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London Resort

Desk Study - Essex Project Site

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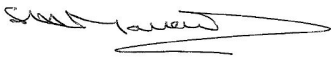
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Executive Summary

Background This report is one of a suite of desk studies produced in relation to the London Resort project. It relates to an area of land referred to as the Essex Project Site. The London Resort will be a nationally significant visitor attraction and leisure resource, built largely on Swanscombe Peninsular on the south bank of the River Thames (Kent Project Site, Zones 1-9), with supporting transport and visitor and reception facilities provided on the northern side of the river (Essex Project Site).

Objectives The purpose of this study is to establish the environmental, geological, hydrological and hydrogeological conditions present at the site that may result in potential contamination and ground related risks for the proposed future use. The assessment is prepared to support a planning application in accordance with the Planning Act 2008 for a Nationally Significant Infrastructure Project (NSIP) for the wider London Resort.

Site setting The Essex Project Site The is located within the borough of Thurrock, Essex, RM18 7ND and centred approximately at National Grid Reference (NGR) TQ 66438 75459. It covers some 29.9 ha and is located within the Port of Tilbury (north of the former Tilbury Riverside railway station and the current Cruise Terminal) and lies to the immediate east of the container Port of Tilbury and to the west of the new port of Tilbury 2. There is an existing industrial estate / warehouse in the approximate middle of this area, but this does not form part of the Essex Project Site.

Proposed use Approximately 2,500 visitor car parking spaces will be provided at the Essex Project Site, with these visitors transported to the main part of the resort via ferry crossing. Dedicated ancillary facilities (information, retail and catering) will also be provided.

Geological setting The anticipated site geology is a heterogeneous composition of Made Ground (including ash, concrete, brick, timber, flint), typically between about 1 and 3m, underlain by a natural geological sequence comprising about 15m of Alluvium (very soft to firm clays, peats and sands) over a relatively limited thickness (approximately 2 to 5m) of River Terrace Gravels. Beneath these is the Upper Chalk at about 18 to 24m bgl. Part of the site extends onto the River Thames. This area be underlain by tidal deposits. BGS borehole records indicate this to include about 12 to 20m of alluvial clays and peats, over River Terrace Gravels, with Chalk present at about 22 to 23m bgl.

Hydrogeology Perched groundwater is likely to be present above low permeability bands in both Made Ground and Alluvium. The site is underlain by a Secondary (Undifferentiated Aquifer in Alluvium and River Terrace Gravels. The Upper Chalk is classified as a Principal Aquifer. Groundwater levels across the site will be influenced by its proximity to the River Thames. The river is tidal in this location, so groundwater levels will be influenced by tidal flows. The nearest groundwater abstraction record is attributed to 965m east (historic) and the nearest potable abstraction is >1.5km southwest.

Hydrology The site is located on the north bank of the River Thames, with the southern part of the site extending into the river. A number of drains are recorded within the boundary – generally north-south orientated and draining to the River Thames. A swale runs north-south through the site to an attenuation pond near to the industrial estate. There are no records of surface water abstractions within 2km.

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History

The site has been located in a commercial / industrial area since at least the late 1800s. By the 1870s parts of the site were developed and occupied by a railway line (London, Tilbury and Southend Railway), railway station (Tilbury Station, later becoming Riverside Station) and ancillary buildings (engine shed, goods shed, associated housing). A small disused gasworks was present adjacent to the northern boundary. Tilbury Docks were developed to the immediate west by 1895. The site was further developed until the mid-1960s, by expansion to the railway sidings, addition of buildings associated with operation of Tilbury Docks (hospital, mortuary, works, smithy etc.) and expansion to the pontoon / terminal on the River Thames (addition of passenger facilities and increased infrastructure within the river). Redevelopment of the site had commenced by the 1970s, by scaling back of the rail sidings, which had mostly been removed by the 1990s. By the mid-2000s, the eastern part of the site was covered by hardstanding and used for car parking. The 2010 map shows the site developed to its current configuration (mostly covered by hardstanding for car parking but the ferry terminal and pontoon still present).

Geoenvironmental Considerations

A limited number of potential sources of contamination have been identified, principally relating to potential for Made Ground (arising from historical land use on site and in surrounding area) to contain contamination, current site uses (car parking and electricity substation) and current surrounding land uses (railway, light industrial units). There is also potential for ground gas generation from this Made Ground and underlying alluvial and peat deposits. Accordingly, a number of potential risks were identified with respect to current conditions and the proposed development (car parking), presented below.

Source	Potential contaminants of concern	Receptor	Risk
Made Ground from historical site uses Current commercial / industrial uses on-site and neighbouring area	Metals, cyanide, asbestos, pH, phenol, TPH, PAHs, PCBs, nitrates, sulphate and sulphides	Investigation and construction workers	Moderate
		Future site users / visitors (guests and workers)	Moderate / Low
		Offsite occupiers / visitors of neighbouring land	
Made Ground from historical site uses / uses in surrounding area Alluvium and peat deposits	Hazardous ground gases (methane and carbon dioxide)	Future site users / visitors (guests and workers)	Moderate
		Offsite occupiers / visitors of neighbouring land	Moderate / Low
		Investigation and construction workers	
		Buildings	

Conclusions and Recommendations

It is considered most unlikely that the Site would be determined as Contaminated Land (under the provisions of Part 2A of the Environmental Protection Act 1990) in its current status, or following any redevelopment, provided the recommendations below are followed.

The potential risks identified above are capable of mitigation by undertaking appropriate site investigation, risk assessment and adoption of remedial measures (as required) relevant to the proposed development. It should be designed to determine current ground conditions and associated soil properties, including the nature and extent of any soil or groundwater contamination and the potential for generation of hazardous ground gas. In combination with site investigation, the risks are also capable of mitigation by adoption of good health and safety and construction practices (including prevention of uncontrolled run-off.

Further to the above, it is recommended that plan / information in relation to the culverted drains (with potential outfall to the River Thames) present on / adjacent to the site are obtained. A detailed UXO risk assessment is also recommended prior to any extensive earthworks.

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1 Introduction

1.1 General

This report presents the results of a Geoenvironmental Desk Study for the Essex Project Site, prepared by Buro Happold on behalf of London Resort Company Holdings. This report forms one study as part of the wider London Resort project. The purpose of this study is to establish the environmental, geological, hydrological and hydrogeological conditions present at the site that may result in potential contamination and ground related risks for the proposed future use. The assessment is also prepared to support a planning application in accordance with the Planning Act 2008 [1] for a Nationally Significant Infrastructure Project (NSIP) for the wider London Resort.

The Essex Project Site covers some 29.9 ha. It is located in Tilbury, in the borough of Thurrock, Essex, RM18 7ND, at National Grid Reference (NGR) TQ 66438 75459. The site lies to the immediate east of the container Port of Tilbury and south of Tilbury Town station. An aerial photograph of the site is shown by Figure 1-1 and its location by Figure 1-2.



Figure 1-1 - Aerial photograph of the site (Google Maps, 2020).



Figure 1-2 - Site location within Tilbury (OS Open Data, 2020)

1.2 Proposed development

The London Resort will be a nationally significant visitor attraction and leisure resource, built largely on brownfield land at Swanscombe Peninsula on the south bank of the River Thames (the Kent Project Site) and with supporting transport and visitor reception facilities on the northern side of the river (the Essex Project Site). Approximately 2,500 visitor car parking spaces will be provided at the Essex Project Site, with these visitors transported to the main part of the resort via ferry crossing. The development proposals for car parking are currently unconfirmed but may include parking at ground level (i.e. in areas of existing car parking) or in multi-storey facilities (in the current location of the former Rail Shed building). Dedicated facilities for passengers will also be provided at the ferry terminal at the Essex

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Project Site. These will include basic information, retail and catering amenities to serve passengers during their short waits between ferry services.

1.3 Study aims and objectives

The overall aim of this study was to carry out a geoenvironmental assessment of the site in order to inform the Client's understanding of potential contamination and ground-related risks associated with the proposed development. This report will provide information relevant to redevelopment in accordance with the requirements of the Planning Act 2008 [1] and relevant policy in the NPS for National Networks (NPS NN). Regard is also given to the National Planning Policy Framework (NPPF) [2] and also with respect to any potential liability under Part 2A of the Environmental Protection Act [3], the primary policies under which contaminated land is managed in the UK.

The work was carried out in general accordance with the Model Procedures [4] and its replacement currently in draft [5], the relevant British Standard [6], the Environment Agency Guiding Principles [7] and other current good practice guidance. The particular objectives were:

- To determine the historical and current use of the Site and its surroundings;
- To determine the nature of the ground conditions and the environmental sensitivity of the Site;
- To assess the potential location, nature and extent of any ground and groundwater contamination;
- To assess the potential risks to people and the environment (natural and built) associated with ground contamination (solid, liquid or gas) both in the site's existing condition and for the proposed future use;
- To construct an initial Conceptual Site Model and carry out a preliminary contaminated land risk assessment;
- To prepare a report based upon all of the above suitable to inform the Client about potential risks related to ground conditions and also suitable to support a planning application in accordance with the Planning Act 2008 [1] and to provide baseline information suitable to enable Environmental Impact Assessment.
- To determine the status of the Site with respect to Part 2a of the Environmental Protection Act 1990 and the nature and extent of any associated environmental liabilities; and
- To evaluate the need for and scope of any subsequent site investigation and/or remedial action or design.

1.4 Information Sources

The principal sources of information for this desk study report include: historical and current topographic maps, a site walkover survey (26 June 2020), public register information and a Groundsure Report, existing site investigation information and information available from the Environment Agency website and other online sources. This report is therefore based upon information obtained from third party sources, together with observations from the site walkover survey. The third-party data has been accepted as face value and has not been independently verified. Buro Happold can therefore give no warranty, representation or assurance as to the accuracy or completeness of such information.

1.5 Competence

This work reported here was carried out by geoenvironmental scientists and engineers from Buro Happold. Buro Happold is a consulting engineering company that manages its work under various Quality Management Systems that

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are certified to ISO 9001. The work itself was carried out by the staff with relevant qualifications, training and experience. This overall technical responsibility for the work was held by a Technical Director with substantial experience in the assessment of land affected by contamination who is a Chartered Geologist and registered SiLC (Specialist is Land Contamination) and SQP (Suitably Qualified Person).

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2 Current land use

2.1 Site location and topography

The Essex Project Site is an irregularly shaped parcel of land, centred at TQ 66438 75459 covering approximately 29.9 hectares. It is located to the immediate east of the Port of Tilbury in the unitary borough of Thurrock. It is bounded to the north by the London, Tilbury and Southend Railway Line (outside boundary), to the east by in part by Fort Road (within boundary) and a drain (outside boundary), to the south by the River Thames, and to the west by Ferry Road (within boundary). A roughly rectangular parcel of land (occupied by a large warehouse/ light industrial unit – known as "Unit 1") is enclosed within the site but excluded from the development proposals.

2.2 Current activities on site

The Essex Project Site comprises the main elements described below and illustrated in a series of photographs (and accompanying location plan) taken during the site walkover survey at the end of June 2020 (Appendix A).

- In the north. A trapezoid area of level hard-surfaced land approximately 11.75 ha in area. Within the site and close to the northern boundary is a new road (opened in July 2020) leading to Tilbury 2, north of which is a strip of soft landscaping / open land, beyond which is the railway. Currently the land is primarily used for the storage of vehicles (new cars) and is subdivided into two compounds; C Compound to the west and D Compound to the east. Ground improvement (lime stabilisation) prior to surfacing is reported to have been undertaken but settlement is understood to have disrupted site drainage in places. The boundary between the two compounds is formed by a swale running approximately north – south to the northern perimeter of Unit 1 and along that norther perimeter to an attenuation pond adjacent to the north-west corner of Unit 1 (pond not within the site boundary).
- In the east. The corridor of Fort Road runs south to north adjacent to Unit 1 as far as the entrance to the car storage compounds when it then bends right to form the southern boundary of D Compound;
- In the south. The Tilbury Cruise Terminal and the former Railway Station buildings are located along the southern boundary, with the Passenger Landing Stage (floating) projecting out into the river, including connecting bridges / walkways. The western end of the landing stage is used for operational purposes and extends to the west with a series of floating "dolphins". The eastern end of the landing stage is used by the public – for boarding the cruise liners and also by passengers of the Gravesend – Tilbury Ferry.
- In the west. Occupied by an irregular strip of land along the corridor of the A1089 Ferry Road. This land was formerly occupied by railway lines leading to the station and the former Rail Shed building is still present in the middle of this area, although the rail lines have been / are being removed. Much of this area is now surfaced by hardstanding and used for carparking (by the public and operational personnel).

2.3 Current activities in the surrounding area

The surrounding area is characterised by the Port of Tilbury, the residential and commercial activities of Tilbury town, and the River Thames.

Centre: In the central southern area, and surrounded by the site, is a large warehouse known as Unit 1. It is understood that this building was constructed following ground improvement / with stone columns but that there has been some settlement. The building is reported to have been constructed with gas protection measures.

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North: Beyond the new road to Tilbury 2/ site boundary runs the railway with Tilbury Town station to the west and Tilbury East station to the east. The town of Tilbury lies to the north of the railway with a mix of residential and light industrial uses.

East: The land to the east is defined by Fort Road and Chadwell Sewer. In the north–east Chadwell Sewer runs north – south, to the east of D Compound, beyond which is common land currently used for informal grazing. To the south east (east of Unit 1), the land is used for vehicle storage, beyond which runs Chadwell Sewer and then Tilbury Fort.

South: The River Thames occupies the area to the south.

West: The land to the west is dominated by the operational Port of Tilbury.

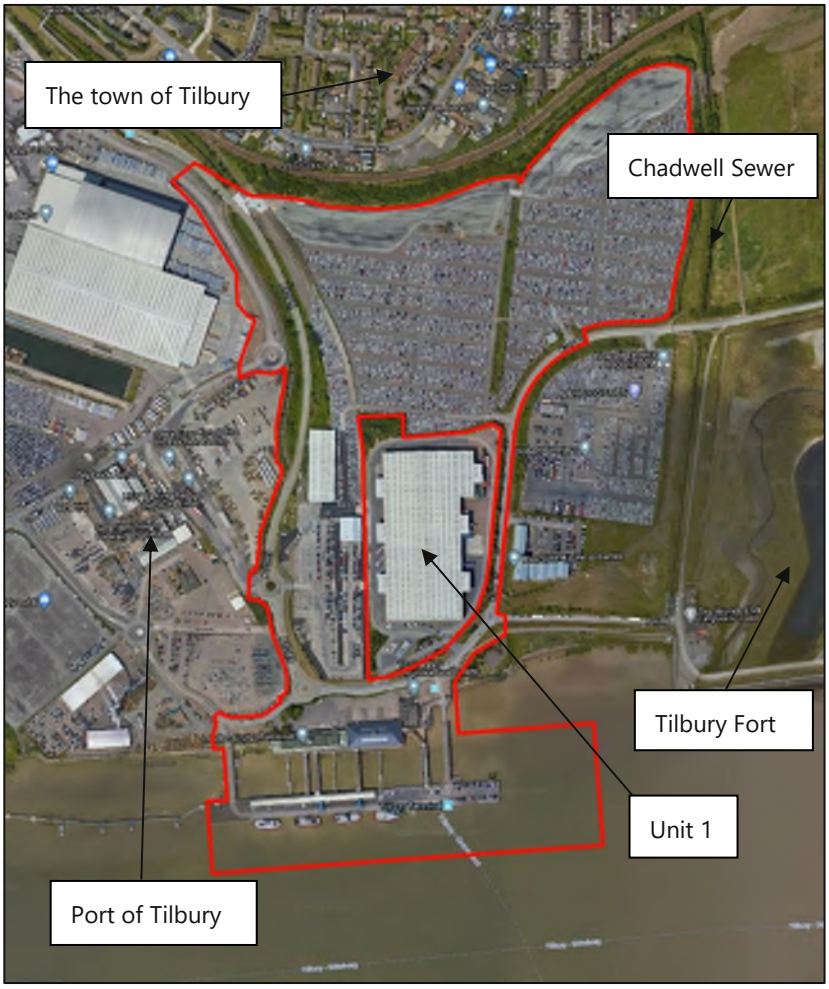


Figure 2-1 - Neighbouring land uses

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3 Environmental setting

3.1 Geology

The BGS 1:50,000 geological map for the area (Sheet 271 – Dartford) [8], available BGS borehole records (Appendix C) and existing site investigation reports (see Chapter 5) indicate the site geology to comprise a heterogeneous composition of Made Ground (including ash, concrete, brick, timber, flint), typically between about 1 and 3m thick but likely to be locally thicker. This is underlain by a natural geological sequence comprising about 15m of Alluvium (very soft to firm clays, peats and sands) over a relatively limited thickness (approximately 2 to 5m) of River Terrace Gravels. Beneath these is the Upper Chalk at about 18 to 24m bgl. This is summarised in **Error! Reference source not found.**.

Table 3-1 – Anticipated geology (on-shore).

Strata	Description	Depth to top (m bgl) [Thickness (m)]
Made Ground	SAND, GRAVEL and CLAY with inclusions of concrete, timber, brick, flint and ash.	0 [1-3]
Alluvium	Interbedded soft to firm CLAY and PEAT with some plant remains.	1-3 [15]
River Terrace Gravels	Loose brown medium to coarse flint SAND and GRAVEL.	16-19 [2-5]
Upper Chalk	Cream-white blocky CHALK with gravel and cobble sized flint bands.	18-24 Unconfirmed, regionally up to 70m

Part of the site is located on the foreshore over the River Thames. This portion of the site will be underlain by tidal deposits. BGS borehole records indicate this to include about 12 to 20m of alluvial clays and peats, over River Terrace Gravels, with Chalk present at about 22 to 23m bgl.

3.2 Hydrogeology

Perched groundwater is likely to be present above low permeability bands in both the Made Ground and the Alluvium. Environment Agency Aquifer maps show the site to be underlain by a Secondary (Undifferentiated) Aquifer in superficial Alluvium and River Terrace Gravel deposits. The Upper Chalk bedrock is classified as a Principal Aquifer (defined as rock with high intergranular and / or fracture permeability). This strata may support water supply and / or river base flow – although it is unlikely to be utilised for potable water supply in the vicinity of the site due to its proximity to the River Thames. Groundwater levels across the site will be influenced by its proximity to the River Thames and associated tidal flows. The nearest groundwater abstraction record is for a historical license for 965m east (Tilbury Power Station). The nearest active license is about 1.5km distant. The nearest potable abstraction is 1.7km south.

There are limited records of groundwater strikes on BGS borehole records. However, where recorded / encountered shallow groundwater ingress was generally at approximately 1 to 2m bgl in Made Ground or Alluvium. A deeper groundwater body was recorded at the top of River Terrace Deposits at approximately 16 to 17m bgl, rising to between 8 and 9m bgl, indicating sub-artesian pressures due to confinement by the overlying Alluvium. This deeper body is likely to be in continuity with the Chalk.

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3.3 Hydrology and Drainage

The site is located on the north bank of the River Thames, with the southern part of the site extending onto the river foreshore. The River Thames is tidal in this location. A number of other surface water features are shown on site or adjacent to the boundary (Figure 3-2). Some of these are orientated approximately north-south and are likely to be draining to the River Thames. Groundsure data indicates these surface water features to contain water year-round and to not be influenced by normal tidal action. The drain on the western boundary is mostly culverted with some open channel sections (Figure 3-1) and an outfall to the River Thames. The alignment of the culvert based on the aerial image does not entirely correspond with that from the Groundsure data (Appendix B). The Environment Agency has confirmed that the culvert is of approximately 1m diameter and carries storm water drainage from the town of Tilbury [9].

Wet docks (part of Port of Tilbury) are present from about 150m west and moats associated with Tilbury Fort are present from about 150m east. Both of these water bodies are supplied by water from the River Thames. There are no records of surface water abstractions within 2km.



Figure 3-2 – Surface water features on site and in surrounding area.

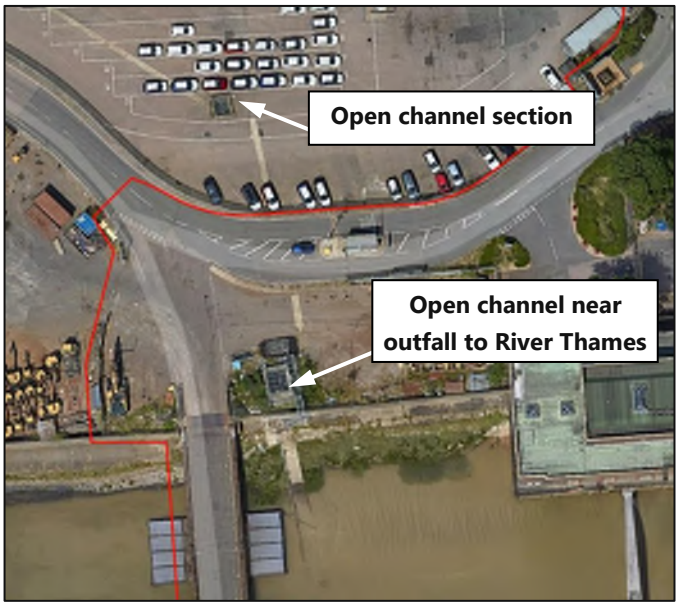


Figure 3-1 – Open channel sections of otherwise culverted watercourse (on- / adjacent to western boundary).

3.4 Flood Risk

The site benefits from flood defences owned / managed by the Environment Agency. Ignoring the presence of flood defences, the site is categorised as being within Flood Zone 3, meaning that the land has a 1 in 100 (1%) or greater change of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding from the sea. There is one record of a historical flood event within the site, caused by overtopping of flood defences during 1953. A flood risk assessment for the Essex Project Site is currently in preparation (Buro Happold, The London Resort Flood Risk Assessment, July 2020).

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3.5 Natural Hazards

Regulatory data relating to ground stability for the site is summarised in Table 3-2 with published information presented in the Groundsure report (Appendix A). It is understood from anecdotal information provided during the site walkover survey that the areas currently being used for vehicle storage (C and D Compounds) were subject to some lime stabilisation prior to construction of the hardstanding. However, there has been some settlement and the drainage has been disrupted in places (see photographic record in Appendix A). There were also anecdotal accounts of ground instability at Unit 1 where it was understood that the ground improvement by the construction of stone columns was used, but that settlements of some 700mm are reported to have been recorded. The Unit is also reported to have been constructed with gas protection measures.

Table 3-2 Potential natural hazards

Potential hazard	Hazard rating
Shrink swell clays	Low
Running sands	Areas identified as very low and low
Compressible deposits	Areas identified as very low, moderate and high
Collapsible deposits	Negligible
Landslides	Very low
Soluble rocks	Negligible

3.6 Radon

The Groundsure report indicates that the site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level. Therefore, no radon protective measures are necessary.

3.7 Mining

There are no records of mining (coal, non-coal or brine) within the site. There are records of sporadic underground mining of chalk in the surrounding area, the nearest record being about 500m south. This information is provided by the Groundsure report (Appendix A).

3.8 Unexploded Ordnance

A Preliminary UXO Risk Assessment has been carried out by Buro Happold in accordance with CIRIA C681 [11] and is included in **Error! Reference source not found.**. In addition to the consideration of the potential for aerial delivered U XO, consideration has also been given to mitigation factors, namely: (i) the extent of post-war development); and (ii) the extent of proposed intrusive works. The assessment concluded that the risks associated with UXO are Moderate. In the event of extensive below ground works a detailed UXO risk assessment is required (see **Error! Reference source not found.**).

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4 Site setting

4.1 Site history

The Site history and that for the surrounding area has been completed using historic OS maps from 1863 to 2020 included within the Groundsure report (Appendix B). This is supplemented by OS 6-inch County Series maps available to view on the National Library of Scotland website [10]. This history is summarised in Table 4-1 below and key changes are illustrated by Figure 4-1 to Figure 4-6. The history of the surrounding area is described in terms of land uses to the north (N), east (E), south (S), west (W) and centre (C), where C refers to the central area of land that is enclosed by the site but excluded from the development proposals. No detailed description of the land uses on the south bank of the River Thames is given – this is approximately 500m distant at its nearest point, and therefore there is no plausible pathway by which land use here could affect the site.

Table 4-1 - Summary of site history and history of the surrounding area

Date	Site history	History of the surrounding area
1863 (1:10,560)	The site is partially developed (eastern portion undeveloped). Railway sidings cross the site from approximately north to south. Some associated buildings are shown in the northern portion, including an Engine Shed and assumed terraced housing. A terminal to the rail sidings is shown on the river front and a pontoon is present on the north bank of the River Thames.	No coverage outside of site boundary. **C:** Generally undeveloped. Path and rail siding shown.
1872 (County 6-inch) ***Figure 4-1***	No significant change.	**C:** No significant change. **N:** Small scale gasworks present immediately adjacent to northern boundary. One gasometer labelled but no other infrastructure. London, Tilbury and Southend Railway next to gasworks. Fields beyond. **E:** Generally undeveloped land. Fields and paths shown. World's End P.H. about 100m distant. **S:** River Thames present to south. Route of Kent and Essex Steam Ferry shown between north and south riverbanks. **W:** Undeveloped fields. River wall shown on frontage to River Thames.
1888 (1:10,560)	Limited development in eastern portion. Railway sidings have been extended. Further buildings have been developed in the north, labelled to be railway cottages. Mortuary and smithy present close to western boundary. Tilbury South Junction is labelled on the railway line (centre of site) and Tilbury Station on the north bank of the Thames.	Partial coverage. **C & S:** No significant change. **N:** Gasworks and gas holder no longer shown. **E:** Sea Wall present on River Thames to immediate east of site. Some unlabelled paths / tracks present from adjacent. Tilbury Market present on river front, about 100m east. Drainage features shown within field about 25m east. Bill Meroy Creek flows into the River Thames, about 750m east. **W:** No coverage.
1895 (1:10,560) ***Figure 4-2***	Smithy present adjacent to Tilbury Station.	**C & E:** No significant change. **N:** Residential properties present beyond northwest part of railway line, school 500m distant. Open fields beyond railway to northeast. **S:** Substantial development shown on south bank of Thames (residential and commercial / industrial). **W:** Substantial development associated with Tilbury Docks. Ancillary buildings (church, club and institute, canteen, steam laundry, workmen's buildings present) present adjacent to site boundary. Hotel adjacent to site on river front. Beyond are a tidal basin (100m distant), dry docks (150m), a series of locks (250m), and wet docks (from 150m). Dock wharves lined by warehouse structures and rail sidings lead to wharves from north west.
1898 (1:2,500)	Unnamed roads run parallel to railway sidings in west.	**C, N, E & S:** No significant change. **W:** Hotel labelled as Tilbury Hotel.
1899	No significant change.	**C, N, S & W:** No significant change

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Date	Site history	History of the surrounding area
(1:10,560)		**E:** Road immediately to east of site labelled as Fort Road.
1907 (1:10,560)	No significant change.	**C, N, E & S:** No significant change. **W:** Cottage Hospital present adjacent to boundary, close to mortuary.
1916 (1:10,560)	Further extension to railway sidings, labelled coal sidings. A narrow embankment is shown parallel to western boundary, Ferry Road is adjacent to this. Small jetty present on riverbank, to east of existing pontoon.	**C:** Coal sidings encroach within this area. **N:** Allotment gardens shown about from about 200m distant. Club, church etc. shown within existing residential area. Highway depot present beyond railway line. **E & S:** No significant change. **W:** Main Dock has been extended further to the west, on previously undeveloped land.
1920 (1:2,500)	A second, smaller jetty has been constructed to the east of the pontoon.	**N, W & S:** No significant change. **E:** Tilbury Fort is shown from about 250m distant (within confines of roads / paths shown on previous maps). *Note: Tilbury Fort has existed in this location in some form since the 1500s, and in its current star-shape since c. 1670.*
1923 (1:10,560)	No significant change.	**C, N, E, S & W:** No significant change.
1932 (1:10,560)	No significant change.	**C, N, E, S & W:** No significant change.
1938 (1:10,560) ***Figure 4-3***	Significant expansion to pontoons on riverbank. Ferry Road in west of site has been widened. Road constructed along part of eastern boundary leading to Tilbury Station (A126). Overpass crosses rail sidings to connect these roads.	**C:** Station and overpass encroach within this area. **N:** Residential development present to northeast (about 200m distant), on previously undeveloped land. **E, S & W:** No significant change.
1940 (1:2,500)	Tilbury Station now labelled as Riverside Station. Coal sidings have been further extended. Pontoons have been extended, several mooring posts shown and travelling crane present on foreshore. Club shown in former location of smithy.	**C, E & S:** No significant change. **N:** Expansion to residential development. Refuse destructor located about 100m distant. **W:** Tank and chimney shown on Tilbury Steam Laundry. Further detail provided on some previously unlabelled buildings (fire station about 80m distant, goods shed 150m).
1946-48 (1:10,560)	Further expansion of rail sidings	**C:** Expansion to rail sidings. **N & S:** No significant change. **E:** First occurrence of Tilbury Fort being shown on 1:10,560 scale mapping, sewage works shown beyond (>750m). **W:** New dry dock extends from Tilbury Main Dock to within 150m of site boundary. Rail sidings present around dry dock. Engineering works present 150m distant.
1950-51 (1:1,250)	Detail labelled to Tilbury Riverside Station (baggage hall, foot bridges and landing stages).	**C, E & S:** No significant change. **N:** Several vacant plots amongst terraced residential properties. **W:** Ruin and vacant land at former location of Tilbury Hotel.
1955 (1:10,560)	A drain is indicated, orientated approximately north-south across centre of northern half of site.	**C:** Drain encroaches within this area. **N & S:** No significant change. **E:** Buildings shown within Tilbury Fort. **W**: Vacant land on river front (former location of Tilbury Hotel).
1959 (1:2,500)	Development of rail sidings in eastern half of site (previously undeveloped). Further drains are shown in east, generally orientated north-south. Vehicle bridge is shown from Tilbury Riverside Station to loading stage.	**C:** Drains encroach within area. **N:** Drain shown parallel to railway line. **E:** Railway sidings extend off site to about 100m distant, putting green present beyond. **S & W:** No significant change.
1961 (1:2,500)	No significant change.	**C, E, S & W:** No significant change. **N:** Partial coverage. Significant redevelopment and rearrangement to residential streets.
1966 (1:10,560) ***Figure 4-4***	No significant change.	**C:** East-west orientated drain in this area. **N, S & W:** No significant change. **E:** Drains labelled on surrounding land, nearest adjacent.

