimum Permeability-Very Low (Mixed Flow)

Part 3 – Radon Data

The site is within a Radon Affected Area, as between 1 and 3% of properties are above the Action Level. **No Radon protection measures are necessary for new properties or extensions to existing ones.**

Part 4 – Ground Workings

There is one record of historic Surface Ground Workings within 250m of the site boundary. This refers to a Grave Yard 210m north dated from 1866.

There are two current ground workings as recorded by BGS:

Distance	Commodity	Pit Name	Status
971m E	Clay and Shale	My Lords Pond Brick Field	Ceased
982m E	Clay and Shale	Tourner Bury Brick Works	Ceased

Table 3. Current Ground Workings

Part 5 – Mining, Extraction & Natural Cavities

There are no records of coal or non-coal mining historically or currently within 1000m of the study site boundary.

Part 6 – Natural Ground Subsidence

The maximum Hazard Rating of natural subsidence within the site boundary is Low.

Shrink-Swell Clays

▶ On Site – Low

Landslides

▶ On Site – Very Low

Ground Dissolution of Soluble Rocks

▶ On Site – Negligible

Compressible Deposits

▶ On Site – Negligible

Collapsible Deposits

▶ On Site – Low

Running Sands

▶ On Site – Low

Part 7 – Borehole Records

Five boreholes are recorded within 250m of the study site boundary the closest noted 9m east. These records are not included as noted in section 4.5 above

Part 8 – Estimated Background Soil Chemistry

Estimated background soil chemistry on site (sedimentary sample);

Arsenic – <15mg/kg

Cadmium - <1.8mg/kg

Chromium – 60-90mg/kg

Nickel – 15-30 mg/kg

Lead – <100mg/kg

Part 9 – Railways and Tunnels

There are no current or historic Railway or Tunnel features within 250m of the study site boundary.

6.3 Havant Borough Council – Environmental Protection – Jonathan Driver - 23 December 2015

- 6.3.1 Havant Borough Council (WCC) Environmental Protection Department were consulted. Information was received on 23/12/15 and is included as Appendix H.
- 6.3.2 There are no recorded incidents of significant contamination on or within the immediate vicinity of the study site. There are three sites within 250m of the subject property where Environmental Health has sought the investigation and assessment of ground contamination through the planning process (upon redevelopment). The closest site is within 50m on the east side of Elm Grove: a Phase 2 report has not been received to date. The remaining sites have either been remediated to the satisfaction of the Local Authority or have been demonstrated to be suitable for their current uses and to pose no tangible risk to the occupants of neighbouring land.
- 6.3.3 Two records of Pollution Incidents are held relating to land within 250m of the site. One relates to atmospheric pollution (smoke) at Mengham Infants School (2002), the other to a spillage of inorganic chemical waste listed as having occurred at A3M Company Ltd, Off Tournurbury Lane, Hayling Island (10/11/1999). Limited EA resources were deployed and the status is listed as unsubstantiated and impacts unclassified.
- 6.3.4 The site is not regarded as a priority site for investigation under Part 2A of the Environmental Protection Act 1990.
- 6.3.5 A manual review of available historic information has been undertaken and this has shown the site to be brownfield, previously developed for residential use (prior to 1867) with at least four individual properties, several outbuildings and a lightly wooded area to the western portion of the site. This configuration appears to have persisted until sometime between 1962 and 1970 when the Hayling Billy was constructed. The contamination risk from the former residential land use is not considered to be high.
- 6.3.6 No potential sources of contamination are known or suspected at the subject site or within its immediate vicinity. A small Smithy is located within 100m of the application site but this is unlikely to be materially significant.
- 6.3.7 Havant Borough Council has no records of any above or below ground fuel storage tanks on the site or within the immediate surrounds.
- 6.3.8 All properties within this area are served by a public potable supply. There are no known private water supplies.
- 6.3.9 There are no known factors likely to represent a material barrier to the redevelopment of the site. Ground conditions in respect to drift geology and groundwater may restrict the use of Sustainable Drainage Systems however the site is within 25m of a public sewerage system for both surface and foul water.
- 6.3.10 There are no recorded formal landfill sites nor any waste transfer or treatment sites within 250m of the subject property.

6.4 Havant Borough Council - Building Control Dept. - Dave Read

- 6.4.1 Mr Dave Read is a Building Inspector at Havant Borough Council. He has advised that most of Hayling is underlain by Clay. The Clay is typically suitable for the use of traditional foundations for low rise residential buildings but foundations will need to be deepened in close proximity to trees.
- 6.4.2 Mr Read commented that soakaways may be possible on site however they will need to be of an aquacell crate design and water drainage will be limited and recommended placement would be in the garden areas of properties.
- 6.4.3 Mr Read advised that radon protection measures are generally not required for new residential buildings on Hayling Island.

6.5 Havant Borough Council - Planning Department Website

- 6.5.1 The Havant Borough Council online planning database was searched for planning applications pertinent to the study site.
- 6.5.2 Previous onsite planning applications have included two applications for the upkeep of the protected trees on site. These are shown in plans to be located beside the eastern boundary and include one oak tree and two lime trees.
- 6.5.3 The most recent planning application involves the 'Change of use for part of the existing car park to combined parking use in connection with public house and local business'. This application was approved in retrospect but only for the duration of ownership by Ms M Keillor.

6.6 Environment Agency Website

- 6.6.1 The Environment Agency website was searched, using the 'What's in My Backyard?' series of interactive maps to find EA records pertinent to the study site.
- 6.6.2 The site lies within a Eutrophic Nitrate Vulnerable Zone.
- 6.6.3 The closest landfill is noted 500m east referred to as 'North of Mengham House' on Mengham Lane receiving inert material (dates unspecified).

7.0 DISCUSSION

7.1 *Historical Land Uses*

- 7.1.1 A review of historic mapping and internet information has found that from the earliest reviewed record (1866) the site was open land. In 1898 residential dwellings are first denoted on the site and remained until 1968 when a large building is shown in the north of the site, denoted the 'Hayling Billy Public House'. The remainder of the site is open land with trees noted sporadically throughout the plot.
- 7.1.2 The area surrounding the site has, from the earliest reviewed record (1866), been mostly residential with occasional industry having been small-scale including Smithies from 88m north and Allotment Gardens from 100m south-east.
- 7.1.3 By 1979 the surrounding area was principally residential with only small plots of industrial land use which includes NMA Car Sales from 12m south and Hayling Garage from 121m north.

7.2 *Potential Contaminative Land Uses – On-site*

- 7.2.1 The use of the site as a residential dwelling and later as a Public House presents a limited potential for contamination from onsite sources.
- 7.2.2 The open land surrounding the buildings to the south and west of the site has been and is currently being used for vehicle parking, (a further car park is additionally noted adjoining the site to the south-west). Vehicles parked on site can give rise to contaminants that may enter the ground beneath the site. Contaminants from this source will include Heavy Metals, PAH & TPH, through minor fuel and oil leaks and run off. The Car Park has macadam surfacing which will reduce the potential pollutant pathway into the soil. Although there is the potential for contamination from this source, any leaks or spills will be small scale and therefore the contaminative risk from onsite car parking is considered to be low.
- 7.2.3 Given the age of the current and former buildings on-site it is feasible that Asbestos Containing Materials may be present. Appropriate inspection by qualified Contractors will be required prior to demolition of the buildings.
- 7.2.4 The historic presence of the Steam Engine noted in the south-east corner of the site circa 1966 presents the potential for contaminants including TPH and PAH from oil and grease in addition to Heavy Metals from engine runoff. Due to the timescales involved since the Engine's presence on site is considered to pose a very low risk to the proposed development.

7.3 *Potential Contaminative Land Uses – Off-site*

- 7.3.1 The surrounding area has been and is currently mostly residential with minimal contaminative risk associated with this use.
- 7.3.2 There are seven electricity sub-stations located within 250m of the site, the closest lying 32m east. The main contaminants of concern associated with sub-stations are PCBs which are not particularly mobile. It is therefore considered very unlikely that contaminants will have migrated onto the study site and the risk posed is considered negligible.

- 7.3.3 NMA Car Centre Ltd. a new car sales plot is noted from 12m south and Hayling Garage is noted 121m north. Potential contaminants from Garage activities may include PAH, TPH and Heavy Metals through fuel and oil, leaks and spillages. The garages both have concrete surfacing which will reduce the potential for pollution migration onto the study site. Due to the timescale and recorded activity of Hayling Garage, there is additionally the potential for tanks to have been historically situated on this site. Fuel Storage Tanks are not expected to have existed within the NMA Car Centre to the south. Due to the distance of the site from Hayling Garage to the north, the risk to the site from potential contaminants stemming from this Garage is considered negligible and risk to the site from the NMA Car Centre to the south is considered very low.
- 7.3.4 Allotment Gardens are noted from 100m east of the site from 1908 to present day. There is a potential risk of contaminants such as PAH, TPH and Heavy Metals from any greenhouse heating fuels in addition to pesticides (and associated VOCs) which may also be present. However due to the distance of the Allotments from the study site, this land use is considered to pose a negligible risk to the study site.
- 7.3.5 Historic industries in close proximity to the site have included Smithies and Works from 100m north. Although these industries could present a potential for contamination to the site including PAHs and Heavy Metals, due to the timescale and distances involved, the risk to the proposed development is considered negligible.
- 7.3.6 The Grave Yard of St Mary's Church is recorded from 177m north of the site dating from 1898 until most recent records. Due to the processes occurring within Grave Yards these sites present the potential for ground gas generation. Although the Church and its grounds are still active, due to the distances involved and the expected ground conditions in the area, the risk to the site is considered very low.

7.4 Environmental Setting

- 7.4.1 The site is situated on the River Terrace deposits of sand and gravel with local lenses of silt, clay and peat within the superficial layer and London Clay formation of clay, silt and sand within the Bedrock deposits.
- 7.4.2 The study site lies above a Secondary (A) Aquifer within the superficial deposits and Unproductive Strata within the bedrock deposits. Due to the depths of groundwater recorded within historic boreholes (between 5.04m and 5.57m) in close proximity to the study site, groundwater is expected to lie at depth beneath the study site. Taking into account the Unproductive Strata beneath the site in addition to the recorded depth of the groundwater, it is consequently not considered sensitive to contaminants from on and off site sources.
- 7.4.3 A number of the trees on site have existing Tree Protection Orders which should be confirmed as they may pose restrictions to future proposals on the site.