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Date	Site history	History of the surrounding area
1967 (1:1,250)	Partial coverage only (northwest quadrant). No significant change.	Limited coverage. **C, N & W:** No significant change.
1969 (1:1,250)	Partial coverage only (southwest quadrant). No significant change.	Limited coverage. **C, S & W:** No significant change.
1973 (1:1,250)	Partial coverage only (southwest quadrant). No significant change (poor quality scan).	Limited coverage. **C, S & W:** No significant change.
1973 (1:10,000)	Railway cottages and engine shed in north of the site removed. Rail sidings in east no longer present. Rail sidings in north scaled back and associated central buildings removed. No significant change to south of site.	**C & S:** No significant change, **N:** Minor changes to residential properties. **E:** Rail sidings (on and adjacent to site) removed. **W:** Many nearby commercial / industrial buildings no longer present (hospital, mortuary, laundry, works). Land now vacant. New development on previously vacant land to west of tidal basin. Some small buildings and tank-like structures shown (from 500m distant). Some warehouse structures surrounding wet docks removed.
1974 (1:1,250)	Partial coverage only (northwest quadrant). No significant change (poor quality scan).	Limited coverage. **C, N & W:** No significant change.
1976 (1:1,250)	Partial coverage only (northwest quadrant). No significant change.	Limited coverage **C, N & W:** No significant change.
1978 (1:2,500)	Railway cottages shown (as before)	No coverage to east and south. **C & W:** Partial coverage, no significant change. **N:** Partial coverage. Some empty plots in residential area.
1982 (1:10,000)	Railway cottages not shown, hexagonal (unlabelled) feature in their place (assumed vacant land).	**C, E (partial coverage) & S:** No significant change. **N:** Some further residential redevelopment. **W:** Addition of warehouse structures surrounding wet dock (from 500m distant).
1990-92 (1:10,000)	No significant change.	**C, N, E & S:** No significant change. **W:** Warehouses removed from wharves of wet docks.
1999 (Google Earth) ***Figure 6-5***	No significant change to land use. Aerial image shows eastern part of site to be grass-covered (with scarring where rail sidings were previously). Near-surface soils exposed in north (evidence of ground workings). Cargo containers present on remaining rail sidings.	**C:** No significant change but cargo containers present on rail sidings. **N, E & S:** No significant change. **W:** Vacant areas evident on 1990-92 map are being used for car parking.
2001 (1:10,000)	Majority of infrastructure on site removed. Limited rail sidings still present in west, orientated north-south. Buildings associated with Riverside Station scaled back. Drains evident on site.	**C:** Railway sidings no longer present. **N, E & S:** No significant change. **W:** Minor changes to surrounding commercial / industrial buildings.
2004 (Google Earth) ***Figure 6-6***	Eastern part is covered by hardstanding and being used for car parking. Evidence of ground workings in north of site. Reconfiguration to roads – Ferry Road no longer crosses site but extends south to the River Thames.	**C:** Large warehouse structure occupies majority of area. **N, S, W:** No significant change. **E:** Riverside Business Park present (adjacent)
2010 (1:10,000)	Majority of site (excluding river front), labelled as car park.	**C, N, E, S:** No significant change. **W:** Several adjacent commercial / industrial properties no longer present. Distribution centre (adjacent) labelled.
2020 (1:10,000)	No significant change.	No significant change.

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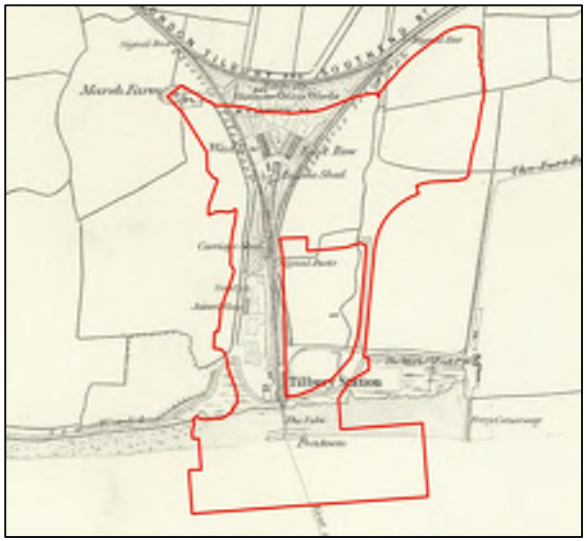


Figure 4-1 – 1872 excerpt of 6-inch Essex County map (National Library of Scotland, 2020).

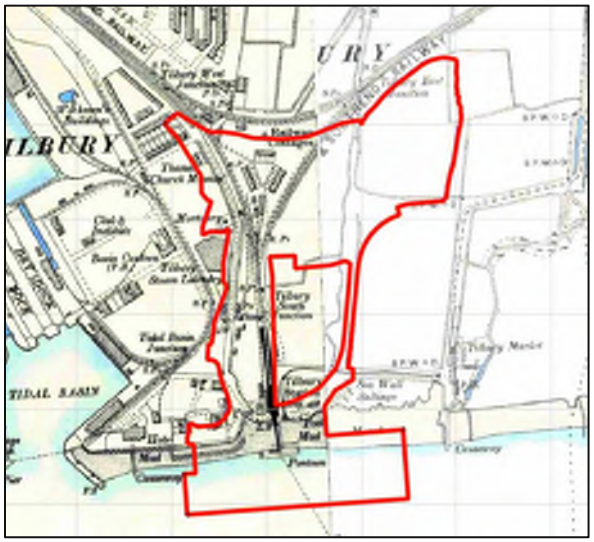


Figure 4-2 - 1895 excerpt of OS 1:10,560 map (Groundsure, 2020).

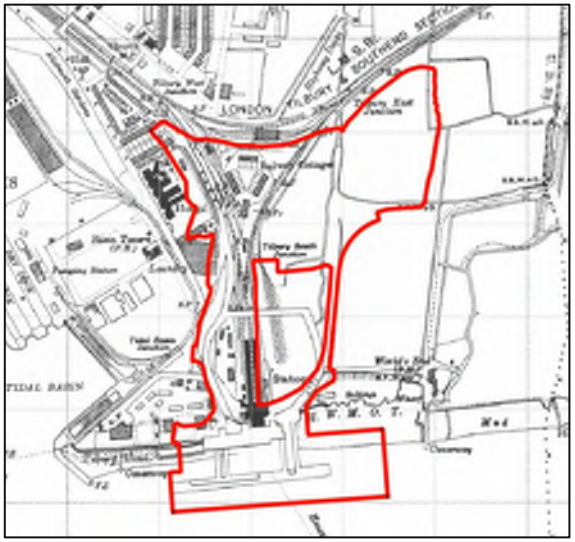


Figure 4-3 – 1938 excerpt of OS 1:10,560 map (Groundsure, 2020).



Figure 4-4 – 1966 excerpt of OS 1:10,560 map (Groundsure, 2020).



Figure 4-5 - 1999 excerpt of aerial image (Google Earth, 2020).



Figure 4-6 – 2004 excerpt of aerial image (Google Earth, 2020).

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4.2 Regulatory data

Regulatory data relating to potentially contaminative uses is summarised in Table 4-2 below. This information was obtained from the Groundsure report, presented in full in Appendix A. Note that there are some inaccuracies between the reported distances of these regulatory data points from the site boundary i.e. Groundsure data indicate a gas works to be on-site but maps show it to be off-site, and Groundsure data indicate a dry dock on-site but maps show it to be approximately 100m off-site.

Table 4-2 - Summary of regulatory data

Item	Location	Information	Potential to impact
Past land use			
Historical industrial land uses	**On-site**	Railway sidings, unspecified heap, docks, unspecified commercial / industrial, steam laundry, laundry, gas works, gasometer, railway building, engine shed, coal sidings, carriage shed, railway station, smithy, mortuary, unspecified disused wharf, hospital, unspecified depot, marshes, dry docks, docks.	**Yes**
	<100m	Unspecified tank, docks, railway building, engine shed, unspecified works, railway sidings, hospital, railway station, mortuary, marshes, unspecified depot, unspecified works, fire station, refuse heap, unspecified wharf, unspecified warehouse.	**Yes**
	>100-250m	Refuse destructor, unspecified wharf, unspecified warehouse, railway sidings, engineering works, docks, dry docks, goods shed, railway building, unspecified heap, depot, basin, unspecified ground workings, unspecified warehouses, refuse heap, pumping station, magazines.	No
	>250-500m	Dock, dry dock, railway sidings, unspecified tank, railway building, magazines, pumping station, quay, unspecified ground working, police station, gun wharf, fire station, tramway sidings, unspecified warehouses, unspecified wharf, gun shed, tramway sidings, terminus, unspecified commercial/industrial, paper mills.	No
Historical tanks	**On-site**	Gas works (1870), 4 records of tanks (1870-1898).	**Yes**
	<100m	Disused gas holder and gasholder (5m N, 1870-1898), 2x unspecified tank (16m SE, 1920-1940 and 37m N, 1870).	**Yes**
	>250-500m	7 tank records (nearest 277m W) dated between 1898 and 1950.	No
Historical energy features	**On-site**	Gas works (1870)	**Yes**
	<100m	Gasholder (5m N), disused gas holder (5m N), electricity substation (40m NW)	**Yes**
	>100-250m	3x records of electricity substations, nearest 149m SW, dated between 1978-1999.	No
	>250-500m	13x records of electricity substations, dated between 1950-1999	No
Historical garages	**On-site**	Carriage shed (1870)	**Yes**
	<100m	Car breakers yard / garage / motor body repair works (40m N, 1967-1999 and 77m NW, 1978-1996)	**Yes**
	>100-250m	Car breakers yard (133m NW, 1978-1994)	No
No records of historical petrol stations or historical military land within 500m.			
Waste and landfill			
Historical landfill (EA records)	**>100-250m**	1 record 144m NW. Attributed to Tilbury Basin and operated by Port of Tilbury between 1981-1996. Accepted inert, industrial, commercial and household waste.	No
Historical waste sites (mapping / LA records)	**<100m**	Car breaker's yard located about 40m N between 1975-1999. Car breaker's yard located about 75m NW between 1978-1996.	**Yes**
	>100-250m	Refuse destructor located about 100m NW between 1863-1940. Car breaker's yard / scrap metal yard located about 130m NW between 1970-1994.	No
	>250m	Scrap yard 490m S dated 1985.	No

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Item	Location	Information	Potential to impact
Licensed waste sites	**<100m**	Hume Works (metal recycling site) located 91m NW, license issued 1998.	No
	>250m	Green Barge Site (treatment of waste wood) located 266m W (Tilbury Docks). Licensed between 2012-2015.	No
Waste exemption	**<100m**	2 records attributed to Hume Avenue (85m NW). Storing waste exemption and treating waste exemption (recovery of scrap metals).	No
	>100-250m	6 records attributed to 7 Dock Road (110m NE) for storing / sorting / treatment of waste. 1 record for 120m W for repair / refurbishment of WEEE. 1 record for 129m W for waste storage. 7 records for 185m NW for preparatory treatments, storage, sorting of waste and crushing of fluorescent tubes.	No
	>250m	Records for sorting and de-naturing of controlled drugs for disposal, recovery of waste at a waste treatment works and repair or refurbishment of WEEE. Nearest 377m NW.	No
No historical BGS / LA / EA landfill records or active / recent EA landfill records within 500m.			
Current Industrial Land Use			
Recent industrial land uses	**On-site**	Outfall (activity listed as waste storage, processing and disposal) located on north bank of River Thames. Travelling crane located on pontoon. Electricity substations located close to western boundary. Tilbury Ferry Terminal on north bank of River Thames.	**Yes**
	<100m	Records for: electricity substation (6m E, 38m NW, 65m SW), distribution and haulage company (21m E), telecommunication mast (22m N), pest control and vermin company (22m E), construction company (22m E), vehicle repair company (48m NE), car breakers yard (53m N), skip hire (66m N), vehicle parts company (66m NE), recycling centre (82m N), business park and industrial estate (98m E).	**Yes**
	>100-250m	Records for: mooring and unloading facilities (102m NE), distribution and haulage (103m E, 184m W), electricity pylon (105m W), vehicle repair company (117m W, 163m W), production of wood products (118m N), wind turbine (119m W), precious metal recycling (132m NW), car breakers yard (141m NW), container and storage (141m SW), vehicle sale (153m W), electricity substation (156m W, 171m W, 180m W, 193m NW), glass fibre services (162m NW), dock (193m W).	No
Current or recent petrol stations	**>250m**	1 record for 355m NW, listed as obsolete.	No
COMAH sites	**<100m**	Port of Tilbury (32m SW) is listed as a historical NIHHS site Laing National Ltd (54m SW) listed as historical NIHHS site	No
Licensed pollutant release (Part A(2)/B)	**<100m**	Record related to waste oil burner, attributed to 67m NE (Sejoc Auto Repairs)	No
	>100-250m	2 records attributed to Specialist Metal Services, Hume Avenue, related to non-ferrous metal foundry processes (143m NW) and other metal processes (200m NW)	No
	>250m	Record related to dry cleaning, 441m N.	No
Licensed discharges to controlled waters	**>100-250m**	2 records related to 166m NE for sewage discharges from Worlds End PH to River Thames. Dated 1977 to 1997. 2 records related to 212m E related to miscellaneous discharges to River Thames. Dated 1966 to 1993.	No
	>250m	1 record related to 267m NW related to discharge of surface water to East and West Tilbury Sewer. Dated 1958-1992. 3 records related to discharge of sewage / surface water to River Thames, nearest 267m NW.	No
Pollutant release to surface waters	**>100-250m**	2 records related to trade discharges 240m S. Attributed to Blue Circle Industries PLC (extraction of other minerals).	No
Pollution incidents (EA)	**On-site**	1 record related to urban run-off of contaminated water in 2002. Minor impact to water and no impact to land or air.	No
	<100m	1 record related to an atmospheric pollutant incident 91m N in 2001. Minor impact to air and no impact to water or land.	No

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Item	Location	Information	Potential to impact
	>100-250m	3 records related to oils and fuels (2x) and carcasses, nearest 163m S, dated between 2001-2003. All minor impact to water no impact to land or air.	No
	>250m	1 record related to 250m E in 2014 but no pollutant identified. Significant impact to water and no impact to land or air. All other records >300m distant with no or minor impacts.	No
No records of the following (within 500m): high voltage underground electricity cables, gas pipelines, Part 2a sites, regulated explosive sites, hazardous substance storage / usage, historical licensed industrial activities [IPC], licensed industrial activities [Part 2A(1)], radioactive substance authorisations, pollutant release to public sewer, list 1 dangerous substances, list 2 dangerous substances, pollution inventory substances, pollution inventory waste transfers or pollution inventory radioactive waste.			
Abstractions and Source Protection Zones			
Groundwater abstractions	**>250m**	Nearest record relates to a historical authorisation for 965m E at Tilbury Power Station. Nearest active record relates to 1441m SW, for abstraction of process water.	No
Potable abstractions	**>250m**	Nearest record relates to an active abstraction 1779m S.	No
Source Protection Zone	**>250m**	Type 3 SPZ located 343m NE No confined aquifer SPZ within 500m.	No
No records of the following (within 2000m): surface water abstractions			
Hydrology			
WFD surface water body catchment	**On-site**	The site is located within a coastal catchment, with overall 'moderate' rating.	No
WFD groundwater bodies	**On-site**	South Essex Thurrock Chalk of overall 'good' rating.	No
Environmental, visual and cultural designations			
Green Belt	**>250m**	One record related to 'London area' greenbelt, 659m NE.	No
Nitrate Vulnerable Zones	**>250m**	Nearest record 1319m SE.	No
SSSI impact risk zone	**On-site**	Site is located within 2 SSSI impact risk zones. Indicates that all planning applications (except householder) could have potentially adverse impacts on SSSI. SSSI of interest not stated / defined.	No
Listed buildings	**On-site** **>100-250m**	Riverside Station (including floating landing stage) is Grade II* listed. World's End Inn, 154m NE is Grade II listed.	No No
Scheduled Ancient Monuments	**<100m**	Tilbury Fort located 68m SE.	No
No records of the following (within 2000m): SSSI, Ramsar sites, Special Areas of Conservation, Special Protection Areas, National Nature Reserves, Local Nature Reserves, Designated Ancient Woodland, Biosphere Reserves, Forest Parks, Marine Conservation Zones, proposed Ramsar sites, possible Special Areas of Conservation, potential Special Protection Areas, Nitrate Sensitive Areas, No records of the following (within 250m): World Heritage Sites, National Parks, Conservation Areas, registered parks and gardens.			

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5 Previous site investigations

During the site walkover undertaken in June 2020, electronic copies of hard copy reports held in the Port of Tilbury offices that are relevant to the Essex Project Site were obtained. The reports and their contents are summarised in Table 5-1 below. Two reports contain chemical data which have been compared against screening criteria that are now superseded. No reassessment of this data has been undertaken. Attempt has been made to obtain copies of ground investigation reports related to Tilbury 2 (with access road to the north of the Essex Project Site), but these have not been found or provided to date.

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Table 5-1 - Summary of available reports

Author and year	Report title	Purpose	Exploratory holes within site boundary	Key findings
Port of London Authority (1943) [11]	Tilbury Docks Borings Key Plan (South)	Borehole location plan and logs for boreholes drilled in vicinity of landing stage (on- / adjacent to site), tidal basin, main dock and dry docks (off-site)	Approx. 8 borehole records for within site boundary (up to about 30m bgl)	Factual records only
CEDAC (1994) [12]	Tilbury Riverside Automotive Terminal. Desk Top Geotechnical Assessment	Commissioned to undertake a geotechnical assessment supplemented by limited on-site investigations in connection with the redevelopment of the former Tilbury Riverside Terminal site.	3 hand auger pits (up to 3m bgl) 13 trial pits (up to 3.4m bgl)	Investigation confirmed expected geological sequence i.e. a limited thickness of topsoil / fill, over up to 20m of Alluvium, over 2-4m of River Terrace Gravels, over Chalk. Noted key constructability constraints associated with Alluvium and Chalk. Recommended that detailed site investigation should be undertaken prior to commencement of detailed engineering design.
Geotechnical Developments (1996) [13]	Report on Preliminary Ground Investigation at London International Cruise Terminal. E1072/96	Commissioned to undertake preliminary ground investigation to support development (proposals unknown at time of investigation).	4 cable percussion boreholes (4.1 to 26.0m bgl). 1 standpipe installed for long term ground gas / groundwater monitoring	Report contains details of fieldwork, laboratory testing undertaken (geotechnical), strata encountered, laboratory test results, interpretation of ground conditions. Notes that '*the whole area has been reclaimed from former marshland and estuarine mud flats. The fills used to reclaim the area have in the past comprised in the main whatever granular fills were available at the time, including ash, slag, glass, tiles etc. Previous ground investigation data for the area in general has confirmed that the site has been made up to level by between 1.5 to in excess of 5 metres of fill*'. Foundation options considered in a general manner as detailed development proposals were unknown. Two rounds of ground gas monitoring undertaken from one standpipe. Methane concentrations between 21.6% and 23.6%, oxygen concentrations between 11.0% and 14.7% and carbon dioxide concentrations between 11.2% and 12.5%. Drilling of borehole B encountered and broke through a culverted watercourse at 4.10m bgl. *Running along the access road for the cruise terminal was a culverted watercourse, with an open channel section of approximately 30m length. A chamber containing a similar feature was also present towards the southern end of the site, close to the cruise terminal. At the commencement of the investigation, the location of the culvert between these two features was uncharted and unknown.*
RSA Geotechnics Ltd (1999) [14]	Proposed Link Road at Fort Land, Tilbury for Port of Tilbury London Limited. Ground Investigation	Ground investigation undertaken over two phases in support of development of a link road at Fort Land, Tilbury.	10 cable percussion boreholes (9.5 to 27.15m bgl). 16 trial pits (0.6 to 3.2m bgl)	Report contains details of fieldwork, geotechnical testing (in-situ and laboratory), chemical testing, interpretation of ground conditions. Results of chemical testing included in report, compared against superseded screening criteria.

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Author and year	Report title	Purpose	Exploratory holes within site boundary	Key findings
	Report Number 7227 (1999)	Purpose was to determine ground conditions and provide recommendations for use in design, Limited contamination investigation was carried out to provide information required for H&S issues and for waste disposal.	Exploratory holes on- and adjacent to site.	*There was a main ditch orientated in a north-south direction on the eastern side of the area of investigation* (Chadwell Sewer, see Figure 2-1). *This was pumped ai its southern edge and culverted beneath the railway.* *Groundwater was encountered at the base of Alluvium. Groundwater in River Terrace Deposits is in hydraulic continuity which is in continuity with the River Thames.*
Site Analytical Services Ltd (2000) [15]	Fortress Distribution Parl. Westerlund Site, Tilbury Essex. Report on Ground Investigation. Ref.00/6628.	Information from ground investigation was required for the design and construction of foundations and infrastructure for a proposed industrial development. Also undertaken to assess whether remediation was required.	5 cable percussion boreholes (25.0 to 20.0m bgl) Standpipes in each borehole (to 5m bgl) for gas and groundwater monitoring 10 trial pits 22 window sample boreholes (0.5 to 2.5m bgl) Exploratory holes located off-site in area of "Unit 1" (enclosed by site)	Ground conditions generally consistent with the geological records and known history of the site. Boreholes indicated that the Alluvium thickens towards the west and south across the site (9.8m thick in northeast, 18.0m along western boundary). Buried Chalk surface also deeper towards the southwest. Soil samples were analysed for a basic suite of potential contaminants and screened against IRCL guideline and Dutch Intervention Values (superseded). Based on this, it was concluded that there was no contamination likely to significantly impact the site development for the proposed end use. Also concluded that no significant remedial measures were warranted, with the exception of areas of soft landscaping. Gas monitoring found concentrations of methane up to 72% and carbon dioxide up to 5.6%. Provides discussion of foundation options for proposed industrial building.

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6 Preliminary Geoenvironmental Risk Assessment

6.1 General approach

In the UK, the assessment of risk from contamination is based on consideration of the conceptual site model and follows the "source-pathway-receptor" approach. If one of these three elements (source, pathway or receptor) is absent, it is considered that there is no risk of harm. If, however, there is considered to be a linkage between any given source and any given receptor, then a risk-based approach is used to assess the significance or impact of the linkage. Risks are defined as the probability of an event occurring combined with the severity of the consequence of that event. Particularly, to assess the risks to site end users posed by any given source, the sensitivity of each receptor is considered. For example, the concentration of contamination acceptable at a site to be developed as a residential property with a garden used to grow vegetables and accessible to young children is set lower than that for a commercial site where soil is exposed only in minor areas of landscaping and the only long-term users of the site are adults. Similarly, a site overlying a Principal Aquifer supplying potable water will be considered more stringently than a site overlying an impermeable geology with only minor seepages of groundwater.

6.2 Conceptual site model

The potential risks posed to human health and the environment by ground contamination at this site have been evaluated by a generic quantitative risk assessment which incorporates the 'source-pathway-receptor' identification and assessment methodology in accordance with the Model Procedures [4]. The risk assessment process therefore involves the identification of each source based on the information in this report, including any available existing ground investigation results together with the identification of relevant exposure pathway(s) and receptors. The potential risks to the receptors have been assessed by considering the potential effect of the source on the receptor as well as the likelihood of a pathway linking the two, i.e. a contaminant linkage as discussed above.

6.3 Sources

The potential contamination sources at the site have been identified from the review of regulatory data, historical maps and previous site investigations and are summarised in Table 6-1. The 'Contaminants of Concern' in this risk assessment are based primarily on information from this review of historical information and by reference to relevant Industry Profile reports [11, 12] and R&D 66 [13].

Table 6-1 Summary of potential sources of contamination

Potential source	Location	Likely age	Potential contaminants of concern
Current site use: car parking, electricity substations	On site	Recent	Petroleum hydrocarbons, PCBs, oils
Made Ground arising from historic site uses: rail / coal sidings, rail station, storage of freight, engine / goods sheds, passenger terminal, hospital, mortuary, works, smithy.	On site	Late 1800s onwards	Metals, cyanide, asbestos, pH, phenol, TPH, PAHs, nitrates, sulphate and sulphides Hazardous ground gas (methane and carbon dioxide)
Made Ground arising from historic uses in surrounding area: gas works / gas holder, rail sidings, works, warehouses, dry dock, dock, car breakers yard.	Off-site (from adjacent)	Late 1800s onwards	Metals, cyanide, asbestos, nitrates, pH, phenol, TPH, PAHs, nitrates, sulphate and sulphides. Hazardous ground gas (methane and carbon dioxide).

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Potential source	Location	Likely age	Potential contaminants of concern
Current commercial / industrial uses in surrounding area: railway, operational Port of Tilbury, light industrial [vehicle repair, car breaker's year, recycling company]	Off-site (from adjacent)	Recent	Metals, asbestos, TPH, PAHs
Alluvium and peat deposits	On- and off-site	-	Hazardous ground gas (methane and carbon dioxide)

6.4 Pathways and receptors

The Essex Project Site will provide some 2,500 car parking spaces with ancillary facilities (information, retail and catering amenities). Although the precise pattern of development is not finalised, it is anticipated that the majority of the area will remain hardstanding. Building work is likely to be mainly road / pavement construction, with associated infrastructure.

The presence of contamination (in soils, liquids or gases) has the potential to impact upon human and environmental receptors both in the short term (during construction) and in the long term (during use for car parking). Those receptors and the pathways that could link them to the sources identified in Table 6-1 are summarised below.

Table 6-2 Summary table of receptors and potential pathways

Receptor		Pathway
Human Health	Investigation and construction workers	Direct / dermal contact. Ingestion / inhalation of soils. Inhalation of dusts and vapour.
	Future site users / visitors (guests and workers)	Direct / dermal contact. Inhalation of dusts and vapour. Migration of gas, accumulation to asphyxiating / explosive concentrations
	Offsite occupiers / visitors of neighbouring land	Inhalation of dusts and vapour. Migration of gas, accumulation to asphyxiating / explosive concentrations
Controlled Waters	River Thames	Migration via surface water drainage (outfall to Thames) and shallow permeable strata
	Principal Aquifer (Chalk)	Migration via permeable strata
	Secondary Aquifers (Alluvium, River Terrace Gravels)	Migration via permeable strata and preferential pathways (e.g. excavation)
Buildings / Services	Buried concrete foundations. Potable water supply pipework	Direct contact / aggressive attack
	Buildings	Migration of ground gases and accumulation to hazardous concentrations (explosive / asphyxiating)

6.5 Assessment of risk

The assessment of the level of risk for each of the potential contaminant linkages identified above is summarised in Table 6-3. The table lists the potential sources identified above. For each source, an assessment is made, receptor by receptor as to the magnitude of the potential consequence (reflecting the potential severity of the hazard associated with that source and the sensitivity of the receptor) and the likelihood the hazard being realised (based upon the directness / integrity of the exposure pathway).

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Consideration has also been given to the level of uncertainty associated with each of these potential sources. For example, much of the information is based upon historical records which are likely to be partial and will not be complete, together with the limited nature of the existing site investigation data. Because of this uncertainty, the identification of the sources is based upon a conservative assessment of the potential location, nature and extent of the source. The probability or likelihood of the hazard being realised is then assessed by consideration of the directness / integrity of the exposure pathway that could link the receptor to the source. The assigned level of risk is determined by the terms of consequence and probability in accordance with C552 [14]. The final column describes all of the factors considered in the assessment and presents the justification for the assessed level of risk.

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Table 6-3 - Preliminary Risk Assessment

Source		Receptor	Risk assessment (following CIRIA C552)			Description of source
Origin	**Contaminants of concern**	Pathway	**Consequence**	**Probability**	**Risk**	Comment on hazard realisation
Current site use: car parking, electricity substations (western boundary) Made Ground arising from historic site uses: rail / coal sidings, rail station, storage of freight, engine / goods sheds, passenger terminal, hospital, mortuary, works, smithy. Made Ground arising from historic uses in surrounding area: gas works / gas holder, rail sidings, works, warehouses, dry dock, dock, car breakers yard. Current commercial / industrial uses in surrounding area: railway, operational Port of Tilbury, light industrial [vehicle repair, car breaker's year, recycling company]	Metals, cyanide, asbestos, pH, phenol, TPH, PAHs, PCBs, nitrates, sulphate and sulphides	**Site located in area of estuarine marshland that has been subject to commercial / industrial development since the late 1800s. Earliest map (1872) shows area partially occupied by a railway line, railway station and ancillary buildings (engine shed, goods shed, associated housing). A small disused gasworks was present adjacent to the northern boundary. Tilbury Docks were developed to the immediate west by 1895. Further development has occurred by the mid-1960s (expansion to railway sidings and addition of buildings associated with Tilbury Docks (hospital, mortuary, works, smithy etc.) and expansion to river terminal (passenger facilities and infrastructure within the river). Redevelopment had commenced by the 1970s - scaling back of the rail sidings - mostly been removed by the 1990s. By the mid-2000s, the eastern part of the site was covered by hardstanding and used for car parking. Site developed to its current configuration by 2010 (mostly covered by hardstanding for car parking but the ferry terminal and pontoon still present). Current car parking a potential source of contamination (fuels) but limited in volume and extent. Area now surrounded by railway and roads, operational Port of Tilbury and light industrial uses. Groundsure data indicates Electricity Substation on site but not seen during site walkover. Historical ground investigations encountered up to 5m of Made Ground or fill (inclusions of concrete, timber, brick, flint and ash). Previous investigations did not note encountering significant contamination but limited geoenvironmental sampling / testing undertaken and screening criteria superseded. Potential for Made Ground to contain / be impacted by contamination (including for example. asbestos containing materials) and with a potential for localised areas of gross impact.**				
		Investigation and construction workers Direct / dermal contact. Ingestion / inhalation of soils. Inhalation of dusts and vapour.	Severe	Low likelihood	Moderate	Potential for exposure during investigations / earthworks / excavation. Proposed site use is predominantly car parking and ancillary buildings with potential for reuse of existing buildings / areas of hardstanding. Therefore, extent of earthworks / excavation limited. Period of exposure also relatively limited. Standard Health and Safety Precautions will be used. Mitigation of potential risks can be achieved by appropriate investigation and adoption of standard good construction practice.
		Future site users / visitors (guests and workers) Direct / dermal contact. Inhalation of dusts and vapour.	Severe	Unlikely	Moderate / low	Proposed site use is predominantly car parking and ancillary buildings. Precise development proposals unconfirmed but majority of area expected to be hardstanding. Therefore very limited potential for exposure via any unsurfaced or soft landscaping areas. Period of exposure also limited. Mitigation of potential risks can be achieved by appropriate investigation / design and implementation of remediation / mitigation measures including encapsulation.
		Offsite occupiers / visitors of neighbouring land Inhalation of dusts and vapour.	Severe	Unlikely	Moderate / low	Proposed site use is predominantly car parking and ancillary buildings with potential for reuse of existing buildings / areas of hardstanding. Therefore, extent of earthworks / excavation limited, and dust generation not expected to be significant. Period of exposure also relatively limited. Standard Health and Safety Precautions will be used. Nearest surrounding land uses are roads / railway and light industrial. Mitigation of potential risks can be achieved by appropriate investigation and adoption of standard good construction practice.
		River Thames Migration via surface water drainage (outfall to Thames), permeable strata	Mild	Low likelihood	Low	Potential for increased run-off, infiltration and promotion of leaching during any development earthworks. Numerous drains shown on- and adjacent to site, orientated north-south with potential outfall to River Thames (indicated by Groundsure data and historic reports). Historic investigations indicate Alluvium to be in continuity with River Thames. Limited previous site investigation data available but mobile / gross contamination expected to be localised in occurrence. Mitigation of potential risks could be achieved by appropriate investigation and adoption of good construction practise.

Source		Receptor Pathway	Risk assessment (following CIRIA C552)			Description of source Comment on hazard realisation
Origin	**Contaminants of concern**		**Consequence**	**Probability**	**Risk**	
		Principal Aquifer (Chalk) Migration via permeable strata and preferential pathways (e.g. piling)	Medium	Unlikely	Low	Potential for increased infiltration and promotion of leaching during development earthworks. Chalk overlain by up to about 15m of Alluvium. Alluvium expected to be relatively impermeable but previous ground investigations found Alluvium, River Terrace Gravels and Chalk may be in hydraulic continuity. Limited previous site investigation data available but mobile / gross contamination expected to be localised in occurrence. Site is in estuarine / transitional environment. The nearest groundwater abstraction is a historical licence ~1km distant. Mitigation of potential risks could be achieved by appropriate investigation and adoption of good construction practise.
		Secondary Aquifers (Alluvium, River Terrace Gravels) Migration via permeable strata and preferential pathways (e.g. piling, excavation)	Minor	Likely	Low	Natural superficial deposits overlain by between about 1 and 5m of Made Ground / fill. Potential for increased infiltration and promotion of leaching from Made Ground / fill during development earthworks. Limited previous site investigation data available but mobile / gross contamination expected to be localised in occurrence. Previous ground investigations found Alluvium, River Terrace Gravels and Chalk may be in hydraulic continuity. Site is in estuarine / transitional environment. The nearest groundwater abstraction is a historical licence ~1km distant. Mitigation of potential risks could be achieved by appropriate investigation, adoption of good construction practise and selection of appropriate foundation solution.
		Buried concrete foundations / Potable water supply pipework Direct contact / aggressive attack	Mild	Low likelihood	Low	Between about 1 and 5m of Made Ground / fill recorded. Limited previous site investigation data available but mobile / gross contamination expected to be localised in occurrence. Water supply pipework likely to be limited but run through Made Ground with potential for permeation. Also potential for aggressive attack to below ground concrete structures. Mitigation of potential risks could be achieved by appropriate investigation, undertaking appropriate design and selection of suitable materials.
Made Ground arising from historic site uses: rail / coal sidings, rail station, storage of freight, engine / goods sheds, passenger terminal, hospital, mortuary, works, smithy. Made Ground arising from historic uses in surrounding area: gas works / gas holder, rail sidings, works, warehouses, dry dock, dock, car breakers yard. Alluvium and peat deposits	Hazardous ground gases (methane and carbon dioxide)	**Site located in area of estuarine marshland that has been subject to commercial / industrial development since the late 1800s. Historical ground investigations encountered up to 5m of Made Ground or fill (inclusions of concrete, timber, brick, flint and ash). This is underlain by substantial thickness (up to about 15m) of alluvial and peat deposits. Limited ground gas monitoring of Made Ground and Alluvium undertaken in previous investigations (and data are aged). The number of monitoring wells and monitoring rounds is insufficient to characterise site but elevated concentrations of carbon dioxide and methane were recorded (methane up to 72%, carbon dioxide up to 12.5%, depleted oxygen of 11%).**				
		Investigation and construction workers Migration of gas, accumulation to asphyxiating / explosive concentrations	Severe	Unlikely	Moderate / low	Limited potential for hazardous gases to accumulate to impact construction workers due to anticipated nature of works. Precise development proposals unconfirmed, but majority of area likely to be car parking with some ancillary buildings. Extent of Made Ground and Alluvium extensive. Standard Health and Safety Precautions will be used. Mitigation of potential risks could be achieved by appropriate investigation to characterise the ground gas regime, adoption of standard good construction practise.
		Future site users / visitors (guests and workers) Migration of gas, accumulation to asphyxiating / explosive concentrations	Severe	Low likelihood	Moderate	Potential for migration of ground gas via permeable strata / preferential pathways with accumulation to hazardous (asphyxiating / explosive) concentrations in enclosed / poorly ventilated spaces. Precise development proposals unconfirmed, but potential for migration and accumulation in any ancillary buildings. Mitigation of potential risks could be achieved by appropriate investigation to characterise the ground gas regime and installation of gas protection measures as required.

Source		Receptor Pathway	Risk assessment (following CIRIA C552)			Description of source Comment on hazard realisation
Origin	**Contaminants of concern**		**Consequence**	**Probability**	**Risk**	
		Offsite occupiers / visitors of neighbouring land Migration of gas, accumulation to asphyxiating / explosive concentrations	Severe	Unlikely	Moderate / Low	Precise development proposals unconfirmed, but majority of area likely to be car parking with some ancillary buildings. Development unlikely to alter existing gas regime such that neighbours are impacted. Mitigation of potential risks could be achieved by appropriate investigation to characterise the ground gas regime and installation of gas protection measures as required.
		Buildings Migration of gas, accumulation to asphyxiating / explosive concentrations	Medium	Low likelihood	Moderate / Low	Potential for migration of ground gas via permeable strata / preferential pathways with accumulation to hazardous (asphyxiating / explosive) concentrations in enclosed / poorly ventilated spaces. Precise development proposals unconfirmed, but potential for migration and accumulation in any ancillary buildings. Mitigation of potential risks could be achieved by appropriate investigation to characterise the ground gas regime and installation of gas protection measures as required.

7 Conclusions and recommendations

7.1 Summary of contamination risks

An Initial Conceptual Site Model has been determined and a Preliminary Risk Assessment with respect to ground contamination has been carried out for the Site on the basis of desk based data. At this preliminary stage of this project the main sources of potential contamination have been identified and the potential risks have been qualitatively assessed. The assessment is based upon the Site in its current condition, but it also includes consideration of the potential risks associated with any below ground works (e.g. site investigation or future foundation works etc.) and the potential future use. A summary of the potentially significant risks (i.e. greater than Low) is presented below.

Table 7-1 Summary of potential risks

Source	Potential contaminants of concern	Receptor	Risk
Made Ground from historical site uses Current commercial / industrial activity on-site and surrounding area	Metals, cyanide, asbestos, pH, phenol, TPH, PAHs, PCBs, nitrates, sulphate and sulphides	Investigation and construction workers	Moderate
		Future site users / visitors	Moderate / Low
		Neighbours	
Made Ground, Alluvium and peat deposits	Hazardous ground gases (methane and carbon dioxide)	Future site users / visitors	Moderate
		Buildings	Moderate / Low
		Offsite occupiers / visitors of neighbouring land	
		Investigation and construction workers	

7.2 Statutory Designation

In our opinion, it is unlikely that the Site would be determined as Contaminated Land (under the provisions of Part 2A of the Environmental Protection Act 1990) in its current status, or following the event of any redevelopment, provided the recommendations below are followed.

7.3 Recommendations

7.3.1 Site investigation

The risks identified above are capable of mitigation by undertaking appropriate site investigation, risk assessment and adoption of remedial measures (as required). The site investigation should have combined geoenvironmental and geotechnical objectives. It should be designed specific for the proposed development and to determine current ground conditions and associated soil properties, including the nature and extent of any soil or groundwater contamination and the potential for generation of hazardous ground gas.

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A site investigation would be anticipated to comprise:

- Boreholes to determine nature and properties of strata necessary to inform foundation design and earthworks (once proposals for new buildings are understood) and enable groundwater monitoring;
- Trial pits to obtain bulk samples from the Made Ground and shallow natural strata for chemical / geotechnical analysis (to inform earthworks);
- Series of shallow exploratory holes (e.g. window samples) to enable ground gas (within proposed building footprints) and shallow groundwater monitoring.

7.3.2 General

In combination with the above, the risks are also capable of mitigation by adoption of standard good health and safety and construction practices, including measures to prevent uncontrolled run-off into surface water drainage/ the River Thames.

In addition to this, the following are recommended:

- Plans / information should be obtained on the (in part) culverted drains present on- and adjacent to the site that have outfalls to the River Thames (identified in Chapter 5);
- The risks associated with UXO for the development have been assessed as Moderate. Accordingly, a detailed UXO assessment is recommended prior to extensive earthworks.

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8 References

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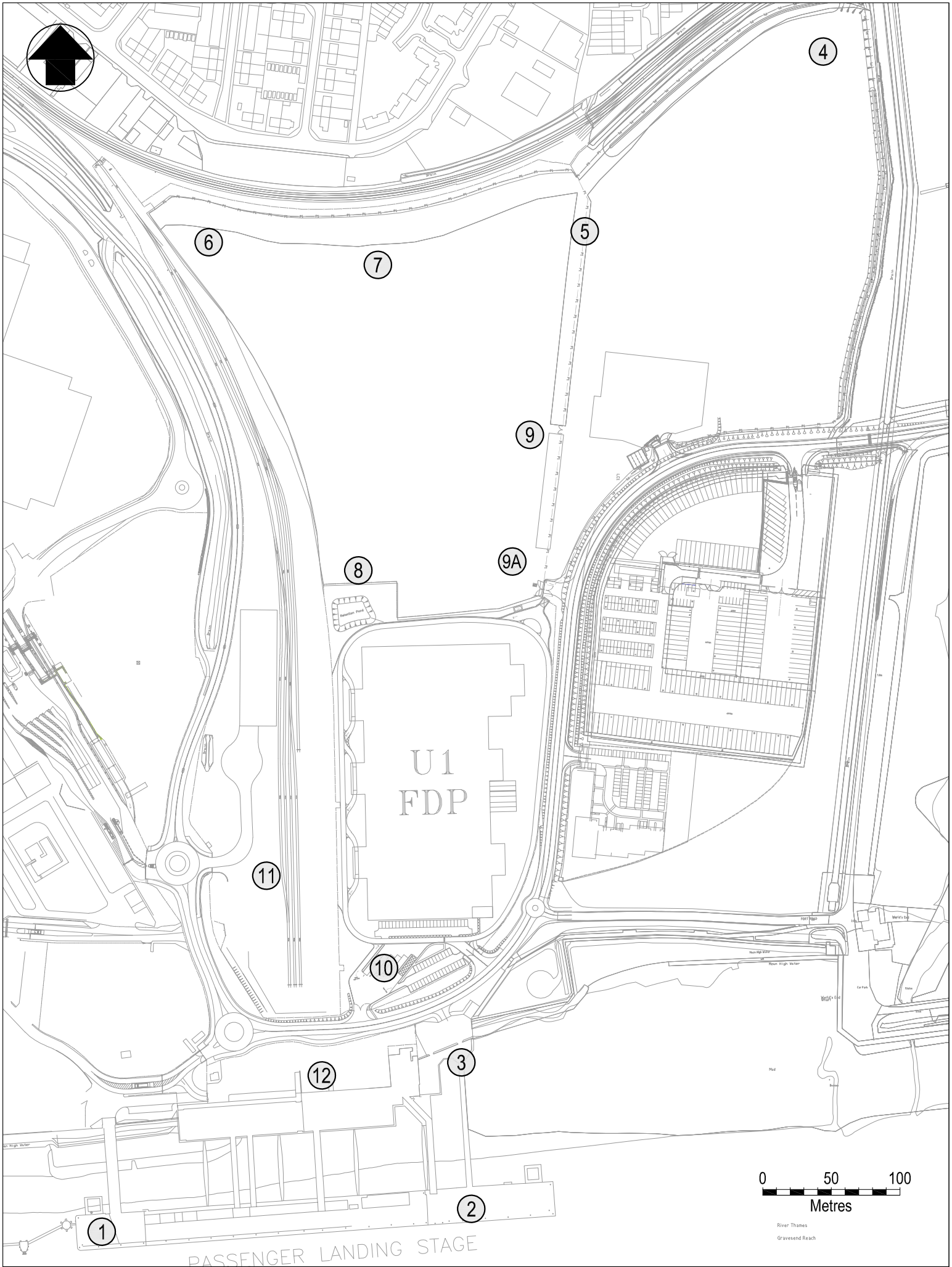
[18] NHBC, Environemant Agency and Chartered Institute of Environmental Health, Guidance for the safe development of housing on land affected by contamination. R&D 66:2008, 2008.

[19] CIRIA, "Contaminated Land Risk Assessment. A guide to good practice. C552," CIRIA, 2001.

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Appendix A Site walkover photographs (June 2020)

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Project: Desk Study: London Resort - The Essex Project Site
Figure Title: Site Walkover - Location of Walkover Photographs
Date: July 2020

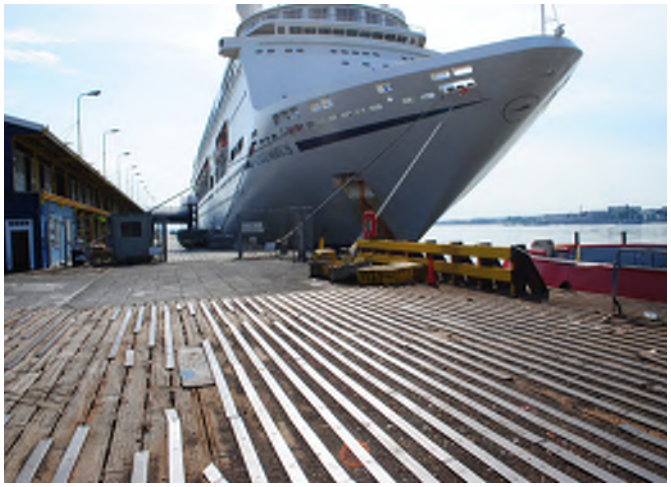
Tilbury – Site Walkover Photographic record - 26062020



Location 1: Looking NE. Cruise Terminal from Operational end of Landing Stage



Location 1: Looking W along floating "pontoon ducks"



Location 1: Looking E along passenger Landing Stage



Location 1: Looking NE. Cruise Terminal from Operational end of Landing Stage



Location 1: Looking E along passenger Landing Stage



Location 1: Looking NE. Cruise Terminal from Operational end of Landing Stage

Tilbury – Site Walkover Photographic record - 26062020



Location 1: Looking W. River Wall to right. Floating pontoon to left



Location 1: Looking W. River Wall to right. Floating pontoon to left



Location 2: Looking E from public end of Landing Stage



Location 2: Looking S towards Gravesend



Location 2: Looking E along Landing Stage



Location 2: Looking N towards River Wall

Tilbury – Site Walkover Photographic record - 26062020



Location 2: Public access to Ferry Terminal



Location 2: Ferry Terminal



Location 3: Looking NE towards River Wall



Location 3: Looking E towards Tilbury Fort



Location 3: Looking W at Cultural Centre (E end of Rail Station building



Location 3: Looking W at Cultural Centre (E end of Rail Station building

Tilbury – Site Walkover Photographic record - 26062020



Location 4: Looking S across car storage at D Compound - from new road to Tilbury 2



Location 5: Looking S across car storage at D Compound swale visible - from new road



Location 6: Looking S across car storage at C Compound. Unit 1 in background



Location 7: New Road looking W – Railway to right



Location 7: New Road looking E – Railway to left



Location 8: Attenuation pond

Tilbury – Site Walkover Photographic record - 26062020



Location 8: Rail Shed with car storage across former rail lines (now removed)



Location 8: Car storage across former rail lines (now removed)



Location 8: Looking N across car storage at C Compound



Location 8: Attenuation pond



Location 8: Attenuation pond



Location 9: Looking SW across Compound C. Unit 1 in background

Tilbury – Site Walkover Photographic record - 26062020



Location 9: Looking S across Compound C. Unit 1 and cruise liner in background



Location 9: Swale



Location 9: Looking N along swale. Compound C to left



Location 9: Looking S along swale. Compound C to right and Unit 1 in background



Location 9: Looking W across Compound C. Poor drainage evident



Location 9: Swale

Tilbury – Site Walkover Photographic record - 26062020



Location 10: Entrance to Unit 1



Location 10: Entrance to Unit 1



Location 10: Looking S to Railway Station



Location 10: Unit 1



Location 11: Looking E across former rail lines towards Unit 1



Location 11: Looking S across former rail lines towards Unit 1

Tilbury – Site Walkover Photographic record - 26062020



Location 11: Looking N across former rail lines towards Rail Shed



Location 11: Former rail lines visible in repaired tarmac



Location 12: Looking W to Cruise Terminal



Location 12: Inside Railway Station



Location 12: Inside Railway Station

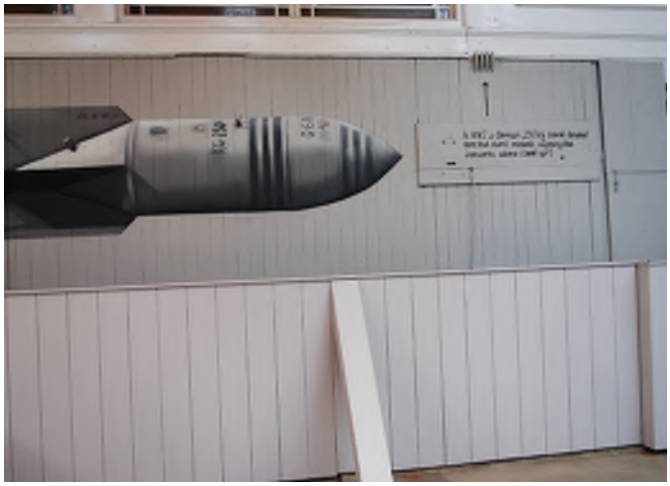


Location 12: Inside Railway Station

Tilbury – Site Walkover Photographic record - 26062020



Location 12: Inside Railway Station – photo recording bomb damage



Location 12: Inside Railway Station – photo recording unexploded bomb



Location 12: Inside Railway Station – photo recording station use



Location 12: Inside Railway Station – flood defence barrier (white walling)



Location 12: Cruise Terminal building



Location 12: Cruise Terminal building

Tilbury – Site Walkover Photographic record - 26062020



Location 12: Parking area to N of Cruise Terminal building



Location 12: Entrance to Cruise Terminal building



Location 12: Cruise Terminal building with Cupola (recently restored)

Appendix B Groundsure

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Groundsure LOCATION INTELLIGENCE

Enviro+Geo Insight

564487,175529

Order Details

Date: 15/06/2020

Your ref: Tilbury

Our Ref: GSIP-2020-10242-897

Client: BURO HAPPOLD

Site Details

Location: 564438 175450

Area: 31.61 ha

Authority: Thurrock Council



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Summary of findings p. 2

OS MasterMap site plan N/A: >10ha

Aerial image p. 8

groundsure.com/insightuserguide

Contact us with any questions at:
info@groundsure.com
08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
13	1.1	Historical industrial land uses	130	33	66	107	-
26	1.2	Historical tanks	5	4	0	7	-
27	1.3	Historical energy features	1	3	3	13	-
28	1.4	Historical petrol stations	0	0	0	0	-
28	1.5	Historical garages	1	6	3	0	-
29	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
30	2.1	Historical industrial land uses	184	45	94	170	-
48	2.2	Historical tanks	5	5	0	10	-
49	2.3	Historical energy features	1	4	5	17	-
50	2.4	Historical petrol stations	0	0	0	0	-
51	2.5	Historical garages	1	8	5	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
52	3.1	Active or recent landfill	0	0	0	0	-
52	3.2	Historical landfill (BGS records)	0	0	0	0	-
53	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
53	3.4	Historical landfill (EA/NRW records)	0	0	1	0	-
53	3.5	Historical waste sites	0	5	8	1	-
55	3.6	Licensed waste sites	0	0	1	1	-
56	3.7	Waste exemptions	0	0	17	4	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
58	4.1	Recent industrial land uses	7	10	27	-	-
61	4.2	Current or recent petrol stations	0	0	0	1	-
62	4.3	Electricity cables	0	0	0	0	-
62	4.4	Gas pipelines	0	0	0	0	-
62	4.5	Sites determined as Contaminated Land	0	0	0	0	-

62	4.6	Control of Major Accident Hazards (COMAH)	0	1	1	0	-
63	4.7	Regulated explosive sites	0	0	0	0	-
63	4.8	Hazardous substance storage/usage	0	0	0	0	-
63	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
63	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
63	4.11	Licensed pollutant release (Part A(2)/B)	0	0	3	1	-
64	4.12	Radioactive Substance Authorisations	0	0	0	0	-
64	4.13	Licensed Discharges to controlled waters	0	0	4	4	-
66	4.14	Pollutant release to surface waters (Red List)	0	0	2	0	-
66	4.15	Pollutant release to public sewer	0	0	0	0	-
66	4.16	List 1 Dangerous Substances	0	0	0	0	-
67	4.17	List 2 Dangerous Substances	0	0	0	0	-
67	4.18	Pollution Incidents (EA/NRW)	1	0	4	7	-
68	4.19	Pollution inventory substances	0	0	0	0	-
69	4.20	Pollution inventory waste transfers	0	0	0	0	-
69	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
70	5.1	Superficial aquifer	Identified (within 500m)				
72	5.2	Bedrock aquifer	Identified (within 500m)				
74	5.3	Groundwater vulnerability	Identified (within 50m)				
75	5.4	Groundwater vulnerability- soluble rock risk	Identified (within 0m)				
76	5.5	Groundwater vulnerability- local information	Identified (within 0m)				
77	5.6	Groundwater abstractions	0	0	0	0	9
80	5.7	Surface water abstractions	0	0	0	0	0
80	5.8	Potable abstractions	0	0	0	0	1
80	5.9	Source Protection Zones	0	0	0	1	-
81	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
82	6.1	Water Network (OS MasterMap)	10	13	22	-	-