7.5 Radon

- 7.5.1 The study site is within a Radon Affected Area as between 1 and 3% of the properties are above the action level however Radon Protective Measures are not necessary for new properties or extensions to existing ones.

8.0 CONCEPTUAL SITE MODEL

8.1 Pollutant Linkages

- 8.1.1 The statutory guidance for Part 2A of the Environmental Protection Act (1990) defines a contaminant as:

“A substance which is in, on or under the land which has the potential to cause harm or cause pollution of controlled waters”

Based on the reviewed information and site inspection, the following potential sources of contamination have been identified:

- ▶ Use of sections of the site for vehicle parking
- ▶ Asbestos containing materials within the existing buildings
- ▶ Off-site garage activities

- 8.1.2 The statutory guidance for Part 2A of the Environmental Protection Act (1990) defines a Pathway as:

“A route by which a receptor might be affected by contamination”

Following preliminary site assessment it is considered that a number of potential pathways are present that could cause receptors to become exposed to contaminants. ACS consider the following pathways to be present:

- ▶ Direct contact with impacted soil (Dermal contact and soil ingestion.)
- ▶ Inhalation of dust and free fibres (indoor and outdoor)
- ▶ Vapour ingress into proposed buildings (inhalation of vapour, indoor)

- 8.1.3 The statutory guidance for Part 2A of the Environmental Protection Act (1990) defines a receptor as:

“Something that could be adversely affected by a contaminant, for example a person, an organism, an ecosystem, property or controlled waters”

Following a preliminary site assessment, the following receptors are considered present:

- ▶ Proposed end users of the site
- ▶ Site workers during demolition and construction

8.2 Risk Classification

8.2.1 The risk posed by a given pollutant linkage is classified based upon the severity of the consequence should that linkage be realised, compared with the likelihood of the linkage being realised. This is the approach to risk classification.

8.2.2 The definition of terms regarding the classification of consequence is given in Table 4 below:

Classification	Category	Definition	Examples
Severe Short-term (acute) risks only	Human	Short term (acute) risks likely to result in significant possibility of significant harm as defined by Part 2A of the Environmental Protection Act (1990).	High concentration of cyanide on the surface of an informal recreation area.
	Controlled Waters	Short-term risk of pollution of a sensitive water resource.	Major spillage of contaminants from a site into controlled waters
	Property	Catastrophic damage/destruction of property.	Explosion causing building collapse (can equate to short-term health risk if buildings collapse.
	Ecological System	A short-term risk to a particular ecosystem, or organism forming part of such ecosystem	
Medium Chronic (long-term) risks; "significant harm"	Humans	Long term (chronic) risks likely to result in significant possibility of significant harm as defined by Part 2A of the Environmental Protection Act (1990)	Concentrations of contaminants within soil exceed GAC or SSAC
	Controlled Waters	Pollution of sensitive water resource	Leaching of contaminants from a site into a Principal or Secondary Aquifer
	Ecosystem	A significant change in a particular ecosystem	
Mild Chronic (long-term) risks; less sensitive receptors	Controlled Waters	Pollution of non-sensitive water resources	Pollution of non-classified groundwater
	Property	Significant damage to buildings structures and services. Damage to sensitive buildings/structures/services	Damage to a building rendering it unsafe to occupy (e.g. foundation damage resulting in instability)
Minor Chronic (long term) risks; mild	Financial/project	Harm, although not necessarily significant harm which may result in financial loss, or expenditure to resolve	
	Humans	Non-permanent health effects to human health (easily prevented by means such as PPE etc.)	The presence of contaminants at such concentration that protective equipment is required during site works.
	Property	Easily repairable effects of damage to buildings, structures and services	The loss of plants in a landscaping scheme. Discolouration of concrete

Table 4. Classification of consequence of hazard (CIRIA 552, 2001)

8.2.3 The definition of terms regarding probability is summarised in Table 5 below:

Classification	Definition
High Likelihood	There is a pollution linkage and an event that appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.
Likely	There is a pollution linkage and all the elements are present and in the right place, which means it is probable that the event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low Likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such an event would take place, and is less likely in the shorter term.
Unlikely	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

Table 5. Classification of likelihood of hazard (CIRIA 552, 2001)

8.2.4 Once the risk consequence and likelihood have been assessed, it is possible to classify the overall risk to the site from that specific pollutant linkage. The table below provides a useful matrix. Once classification has been assigned this should be reality checked to ensure it is an accurate assessment.

Risk Classification Matrix					
Probability		Severe	Medium	Mild	Minor
	High Likelihood	Very High	High	Moderate	Moderate/low
	Likely	High	Moderate	Moderate/low	Low
	Low Likelihood	Moderate	Moderate/low	Low	Very Low
	Unlikely	Moderate/low	Low	Very Low	Very Low

Table 6. Risk Classification Matrix (CIRIA 552, 2001).

8.2.5 A description of each risk classification is given in Table 7 below:

Classification	Definition
Very High	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not already undertaken) and remediation is likely to be required.
High	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not already undertaken) is required and remedial works may be necessary in the short term and are likely over the long term.
Moderate	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.
Very Low	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.

Table 7. Definition of risk classification categories (CIRA 552, 2001)

8.3 Initial Conceptual Site Model

8.3.1 Following a preliminary risk assessment, an initial conceptual site model has been derived. Risk classification has been assigned using the procedure set out in CIRIA 552 (2001).

8.3.2 Where sources have been identified but no potential pollutant linkages are considered present, these have not been included within the initial conceptual site model.

Source	Potential contaminants of concern	Potential Pathways	Receptors	Consequence of risk being realised	Probability of Risk being realised	Comments	Risk classification
On Site							
Use of sections of the site for vehicle parking	TPH, PAH, Heavy Metals	Direct soil and dust ingestion (indoor and outdoor)	Future site occupiers	Medium	Unlikely	Use of part of the site as a car park unlikely to present a significant source of contaminants. Further investigation is required to confirm whether volatile contaminants from this source are present.	Low
		Inhalation of dust (indoor and outdoor)	Site workers during demolition and construction	Medium	Unlikely	Macadam & concrete surface will have prevented much of the pathway of the contaminants into the soil. Low risk in soft landscaped areas as communal gardens only.	Low
		Vapour ingress into proposed buildings	Future site occupiers	Mild	Unlikely		Very Low
Asbestos within current and historic buildings	Asbestos Containing Materials.	Inhalation of free fibres	Site workers during demolition and construction / Future site occupiers	Medium	Likely	ACM possible on site, refurbishment/demolition survey required prior to demolition in accordance with Control of Asbestos Regulations (2012)	Moderate
Off Site							
Garage facilities to the south	TPH, PAH, and Heavy Metals	Horizontal migration within groundwater and volatilisation into proposed buildings (inhalation of vapour)	Futures site occupiers / Proposed buildings	Medium	Unlikely	Due to the macadam surfacing of the Garage site and the expected depth of groundwater beneath the site the risk of contaminant migration is considered low.	Moderate / Low

Table 8. Initial Conceptual Site Model

9.0 CONCLUSIONS AND RECOMMENDATIONS

9.1 Contamination

- 9.1.1 Based on the information obtained from the desk study and the conceptual site model, an intrusive ground investigation should be undertaken at the appropriate time to determine the concentrations of potential contaminants; from the current and former activities at the site, beneath the proposed development which may impact identified receptors.
- 9.1.2 Due to the previous use of the site, the contaminants of concern comprise:
- ▶ PAHs – Poly Aromatic Hydrocarbons
 - ▶ TPHs – Total Petroleum Hydrocarbons
 - ▶ Heavy Metals
- 9.1.3 A refurbishment and demolition survey should be carried out prior to demolition of any superstructure and any asbestos containing material identified should be removed and disposed of in accordance with best practice. This should be in accordance with the Control of Asbestos Regulations (2012).
- 9.1.4 Soils which are to be taken off-site should be scheduled for WAC testing (Waste Acceptance Criteria) to enable appropriate disposal of the soils in accordance with the Landfill Directive 2005.
- 9.1.5 The ground investigation should be extended to confirm the underlying ground conditions and allow samples to be collected for basic chemical properties and shrinkage potential, if cohesive materials are encountered.

9.2 Ground Conditions/Foundations

- 9.2.1 Based upon geological maps the London Clay Formation is expected to be present within the Bedrock beneath the site. As a result the permeability of the bedrock is expected to be moderate to very low.
- 9.2.2 It is considered likely that traditional foundations may be suitable for the proposed building, subject to the necessary ground investigation and assessment of ground conditions at the appropriate time. Foundations will need to be deepened in proximity to existing trees, some of which are very large.
- 9.2.3 Ground investigation will be required at the appropriate time to determine the nature of made and indigenous materials beneath the site so that informed decisions can be made regarding foundation selection.

9.3 Drainage

- 9.3.1 Based upon geological maps the London Clay Formation is believed to be present beneath the site which has a poor infiltration potential. Building Control have advised aquacell crate soakaways may be suitable for use however soakaway testing will be required at the appropriate time, to confirm this.
- 9.3.2 It is recommended that the existing drainage networks are assessed prior to any demolition works as it may be possible to re-use some of the existing routes, subject to available capacity.

9.4 Trees

- 9.4.1 It is recommended that the status of the trees on site is established as soon as possible as if the Tree Protection Orders are confirmed on site this may represent a constraint to redevelopment. There may be restrictions to the excavation of foundations in close proximity to some of the mature trees.

9.5 Radon

- 9.5.1 The EnviroInsight report indicates that the site is not within a Radon affected area as less than 1% of the properties are above the action level. Radon protection measures will therefore not be required within the proposed building.

10.0 QUALITY STATEMENT

- 10.1 We confirm that in preparing this report we have exercised reasonable skill and care in order to produce accurate details.
- 10.2 We confirm that work has been conducted in accordance with relevant Standards, as requested by the Client, with reference to the Organisation's Quality Manual Procedures.
- 10.3 ACS Testing warrants only the accuracy of the information contracted to be supplied to the Client but will accept no liability in respect of the use to which the Client puts such information or the purpose for which such information was requested.
- 10.4 Unless specifically assigned and confirmed in writing within the terms of the Agreement/Written Order the Organisation asserts and retains all Copyright and other Intellectual Property rights, in and over the report and its contents.