86	6.2	Surface water features	1	7	9	-	-
86	6.3	WFD Surface water body catchments	1	-	-	-	-
87	6.4	WFD Surface water bodies	1	0	0	-	-
87	6.5	WFD Groundwater bodies	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
88	7.1	Risk of Flooding from Rivers and Sea (RoFRaS)	High (within 50m)				
89	7.2	Historical Flood Events	1	0	0	-	-
89	7.3	Flood Defences	1	1	0	-	-
89	7.4	Areas Benefiting from Flood Defences	2	0	0	-	-
90	7.5	Flood Storage Areas	0	0	0	-	-
91	7.6	Flood Zone 2	Identified (within 50m)				
92	7.7	Flood Zone 3	Identified (within 50m)				
Page	Section	Surface water flooding					
93	8.1	Surface water flooding	1 in 30 year, Greater than 1.0m (within 50m)				
Page	Section	Groundwater flooding					
95	9.1	Groundwater flooding	High (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
96	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
97	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
97	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
97	10.4	Special Protection Areas (SPA)	0	0	0	0	0
97	10.5	National Nature Reserves (NNR)	0	0	0	0	0
98	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
98	10.7	Designated Ancient Woodland	0	0	0	0	0
98	10.8	Biosphere Reserves	0	0	0	0	0
98	10.9	Forest Parks	0	0	0	0	0
99	10.10	Marine Conservation Zones	0	0	0	0	0
99	10.11	Green Belt	0	0	0	0	1
99	10.12	Proposed Ramsar sites	0	0	0	0	0

99	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
100	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
100	10.15	Nitrate Sensitive Areas	0	0	0	0	0
100	**10.16**	**Nitrate Vulnerable Zones**	0	0	0	0	3
101	**10.17**	**SSSI Impact Risk Zones**	2	-	-	-	-
103	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
104	11.1	World Heritage Sites	0	0	0	-	-
105	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
105	11.3	National Parks	0	0	0	-	-
105	**11.4**	**Listed Buildings**	1	0	1	-	-
106	11.5	Conservation Areas	0	0	0	-	-
106	**11.6**	**Scheduled Ancient Monuments**	0	0	1	-	-
106	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
107	**12.1**	**Agricultural Land Classification**	Non Agricultural (within 250m)				
108	12.2	Open Access Land	0	0	0	-	-
108	12.3	Tree Felling Licences	0	0	0	-	-
108	12.4	Environmental Stewardship Schemes	0	0	0	-	-
108	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
109	**13.1**	**Priority Habitat Inventory**	10	4	4	-	-
110	**13.2**	**Habitat Networks**	4	1	10	-	-
111	13.3	Open Mosaic Habitat	0	0	0	-	-
111	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
112	**14.1**	**10k Availability**	Identified (within 500m)				
114	**14.2**	**Artificial and made ground (10k)**	2	1	5	2	-
116	**14.3**	**Superficial geology (10k)**	3	0	1	6	-

117	14.4	Landslip (10k)	0	0	0	0	-
118	**14.5**	**Bedrock geology (10k)**	2	0	1	1	-
119	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
120	**15.1**	**50k Availability**	Identified (within 500m)				
121	**15.2**	**Artificial and made ground (50k)**	1	0	1	2	-
122	**15.3**	**Artificial ground permeability (50k)**	1	0	-	-	-
123	**15.4**	**Superficial geology (50k)**	2	0	0	3	-
124	**15.5**	**Superficial permeability (50k)**	Identified (within 50m)				
124	15.6	Landslip (50k)	0	0	0	0	-
124	15.7	Landslip permeability (50k)	None (within 50m)				
125	**15.8**	**Bedrock geology (50k)**	1	0	0	0	-
126	**15.9**	**Bedrock permeability (50k)**	Identified (within 50m)				
126	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
127	**16.1**	**BGS Boreholes**	10	5	32	-	-
Page	Section	Natural ground subsidence					
130	**17.1**	**Shrink swell clays**	Low (within 50m)				
131	**17.2**	**Running sands**	Moderate (within 50m)				
133	**17.3**	**Compressible deposits**	High (within 50m)				
135	**17.4**	**Collapsible deposits**	Negligible (within 50m)				
136	**17.5**	**Landslides**	Very low (within 50m)				
137	**17.6**	**Ground dissolution of soluble rocks**	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
139	18.1	Natural cavities	0	0	0	0	-
140	18.2	BritPits	0	0	0	0	-
140	**18.3**	**Surface ground workings**	17	8	52	-	-
143	**18.4**	**Underground workings**	0	0	0	0	1
143	18.5	Historical Mineral Planning Areas	0	0	0	0	-

143	18.6	Non-coal mining	0	0	0	1	3
144	18.7	Mining cavities	0	0	0	0	3
145	18.8	JPB mining areas	None (within 0m)				
145	18.9	Coal mining	None (within 0m)				
145	18.10	Brine areas	None (within 0m)				
145	18.11	Gypsum areas	None (within 0m)				
145	18.12	Tin mining	None (within 0m)				
146	18.13	Clay mining	None (within 0m)				

Page	Section	Radon	
147	19.1	Radon	Less than 1% (within 0m)

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
148	20.1	BGS Estimated Background Soil Chemistry	10	0	-	-	-
149	20.2	BGS Estimated Urban Soil Chemistry	53	18	-	-	-
152	20.3	BGS Measured Urban Soil Chemistry	2	1	-	-	-

Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
153	21.1	Underground railways (London)	0	0	0	-	-
153	21.2	Underground railways (Non-London)	0	0	0	-	-
154	21.3	Railway tunnels	0	0	0	-	-
154	21.4	Historical railway and tunnel features	30	5	36	-	-
157	21.5	Royal Mail tunnels	0	0	0	-	-
157	21.6	Historical railways	4	0	0	-	-
157	21.7	Railways	12	15	5	-	-
159	21.8	Crossrail 1	0	0	0	0	-
159	21.9	Crossrail 2	0	0	0	0	-
159	21.10	HS2	0	0	0	0	-

Recent aerial photograph



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Capture Date: 01/09/2018

Site Area: 31.61ha

Recent site history - 2015 aerial photograph



Capture Date: 30/06/2015

Site Area: 31.61ha

Recent site history - 2012 aerial photograph



Capture Date: 25/05/2012

Site Area: 31.61ha

Recent site history - 2009 aerial photograph



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Capture Date: 27/09/2009

Site Area: 31.61ha

Recent site history - 1999 aerial photograph



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Capture Date: 03/09/1999

Site Area: 31.61ha

1 Past land use



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

1.1 Historical industrial land uses

Records within 500m	336

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
1	**On site**	**Railway Sidings**	**1966**	**2128758**

ID	Location	Land use	Dates present	Group ID
2	On site	Unspecified Heap	1863	2137175
3	On site	Docks	1932 - 1946	2190380
4	On site	Railway Sidings	1895	2203559
5	On site	Railway Sidings	1863 - 1947	2209400
6	On site	Railway Sidings	1923	2218035
A	On site	Unspecified Commercial/Industrial	1946	2131139
A	On site	Steam Laundry	1895	2179791
A	On site	Steam Laundry	1899	2183265
A	On site	Laundry	1888	2199846
A	On site	Laundry	1938	2233421
A	On site	Laundry	1938	2241551
A	On site	Railway Sidings	1907 - 1938	2254660
A	On site	Laundry	1923	2259159
A	On site	Laundry	1955 - 1966	2269804
A	On site	Laundry	1907 - 1916	2290293
A	On site	Laundry	1895	2292725
B	On site	Unspecified Commercial/Industrial	1888	2131140
C	On site	Gas Works	1863	2135572
C	On site	Gasometer	1863	2139972
C	On site	Railway Building	1955	2182830
C	On site	Railway Building	1938	2189553
C	On site	Engine Shed	1923 - 1932	2191699
C	On site	Railway Building	1932 - 1938	2207561
C	On site	Railway Building	1923	2226640
C	On site	Railway Building	1938	2294721
D	On site	Coal Sidings	1916	2139568
D	On site	Engine Shed	1863	2146564
D	On site	Railway Building	1955	2150232

ID	Location	Land use	Dates present	Group ID
D	On site	Railway Building	1955	2150233
D	On site	Railway Building	1888	2150234
D	On site	Railway Building	1895	2150235
D	On site	Railway Building	1895	2150236
D	On site	Carriage Shed	1863	2152791
D	On site	Railway Sidings	1982	2170924
D	On site	Railway Sidings	1895	2174346
D	On site	Railway Building	1923	2174498
D	On site	Railway Sidings	1992 - 1993	2179204
D	On site	Railway Sidings	1923	2184499
D	On site	Railway Building	1946	2187497
D	On site	Railway Building	1932	2194565
D	On site	Railway Sidings	1899	2198293
D	On site	Railway Buildings	1863	2200135
D	On site	Railway Buildings	1888	2202944
D	On site	Railway Buildings	1895	2210845
D	On site	Railway Sidings	1899	2217065
D	On site	Railway Sidings	1863	2230253
D	On site	Railway Buildings	1907	2235448
D	On site	Railway Building	1946	2241904
D	On site	Railway Building	1973 - 1993	2242671
D	On site	Railway Building	1938	2243681
D	On site	Railway Sidings	1888	2263468
D	On site	Railway Buildings	1932 - 1938	2266432
D	On site	Railway Building	1895	2270466
D	On site	Railway Sidings	1955 - 1973	2283120
E	On site	Unspecified Commercial/Industrial	1888	2131138
E	On site	Railway Station	1993	2152730

ID	Location	Land use	Dates present	Group ID
E	On site	Railway Buildings	1993	2163724
E	On site	Railway Buildings	1938	2173215
E	On site	Railway Station	1923 - 1938	2174469
E	On site	Railway Station	1888 - 1895	2180119
E	On site	Railway Buildings	1907	2181360
E	On site	Railway Buildings	1895	2185068
E	On site	Railway Station	1907	2185289
E	On site	Railway Building	1955	2186059
E	On site	Railway Building	1895 - 1907	2192161
E	On site	Railway Buildings	1895	2194045
E	On site	Smithy	1907	2197058
E	On site	Railway Buildings	1938 - 1946	2202238
E	On site	Railway Station	1895	2206213
E	On site	Railway Building	1955	2209666
E	On site	Railway Building	1973 - 1992	2213310
E	On site	Railway Buildings	1932	2214119
E	On site	Railway Sidings	1895	2216839
E	On site	Railway Building	1932 - 1938	2219190
E	On site	Railway Station	1946	2222009
E	On site	Railway Station	1899	2222834
E	On site	Railway Sidings	1899	2224307
E	On site	Railway Sidings	1899	2228022
E	On site	Railway Building	1938	2229023
E	On site	Railway Station	1863	2236254
E	On site	Railway Building	1938	2236884
E	On site	Railway Station	1973 - 1992	2240358
E	On site	Railway Building	1938	2240502
E	On site	Railway Building	1955	2246142

ID	Location	Land use	Dates present	Group ID
E	On site	Railway Building	1895	2247042
E	On site	Railway Sidings	1888	2247090
E	On site	Smithy	1895 - 1899	2247551
E	On site	Smithy	1888 - 1895	2248311
E	On site	Railway Station	1916	2250368
E	On site	Railway Buildings	1923	2251669
E	On site	Railway Building	1938	2255903
E	On site	Railway Building	1938	2258819
E	On site	Railway Buildings	1932	2260514
E	On site	Railway Sidings	1863	2261959
E	On site	Railway Buildings	1938	2271218
E	On site	Railway Building	1946	2273248
E	On site	Railway Sidings	1899	2277529
E	On site	Railway Sidings	1899	2277864
E	On site	Smithy	1863	2280000
E	On site	Railway Buildings	1938	2282389
E	On site	Railway Building	1938	2288891
E	On site	Railway Station	1955 - 1966	2291624
E	On site	Railway Sidings	1888	2291791
E	On site	Railway Station	1938	2292460
E	On site	Railway Building	1932	2295025
F	On site	Mortuary	1938	2174532
F	On site	Mortuary	1932	2192269
F	On site	Mortuary	1888 - 1895	2193620
F	On site	Mortuary	1907	2239986
F	On site	Mortuary	1916 - 1923	2241338
G	On site	Unspecified Docks	1888	2175886
G	On site	Unspecified Disused Wharf	1973 - 1982	2225872

ID	Location	Land use	Dates present	Group ID
G	**On site**	**Dock**	**1993**	**2236786**
G	**On site**	**Docks**	**1982**	**2275598**
G	**On site**	**Unspecified Docks**	**1898**	**2284513**
H	**On site**	**Hospital**	**1938**	**2186876**
H	**On site**	**Hospital**	**1946**	**2203034**
H	**On site**	**Unspecified Depot**	**1992 - 1993**	**2207776**
H	**On site**	**Hospital**	**1955 - 1966**	**2245599**
H	**On site**	**Hospital**	**1938**	**2287181**
H	**On site**	**Unspecified Depot**	**1982**	**2289557**
I	**On site**	**Dry Docks**	**1938**	**2205343**
I	**On site**	**Dock**	**1955 - 1966**	**2206549**
I	**On site**	**Railway Sidings**	**1955 - 1966**	**2281795**
J	**On site**	**Smithy**	**1907**	**2219446**
J	**On site**	**Smithy**	**1895**	**2264054**
J	**On site**	**Smithy**	**1888 - 1899**	**2279268**
K	**On site**	**Marshes**	**1898 - 1899**	**2224429**
K	**On site**	**Marshes**	**1888**	**2254724**
C	1m N	Unspecified Tank	1888 - 1895	2198027
L	2m NW	Docks	1938	2216390
C	3m N	Railway Building	1955 - 1966	2228315
C	4m N	Engine Shed	1916	2173894
C	4m N	Unspecified Tank	1899	2221039
C	4m N	Unspecified Tank	1899	2258547
C	5m N	Engine Shed	1938 - 1946	2209291
C	5m N	Engine Shed	1938	2190092
C	7m N	Engine Shed	1938	2255760
M	8m W	Unspecified Works	1973 - 1992	2258965
I	8m W	Unspecified Dock	1899	2219563

ID	Location	Land use	Dates present	Group ID
C	9m N	Unspecified Tank	1895	2223145
N	15m W	Railway Sidings	1923	2172605
N	15m W	Dock	1923	2213936
C	17m N	Railway Building	1895	2150220
O	22m W	Docks	1916	2168808
O	22m W	Docks	1907	2168809
P	23m SW	Hospital	1923 - 1938	2229185
M	23m W	Unspecified Works	1993	2281601
Q	27m W	Railway Sidings	1888	2250778
P	29m SW	Hospital	1916	2180530
M	29m W	Railway Sidings	1888 - 1895	2170490
Q	29m W	Railway Sidings	1895	2205206
7	30m NW	Railway Station	1932	2152728
R	33m N	Railway Building	1932	2150218
H	35m W	Mortuary	1946	2160941
S	39m N	Marshes	1899	2185328
S	41m N	Unspecified Depot	1923	2147384
S	46m N	Unspecified Works	1973	2278002
S	46m N	Unspecified Works	1992 - 1993	2224862
S	46m N	Unspecified Works	1982	2277881
U	47m SW	Dry Docks	1946	2175925
R	50m NW	Railway Building	1895	2185984
Q	51m NW	Fire Station	1946	2128193
V	51m W	Railway Sidings	1899	2218033
W	54m W	Railway Building	1888 - 1895	2224948
W	54m W	Railway Building	1907	2233619
W	57m W	Railway Building	1895	2190954
9	59m SW	Laundry	1932	2132386

ID	Location	Land use	Dates present	Group ID
N	76m SW	Railway Sidings	1895	2168759
N	76m SW	Railway Sidings	1895	2168760
S	78m N	Refuse Heap	1863 - 1955	2177751
X	79m NE	Unspecified Wharf	1938	2214524
Q	79m W	Railway Buildings	1946	2163750
10	79m SW	Railway Sidings	1888	2235949
X	79m E	Unspecified Wharf	1973 - 1993	2229146
M	84m W	Unspecified Works	1955 - 1966	2292142
Y	85m W	Railway Buildings	1946	2163749
Y	85m W	Railway Building	1888 - 1895	2282923
N	87m SW	Unspecified Warehouse	1982 - 1993	2280029
Z	88m SW	Unspecified Warehouse	1973	2276890
X	95m E	Unspecified Wharf	1955	2179094
X	95m E	Unspecified Wharf	1863	2272490
11	97m SW	Railway Building	1888 - 1895	2213434
X	97m NE	Wharf	1916	2160653
X	99m E	Unspecified Wharf	1923	2268214
S	101m NW	Refuse Destructor	1863	2157181
X	105m NE	Unspecified Wharf	1938	2246798
V	107m W	Unspecified Warehouse	1955 - 1966	2276879
X	108m NE	Unspecified Wharf	1966	2203351
I	110m W	Railway Sidings	1888	2246336
M	110m W	Engineering Works	1946	2142110
I	112m W	Railway Sidings	1899	2172467
I	112m W	Railway Sidings	1899	2255470
O	117m SW	Docks	1895	2193641
I	119m W	Dry Dock	1973 - 1982	2238736
V	122m W	Goods Shed	1946	2164618

ID	Location	Land use	Dates present	Group ID
I	124m W	Dry Dock	1992	2254779
Y	125m W	Railway Sidings	1888	2287122
AA	126m NW	Railway Building	1895	2174344
AA	126m NW	Railway Building	1907	2262897
X	127m E	Unspecified Heap	1863	2137174
AB	128m SW	Railway Sidings	1907	2218034
AB	128m SW	Railway Sidings	1888 - 1895	2271285
S	129m NW	Depot	1916	2132297
S	133m NW	Unspecified Depot	1938	2147385
Y	133m W	Railway Sidings	1895	2174922
Y	135m W	Railway Building	1907	2219993
Y	135m W	Railway Building	1895	2222125
Y	136m W	Railway Building	1888	2254165
Y	138m W	Railway Building	1932	2176629
Y	138m W	Railway Building	1938	2289001
AC	149m NW	Basin	1888	2281777
AC	150m NW	Basin	1899	2230426
V	152m NW	Railway Sidings	1888	2236224
V	158m W	Railway Buildings	1932	2173585
V	158m W	Railway Buildings	1895	2239173
V	158m W	Railway Buildings	1907	2278934
M	158m W	Railway Buildings	1888	2163751
V	165m W	Railway Building	1895	2150193
12	173m N	Unspecified Ground Workings	1863	2134383
AD	201m W	Unspecified Warehouses	1955 - 1966	2220248
AE	220m E	Refuse Heap	1863	2158972
I	225m W	Pumping Station	1938	2151750
13	226m SW	Railway Sidings	1899	2178243

ID	Location	Land use	Dates present	Group ID
AE	229m E	Magazines	1863	2157612
AD	236m W	Unspecified Warehouses	1973	2214141
AF	247m SW	Docks	1992	2225006
AF	247m SW	Dock	1993	2252368
AF	251m SW	Dock	1973	2279361
U	253m W	Dry Dock	1895	2247774
U	253m W	Dry Docks	1907	2283763
AG	257m NW	Railway Sidings	1966	2232404
AI	272m W	Unspecified Tank	1923 - 1932	2200809
14	273m E	Marshes	1916	2280792
AI	276m W	Unspecified Tank	1938	2225486
U	279m W	Dry Dock	1932	2236122
AG	284m W	Railway Sidings	1955	2201696
AG	284m W	Docks	1955	2216389
AJ	287m W	Railway Building	1888	2150194
15	300m E	Magazines	1863	2157611
16	301m W	Railway Building	1895	2150217
U	304m W	Dry Dock	1888 - 1895	2276889
U	307m W	Unspecified Tank	1973	2155400
U	307m W	Dry Dock	1916 - 1938	2241854
U	308m W	Dry Dock	1899	2265944
U	312m W	Pumping Station	1932	2205582
17	312m E	Quay	1967 - 1973	2186445
U	313m SW	Pumping Station	1923	2275675
U	314m W	Pumping Station	1938	2172419
U	316m W	Pumping Station	1916	2212589
18	318m SE	Unspecified Ground Workings	1955	2134381
U	322m W	Pumping Station	1938	2279971

ID	Location	Land use	Dates present	Group ID
AJ	323m SW	Pumping Station	1973	2151751
U	345m W	Dry Dock	1888	2170733
U	349m W	Dry Dock	1899	2250419
U	349m W	Dry Dock	1895	2275216
U	356m W	Dry Dock	1973	2232566
U	356m NW	Dry Dock	1923	2225803
U	361m W	Dry Dock	1938	2271078
AL	363m W	Railway Sidings	1938	2169619
AL	363m W	Dock	1938 - 1946	2231073
21	372m NW	Police Station	1982 - 1993	2261539
U	378m W	Dry Dock	1973	2203192
23	379m W	Railway Sidings	1888 - 1898	2270828
AL	379m W	Railway Sidings	1946	2249066
AM	380m NW	Police Station	1946	2173561
AM	385m NW	Police Station	1973	2187825
AL	387m W	Railway Sidings	1955 - 1966	2267789
AN	396m E	Unspecified Ground Workings	1955	2286145
AO	398m W	Railway Sidings	1923	2215454
AO	398m W	Dock	1923	2286147
24	400m E	Gun Wharf	1863	2146431
25	401m W	Unspecified Dock	1898	2171221
AL	402m W	Dock	1923	2240684
AL	402m W	Railway Sidings	1923	2292550
AL	406m W	Docks	1938	2241910
26	408m W	Dock	1895	2272957
AP	416m NW	Fire Station	1946 - 1966	2278884
27	416m W	Tramway Sidings	1923	2151166
AO	417m W	Unspecified Warehouses	1955 - 1993	2178873

ID	Location	Land use	Dates present	Group ID
AP	420m NW	Fire Station	1973 - 1993	2172858
28	429m E	Unspecified Wharf	1863	2157333
AQ	429m SE	Magazine	1863	2157864
29	430m SW	Unspecified Dock	1898	2201470
L	431m W	Unspecified Warehouse	1955 - 1966	2236754
30	431m W	Unspecified Depot	1973	2261272
31	433m SW	Dock	1895	2268647
AN	435m E	Unspecified Ground Workings	1967 - 1991	2262051
32	441m W	Unspecified Depot	1982 - 1993	2243909
AR	442m S	Railway Sidings	1895	2265110
AS	443m S	Railway Sidings	1938	2295100
AT	445m W	Railway Buildings	1946	2163752
33	447m W	Unspecified Warehouses	1982 - 1993	2226986
AQ	450m E	Gun Shed	1863	2138059
AU	452m S	Railway Sidings	1971	2170456
AU	452m S	Railway Sidings	1955	2236983
AU	452m S	Railway Sidings	1966	2251154
AU	452m S	Tramway Sidings	1932	2226539
AU	453m S	Tramway Sidings	1946	2217665
AU	454m S	Railway Sidings	1938	2266142
AU	455m S	Tramway Sidings	1895	2194212
AR	456m S	Unspecified Wharf	1888	2248472
AU	457m S	Railway Sidings	1916 - 1938	2282894
AW	457m S	Railway Station	1932	2276482
AS	457m S	Railway Sidings	1899	2197175
AW	457m S	Railway Station	1966	2193720
AW	457m S	Railway Station	1938	2177074
AW	458m S	Terminus	1946	2165394

ID	Location	Land use	Dates present	Group ID
AX	461m NW	Police Station	1982 - 1993	2180607
AX	463m NW	Police Station	1973	2270879
AU	465m S	Railway Sidings	1907	2204714
AU	466m S	Railway Sidings	1888	2265764
AN	467m E	Magazine	1863	2157874
AY	475m S	Unspecified Wharf	1966	2176693
AY	475m S	Unspecified Wharf	1971	2173247
AY	475m S	Unspecified Wharf	1990	2284370
AY	475m S	Unspecified Wharf	1977	2286271
35	481m SW	Unspecified Wharves	1895	2289517
AR	482m S	Wharf	1916	2160654
AR	484m S	Unspecified Wharf	1938	2177156
AR	484m S	Unspecified Wharf	1938	2221905
AR	485m S	Unspecified Wharf	1938	2264972
AY	486m S	Unspecified Commercial/Industrial	1938	2131136
AU	489m S	Railway Sidings	1971 - 1977	2245054
AU	489m S	Paper Mills	1946	2188099
AR	491m S	Unspecified Wharf	1932	2249467
36	491m S	Paper Mills	1932 - 1938	2233643
AR	492m S	Unspecified Wharf	1938	2234867
AR	492m S	Unspecified Wharf	1946	2245771
AR	492m S	Unspecified Wharf	1938	2288128
AR	495m S	Unspecified Wharf	1907	2245514
AY	496m S	Unspecified Wharf	1955	2157342
37	496m S	Unspecified Wharf	1955 - 1990	2180855
AR	497m S	Unspecified Wharf	1923	2278225
38	500m S	Unspecified Wharf	1895	2221273

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	16

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
C	**On site**	**Gas Works**	**1870**	**380469**
C	**On site**	**Unspecified Tank**	**1898**	**368891**
D	**On site**	**Unspecified Tank**	**1870**	**368892**
E	**On site**	**Unspecified Tank**	**1870**	**368817**
E	**On site**	**Tanks**	**1898**	**377623**
C	5m N	Disused Gas Holder	1898	374498
C	5m N	Gasholder	1870	374585
A	16m SE	Unspecified Tank	1920 - 1940	393491
C	37m N	Unspecified Tank	1870	368894
AI	277m W	Unspecified Tank	1898 - 1920	403629
AI	280m W	Unspecified Tank	1898	400795
U	308m W	Unspecified Tank	1950 - 1970	394504
U	309m W	Unspecified Tank	1950	394932
U	314m W	Tanks	1920	377612
22	378m W	Unspecified Tank	1920	368816
L	495m W	Unspecified Tank	1920	368898

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	20

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
C	**On site**	**Gas Works**	**1870**	**250262**
C	5m N	Gasholder	1870	249901
C	5m N	Disused Gas Holder	1898	251972
8	40m NW	Electricity Substation	1978 - 1996	273546
Z	149m SW	Electricity Substation	1999	248068
I	184m SW	Electricity Substation	1969	248064
S	188m NW	Electricity Substation	1978 - 1994	260724
AH	260m NE	Electricity Substation	1977	247424
AH	260m NE	Electricity Substation	1997	247423
AK	297m NW	Electricity Substation	1977	248066
AK	298m NW	Electricity Substation	1997	248067
U	307m W	Electricity Substation	1973	248065
19	320m N	Electricity Substation	1978 - 1994	264958
AJ	337m W	Electricity Substation	1950 - 1973	287897
20	339m NW	Electricity Substation	1973	248063
AV	455m N	Electricity Substation	1994	288736
AV	456m N	Electricity Substation	1978 - 1983	290385
AV	461m N	Electricity Substation	1971	247420
34	467m NW	Electricity Substation	1993	248062
AT	500m W	Electricity Substation	1999	248055

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	10

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
D	**On site**	**Carriage Shed**	**1870**	**74095**
C	39m N	Car Breakers Yard	1976 - 1994	83814
C	40m N	Car Breaker's Yard	1999	74216
B	43m NE	Motor Body Repair Works	1967	73956
B	43m NE	Garage	1994 - 1999	85535
T	43m N	Car Breakers Yard	1978	74742
T	46m N	Car Breakers Yard	1976	79828
S	77m NW	Car Breakers Yard	1978 - 1996	85842
S	133m NW	Car Breakers Yard	1994	79729
S	133m NW	Car Breakers Yard	1978 - 1983	85298

This data is sourced from Ordnance Survey / Groundsure.