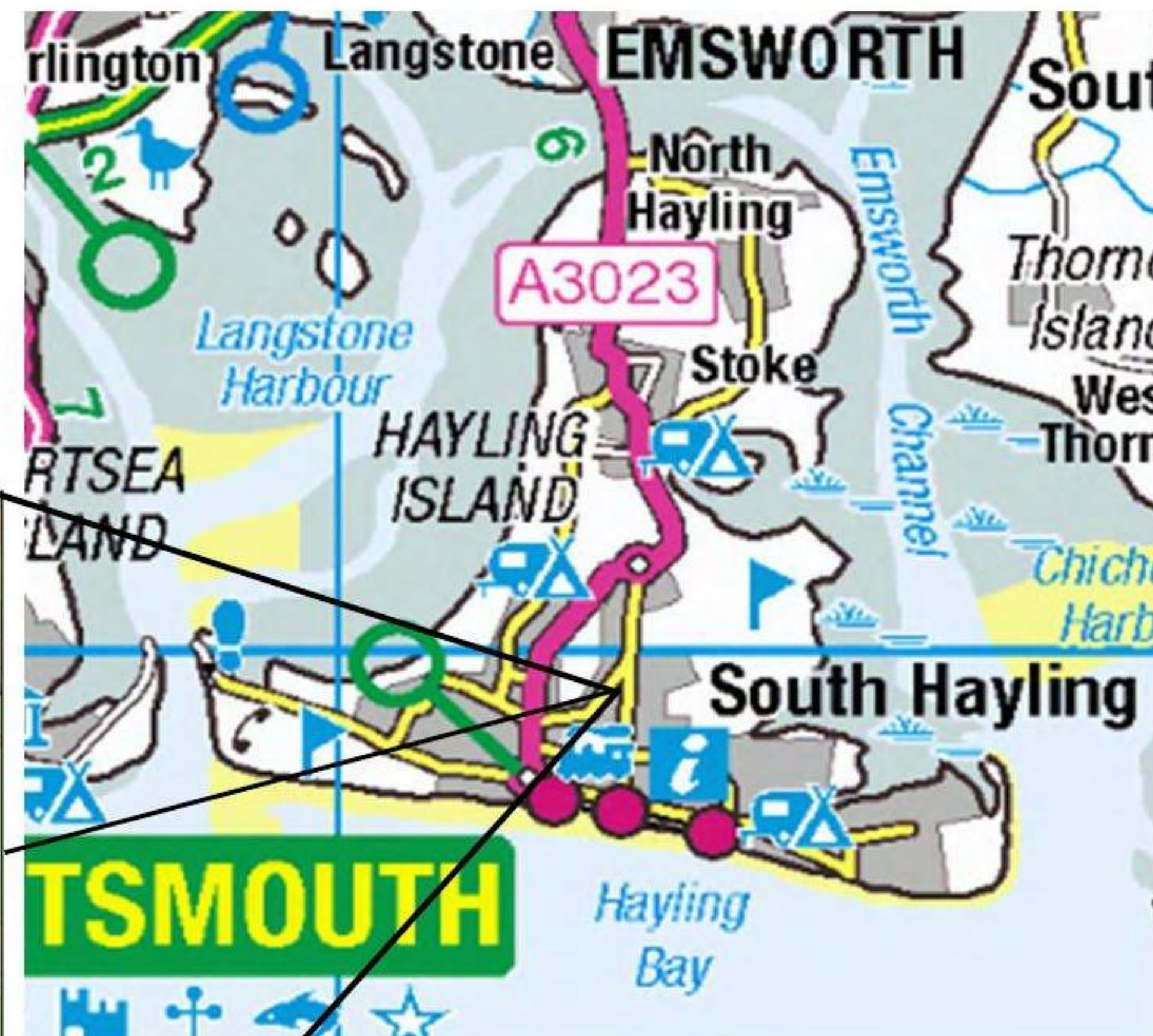
APPENDIX A

SITE LOCATION PLAN – 15-67729/01



Drawing Title: Site Location Plan

Drawing Number: 15-67729/01



N DO NOT SCALE

APPENDIX B

PHOTOGRAPHIC RECORD PLATES - 1-7





Plate 1: View of the site north from the southern boundary



Plate 2: View of the site from St Mary's Road to the west



Plate 3: View of the site from Elm Grove to the east



Plate 4: An area of car parking on macadam surfacing in the west of the site



Plate 5. Three trees in the north-west of the site believed to have Tree Protection Orders



Plate 6: A walkway beside the southern boundary linking Elm Grove to the Car Park to the west



Plate 7: Row of trees along the south-west boundary

APPENDIX C

HISTORICAL MAPS - 1-22



Site Details:

Hayling Billy Pub, 117, ELM GROVE, HAYLING ISLAND, PO11 9ED

Client Ref: T1000RX_15-67729
Report Ref: HMD-339-2546449
Grid Ref: 472163, 99756

Map Name: County Series

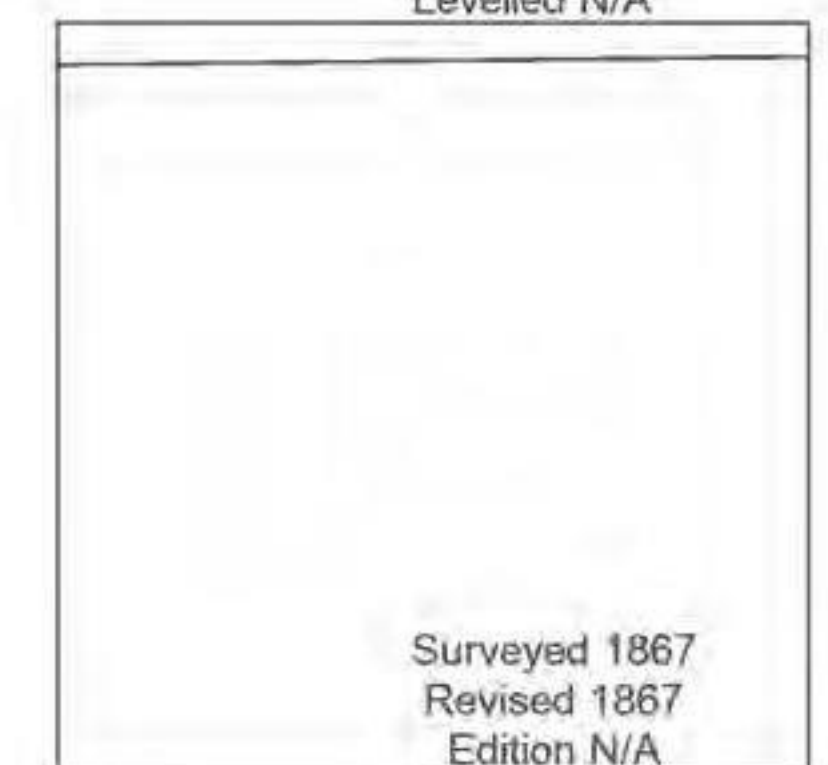
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Scale: 1:2,500

Printed at: 1:2,500



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Revised 1867
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1867
Revised 1867
Edition N/A
Copyright N/A
Levelled N/A

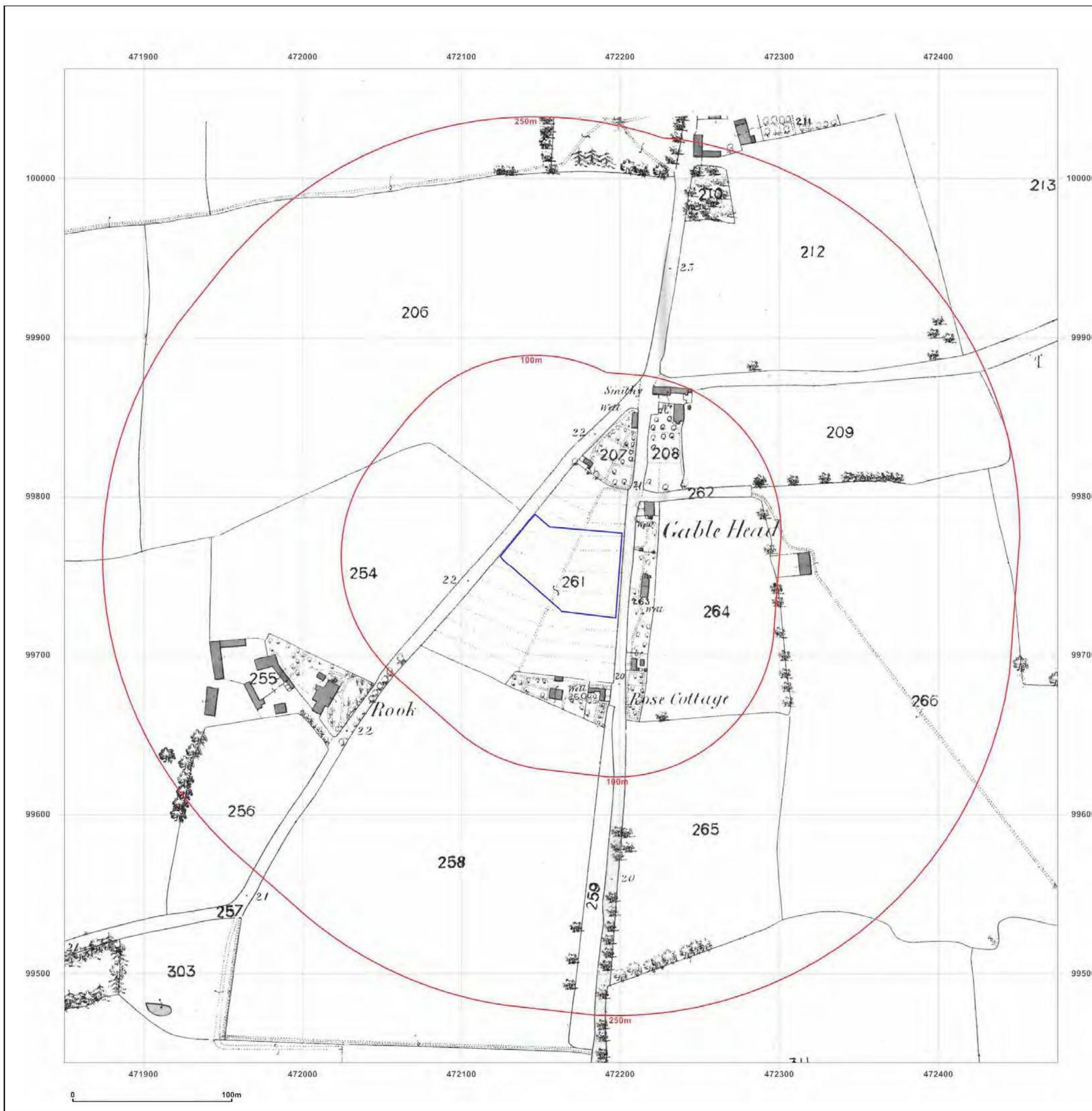


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Client Ref: T1000RX_15-67729
Report Ref: HMD-339-2546449
Grid Ref: 472163, 99756

Map Name: County Series

Map date: 1898

Scale: 1:2,500

Printed at: 1:2,500



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Revised 1898
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1898
Revised 1898
Edition N/A
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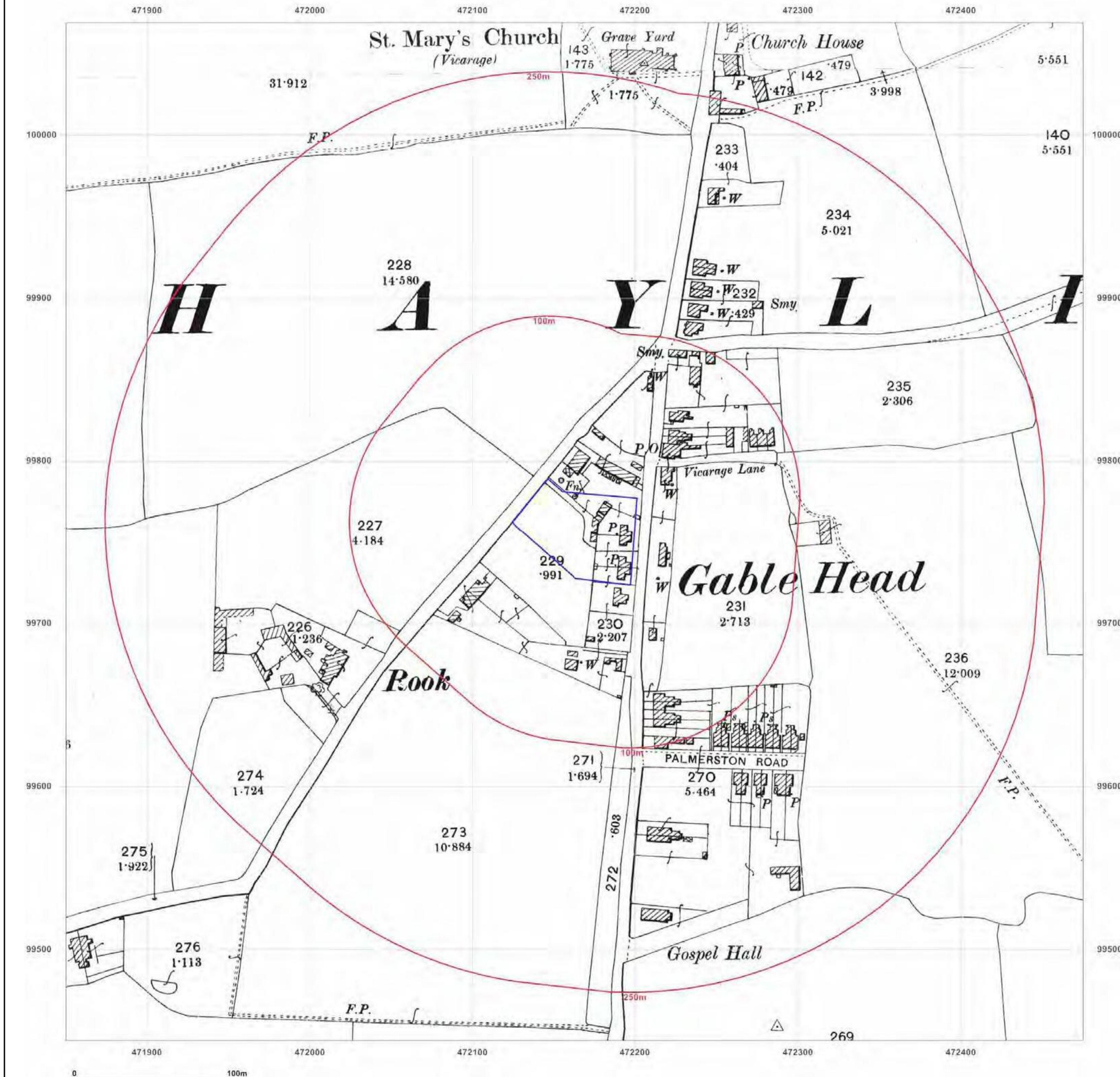


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Client Ref: T1000RX_15-67729
Report Ref: HMD-339-2546449
Grid Ref: 472163, 99756

Map Name: County Series

Map date: 1908

Scale: 1:2,500

Printed at: 1:2,500



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Revised 1908
Edition N/A
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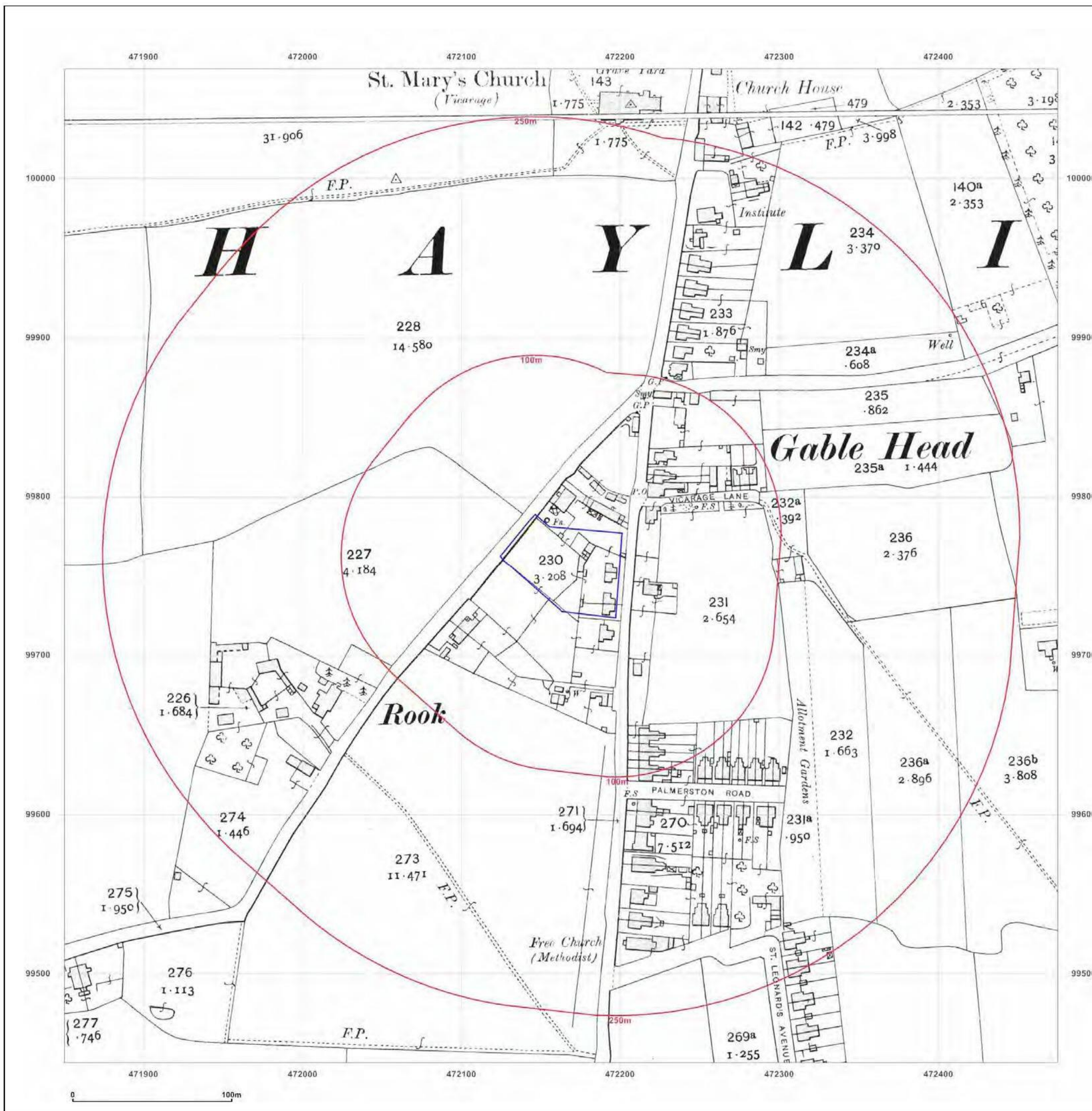


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Report Ref: HMD-339-2546449
Grid Ref: 472163, 99756