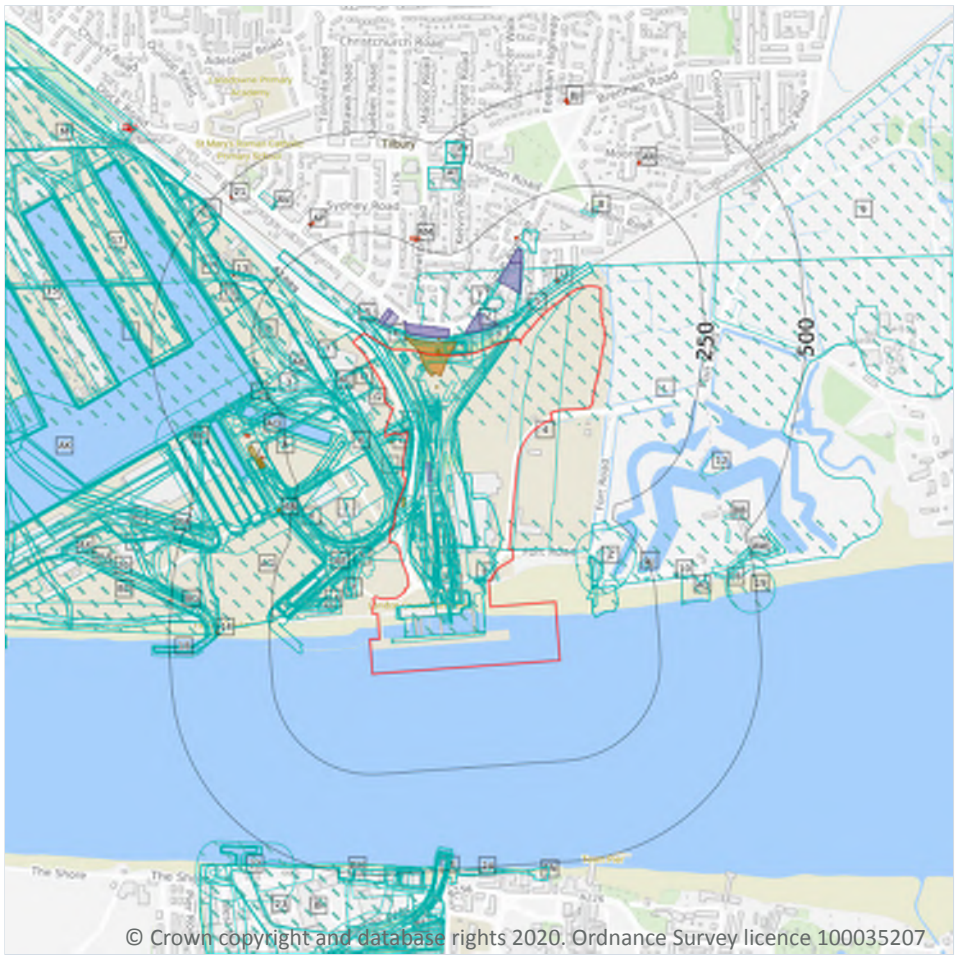
1.6 Historical military land

Records within 500m	0

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.

2 Past land use - un-grouped



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

2.1 Historical industrial land uses

Records within 500m	493

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 30**

ID	Location	Land Use	Date	Group ID
1	**On site**	**Railway Sidings**	**1923**	**2218035**
2	**On site**	**Railway Sidings**	**1946**	**2209400**
3	**On site**	**Railway Sidings**	**1916**	**2209400**

ID	Location	Land Use	Date	Group ID
4	On site	Railway Sidings	1966	2128758
A	On site	Unspecified Docks	1888	2175886
A	On site	Dock	1993	2236786
A	On site	Docks	1982	2275598
A	On site	Unspecified Disused Wharf	1982	2225872
A	On site	Unspecified Disused Wharf	1973	2225872
A	On site	Railway Sidings	1938	2209400
B	On site	Engine Shed	1923	2191699
B	On site	Railway Sidings	1923	2184499
B	On site	Railway Building	1923	2226640
B	On site	Railway Building	1932	2207561
B	On site	Railway Building	1938	2294721
B	On site	Railway Building	1938	2189553
B	On site	Railway Building	1938	2189553
B	On site	Gas Works	1863	2135572
B	On site	Gasometer	1863	2139972
B	On site	Railway Building	1938	2207561
B	On site	Railway Building	1938	2294721
B	On site	Railway Building	1955	2182830
C	On site	Laundry	1923	2259159
C	On site	Railway Building	1923	2174498
C	On site	Steam Laundry	1895	2179791
C	On site	Railway Building	1895	2150235
C	On site	Railway Building	1895	2270466
C	On site	Railway Sidings	1895	2174346
C	On site	Railway Buildings	1895	2210845
C	On site	Railway Building	1946	2187497
C	On site	Railway Building	1946	2241904

ID	Location	Land Use	Date	Group ID
C	On site	Unspecified Commercial/Industrial	1946	2131139
C	On site	Railway Sidings	1932	2209400
C	On site	Railway Buildings	1932	2266432
C	On site	Railway Building	1932	2194565
C	On site	Laundry	1907	2290293
C	On site	Railway Buildings	1907	2235448
C	On site	Railway Buildings	1895	2210845
C	On site	Laundry	1895	2292725
C	On site	Railway Building	1895	2150236
C	On site	Laundry	1916	2290293
C	On site	Coal Sidings	1916	2139568
C	On site	Railway Sidings	1888	2263468
C	On site	Laundry	1888	2199846
C	On site	Railway Buildings	1888	2202944
C	On site	Railway Building	1888	2150234
C	On site	Laundry	1938	2233421
C	On site	Railway Sidings	1938	2254660
C	On site	Railway Sidings	1899	2198293
C	On site	Steam Laundry	1899	2183265
C	On site	Railway Sidings	1899	2217065
C	On site	Steam Laundry	1899	2183265
C	On site	Laundry	1938	2233421
C	On site	Railway Sidings	1938	2254660
C	On site	Railway Building	1938	2243681
C	On site	Railway Building	1993	2242671
C	On site	Railway Sidings	1993	2179204
C	On site	Railway Building	1982	2242671
C	On site	Railway Sidings	1982	2170924

ID	Location	Land Use	Date	Group ID
C	On site	Railway Sidings	1973	2283120
C	On site	Railway Building	1973	2242671
C	On site	Engine Shed	1863	2146564
C	On site	Carriage Shed	1863	2152791
C	On site	Railway Sidings	1863	2230253
C	On site	Railway Buildings	1863	2200135
C	On site	Railway Buildings	1938	2266432
C	On site	Laundry	1938	2241551
C	On site	Railway Sidings	1992	2179204
C	On site	Railway Building	1992	2242671
C	On site	Laundry	1955	2269804
C	On site	Railway Sidings	1955	2283120
C	On site	Railway Building	1955	2150233
C	On site	Railway Building	1955	2150232
C	On site	Laundry	1966	2269804
C	On site	Railway Sidings	1966	2283120
D	On site	Railway Station	1923	2174469
D	On site	Railway Sidings	1923	2184499
D	On site	Railway Buildings	1923	2251669
D	On site	Smithy	1895	2247551
D	On site	Railway Sidings	1895	2216839
D	On site	Railway Station	1895	2206213
D	On site	Railway Building	1895	2247042
D	On site	Railway Buildings	1895	2194045
D	On site	Railway Station	1946	2222009
D	On site	Railway Building	1946	2273248
D	On site	Railway Buildings	1946	2202238
D	On site	Railway Station	1932	2174469

ID	Location	Land Use	Date	Group ID
D	On site	Railway Buildings	1932	2214119
D	On site	Railway Building	1932	2295025
D	On site	Railway Building	1932	2219190
D	On site	Railway Buildings	1932	2260514
D	On site	Railway Station	1907	2185289
D	On site	Smithy	1907	2197058
D	On site	Railway Buildings	1907	2181360
D	On site	Railway Building	1907	2192161
D	On site	Railway Station	1895	2180119
D	On site	Smithy	1895	2248311
D	On site	Railway Buildings	1895	2185068
D	On site	Railway Building	1895	2192161
D	On site	Railway Station	1916	2250368
D	On site	Smithy	1888	2248311
D	On site	Railway Sidings	1888	2291791
D	On site	Railway Sidings	1888	2247090
D	On site	Railway Station	1888	2180119
D	On site	Unspecified Commercial/Industrial	1888	2131138
D	On site	Railway Station	1938	2292460
D	On site	Railway Buildings	1938	2202238
D	On site	Railway Building	1938	2255903
D	On site	Railway Building	1938	2229023
D	On site	Railway Buildings	1938	2271218
D	On site	Railway Building	1938	2236884
D	On site	Railway Station	1899	2222834
D	On site	Railway Sidings	1899	2228022
D	On site	Smithy	1899	2247551
D	On site	Railway Sidings	1899	2224307

ID	Location	Land Use	Date	Group ID
D	On site	Railway Building	1899	2192161
D	On site	Railway Station	1899	2222834
D	On site	Railway Sidings	1899	2277529
D	On site	Smithy	1899	2247551
D	On site	Railway Sidings	1899	2277864
D	On site	Railway Building	1899	2192161
D	On site	Railway Station	1938	2174469
D	On site	Railway Building	1938	2219190
D	On site	Railway Building	1938	2258819
D	On site	Railway Building	1938	2240502
D	On site	Railway Building	1938	2255903
D	On site	Railway Buildings	1938	2282389
D	On site	Railway Building	1938	2236884
D	On site	Railway Station	1993	2152730
D	On site	Railway Buildings	1993	2163724
D	On site	Railway Station	1982	2240358
D	On site	Railway Building	1982	2213310
D	On site	Railway Station	1973	2240358
D	On site	Railway Building	1973	2213310
D	On site	Railway Station	1863	2236254
D	On site	Railway Sidings	1863	2261959
D	On site	Smithy	1863	2280000
D	On site	Railway Station	1938	2292460
D	On site	Railway Buildings	1938	2173215
D	On site	Railway Building	1938	2288891
D	On site	Railway Building	1992	2213310
D	On site	Railway Station	1992	2240358
D	On site	Railway Station	1955	2291624

ID	Location	Land Use	Date	Group ID
D	On site	Railway Building	1955	2209666
D	On site	Railway Building	1955	2246142
D	On site	Railway Building	1955	2186059
D	On site	Railway Station	1966	2291624
E	On site	Smithy	1895	2279268
E	On site	Smithy	1907	2219446
E	On site	Smithy	1895	2264054
E	On site	Smithy	1888	2279268
E	On site	Smithy	1899	2279268
E	On site	Smithy	1899	2279268
E	On site	Unspecified Heap	1863	2137175
F	On site	Railway Sidings	1938	2209400
F	On site	Railway Sidings	1863	2209400
F	On site	Railway Sidings	1932	2209400
G	On site	Hospital	1946	2203034
G	On site	Hospital	1938	2186876
G	On site	Hospital	1938	2287181
G	On site	Unspecified Depot	1993	2207776
G	On site	Unspecified Depot	1982	2289557
G	On site	Unspecified Depot	1992	2207776
G	On site	Hospital	1955	2245599
G	On site	Hospital	1966	2245599
H	On site	Railway Sidings	1907	2254660
H	On site	Railway Sidings	1895	2203559
I	On site	Mortuary	1932	2192269
I	On site	Mortuary	1907	2239986
I	On site	Mortuary	1895	2193620
I	On site	Mortuary	1916	2241338

ID	Location	Land Use	Date	Group ID
I	**On site**	**Mortuary**	**1888**	**2193620**
I	**On site**	**Mortuary**	**1923**	**2241338**
I	**On site**	**Mortuary**	**1938**	**2174532**
J	**On site**	**Dry Docks**	**1938**	**2205343**
J	**On site**	**Railway Sidings**	**1955**	**2281795**
J	**On site**	**Dock**	**1955**	**2206549**
J	**On site**	**Dock**	**1966**	**2206549**
J	**On site**	**Railway Sidings**	**1966**	**2281795**
K	**On site**	**Unspecified Commercial/Industrial**	**1888**	**2131140**
L	**On site**	**Marshes**	**1899**	**2224429**
L	**On site**	**Marshes**	**1899**	**2224429**
M	**On site**	**Railway Sidings**	**1938**	**2209400**
M	**On site**	**Docks**	**1938**	**2190380**
B	1m N	Unspecified Tank	1895	2198027
B	1m N	Unspecified Tank	1888	2198027
M	2m NW	Railway Sidings	1938	2209400
N	2m NW	Docks	1938	2216390
N	2m NW	Docks	1938	2216390
B	3m N	Railway Building	1955	2228315
B	3m N	Railway Building	1966	2228315
B	4m N	Engine Shed	1916	2173894
B	4m N	Unspecified Tank	1899	2221039
B	4m N	Unspecified Tank	1899	2258547
B	5m N	Engine Shed	1946	2209291
B	5m N	Engine Shed	1938	2190092
B	7m N	Engine Shed	1938	2255760
B	8m N	Engine Shed	1938	2209291
J	8m W	Unspecified Works	1982	2258965

ID	Location	Land Use	Date	Group ID
J	8m W	Unspecified Works	1973	2258965
J	8m W	Unspecified Works	1992	2258965
B	8m N	Engine Shed	1932	2191699
J	8m W	Unspecified Dock	1899	2219563
J	8m W	Unspecified Dock	1899	2219563
B	9m N	Unspecified Tank	1895	2223145
O	15m W	Dock	1923	2213936
O	15m W	Railway Sidings	1923	2172605
B	17m N	Railway Building	1895	2150220
P	22m W	Docks	1916	2168808
Q	23m SW	Hospital	1932	2229185
J	23m W	Unspecified Works	1993	2281601
Q	25m SW	Hospital	1938	2229185
Q	26m W	Hospital	1923	2229185
R	27m W	Railway Sidings	1888	2250778
Q	29m SW	Hospital	1916	2180530
J	29m W	Railway Sidings	1895	2170490
R	29m W	Railway Sidings	1895	2205206
5	30m NW	Railway Station	1932	2152728
S	33m N	Railway Building	1932	2150218
G	35m W	Mortuary	1946	2160941
T	39m N	Marshes	1899	2185328
T	39m N	Marshes	1899	2185328
T	41m N	Unspecified Depot	1923	2147384
T	46m N	Unspecified Works	1973	2278002
T	46m N	Unspecified Works	1993	2224862
T	46m N	Unspecified Works	1982	2277881
T	46m N	Unspecified Works	1992	2224862

ID	Location	Land Use	Date	Group ID
W	47m SW	Dry Docks	1946	2175925
S	50m NW	Railway Building	1895	2185984
R	51m NW	Fire Station	1946	2128193
X	51m W	Railway Sidings	1899	2218033
X	51m W	Railway Sidings	1899	2218033
Y	54m W	Railway Building	1907	2233619
Y	54m W	Railway Building	1895	2224948
Y	55m W	Railway Building	1888	2224948
S	56m NW	Railway Building	1895	2185984
Y	57m W	Railway Building	1895	2190954
6	59m SW	Laundry	1932	2132386
O	76m SW	Railway Sidings	1895	2168759
T	78m N	Refuse Heap	1863	2177751
Z	79m NE	Unspecified Wharf	1938	2214524
R	79m W	Railway Buildings	1946	2163750
7	79m SW	Railway Sidings	1888	2235949
Z	79m E	Unspecified Wharf	1993	2229146
Z	79m E	Unspecified Wharf	1982	2229146
Z	79m E	Unspecified Wharf	1973	2229146
Z	79m E	Unspecified Wharf	1992	2229146
T	80m N	Refuse Heap	1955	2177751
J	84m W	Unspecified Works	1955	2292142
J	84m W	Unspecified Works	1966	2292142
AA	85m W	Railway Buildings	1946	2163749
AA	85m W	Railway Building	1888	2282923
AA	86m W	Railway Building	1895	2282923
O	87m SW	Unspecified Warehouse	1993	2280029
O	87m SW	Unspecified Warehouse	1982	2280029

ID	Location	Land Use	Date	Group ID
O	87m SW	Unspecified Warehouse	1992	2280029
AB	88m SW	Unspecified Warehouse	1973	2276890
Z	95m E	Unspecified Wharf	1955	2179094
Z	95m E	Unspecified Wharf	1863	2272490
AC	97m SW	Railway Building	1895	2213434
Z	97m NE	Wharf	1916	2160653
Z	99m E	Unspecified Wharf	1923	2268214
AC	100m SW	Railway Building	1888	2213434
T	101m NW	Refuse Destructor	1863	2157181
J	103m W	Railway Sidings	1888	2170490
Z	105m NE	Unspecified Wharf	1938	2246798
Z	105m NE	Unspecified Wharf	1938	2246798
P	107m W	Railway Sidings	1932	2209400
P	107m W	Docks	1932	2190380
X	107m W	Unspecified Warehouse	1955	2276879
X	107m W	Unspecified Warehouse	1966	2276879
Z	108m NE	Unspecified Wharf	1966	2203351
J	110m W	Railway Sidings	1888	2246336
AD	110m W	Docks	1938	2190380
AD	110m W	Docks	1938	2190380
J	110m W	Engineering Works	1946	2142110
M	110m W	Docks	1938	2190380
M	110m W	Docks	1938	2190380
J	112m W	Railway Sidings	1899	2172467
J	112m W	Railway Sidings	1899	2255470
P	117m SW	Docks	1907	2168809
P	117m SW	Docks	1895	2193641
AD	118m SW	Docks	1946	2190380

ID	Location	Land Use	Date	Group ID
J	119m W	Dry Dock	1973	2238736
X	122m W	Goods Shed	1946	2164618
J	124m W	Dry Dock	1992	2254779
AA	125m W	Railway Sidings	1888	2287122
AE	126m NW	Railway Building	1907	2262897
AE	126m NW	Railway Building	1895	2174344
Z	127m E	Unspecified Heap	1863	2137174
AF	128m SW	Railway Sidings	1907	2218034
AF	128m SW	Railway Sidings	1895	2271285
T	129m NW	Depot	1916	2132297
J	131m W	Dry Dock	1982	2238736
T	133m NW	Unspecified Depot	1938	2147385
AA	133m W	Railway Sidings	1895	2174922
AA	135m W	Railway Building	1907	2219993
AA	135m W	Railway Building	1895	2222125
AA	136m W	Railway Building	1888	2254165
AA	138m W	Railway Building	1932	2176629
AA	138m W	Railway Building	1938	2289001
AA	139m W	Railway Building	1895	2222125
AG	149m NW	Basin	1888	2281777
AG	150m NW	Basin	1899	2230426
AG	150m NW	Basin	1899	2230426
X	152m NW	Railway Sidings	1888	2236224
X	158m W	Railway Buildings	1932	2173585
X	158m W	Railway Buildings	1907	2278934
X	158m W	Railway Buildings	1895	2239173
J	158m W	Railway Buildings	1888	2163751
X	165m W	Railway Building	1895	2150193

ID	Location	Land Use	Date	Group ID
8	173m N	Unspecified Ground Workings	1863	2134383
AH	201m W	Unspecified Warehouses	1955	2220248
AH	201m W	Unspecified Warehouses	1966	2220248
AI	209m SW	Railway Sidings	1888	2271285
AJ	220m E	Refuse Heap	1863	2158972
J	225m W	Pumping Station	1938	2151750
AI	226m SW	Railway Sidings	1899	2178243
AI	226m SW	Railway Sidings	1899	2178243
AJ	229m E	Magazines	1863	2157612
AH	236m W	Unspecified Warehouses	1973	2214141
AK	247m SW	Dock	1993	2252368
AK	247m SW	Docks	1992	2225006
AK	251m SW	Dock	1973	2279361
W	253m W	Dry Docks	1907	2283763
W	253m W	Dry Dock	1895	2247774
AL	257m NW	Railway Sidings	1966	2232404
AN	272m W	Unspecified Tank	1923	2200809
9	273m E	Marshes	1916	2280792
AN	274m W	Unspecified Tank	1932	2200809
AN	276m W	Unspecified Tank	1938	2225486
W	279m W	Dry Dock	1932	2236122
AL	284m W	Railway Sidings	1955	2201696
AL	284m W	Docks	1955	2216389
AO	287m W	Railway Building	1888	2150194
AH	287m NW	Unspecified Docks	1898	2284513
10	300m E	Magazines	1863	2157611
11	301m W	Railway Building	1895	2150217
W	304m W	Dry Dock	1888	2276889

ID	Location	Land Use	Date	Group ID
W	307m W	Unspecified Tank	1973	2155400
W	307m W	Dry Dock	1916	2241854
W	308m W	Dry Dock	1899	2265944
W	308m W	Dry Dock	1899	2265944
W	311m W	Dry Dock	1923	2241854
W	311m W	Dry Dock	1895	2276889
W	312m W	Pumping Station	1932	2205582
AQ	312m E	Quay	1967	2186445
AQ	312m E	Quay	1973	2186445
W	313m SW	Pumping Station	1923	2275675
W	314m W	Pumping Station	1938	2172419
W	316m W	Pumping Station	1916	2212589
12	318m SE	Unspecified Ground Workings	1955	2134381
W	322m W	Pumping Station	1938	2279971
AO	323m SW	Pumping Station	1973	2151751
W	332m W	Dry Dock	1938	2241854
W	332m W	Dry Dock	1938	2241854
W	345m W	Dry Dock	1888	2170733
W	349m W	Dry Dock	1899	2250419
W	349m W	Dry Dock	1899	2250419
W	349m W	Dry Dock	1916	2241854
W	350m W	Dry Dock	1895	2275216
AH	354m NW	Docks	1895	2193641
AH	354m NW	Railway Sidings	1895	2168760
W	356m W	Dry Dock	1973	2232566
W	356m NW	Dry Dock	1923	2225803
W	361m W	Dry Dock	1938	2271078
W	361m W	Dry Dock	1938	2271078

ID	Location	Land Use	Date	Group ID
AS	363m W	Railway Sidings	1938	2169619
AS	363m W	Dock	1938	2231073
AT	372m NW	Police Station	1993	2261539
AT	372m NW	Police Station	1982	2261539
AT	372m NW	Police Station	1992	2261539
W	378m W	Dry Dock	1973	2203192
AS	379m W	Railway Sidings	1946	2249066
AU	379m W	Railway Sidings	1907	2209400
AU	379m W	Railway Sidings	1895	2270828
AV	380m NW	Police Station	1946	2173561
AS	383m W	Railway Sidings	1938	2169619
AV	385m NW	Police Station	1973	2187825
AS	387m W	Railway Sidings	1955	2267789
AS	387m W	Railway Sidings	1966	2267789
AW	396m E	Unspecified Ground Workings	1955	2286145
AD	398m W	Dock	1923	2286147
AD	398m W	Railway Sidings	1923	2215454
15	398m W	Railway Sidings	1888	2270828
16	400m E	Gun Wharf	1863	2146431
M	401m W	Unspecified Dock	1898	2171221
M	401m W	Railway Sidings	1898	2270828
M	401m W	Unspecified Dock	1898	2171221
M	401m W	Railway Sidings	1898	2270828
17	401m W	Railway Sidings	1946	2209400
AS	402m W	Dock	1923	2240684
AS	402m W	Railway Sidings	1923	2292550
AS	406m W	Docks	1938	2241910
AS	406m W	Docks	1938	2241910

ID	Location	Land Use	Date	Group ID
M	408m W	Dock	1895	2272957
AX	408m W	Railway Sidings	1895	2270828
AY	416m NW	Fire Station	1946	2278884
18	416m W	Tramway Sidings	1923	2151166
AD	417m W	Unspecified Warehouses	1993	2178873
AD	417m W	Unspecified Warehouses	1982	2178873
AD	417m W	Unspecified Warehouses	1973	2178873
AD	417m W	Unspecified Warehouses	1992	2178873
AD	417m W	Unspecified Warehouses	1955	2178873
AD	417m W	Unspecified Warehouses	1966	2178873
AY	420m NW	Fire Station	1955	2278884
AY	420m NW	Fire Station	1966	2278884
AY	420m NW	Fire Station	1993	2172858
AY	420m NW	Fire Station	1982	2172858
AY	420m NW	Fire Station	1973	2172858
AY	420m NW	Fire Station	1992	2172858
AL	422m W	Unspecified Dock	1898	2171221
AL	422m W	Unspecified Dock	1898	2171221
AZ	422m W	Railway Sidings	1898	2270828
AZ	422m W	Railway Sidings	1898	2270828
BA	423m W	Railway Sidings	1898	2270828
BA	423m W	Railway Sidings	1898	2270828
AS	423m W	Dock	1946	2231073
AL	425m W	Docks	1895	2193641
AL	425m W	Railway Sidings	1895	2270828
19	429m E	Unspecified Wharf	1863	2157333
BB	429m SE	Magazine	1863	2157864
BC	430m SW	Unspecified Dock	1898	2201470

ID	Location	Land Use	Date	Group ID
BC	430m SW	Unspecified Dock	1898	2201470
N	431m W	Unspecified Warehouse	1955	2236754
N	431m W	Unspecified Warehouse	1966	2236754
20	431m W	Unspecified Depot	1973	2261272
AX	433m SW	Dock	1895	2268647
AW	435m E	Unspecified Ground Workings	1991	2262051
AW	435m E	Unspecified Ground Workings	1967	2262051
AW	435m E	Unspecified Ground Workings	1973	2262051
AX	439m W	Unspecified Dock	1898	2171221
AX	439m W	Unspecified Dock	1898	2171221
BD	441m W	Unspecified Depot	1993	2243909
BD	441m W	Unspecified Depot	1982	2243909
BD	441m W	Unspecified Depot	1992	2243909
BE	442m S	Railway Sidings	1895	2265110
BF	443m S	Railway Sidings	1938	2295100
BG	445m W	Railway Buildings	1946	2163752
BH	447m W	Unspecified Warehouses	1993	2226986
BH	447m W	Unspecified Warehouses	1982	2226986
BH	447m W	Unspecified Warehouses	1992	2226986
BB	450m E	Gun Shed	1863	2138059
BI	452m S	Railway Sidings	1955	2236983
BI	452m S	Railway Sidings	1971	2170456
BI	452m S	Railway Sidings	1966	2251154
BI	452m S	Tramway Sidings	1932	2226539
BI	453m S	Tramway Sidings	1946	2217665
BI	454m S	Railway Sidings	1938	2266142
BI	455m S	Tramway Sidings	1895	2194212
BE	456m S	Unspecified Wharf	1888	2248472

ID	Location	Land Use	Date	Group ID
BF	457m S	Railway Sidings	1938	2282894
BK	457m S	Railway Station	1932	2276482
BF	457m S	Railway Sidings	1899	2197175
BF	457m S	Railway Sidings	1899	2197175
BK	457m S	Railway Station	1966	2193720
BK	457m S	Railway Station	1938	2177074
BK	458m S	Terminus	1946	2165394
BF	460m S	Railway Sidings	1916	2282894
BL	461m NW	Police Station	1993	2180607
BL	461m NW	Police Station	1982	2180607
BL	461m NW	Police Station	1992	2180607
BL	463m NW	Police Station	1973	2270879
BI	465m S	Railway Sidings	1907	2204714
BI	466m S	Railway Sidings	1888	2265764
AW	467m E	Magazine	1863	2157874
BF	471m S	Railway Sidings	1923	2282894
BM	475m S	Unspecified Wharf	1990	2284370
BM	475m S	Unspecified Wharf	1977	2286271
BM	475m S	Unspecified Wharf	1971	2173247
BM	475m S	Unspecified Wharf	1966	2176693
22	481m SW	Unspecified Wharves	1895	2289517
BE	482m S	Wharf	1916	2160654
BE	484m S	Unspecified Wharf	1938	2177156
BE	484m S	Unspecified Wharf	1938	2221905
BE	485m S	Unspecified Wharf	1938	2264972
BM	486m S	Unspecified Commercial/Industrial	1938	2131136
BI	489m S	Railway Sidings	1977	2245054
BI	489m S	Paper Mills	1946	2188099