Map Name: County Series

Map date: 1932

Scale: 1:2,500

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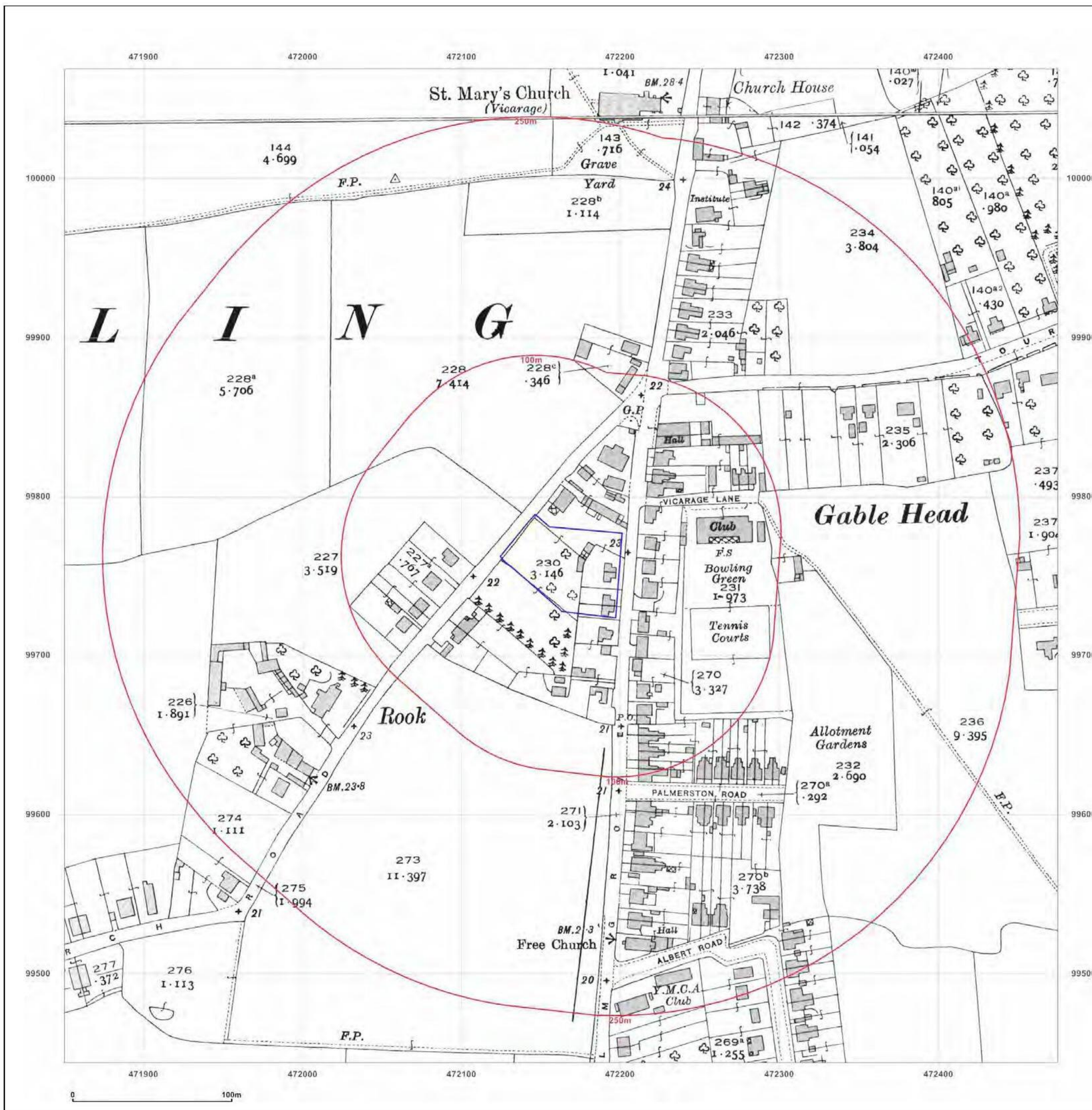


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Client Ref: T1000RX_15-67729
Report Ref: HMD-339-2546449
Grid Ref: 472163, 99756

Map Name: County Series

Map date: 1937-1940

Scale: 1:2,500

Printed at: 1:2,500



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 Edition N/A
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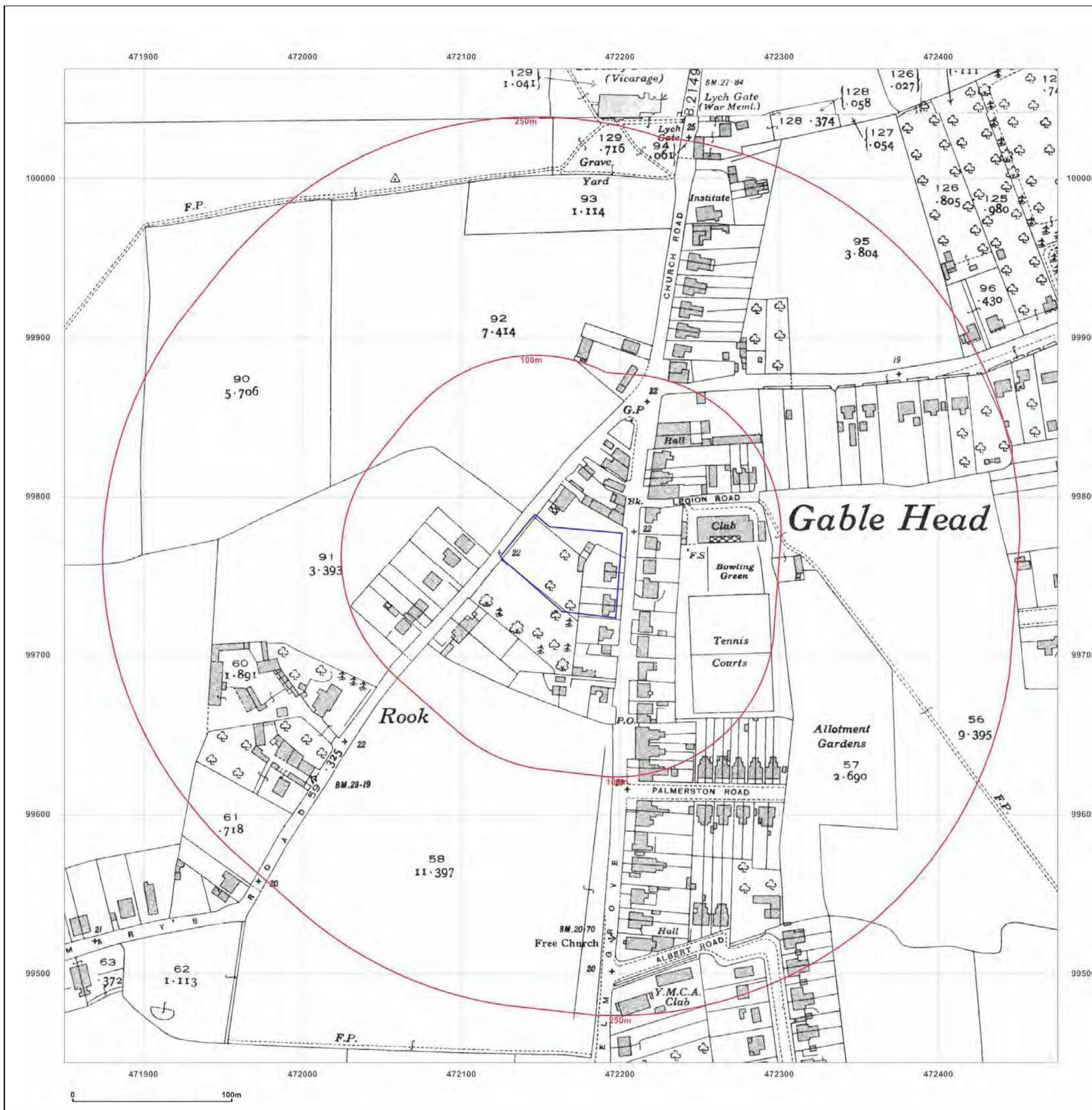


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Client Ref: T1000RX_15-67729
Report Ref: HMD-339-2546449
Grid Ref: 472163, 99756

Map Name: National Grid

Map date: 1968

Scale: 1:2,500

Printed at: 1:2,500



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 Revised 1968
 Edition N/A
 Copyright 1969
 Levelled 1957

Surveyed 1968
 Revised 1968
 Edition N/A
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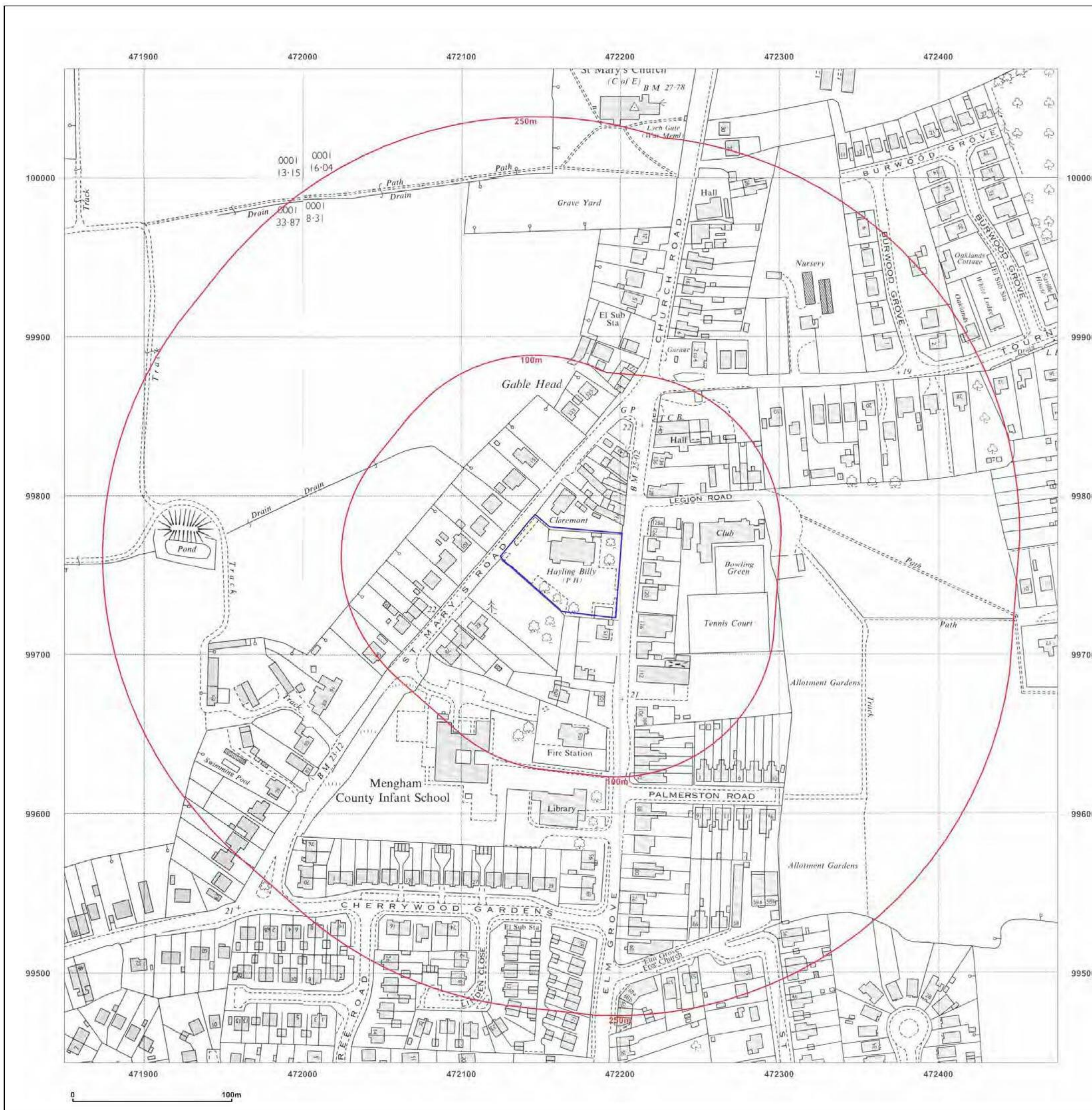