ID	Location	Land Use	Date	Group ID
BE	491m S	Unspecified Wharf	1932	2249467
23	491m S	Paper Mills	1938	2233643
BE	492m S	Unspecified Wharf	1946	2245771
BE	492m S	Unspecified Wharf	1938	2234867
BE	492m S	Unspecified Wharf	1938	2288128
BE	495m S	Unspecified Wharf	1907	2245514
BM	496m S	Unspecified Wharf	1955	2157342
BN	496m S	Unspecified Wharf	1955	2180855
BN	496m S	Unspecified Wharf	1990	2180855
BN	496m S	Unspecified Wharf	1977	2180855
BN	496m S	Unspecified Wharf	1971	2180855
BN	496m S	Unspecified Wharf	1966	2180855
BE	497m S	Unspecified Wharf	1923	2278225
24	500m S	Unspecified Wharf	1895	2221273

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m **20**

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 30**

ID	Location	Land Use	Date	Group ID
B	**On site**	**Unspecified Tank**	**1898**	**368891**
B	**On site**	**Gas Works**	**1870**	**380469**
C	**On site**	**Unspecified Tank**	**1870**	**368892**
D	**On site**	**Tanks**	**1898**	**377623**
D	**On site**	**Unspecified Tank**	**1870**	**368817**
B	5m N	Disused Gas Holder	1898	374498

ID	Location	Land Use	Date	Group ID
B	5m N	Gasholder	1870	374585
C	16m SE	Unspecified Tank	1940	393491
C	17m SE	Unspecified Tank	1920	393491
B	37m N	Unspecified Tank	1870	368894
AN	277m W	Unspecified Tank	1898	403629
AN	278m W	Unspecified Tank	1920	403629
AN	280m W	Unspecified Tank	1898	400795
W	308m W	Unspecified Tank	1950	394504
W	308m W	Unspecified Tank	1970	394504
W	309m W	Unspecified Tank	1950	394932
W	310m W	Unspecified Tank	1950	394932
W	314m W	Tanks	1920	377612
14	378m W	Unspecified Tank	1920	368816
N	495m W	Unspecified Tank	1920	368898

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m **27**

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 30**

ID	Location	Land Use	Date	Group ID
B	**On site**	**Gas Works**	**1870**	**250262**
B	5m N	Disused Gas Holder	1898	251972
B	5m N	Gasholder	1870	249901
U	40m NW	Electricity Substation	1978	273546
U	42m NW	Electricity Substation	1996	273546
AB	149m SW	Electricity Substation	1999	248068

ID	Location	Land Use	Date	Group ID
J	184m SW	Electricity Substation	1969	248064
T	188m NW	Electricity Substation	1978	260724
T	188m NW	Electricity Substation	1983	260724
T	188m NW	Electricity Substation	1994	260724
AM	260m NE	Electricity Substation	1977	247424
AM	260m NE	Electricity Substation	1997	247423
AP	297m NW	Electricity Substation	1977	248066
AP	298m NW	Electricity Substation	1997	248067
W	307m W	Electricity Substation	1973	248065
AR	320m N	Electricity Substation	1994	264958
AR	320m N	Electricity Substation	1978	264958
AR	320m N	Electricity Substation	1983	264958
AO	337m W	Electricity Substation	1950	287897
AO	337m W	Electricity Substation	1973	287897
13	339m NW	Electricity Substation	1973	248063
BJ	455m N	Electricity Substation	1994	288736
BJ	456m N	Electricity Substation	1978	290385
BJ	456m N	Electricity Substation	1983	290385
BJ	461m N	Electricity Substation	1971	247420
21	467m NW	Electricity Substation	1993	248062
BG	500m W	Electricity Substation	1999	248055

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	**0**

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	14

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 30**

ID	Location	Land Use	Date	Group ID
C	**On site**	**Carriage Shed**	**1870**	**74095**
B	39m N	Car Breakers Yard	1976	83814
B	40m N	Car Breaker's Yard	1999	74216
B	40m N	Car Breakers Yard	1994	83814
K	43m NE	Motor Body Repair Works	1967	73956
K	43m NE	Garage	1999	85535
K	43m NE	Garage	1994	85535
V	43m N	Car Breakers Yard	1978	74742
V	46m N	Car Breakers Yard	1976	79828
T	77m NW	Car Breakers Yard	1978	85842
T	79m NW	Car Breakers Yard	1996	85842
T	133m NW	Car Breakers Yard	1994	79729
T	133m NW	Car Breakers Yard	1978	85298
T	133m NW	Car Breakers Yard	1983	85298

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



3.1 Active or recent landfill

Records within 500m	0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m	0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	0

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m	1

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

Features are displayed on the Waste and landfill map on **page 52**

ID	Location	Details		
1	144m NW	Site Address: Tidal Basin, Tilbury Docks, Tilbury, Essex Licence Holder Address: North Side, Royal Victoria Dock, Silvertown, London, E16	Waste Licence: Yes Site Reference: 86/81, THU023 Waste Type: Inert, Industrial, Commercial, Household Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 10/09/1981 Licence Surrender: -	Operator: Port of Tilbury (London) Limited Licence Holder: Port Of London Authority First Recorded 31/12/1981 Last Recorded: 19/09/1996

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites

Records within 500m	14

Waste site records derived from Local Authority planning records and high detail historical mapping.

Features are displayed on the Waste and landfill map on **page 52**

ID	Location	Address	Further Details	Date
A	38m N	Site Address: N/A	Type of Site: Car Breakers Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1975

ID	Location	Address	Further Details	Date
A	39m N	Site Address: N/A	Type of Site: Car Breaker's Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1994
A	39m N	Site Address: N/A	Type of Site: Car Breaker's Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1999
B	43m N	Site Address: N/A	Type of Site: Car Breakers Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1978
B	46m N	Site Address: N/A	Type of Site: Car Breakers Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1975
C	76m NW	Site Address: N/A	Type of Site: Car Breakers Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1978
C	79m NW	Site Address: N/A	Type of Site: Car Breaker's Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1996
C	98m NW	Site Address: N/A	Type of Site: Refuse Destructor Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1940
C	100m NW	Site Address: N/A	Type of Site: Refuse Destructor Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1863
C	132m NW	Site Address: N/A	Type of Site: Car Breaker's Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1994

ID	Location	Address	Further Details	Date
C	133m NW	Site Address: N/A	Type of Site: Scrap Metal Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1970
C	133m NW	Site Address: N/A	Type of Site: Car Breakers Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1978
C	133m NW	Site Address: N/A	Type of Site: Car Breakers Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1983
6	490m S	Site Address: N/A	Type of Site: Scrap Yard Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1985

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m **2**

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

Features are displayed on the Waste and landfill map on **page 52**

ID	Location	Details		
C	91m NW	Site Name: Hume Works Site Address: Land/ Premises At, Hume Avenue, Tilbury, Essex, RM18 8DX Correspondence Address: -	Type of Site: Metal Recycling Site (mixed MRS's) Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SPE001 EPR reference: EA/EPR/NP3398NN/A001 Operator: Specialist Metal Services Ltd Waste Management licence No: 71089 Annual Tonnage: 5000	Issue Date: 20/03/1998 Effective Date: - Modified:: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued

ID	Location	Details		
3	266m W	Site Name: Green Barge Site, Tilbury Docks Site Address: Green Barge Site, Tilbury Docks, Tilbury, Essex, RM18 7HB Correspondence Address: -	Type of Site: Treatment of waste wood 75000 tps Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: HWR003 EPR reference: EA/EPR/FB3439RM/S003 Operator: Hadfield Wood Recyclers Ltd Waste Management licence No: 103962 Annual Tonnage: 0	Issue Date: 21/03/2012 Effective Date: - Modified:: 29/04/2013 Surrendered Date: Jun 2 2015 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered

This data is sourced from the Environment Agency and Natural Resources Wales.

3.7 Waste exemptions

Records within 500m **21**

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

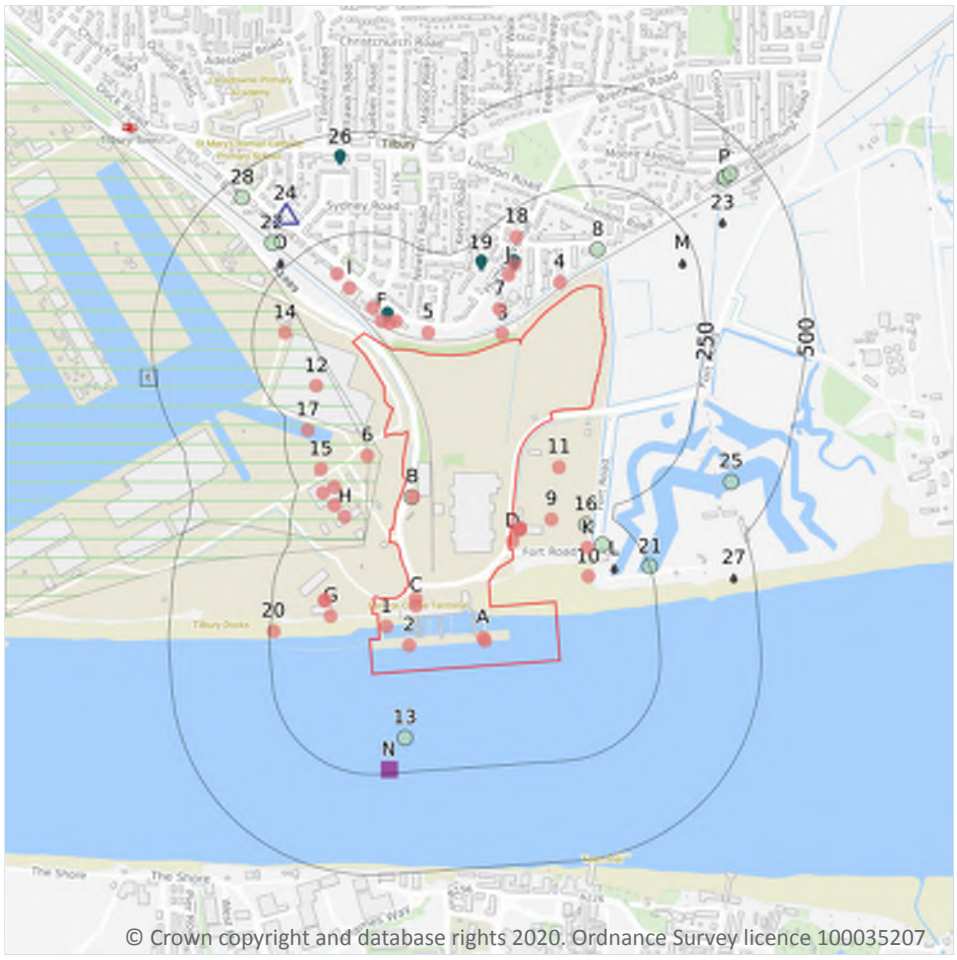
Features are displayed on the Waste and landfill map on **page 52**

ID	Location	Site	Reference	Category	Sub-Category	Description
C	82m N	HUME AVENUE, TILBURY, RM18 8DX	WEX119646	Storing waste exemption	Not on a farm	Storage of waste in a secure place
C	88m NW	HUME AVENUE, TILBURY, RM18 8DX	WEX223078	Treating waste exemption	Not on a farm	Recovery of scrap metal
D	110m NE	7, Dock Road, Tilbury , Essex , RM18 7PT	WEX162839	Treating waste exemption	Not on a Farm	Manual treatment of waste
D	110m NE	7, Dock Road, Tilbury , Essex , RM18 7PT	WEX162839	Storing waste exemption	Not on a Farm	Storage of waste in a secure place
D	110m NE	7, Dock Road, Tilbury , Essex , RM18 7PT	WEX162839	Treating waste exemption	Not on a Farm	Sorting mixed waste
D	110m NE	7 Dock Road, Tilbury, Essex, RM18 7PT	WEX001353	Storing waste exemption	Not on a farm	Storage of waste in a secure place
D	110m NE	7 Dock Road, Tilbury, Essex, RM18 7PT	WEX001353	Treating waste exemption	Not on a farm	Sorting mixed waste
D	110m NE	7 Dock Road, Tilbury, Essex, RM18 7PT	WEX001353	Treating waste exemption	Not on a farm	Manual treatment of waste

ID	Location	Site	Reference	Category	Sub-Category	Description
E	120m W	Workshop 1 & 2, Opp 21 Berth, Perimeter Road, Tilbury, Freeport, RM18 7JJ	EA/EPR/VP3842UJ/A001	Treating waste exemption	Non-Agricultural waste only	Repair or refurbishment of WEEE
E	129m W	KC GLOBAL LINKS LTD, UNIT 7A TILBURY INDUSTRIAL COMPLEX., TILBURY FREEPORT, TILBURY, ESSEX, RM187HB	NRW-WME030880	Storing waste exemption	Not on a farm	Storage of waste in a secure place
F	185m NW	TTR RECYCLING, 118 HUME AVENUE, TILBURY, RM18 8DX	WEX151260	Treating waste exemption	Not on a farm	Preparatory treatments (baling, sorting, shredding etc)
F	185m NW	118, Hume Avenue, Tilbury, Essex, rm18 8dx	WEX127630	Storing waste exemption	Not on a farm	Storage of waste in a secure place
F	185m NW	TTR RECYCLING, 118 HUME AVENUE, TILBURY, RM18 8DX	WEX151260	Treating waste exemption	Not on a farm	Sorting mixed waste
F	185m NW	TTR RECYCLING, 118 HUME AVENUE, TILBURY, RM18 8DX	WEX151260	Storing waste exemption	Not on a farm	Storage of waste in a secure place
C	185m NW	Unit 3 Hume Works Hume Avenue Essex RM18 8DX	EPR/WH0616YT/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in a secure place
C	185m NW	Unit 3 Hume Works Hume Avenue Essex RM18 8DX	EPR/WH0616YT/A001	Treating waste exemption	Non-Agricultural Waste Only	Crushing waste fluorescent tubes
2	221m NW	Unit 3, Hume Works, Hume Avenue, Tilbury, Essex, RM18 8DX	EA/EPR/VP3858ZV/A001	Treating waste exemption	Not on a farm	Repair or refurbishment of WEEE
4	377m NW	Dental Dept, Tilbury Health Centre, LONDON ROAD, TILBURY, RM18 8EB	WEX080652	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
G	377m E	FORT ROAD, TILBURY, RM18 7NR	WEX165939	Treating waste exemption	Not on a farm	Recovery of waste at a waste water treatment works
G	377m E	FORT ROAD, TILBURY, RM18 7NR	WEX162246	Treating waste exemption	Not on a Farm	Recovery of waste at a waste water treatment works
5	461m NW	Quayside House Tilbury Freeport Tilbury Essex RM18 7NN	EA/EPR/VP3755WU/A001	Treating waste exemption	Non-Agricultural Waste Only	Repair or refurbishment of WEEE

This data is sourced from the Environment Agency and Natural Resources Wales.

4 Current industrial land use



Site Outline

Search buffers in metres (m)

Recent industrial land uses

Current or recent petrol stations

Control of Major Accident Hazards

Licensed pollutant release (Part A(2)/B)

Licensed Discharges to controlled waters

Pollutant release to surface waters

Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m	44

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 58**

ID	Location	Company	Address	Activity	Category
1	**On site**	**Outfall**	**Essex, RM18**	**Waste Storage, Processing and Disposal**	**Infrastructure and Facilities**
2	**On site**	**Travelling Crane**	**Essex, RM18**	**Travelling Cranes and Gantries**	**Industrial Features**

ID	Location	Company	Address	Activity	Category
A	**On site**	**Tilbury Ferry Terminal**	**Essex, RM18**	**Ferries and Ferry Terminals**	**Water**
A	**On site**	**Tilbury Ferry Terminal**	**Essex, RM18**	**Ferries and Ferry Terminals**	**Water**
B	**On site**	**Electricity Sub Station**	**Essex, RM18**	**Electrical Features**	**Infrastructure and Facilities**
C	**On site**	**Tilbury Ferry Terminal**	**Essex, RM18**	**Ferries and Ferry Terminals**	**Water**
C	**On site**	**Electricity Sub Station**	**Essex, RM18**	**Electrical Features**	**Infrastructure and Facilities**
D	6m E	Electricity Sub Station	Essex, RM18	Electrical Features	Infrastructure and Facilities
D	21m E	Beckchoice Ltd	The Riverside Business Centre, Fort Road, Tilbury, Essex, RM18 7ND	Distribution and Haulage	Transport, Storage and Delivery
D	21m E	R F Transport	The Riverside Business Centre, Fort Road, Tilbury, Essex, RM18 7ND	Distribution and Haulage	Transport, Storage and Delivery
3	22m N	Mast (Telecommunication)	Essex, RM18	Telecommunications Features	Infrastructure and Facilities
D	22m E	Van Vynck Environmental	The Riverside Business Centre, Fort Road, Tilbury, Essex, RM18 7ND	Pest and Vermin Control	Contract Services
D	22m E	Rayvac	The Riverside Business Centre, Fort Road, Tilbury, Essex, RM18 7ND	Construction Completion Services	Construction Services
D	22m E	A F S Worldwide	The Riverside Business Centre, Fort Road, Tilbury, Essex, RM18 7ND	Distribution and Haulage	Transport, Storage and Delivery
D	23m E	Allseas Global Logistics	Studio 2 The Riverside Business Centre, Fort Road, Tilbury, Essex, RM18 7ND	Distribution and Haulage	Transport, Storage and Delivery
4	38m NW	Electricity Sub Station	Essex, RM18	Electrical Features	Infrastructure and Facilities
F	48m NE	Sejoc Auto Repairs	Unit D, Dock Road, Tilbury, Essex, RM18 7PT	Vehicle Repair, Testing and Servicing	Repair and Servicing

ID	Location	Company	Address	Activity	Category
5	53m N	Car Breakers Yard	Essex, RM18	Scrap Metal Merchants	Recycling Services
F	54m NE	Works	Essex, RM18	Unspecified Works Or Factories	Industrial Features
6	65m SW	Electricity Sub Station	Essex, RM18	Electrical Features	Infrastructure and Facilities
F	66m N	Busy Bee Skip Hire	7, Dock Road, Tilbury, Essex, RM18 7PT	Construction and Tool Hire	Hire Services
F	66m NE	Jay's Tyres	Unit F, Dock Road, Tilbury, Essex, RM18 7PT	Vehicle Parts and Accessories	Motoring
7	82m N	Weee Can Recycle Ltd	Hume Avenue, Tilbury, Essex, RM18 8DX	Recycling, Reclamation and Disposal	Recycling Services
9	98m E	The Riverside Business Centre	Essex, RM18	Business Parks and Industrial Estates	Industrial Features
10	102m NE	World's End Wharf	Essex, RM18	Moorings and Unloading Facilities	Water
11	103m E	Maritime	Fortress Distribution Park, Fort Road, Tilbury, Essex, RM18 7NL	Distribution and Haulage	Transport, Storage and Delivery
G	105m W	Pylon	Essex, RM18	Electrical Features	Infrastructure and Facilities
H	117m W	Drydock Autos Ltd	Tilbury Freeport, Tilbury, Essex, RM18 7HB	Vehicle Repair, Testing and Servicing	Repair and Servicing
I	118m N	Postal Tube Shop	Macanie House, Dock Road, Tilbury, Essex, RM18 7PT	Wood Products Including Charcoal, Paper, Card and Board	Industrial Products
G	119m W	Tilbury Docks - Wind Onshore (DECC)	Tilbury Docks, Tilbury, Essex, RM18	Energy Production	Industrial Features
G	120m W	Port of Tilbury Turbine	Essex, RM18	Energy Production	Industrial Features
J	132m NW	S M S Recycling Precious Metals	Hume Avenue, Tilbury, Essex, RM18 8DX	Recycling, Reclamation and Disposal	Recycling Services

ID	Location	Company	Address	Activity	Category
J	141m NW	Car Breakers Yard	Essex, RM18	Scrap Metal Merchants	Recycling Services
12	141m SW	Enterprise Distribution Centre Warehouse	Essex, RM18	Container and Storage	Transport, Storage and Delivery
H	153m W	K C Global Links	Unit 7a Tilbury Industrial Complex, Tilbury Freeport, Tilbury, Essex, RM18 7HB	Secondhand Vehicles	Motoring
K	156m NE	Electricity Sub Station	Essex, RM18	Electrical Features	Infrastructure and Facilities
I	162m NW	Darjon Mouldings	Dock Road, Tilbury, Essex, RM18 7PT	Glass Fibre Services	Industrial Products
H	163m W	Dry Dock Autos	Tilbury Freeport, Tilbury, Essex, RM18 7HB	Vehicle Repair, Testing and Servicing	Repair and Servicing
14	171m W	Electricity Sub Station	Essex, RM18	Electrical Features	Infrastructure and Facilities
15	180m SW	Electricity Sub Station	Essex, RM18	Electrical Features	Infrastructure and Facilities
H	184m W	Outen Ltd	Unit 8 Industrial Complex, Tilbury Freeport, Tilbury, Essex, RM18 7HB	Distribution and Haulage	Transport, Storage and Delivery
17	193m W	Dock	Essex, RM18	Marine Equipment Including Boats and Ships	Industrial Products
18	193m NW	Electricity Sub Station	Essex, RM18	Electrical Features	Infrastructure and Facilities
20	241m W	Landing Stage (Dis)	Essex, RM18	Moorings and Unloading Facilities	Water

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m **1**

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 58**

ID	Location	Company	Address	LPG	Status
24	355m NW	OBSOLETE	Dock Road, Tilbury, Thurrock, RM18 7PT	Not Applicable	Obsolete

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	2

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

Features are displayed on the Current industrial land use map on **page 58**

ID	Location	Company	Address	Operational status	Tier
E	32m SW	Port Of Tilbury London Ltd	Port Of Tilbury London Ltd, Tilbury Freeport, Tilbury, RM18 7EH	Historical NIHHS Site	-
E	54m SW	Laing National Ltd	Laing National Ltd, Tilbury Starch Works, Tilbury Docks	Historical NIHHS Site	-

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.10 Licensed industrial activities (Part A(1))

Records within 500m	0

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m	4

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 58**

ID	Location	Address	Details	
F	67m NE	Sejoc Auto Repairs, Daveys YaRoad, Dock Road, Tilbury, Essex, RM18 7PT	Process: Waste Oil Burner 0.4 MW Status: New Legislation Applies Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
J	143m NW	Specialist Metal Services, Hume Works, Hume Avenue, Tilbury, Essex, RM18 8DX	Process: Non-ferrous Metal Foundry Processes Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
19	200m NW	Specialist Metal Services, Hume Wks, Hume Avenue, Tilbury, RM18 8DX	Process: Other Metal Processes Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
26	441m N	Braiden Dry Cleaners, 11 Calcutta Road, Tilbury, Essex, RM18 7QT	Process: Dry Cleaning Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m **0**

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.13 Licensed Discharges to controlled waters

Records within 500m **8**

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

Features are displayed on the Current industrial land use map on **page 58**

ID	Location	Address	Details	
L	166m NE	WORLDS END PH, FORT ROAD, TILBURY, ESSEX	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: PRENF10693 Permit Version: 1 Receiving Water: tributary River Thames	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: 06/01/1997 Effective Date: 06/01/1997 Revocation Date: -

ID	Location	Address	Details	
L	166m NE	WORLDS END PH, FORT ROAD, TILBURY, ESSEX	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: PR2NFE05277 Permit Version: 1 Receiving Water: Trib. River Thames	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: 10/11/1977 Effective Date: 10/11/1977 Revocation Date: 31/10/1996
M	212m E	RES. DEVLPT AT TANCRED ROAD, TILBURY	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: PR2NFE09066 Permit Version: 1 Receiving Water: Trib River Thames	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: 19/04/1966 Effective Date: 19/04/1966 Revocation Date: 25/02/1993
M	212m E	RES. DEVLPT AT TANCRED ROAD, TILBURY	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: PR2NFE09166 Permit Version: 1 Receiving Water: Trib River Thames	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: 19/04/1966 Effective Date: 19/04/1966 Revocation Date: 03/03/1993
O	267m NW	HAIRPIN BRIDGE NO 138, TILBURY TOWN, ESSEX	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: PR2NFE03658 Permit Version: 1 Receiving Water: East and West Tilbury Sewer	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: 03/11/1958 Effective Date: 03/11/1958 Revocation Date: 24/03/1992
O	267m NW	HAIRPIN BRIDGE NO 138, TILBURY TOWN, ESSEX	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: PR2NFE13267 Permit Version: 1 Receiving Water: Trib River Thames	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: 02/08/1967 Effective Date: 02/08/1967 Revocation Date: 03/03/1993
23	344m NE	FACTORY DEVLPT AT FORT ROAD, TILBURY, ESSEX	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: PR2NFE01467 Permit Version: 1 Receiving Water: -	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: 23/01/1967 Effective Date: 23/01/1967 Revocation Date: 21/04/1992
27	447m E	TILBURY FORT, THE FORT, FORT ROAD, TILBURY, ESSEX, RM18 7NR	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: EPRNP3321GH Permit Version: 1 Receiving Water: RIVER THAMES ESTUARY (TIDAL)	Status: NEW ISSUED UNDER EPR 2010 Issue date: 04/11/2011 Effective Date: 04/11/2011 Revocation Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

4.14 Pollutant release to surface waters (Red List)

Records within 500m	2

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

Features are displayed on the Current industrial land use map on **page 58**

ID	Location	Address	Details	
N	240m S	BLUE CIRCLE INDUSTRIES PLC, OUTLET A, BLUE CIRCLE, NORTHFLEET, OUTLET A, BLUE CIRCLE, NORTHFLEE, T, THE SHORE, NORTHFLEET, GRAVSE, ND, KENT	Permit Number: CNTM.1265 Permit Version: 1 Status: NEW CONSENT, BY APPLICATION (WRA 91, SECTION 88) Discharge Type: Extraction of Other Minerals	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Catchment: - Approval Date: 1994-01-24T00:00:00.000Z
N	240m S	LAFARGE AGGREGATES LIMITED, OUTLET A, BLUE CIRCLE, NORTHFLEET, OUTLET A, BLUE CIRCLE, NORTHFLEE, T, THE SHORE, NORTHFLEET, GRAVSE, ND, KENT	Permit Number: CNTM.1265 Permit Version: 1 Status: NEW CONSENT, BY APPLICATION (WRA 91, SECTION 88) Discharge Type: Extraction of Other Minerals	Effluent Type: TRADE DISCHARGES - UNSPECIFIED Catchment: - Approval Date: 1994-01-24T00:00:00.000Z

This data is sourced from the Environment Agency and Natural Resources Wales.

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.16 List 1 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.17 List 2 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.18 Pollution Incidents (EA/NRW)

Records within 500m	12

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

Features are displayed on the Current industrial land use map on **page 58**

ID	Location	Details	
B	**On site**	**Incident Date: 26/09/2002** **Incident Identification: 110794** **Pollutant: Contaminated Water** **Pollutant Description: Urban Run-Off**	**Water Impact: Category 3 (Minor)** **Land Impact: Category 4 (No Impact)** **Air Impact: Category 4 (No Impact)**
8	91m N	Incident Date: 28/08/2001 Incident Identification: 27342 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Other Atmospheric Pollutant or Effect	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
13	163m S	Incident Date: 26/02/2003 Incident Identification: 139427 Pollutant: Oils and Fuel Pollutant Description: Gas and Fuel Oils	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
K	183m NE	Incident Date: 24/12/2001 Incident Identification: 49463 Pollutant: Agricultural Materials and Wastes Pollutant Description: Carcasses	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
16	183m E	Incident Date: 16/12/2002 Incident Identification: 126335 Pollutant: Oils and Fuel Pollutant Description: Unidentified Oil	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
21	250m E	Incident Date: 13/09/2014 Incident Identification: 1277346 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

ID	Location	Details	
22	318m NW	Incident Date: 01/08/2002 Incident Identification: 104161 Pollutant: Other Pollutant Pollutant Description: Radionucleid	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
25	394m SE	Incident Date: 03/08/2001 Incident Identification: 21597 Pollutant: Other Pollutant Pollutant Description: Microbiological	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
P	412m NE	Incident Date: 19/10/2001 Incident Identification: 37745 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Other Atmospheric Pollutant or Effect	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
P	412m NE	Incident Date: 20/10/2001 Incident Identification: 38003 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Other Atmospheric Pollutant or Effect	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
P	430m NE	Incident Date: 19/06/2001 Incident Identification: 10062 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Fumes	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
28	452m NW	Incident Date: 11/09/2003 Incident Identification: 189091 Pollutant: Inert Materials and Wastes Pollutant Description: Construction and Demolition Materials and Wastes	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution inventory substances

Records within 500m	**0**

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m	0

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

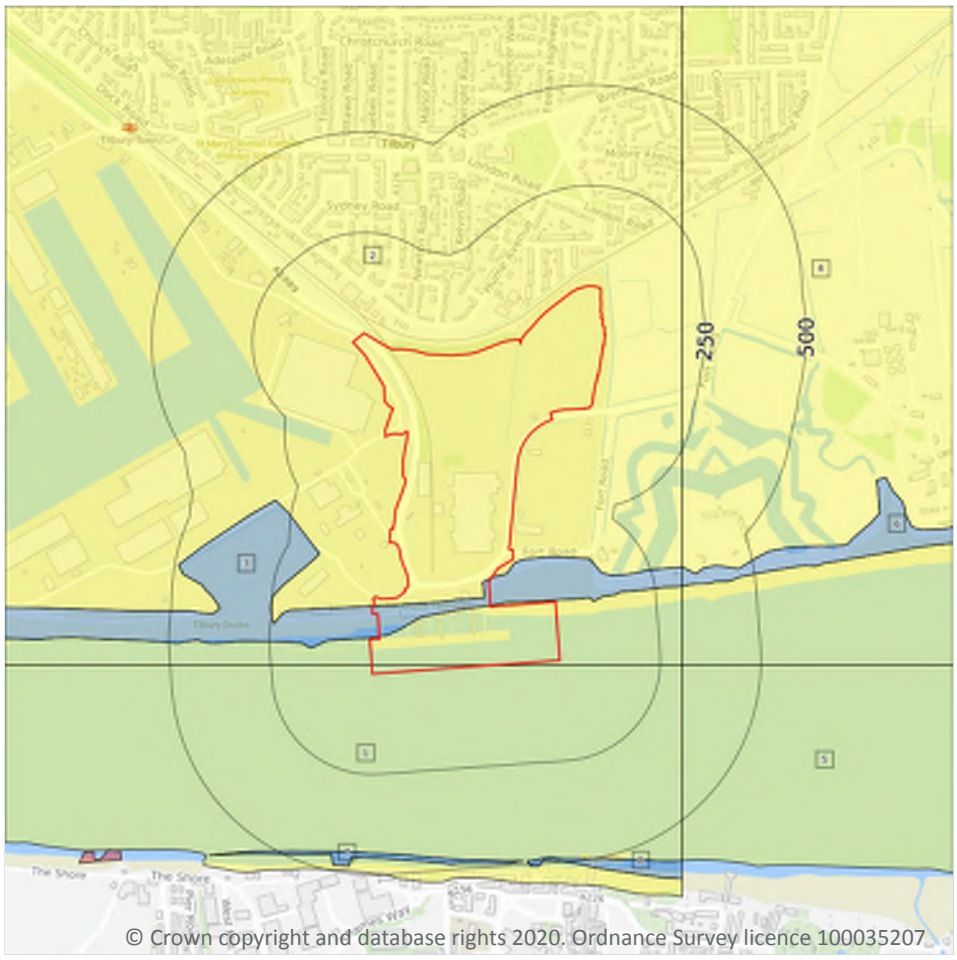
4.21 Pollution inventory radioactive waste

Records within 500m	0

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

5 Hydrogeology - Superficial aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive
- Unknown

5.1 Superficial aquifer

Records within 500m	8

Aquifer status of groundwater held within superficial geology.

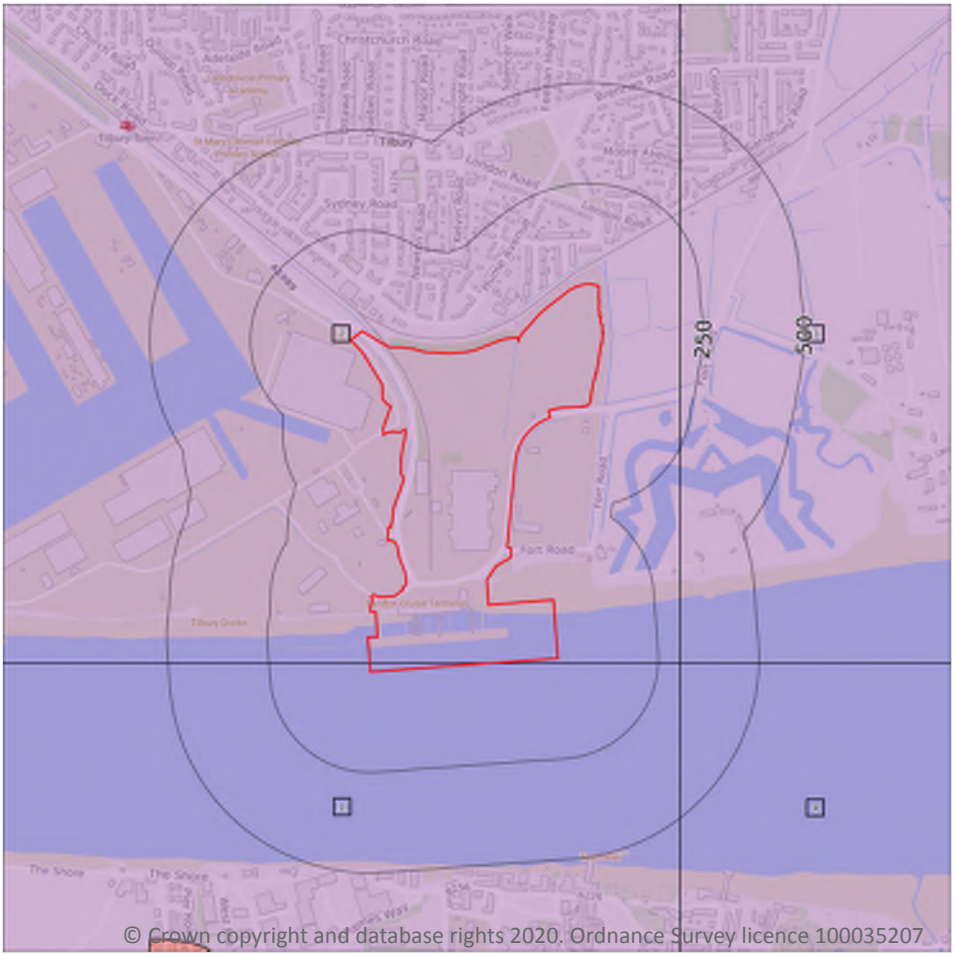
Features are displayed on the Hydrogeology map on **page 70**

ID	Location	Designation	Description
1	**On site**	**Secondary Undifferentiated**	**Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type**
2	**On site**	**Secondary Undifferentiated**	**Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type**

ID	Location	Designation	Description
3	**On site**	**Unproductive**	**These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow**
4	192m E	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
5	304m E	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
6	318m E	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
7	445m S	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
8	486m S	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Bedrock aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive

5.2 Bedrock aquifer

Records within 500m	4

Aquifer status of groundwater held within bedrock geology.

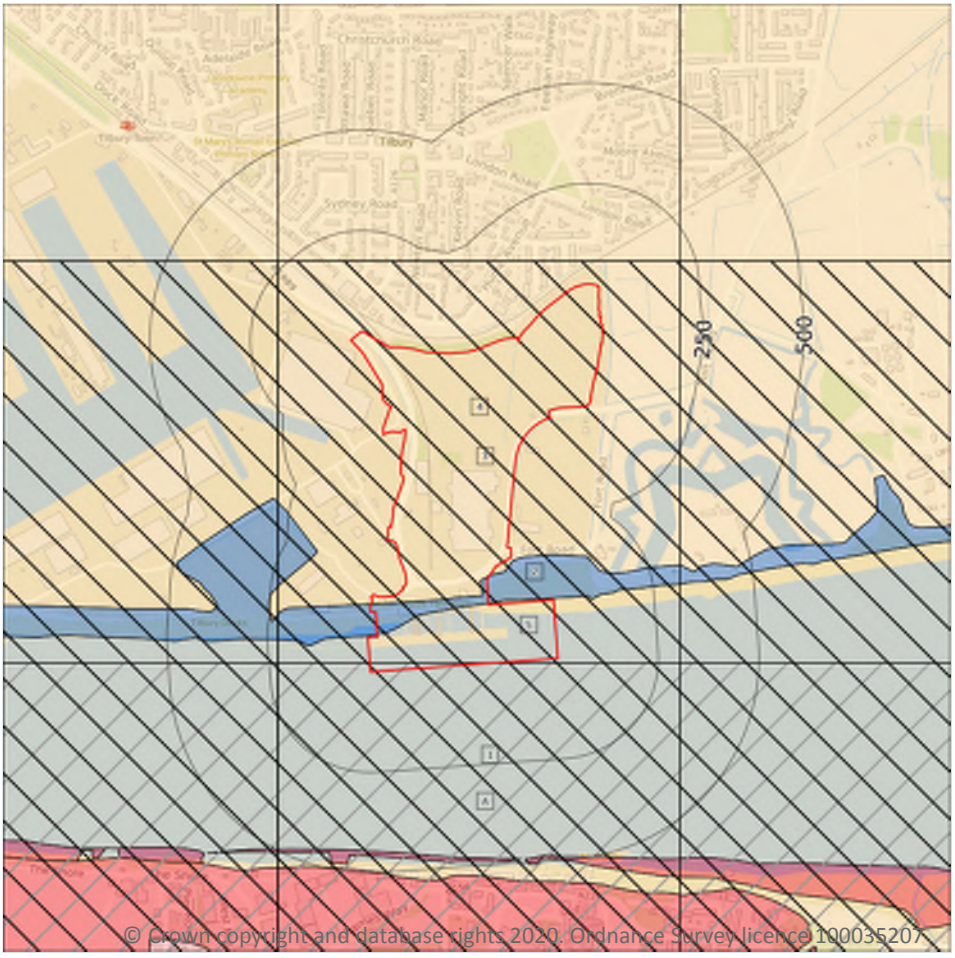
Features are displayed on the Bedrock aquifer map on **page 72**

ID	Location	Designation	Description
1	On site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
2	On site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

ID	Location	Designation	Description
3	192m E	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
4	304m E	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Groundwater vulnerability



Site Outline

Search buffers in metres (m)

Superficial vulnerability

- Principal superficial aquifer, high vulnerability
- Secondary superficial aquifer, high vulnerability
- Principal superficial aquifer, medium vulnerability
- Secondary superficial aquifer, medium vulnerability
- Principal superficial aquifer, low vulnerability
- Secondary superficial aquifer, low vulnerability

Bedrock vulnerability

- Principal bedrock aquifer, high vulnerability
- Secondary bedrock aquifer, high vulnerability
- Principal bedrock aquifer, medium vulnerability
- Secondary bedrock aquifer, medium vulnerability
- Principal bedrock aquifer, low vulnerability
- Secondary bedrock aquifer, low vulnerability

Other information

- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	4

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on **page 74**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: <90% Recharge potential: No Data	Vulnerability: High Aquifer type: Principal Flow mechanism: Well connected fractures
2	On site	Summary Classification: Principal bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures
4	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures
5	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site	1

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

ID	Maximum soluble risk category	Percentage of grid square covered by maximum risk
A	**Very significant soluble rocks are likely to be present with a moderate possibility of localised natural subsidence or dissolution-related degradation of bedrock, especially in adverse conditions such as concentrated surface or subsurface water flow.**	**2.0%**

This data is sourced from the British Geological Survey and the Environment Agency.

5.5 Groundwater vulnerability- local information

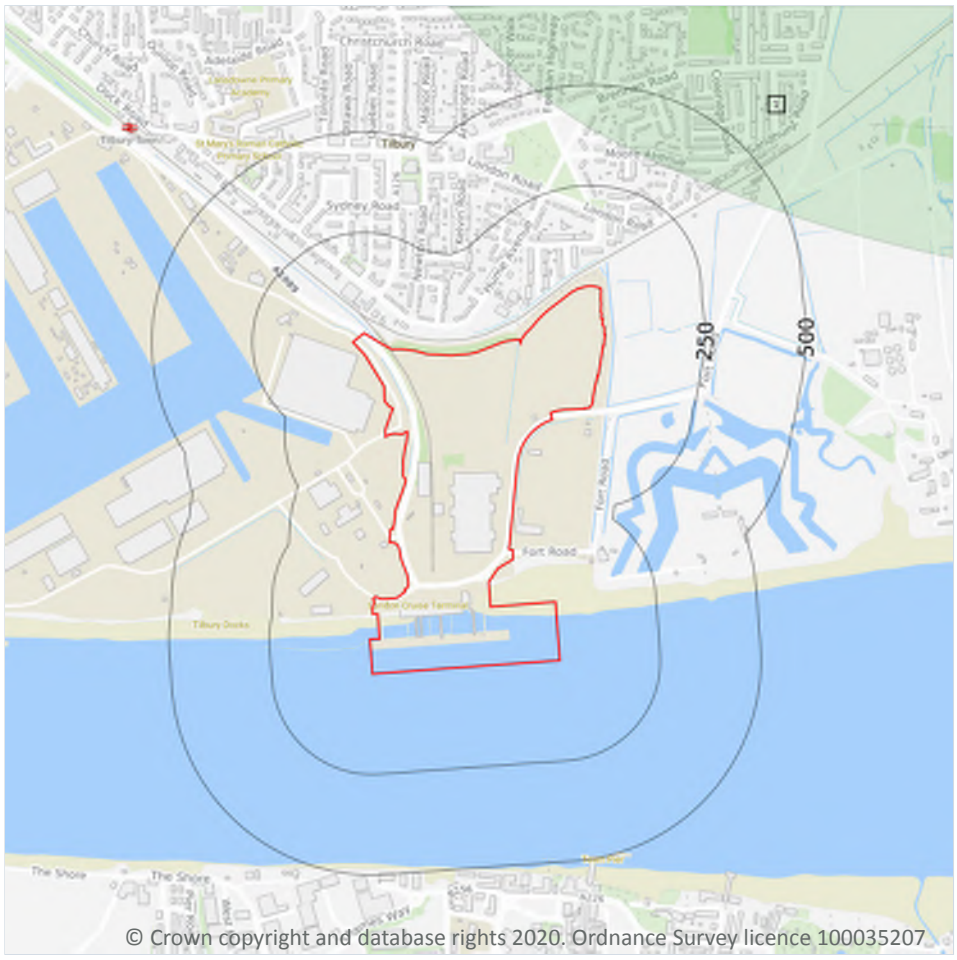
Records on site	2

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk.

ID	Summary	Additional information
3	**Potentially increased vulnerability of the bedrock aquifer due to limited cover by superficial deposits**	**Removal of, or limited cover of, superficial deposits within the River Thames**
A	**Potentially increased vulnerability of the bedrock aquifer due to limited cover by superficial deposits**	**Removal of, or limited cover of, superficial deposits within the River Thames**

This data is sourced from the British Geological Survey and the Environment Agency.

Abstractions and Source Protection Zones



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5.6 Groundwater abstractions

Records within 2000m	9

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 77**

ID	Location	Details	
-	965m E	Status: Historical Licence No: 8/37/56/*G/0084 Details: Make-Up or Top Up Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BOREHOLE AT TILBURY POWER STN Data Type: Point Name: RWE INNOGY PLC Easting: 565760 Northing: 176010	Annual Volume (m^3): 4000 Max Daily Volume (m^3): 18 Original Application No: - Original Start Date: 16/09/1996 Expiry Date: - Issue No: 103 Version Start Date: 01/10/2003 Version End Date: -
-	1432m W	Status: Historical Licence No: 9/40/01/0092/A/GR Details: Boiler Feed Direct Source: Southern Region Groundwater Point: POINT 1, GREENSAND BOREHOLE, NORTHFLEET. Data Type: Point Name: Kimberly-Clark Limited Easting: 562860 Northing: 174560	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 27/05/1966 Version End Date: -
-	1441m SW	Status: Active Licence No: 9/40/01/0092/B/GR Details: Process Water Direct Source: Southern Region Groundwater Point: BOREHOLE 4, CRETE HALL ROAD, NORTHFLEET. Data Type: Point Name: Kimberly-Clark Limited Easting: 562980 Northing: 174260	Annual Volume (m^3): 4,710,000 Max Daily Volume (m^3): 19,656 Original Application No: - Original Start Date: 27/05/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/07/1996 Version End Date: -
-	1518m W	Status: Active Licence No: 9/40/01/0092/A/GR/R1 Details: Boiler Feed Direct Source: Southern Region Groundwater Point: POINT A, BOREHOLE AT KIMBERLY CLARK, NORTHFLEET Data Type: Point Name: Kimberly-Clark Limited Easting: 562759 Northing: 174599	Annual Volume (m^3): 320,000 Max Daily Volume (m^3): 1,309 Original Application No: - Original Start Date: 01/04/2018 Expiry Date: 31/03/2030 Issue No: 1 Version Start Date: 01/04/2018 Version End Date: -
-	1520m W	Status: Historical Licence No: 9/40/01/0092/A/GR Details: Boiler Feed Direct Source: Southern Region Groundwater Point: POINT A, BOREHOLE AT KIMBERLY CLARK, NORTHFLEET Data Type: Point Name: Kimberly-Clark Limited Easting: 562760 Northing: 174590	Annual Volume (m^3): 400000 Max Daily Volume (m^3): 1309 Original Application No: - Original Start Date: 27/05/1966 Expiry Date: 31/03/2018 Issue No: 101 Version Start Date: 24/04/2002 Version End Date: -

ID	Location	Details	
-	1642m SW	Status: Historical Licence No: 9/40/01/0092/A/GR Details: Boiler Feed Direct Source: Southern Region Groundwater Point: POINT 2, GREENSAND BOREHOLE, NORTHFLEET. Data Type: Point Name: Kimberly-Clark Limited Easting: 562830 Northing: 174120	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 27/05/1966 Version End Date: -
-	1693m SW	Status: Historical Licence No: 9/40/01/0092/A/GR Details: Boiler Feed Direct Source: Southern Region Groundwater Point: POINT B, BOREHOLE AT KIMBERLY CLARK, NORTHFLEET Data Type: Point Name: Kimberly-Clark Limited Easting: 562770 Northing: 174120	Annual Volume (m^3): 400000 Max Daily Volume (m^3): 1309 Original Application No: - Original Start Date: 27/05/1966 Expiry Date: 31/03/2018 Issue No: 101 Version Start Date: 24/04/2002 Version End Date: -
-	1694m SW	Status: Active Licence No: 9/40/01/0092/A/GR/R1 Details: Boiler Feed Direct Source: Southern Region Groundwater Point: POINT B, BOREHOLE AT KIMBERLY CLARK, NORTHFLEET Data Type: Point Name: Kimberly-Clark Limited Easting: 562772 Northing: 174114	Annual Volume (m^3): 320,000 Max Daily Volume (m^3): 1,309 Original Application No: - Original Start Date: 01/04/2018 Expiry Date: 31/03/2030 Issue No: 1 Version Start Date: 01/04/2018 Version End Date: -
-	1779m S	Status: Active Licence No: 9/40/01/0511/G Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: BOREHOLES, ADITS AND CATCHPITS AT WINDMILL HILL PS Data Type: Poly4 Name: Southern Water Services Ltd Easting: 565060 Northing: 173270	Annual Volume (m^3): 17,700,000 Max Daily Volume (m^3): 92,000 Original Application No: - Original Start Date: 24/03/1986 Expiry Date: - Issue No: 100 Version Start Date: 27/11/2006 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.7 Surface water abstractions

Records within 2000m	0

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.8 Potable abstractions

Records within 2000m	1

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 77**

ID	Location	Details	
-	1779m S	Status: Active Licence No: 9/40/01/0511/G Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: BOREHOLES, ADITS AND CATCHPITS AT WINDMILL HILL PS Data Type: Poly4 Name: Southern Water Services Ltd Easting: 565060 Northing: 173270	Annual Volume (m^3): 17,700,000 Max Daily Volume (m^3): 92,000 Original Application No: - Original Start Date: 24/03/1986 Expiry Date: - Issue No: 100 Version Start Date: 27/11/2006 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.9 Source Protection Zones

Records within 500m	1

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

Features are displayed on the Abstractions and Source Protection Zones map on **page 77**

ID	Location	Type	Description
1	343m NE	3	Total catchment

This data is sourced from the Environment Agency and Natural Resources Wales.

5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.

6 Hydrology



6.1 Water Network (OS MasterMap)

Records within 250m	45

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on **page 82**

ID	Location	Type of water feature	Ground level	Permanence	Name
1	**On site**	**Tidal river or stream.**	**On ground surface**	**Watercourse contains water year round (in normal circumstances)**	**-**

ID	Location	Type of water feature	Ground level	Permanence	Name
2	**On site**	**Inland river not influenced by normal tidal action.**	**Not provided**	**Watercourse contains water year round (in normal circumstances)**	**-**
3	**On site**	**Inland river not influenced by normal tidal action.**	**On ground surface**	**Watercourse contains water year round (in normal circumstances)**	**-**
7	**On site**	**Tidal river or stream.**	**Not provided**	**Watercourse contains water year round (in normal circumstances)**	**-**
B	**On site**	**Inland river not influenced by normal tidal action.**	**On ground surface**	**Watercourse contains water year round (in normal circumstances)**	**-**
B	**On site**	**Inland river not influenced by normal tidal action.**	**Not provided**	**Watercourse contains water year round (in normal circumstances)**	**-**
C	**On site**	**Inland river not influenced by normal tidal action.**	**On ground surface**	**Watercourse contains water year round (in normal circumstances)**	**-**
D	**On site**	**Inland river not influenced by normal tidal action.**	**On ground surface**	**Watercourse contains water year round (in normal circumstances)**	**-**
D	**On site**	**Inland river not influenced by normal tidal action.**	**On ground surface**	**Watercourse contains water year round (in normal circumstances)**	**-**
E	**On site**	**Inland river not influenced by normal tidal action.**	**On ground surface**	**Watercourse contains water year round (in normal circumstances)**	**-**
F	7m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
8	10m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
9	20m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
H	29m S	Inland river not influenced by normal tidal action.	Not provided	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
I	35m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
I	37m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
H	38m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
H	38m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
J	38m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
K	42m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
L	44m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
11	46m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
G	49m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
I	52m N	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
M	53m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
12	64m N	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
13	73m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
14	85m E	Tidal river or stream.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
15	85m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
G	118m E	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
16	129m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
M	129m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
N	129m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
G	130m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
M	134m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
N	140m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
18	146m S	Tidal river or stream.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Thames
19	146m S	Tidal river or stream.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Thames
O	155m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
21	158m S	Tidal river or stream.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Thames

ID	Location	Type of water feature	Ground level	Permanence	Name
G	188m E	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
G	198m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
24	242m NW	Inland river not influenced by normal tidal action.	Not provided	Watercourse contains water year round (in normal circumstances)	-
G	244m E	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
P	245m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	17

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on **page 82**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	1

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 82**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
A	**On site**	**Coastal Catchment**	**Not part of a river WB catchment**	**126**	**Mardyke**	**South Essex**

This data is sourced from the Environment Agency and Natural Resources Wales.

6.4 WFD Surface water bodies

Records identified	**1**

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on **page 82**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
4	**On site**	**Transitional**	**Thames Middle**	**GB530603911402**	**Moderate**	**Fail**	**Moderate**	**2016**

This data is sourced from the Environment Agency and Natural Resources Wales.

6.5 WFD Groundwater bodies

Records on site	**1**

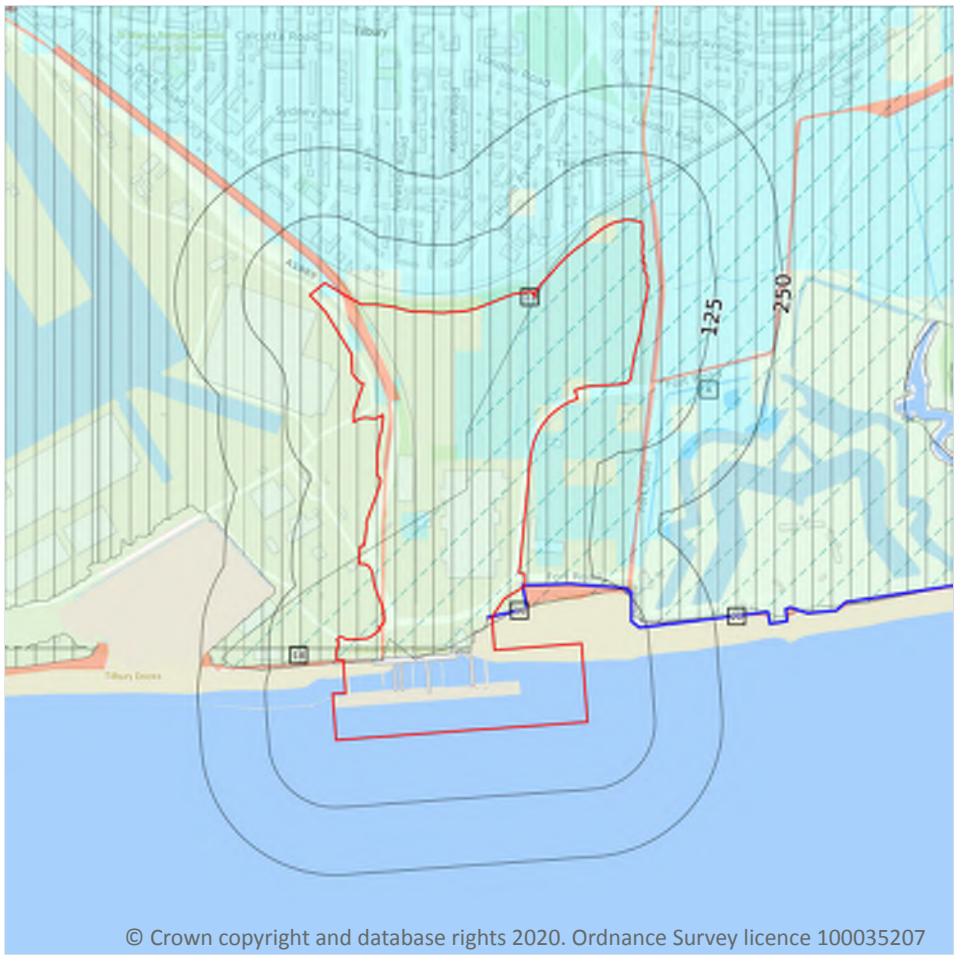
Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 82**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
A	**On site**	**South Essex Thurrock Chalk**	**GB40601G401100**	**Good**	**Good**	**Good**	**2015**

This data is sourced from the Environment Agency and Natural Resources Wales.

7 River and coastal flooding



Site Outline

Search buffers in metres (m)

Environment Agency river and coastal flooding:

- High
- Medium
- Low
- Very Low
- Historical Flood Events
- Areas Used for Flood Storage
- Areas Benefiting from Flood Defences
- Flood Defences

7.1 Risk of Flooding from Rivers and Sea (RoFRaS)

Records within 50m	21

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance).

Features are displayed on the River and coastal flooding map on **page 88**

Distance	RoFRaS flood risk
On site	**High**
0 - 50m	High

This data is sourced from the Environment Agency and Natural Resources Wales.