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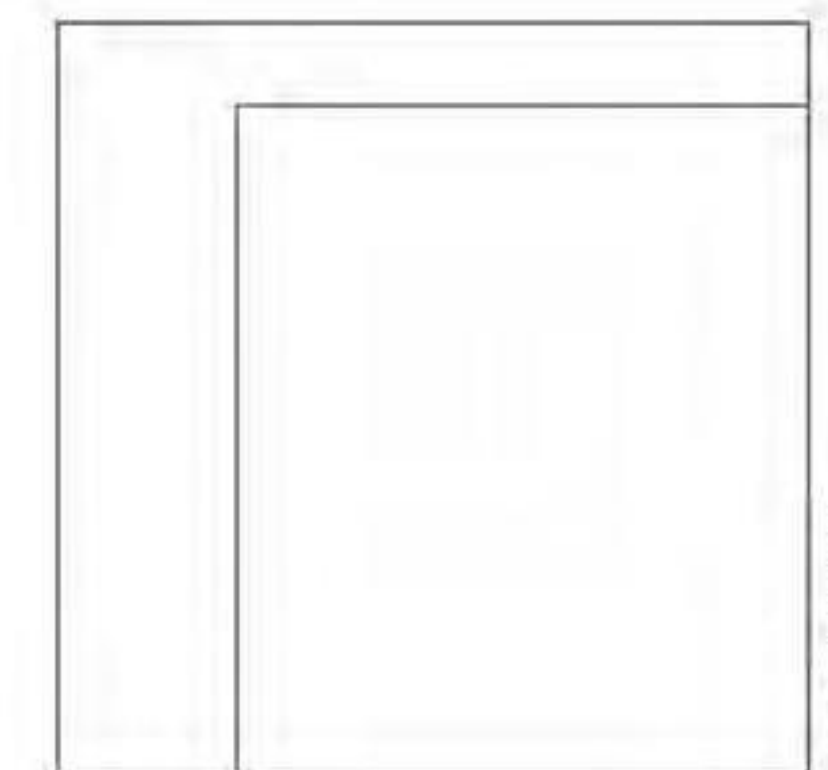
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Map Name: National Grid

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Edition N/A
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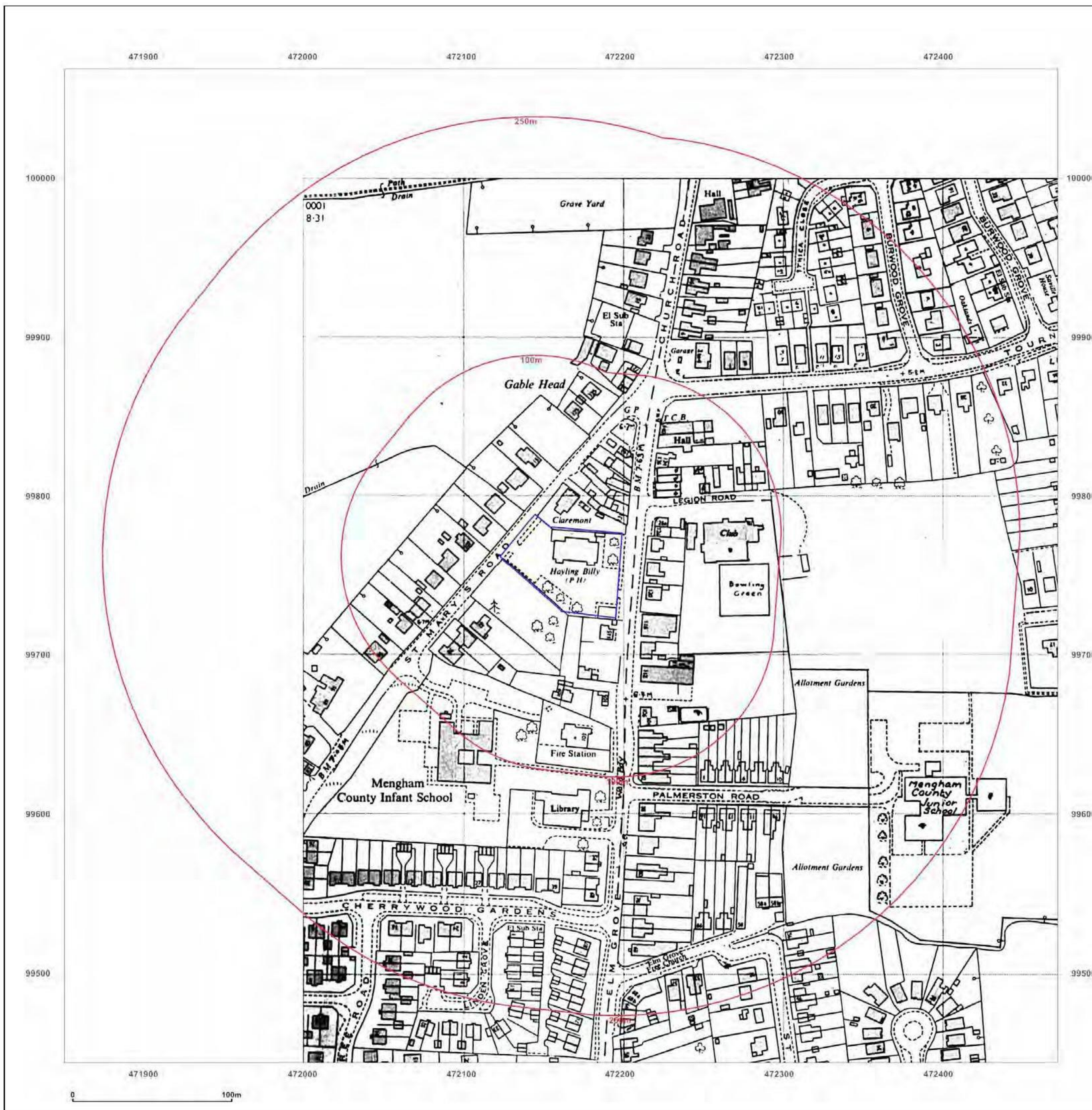


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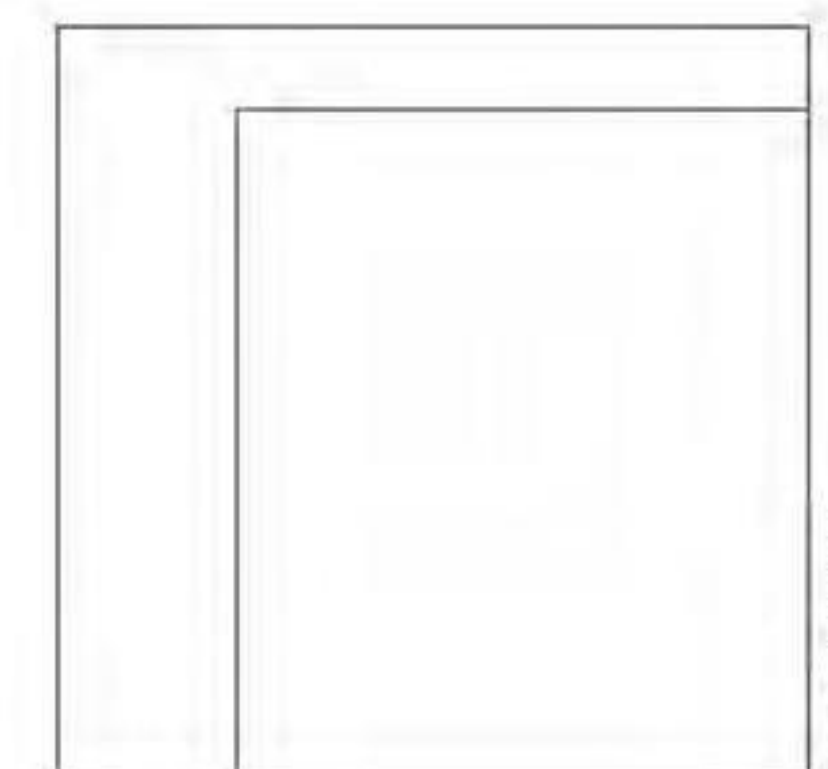
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Surveyed 1980
 Revised 1980
 Edition N/A
 Copyright 1982
 Levelled 1957

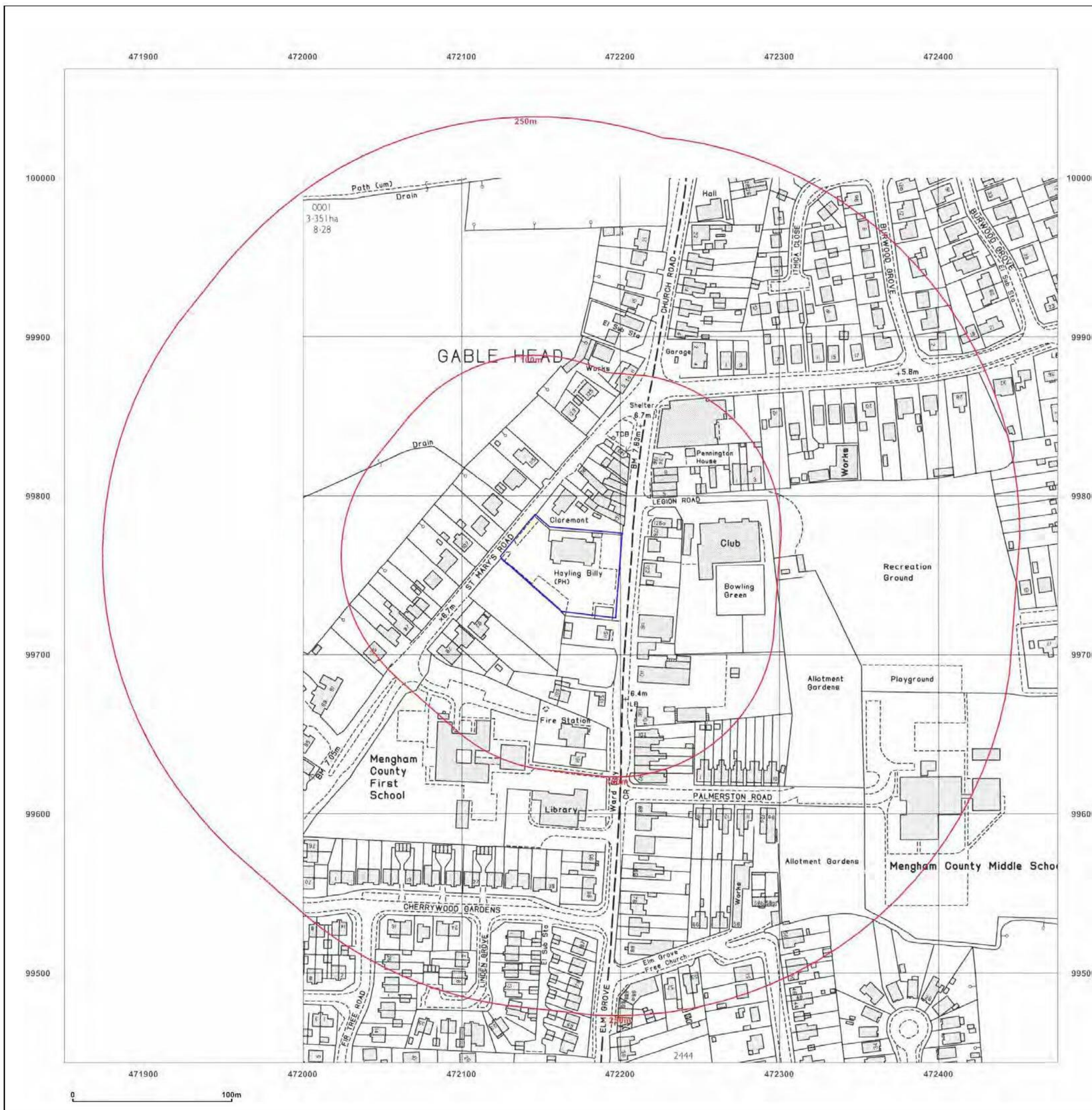


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Report Ref: HMD-339-2546449
Grid Ref: 472163, 99756

Map Name: National Grid

Map date: 1986-1991

Scale: 1:2,500

Printed at: 1:2,500



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 Revised N/A
 Edition N/A
 Copyright 1991
 Levelled N/A

Surveyed 1957
 Revised 1990
 Edition N/A
 Copyright 1990
 Levelled 1957

Surveyed 1989
 Revised 1989
 Edition N/A
 Copyright 1990
 Levelled N/A

Surveyed 1957
 Revised 1986
 Edition N/A
 Copyright 1986
 Levelled 1957



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Site Details:

Hayling Billy Pub, 117, ELM GROVE, HAYLING ISLAND, PO11 9ED

Client Ref: T1000RX_15-67729
Report Ref: HMD-339-2546449
Grid Ref: 472163, 99756

Map Name: National Grid

Map date: 1991-1993

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
 Revised N/A
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1993
 Revised N/A
 Edition N/A
 Copyright 1993
 Levelled N/A



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Site Details:

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Client Ref: T1000RX_15-67729
Report Ref: HMD-339-2546449
Grid Ref: 472163, 99756

Map Name: County Series

Map date: 1866

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1866
Revised 1866
Edition N/A
Copyright N/A
Levelled N/A

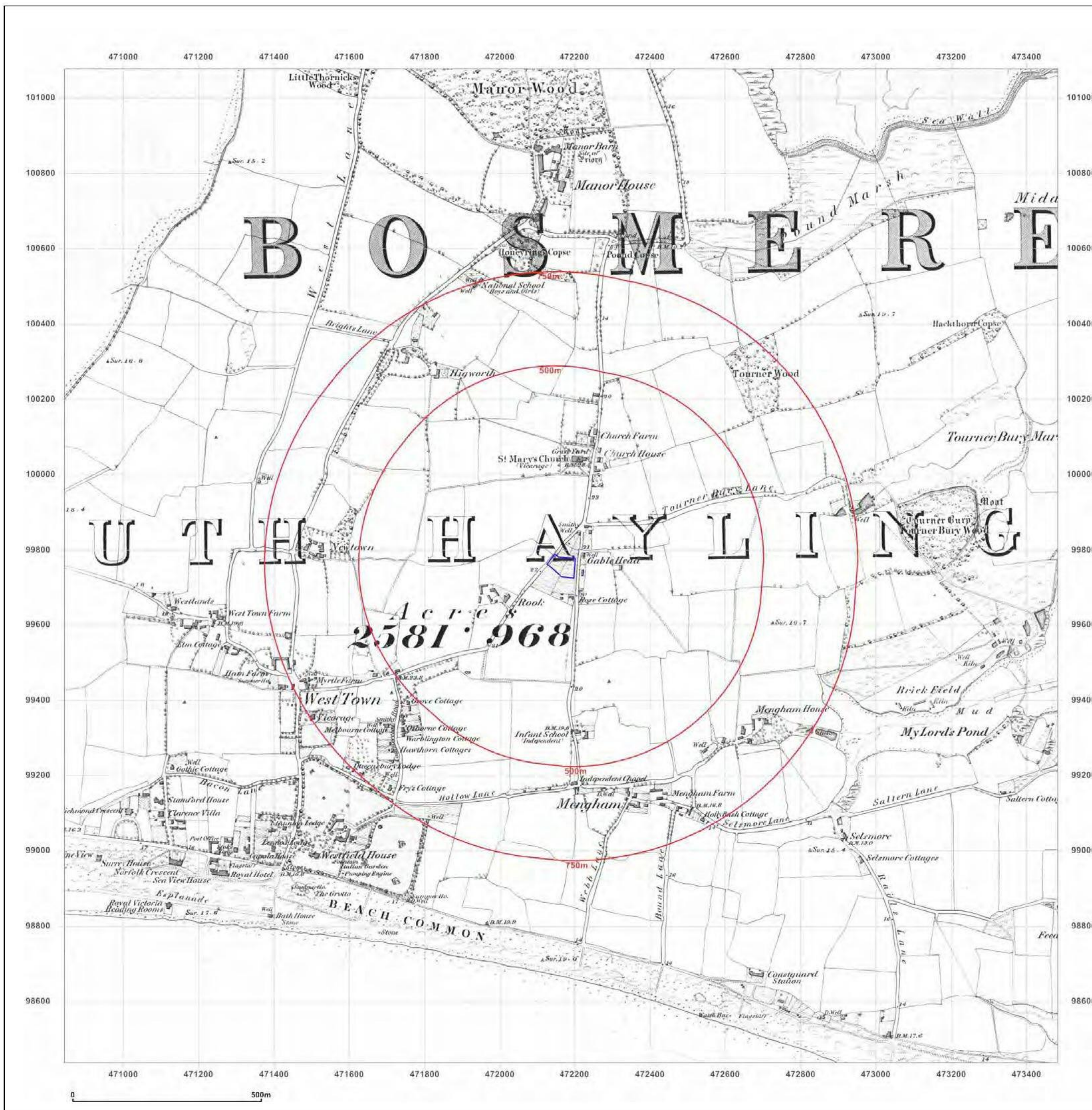


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Site Details:

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Client Ref: T1000RX_15-67729
Report Ref: HMD-339-2546449
Grid Ref: 472163, 99756

Map Name: County Series

Map date: 1896

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1873
 Revised 1896
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1873
 Revised 1896
 Edition N/A
 Copyright N/A
 Levelled N/A

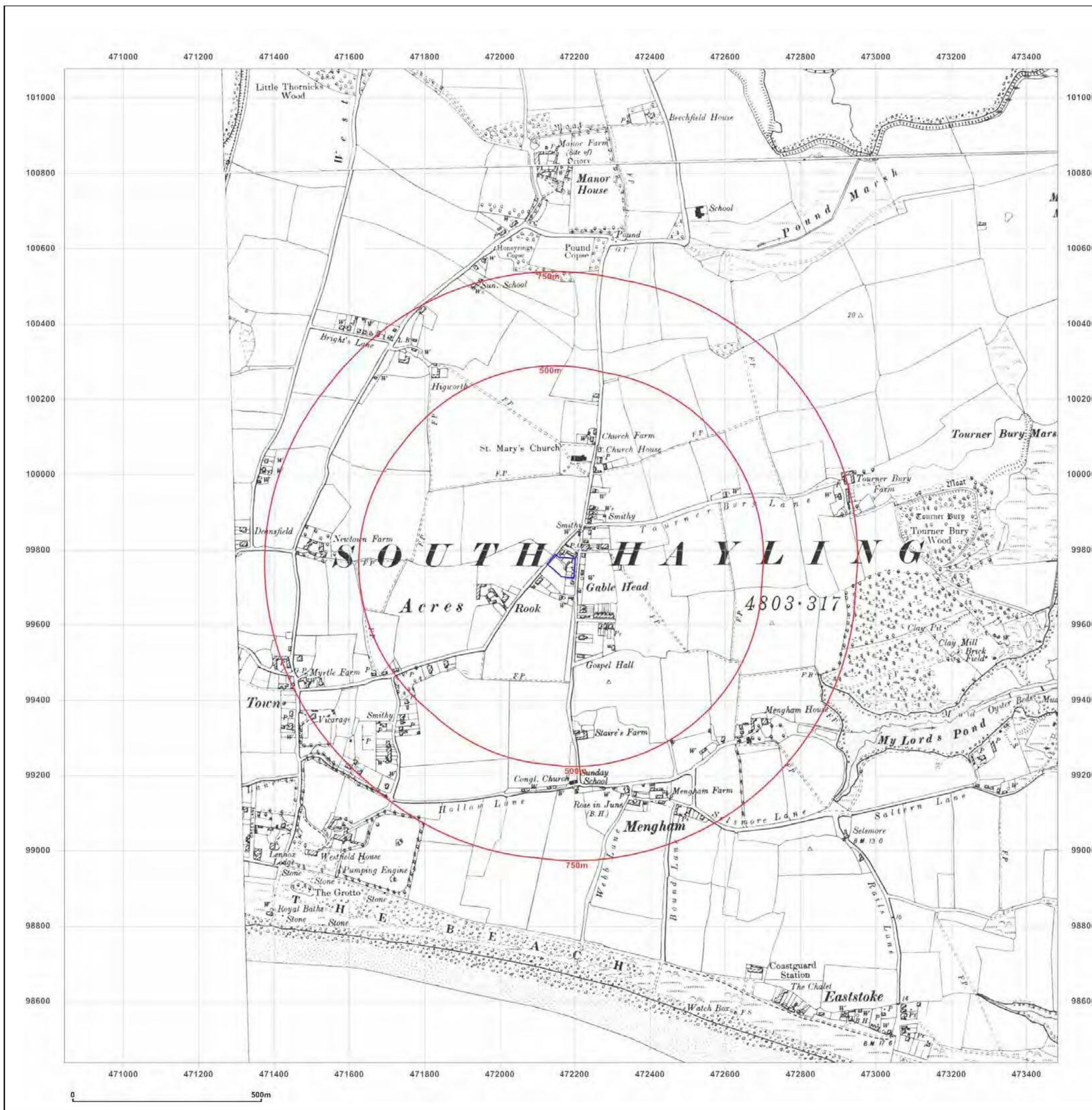


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Site Details:

Hayling Billy Pub, 117, ELM GROVE, HAYLING ISLAND, PO11 9ED

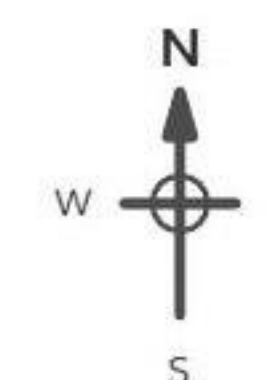
Client Ref: T1000RX_15-67729
Report Ref: HMD-339-2546449
Grid Ref: 472163, 99756

Map Name: County Series

Map date: 1907

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1858
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1865
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1858
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1865
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

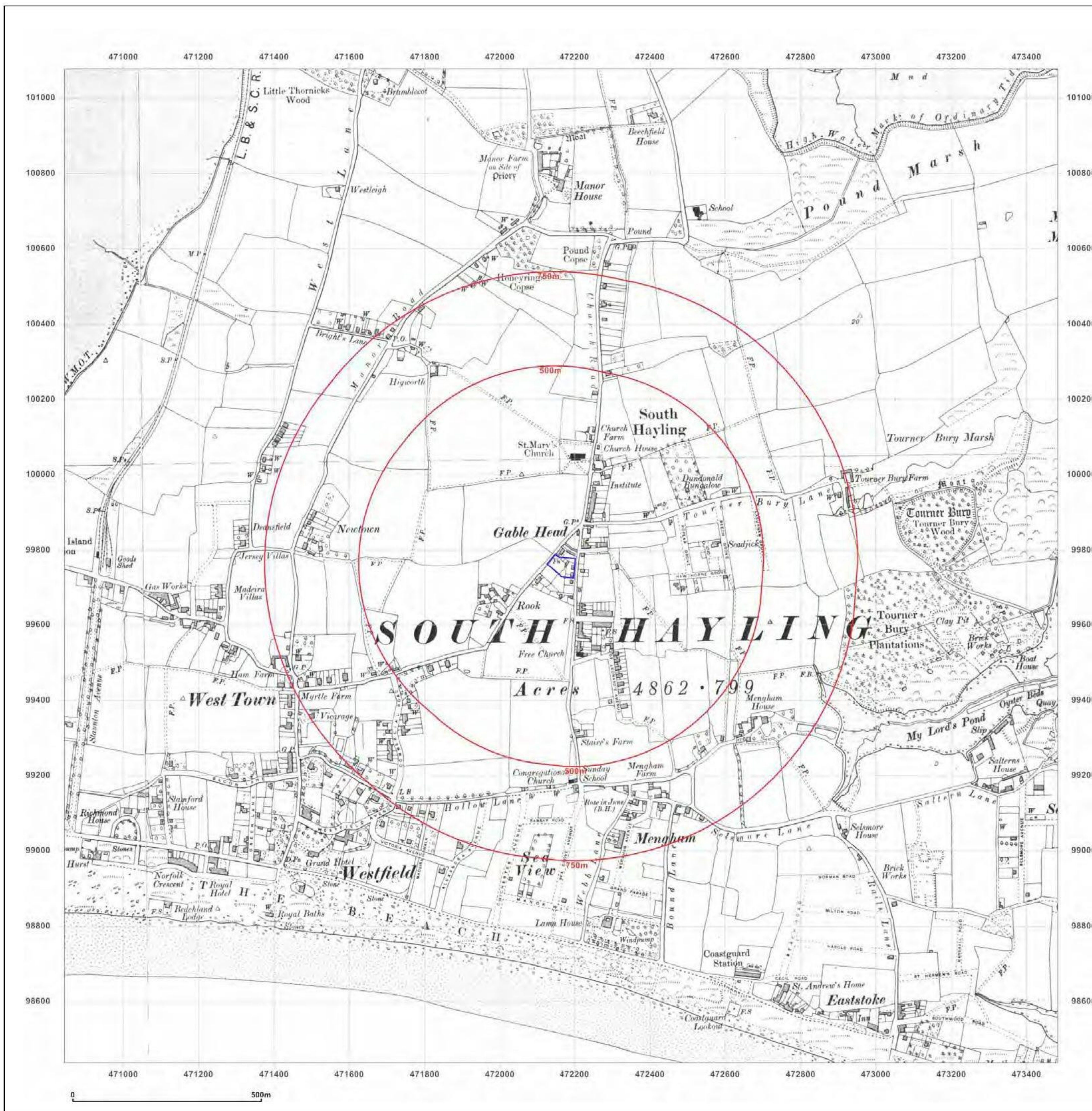


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Site Details:

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Client Ref: T1000RX_15-67729
Report Ref: HMD-339-2546449
Grid Ref: 472163, 99756

Map Name: County Series

Map date: 1909-1911

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1873
 Revised 1909
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1873
 Revised 1911
 Edition N/A
 Copyright N/A
 Levelled N/A

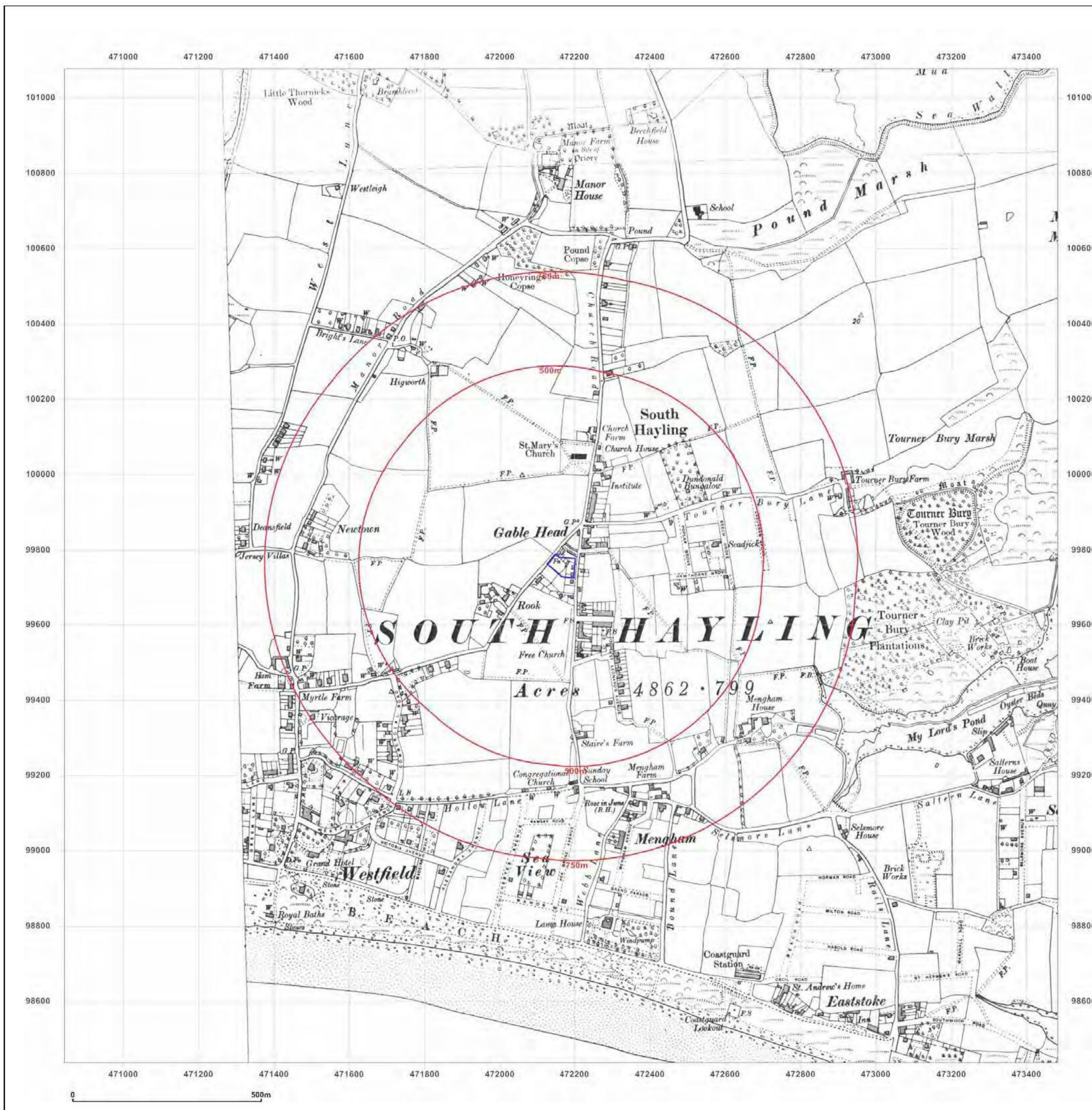


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Client Ref: T1000RX_15-67729
Report Ref: HMD-339-2546449
Grid Ref: 472163, 99756

Map Name: County Series

Map date: 1931

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1858
 Revised 1931
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1865
 Revised 1931
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1858
 Revised 1931
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1865
 Revised 1931
 Edition N/A
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