7.2 Historical Flood Events

Records within 250m	1

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

Features are displayed on the River and coastal flooding map on **page 88**

ID	Location	Event name	Date of flood	Flood source	Flood cause	Type of flood
A	**On site**	**1953 Tidal Flooding Essex**	**1953-01-31 1953-02-01**	**Sea**	**Overtopping of defences**	**Tidal**

This data is sourced from the Environment Agency and Natural Resources Wales.

7.3 Flood Defences

Records within 250m	2

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

Features are displayed on the River and coastal flooding map on **page 88**

ID	Location	Update
16	**On site**	**10/03/2020**
21	4m E	10/03/2020

This data is sourced from the Environment Agency and Natural Resources Wales.

7.4 Areas Benefiting from Flood Defences

Records within 250m	2

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

Features are displayed on the River and coastal flooding map on **page 88**

ID	Location	
17	**On site**	**Area benefiting from flood defences**
18	**On site**	**Area benefiting from flood defences**

This data is sourced from the Environment Agency and Natural Resources Wales.

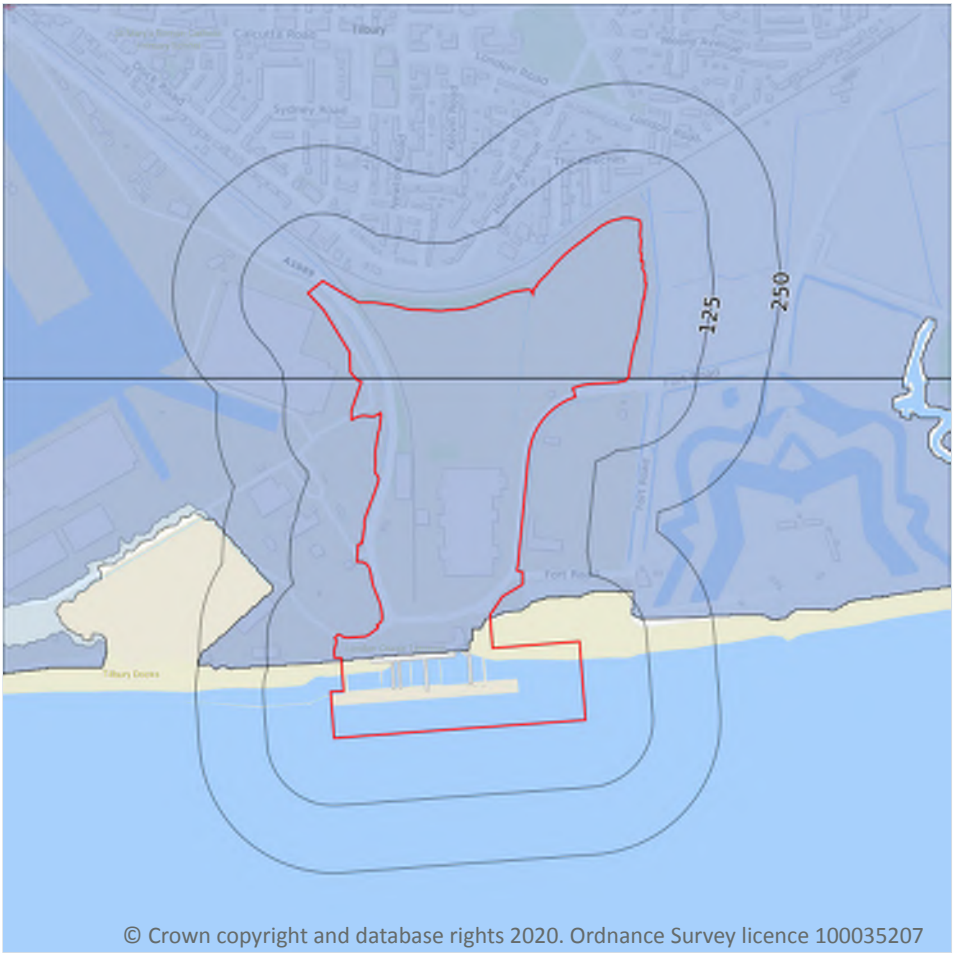
7.5 Flood Storage Areas

Records within 250m	**0**

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.

River and coastal flooding - Flood Zones



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Site Outline

Search buffers in metres (m)

Flood zone 2

Flood zone 3

7.6 Flood Zone 2

Records within 50m	1

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

Features are displayed on the River and coastal flooding map on **page 88**

Location	Type
On site	**Zone 2 - (Fluvial /Tidal Models)**

This data is sourced from the Environment Agency and Natural Resources Wales.

7.7 Flood Zone 3

Records within 50m	1

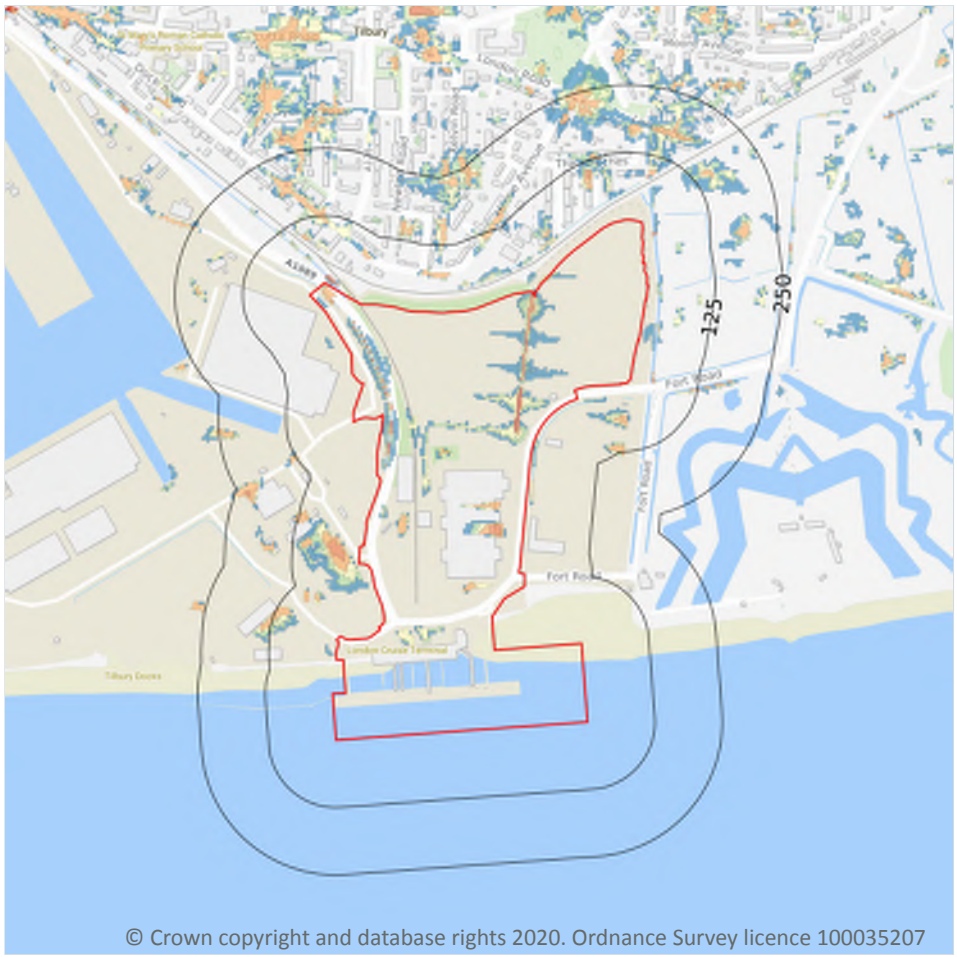
Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

Features are displayed on the River and coastal flooding map on **page 88**

Location	Type
On site	**Zone 3 - (Fluvial Models)**

This data is sourced from the Environment Agency and Natural Resources Wales.

8 Surface water flooding



Site Outline
Search buffers in metres (m)

1 in 1000 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site	**1 in 30 year, Greater than 1.0m**
Highest risk within 50m	**1 in 30 year, Greater than 1.0m**

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on **page 93**

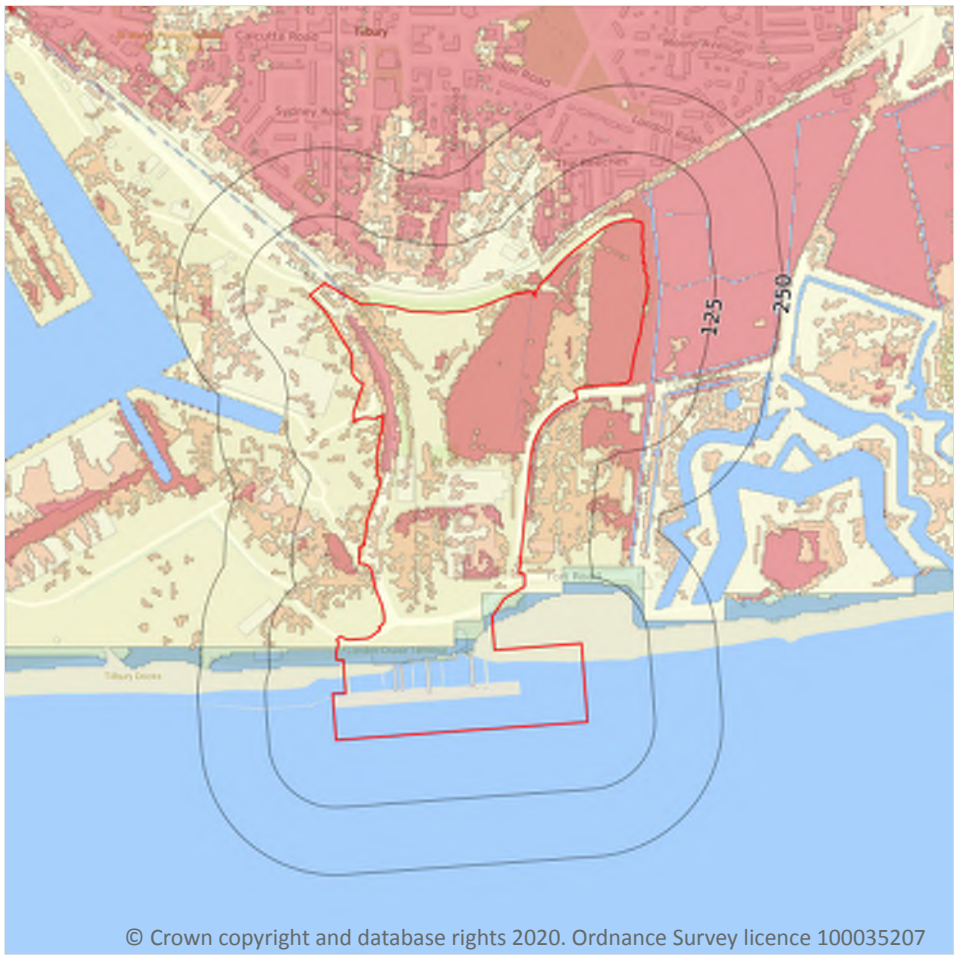
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Greater than 1.0m
1 in 250 year	Greater than 1.0m
1 in 100 year	Greater than 1.0m
1 in 30 year	Greater than 1.0m

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



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Site Outline

Search buffers in metres (m)

High

Moderate - High

Moderate

Low

Negligible

9.1 Groundwater flooding

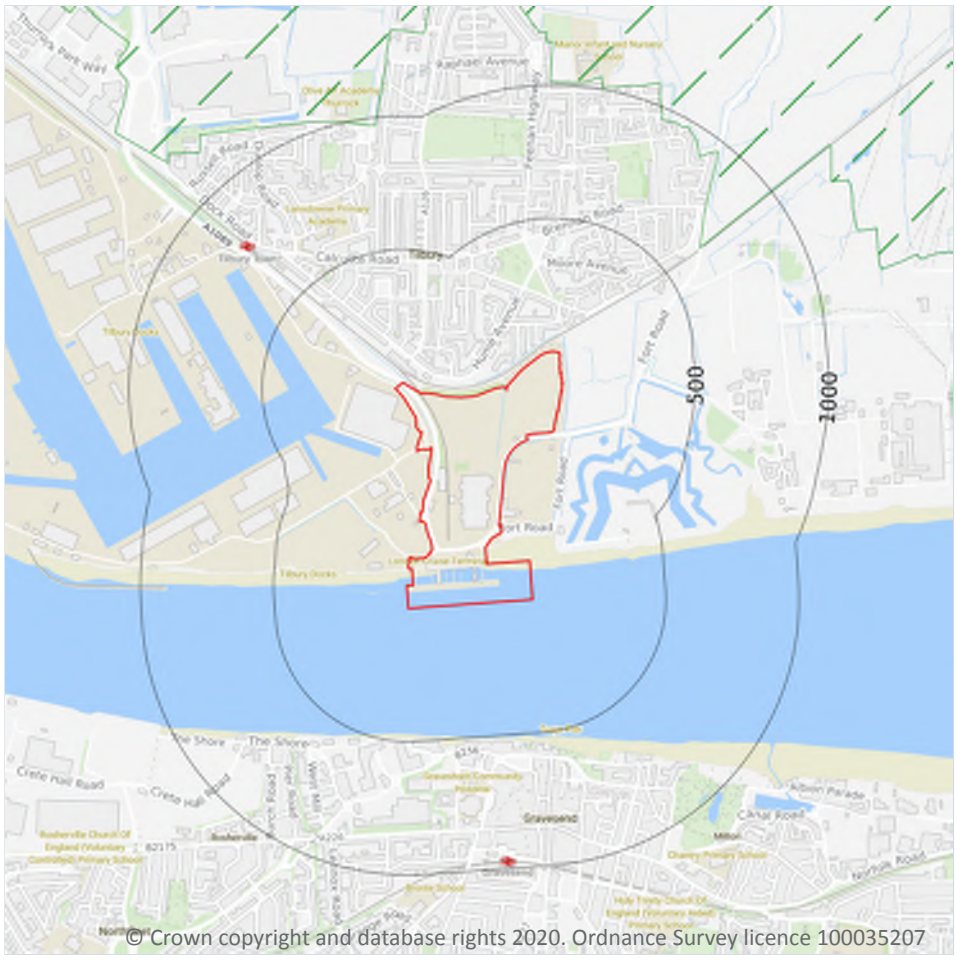
Highest risk on site	**High**
Highest risk within 50m	**High**

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on **page 95**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



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10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	0

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m	0

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m	0

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.6 Local Nature Reserves (LNR)

Records within 2000m	0

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m	0

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.8 Biosphere Reserves

Records within 2000m	0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m	0

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m	1

Areas designated to prevent urban sprawl by keeping land permanently open.

Features are displayed on the Environmental designations map on **page 96**

ID	Location	Name	Local Authority name
1	659m NE	London area	Thurrock

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m	0

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

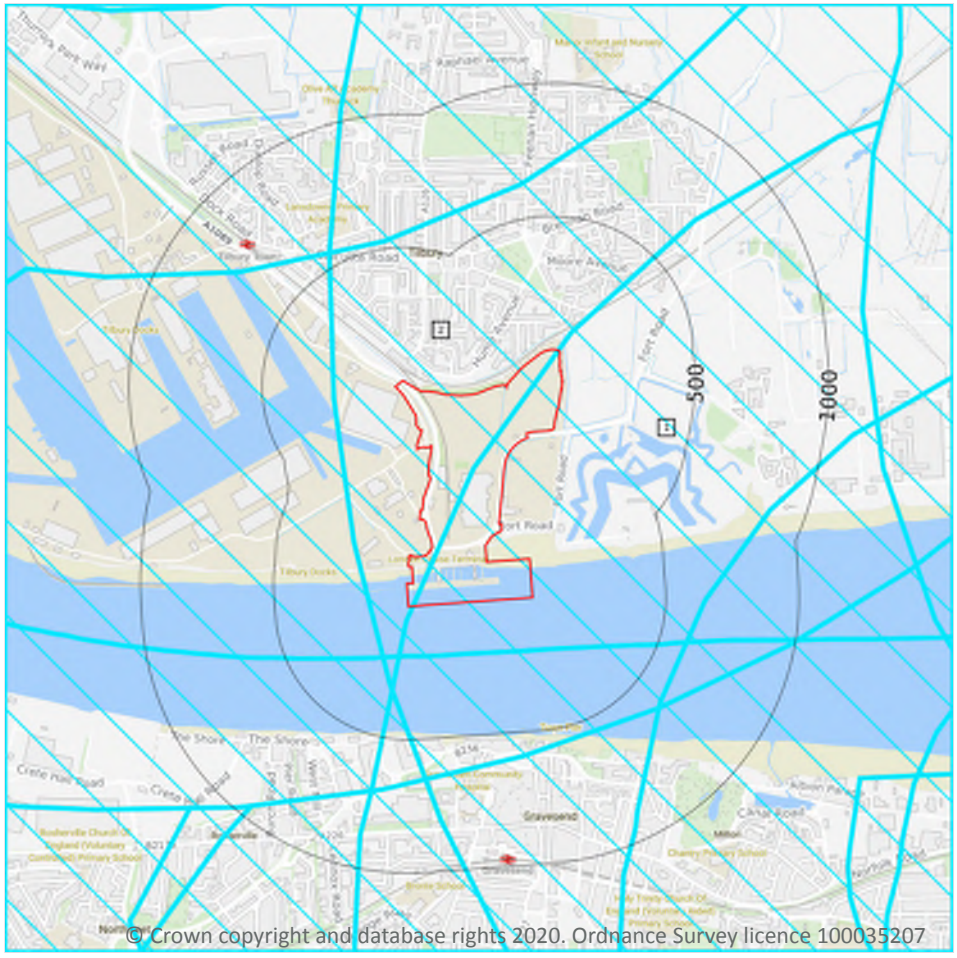
Records within 2000m	3

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Type	NVZ ID	Status
1319m SE	COASTAL STREAMS TO LOWER THAMES NVZ	Surface Water	S665	Existing
1333m SE	North Kent	Groundwater	G65	Existing
1972m SW	North Kent	Groundwater	G65	Existing

This data is sourced from Natural England and Natural Resources Wales.

SSSI Impact Zones and Units



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Site Outline

Search buffers in metres (m)

SSSI Impact Risk Zones

SSSI Units

- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site	2

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Features are displayed on the SSSI Impact Zones and Units map on **page 101**

ID	Location	Type of developments requiring consultation
1	On site	**All applications - All Planning Applications (Except Householder) Outside Or Extending Outside Existing Settlements/urban Areas Affecting Greenspace, Farmland, Semi Natural Habitats Or Landscape Features Such As Trees, Hedges, Streams, Rural Buildings/structures. Infrastructure - Airports, helipads and other aviation proposals. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction. Residential - Residential development of 100 units or more. Rural residential - Any residential development of 100 or more houses outside existing settlements/urban areas. Air pollution - Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons > 750m² & manure stores > 3500t). Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion. Discharges - Any discharge of water or liquid waste of more than 5m³/day to ground (ie to seep away) or to surface water, such as a beck or stream (NB This does not include discharges to mains sewer which are unlikely to pose a risk at this location). Notes: For new residential development in this area, consideration is required in terms of the emerging Essex Coast Recreational disturbance Avoidance and Mitigation Strategy (RAMS). Contact the Local Planning Authority for further advice.**
2	On site	**All applications - All Planning Applications (Except Householder) Outside Or Extending Outside Existing Settlements/urban Areas Affecting Greenspace, Farmland, Semi Natural Habitats Or Landscape Features Such As Trees, Hedges, Streams, Rural Buildings/structures. Infrastructure - Airports, helipads and other aviation proposals. Residential - Residential development of 100 units or more. Rural residential - Any residential development of 100 or more houses outside existing settlements/urban areas. Air pollution - Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons > 750m² & manure stores > 3500t). Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion. Discharges - Any discharge of water or liquid waste of more than 20m³/day to ground (ie to seep away) or to surface water, such as a beck or stream (NB This does not include discharges to mains sewer which are unlikely to pose a risk at this location). Notes: For new residential development in this area, consideration is required in terms of the emerging Essex Coast Recreational disturbance Avoidance and Mitigation Strategy (RAMS). Contact the Local Planning Authority for further advice.**

This data is sourced from Natural England.

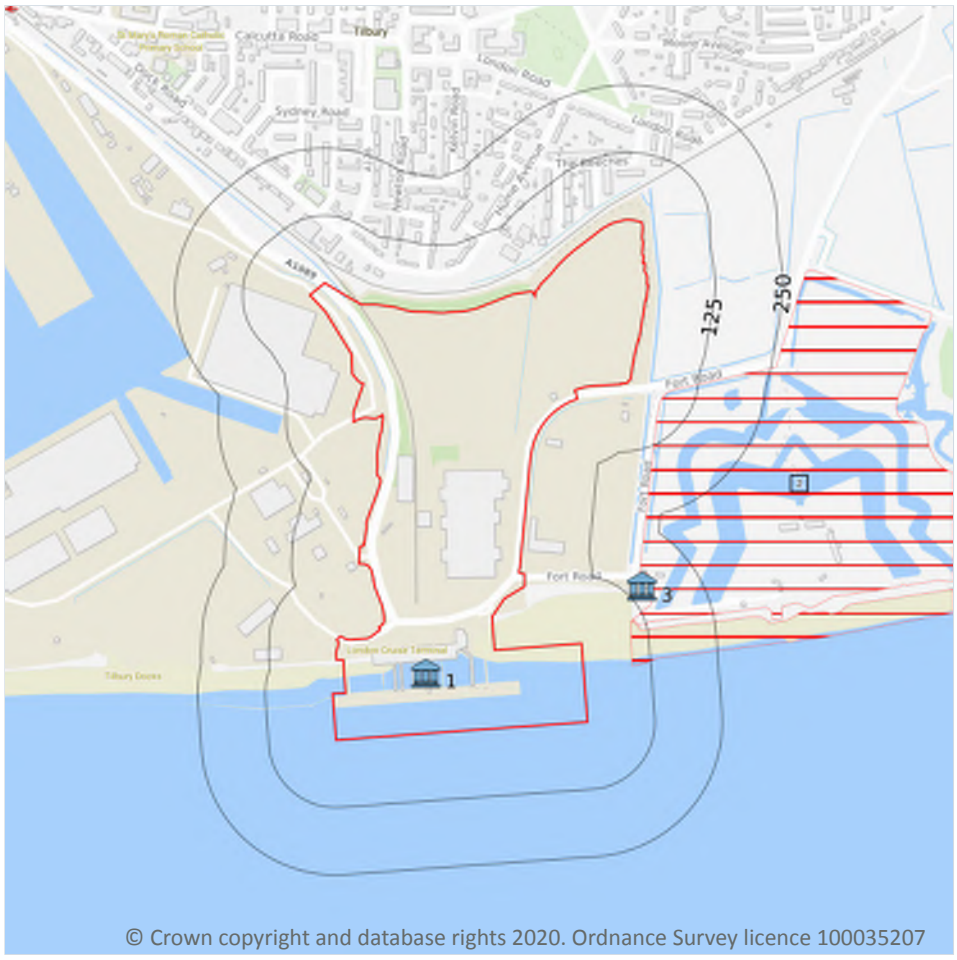
10.18 SSSI Units

Records within 2000m	0

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

This data is sourced from Natural England and Natural Resources Wales.

11 Visual and cultural designations



Site Outline

Search buffers in metres (m)

Listed buildings

Conservation areas

Conservation areas - no data

National Parks

Areas of Outstanding Natural Beauty

Registered parks and gardens

Scheduled Monuments

World Heritage Sites

11.1 World Heritage Sites

Records within 250m	0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m	0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m	2

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

Features are displayed on the Visual and cultural designations map on **page 104**

ID	Location	Name	Grade	Reference Number	Listed date
1	**On site**	**Riverside Station, Including Floating Landing Stage, Thurrock, RM18**	**II***	**1111547**	**28/12/1989**
3	154m NE	World's End Inn, Thurrock, RM18	II	1111632	21/01/1974

This data is sourced from English Heritage, Cadw and Historic Environment Scotland.

11.5 Conservation Areas

Records within 250m	0

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

This data is sourced from English Heritage, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m	1

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

Features are displayed on the Visual and cultural designations map on **page 104**

ID	Location	Ancient monument name	Reference number
2	68m SE	Tilbury Fort	1021092

This data is sourced from English Heritage, Cadw and Historic Environment Scotland.

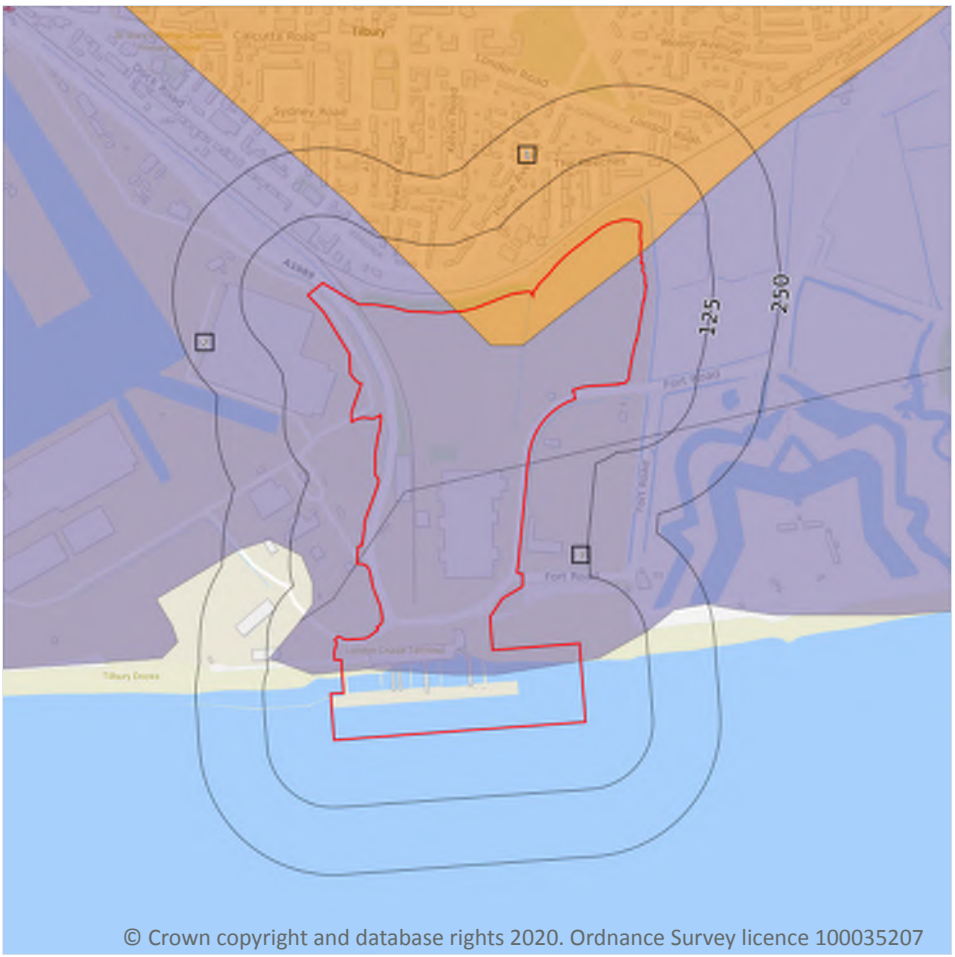
11.7 Registered Parks and Gardens

Records within 250m	0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from English Heritage, Cadw and Historic Environment Scotland.

12 Agricultural designations



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Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m	3

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on **page 107**

ID	Location	Classification	Description
1	On site	Grade 3	**Good to moderate quality agricultural land. Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.**

ID	Location	Classification	Description
2	**On site**	**Non Agricultural**	-
3	**On site**	**Non Agricultural**	-

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m	**0**

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m	**0**

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	**0**

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment.

This data is sourced from Natural England.

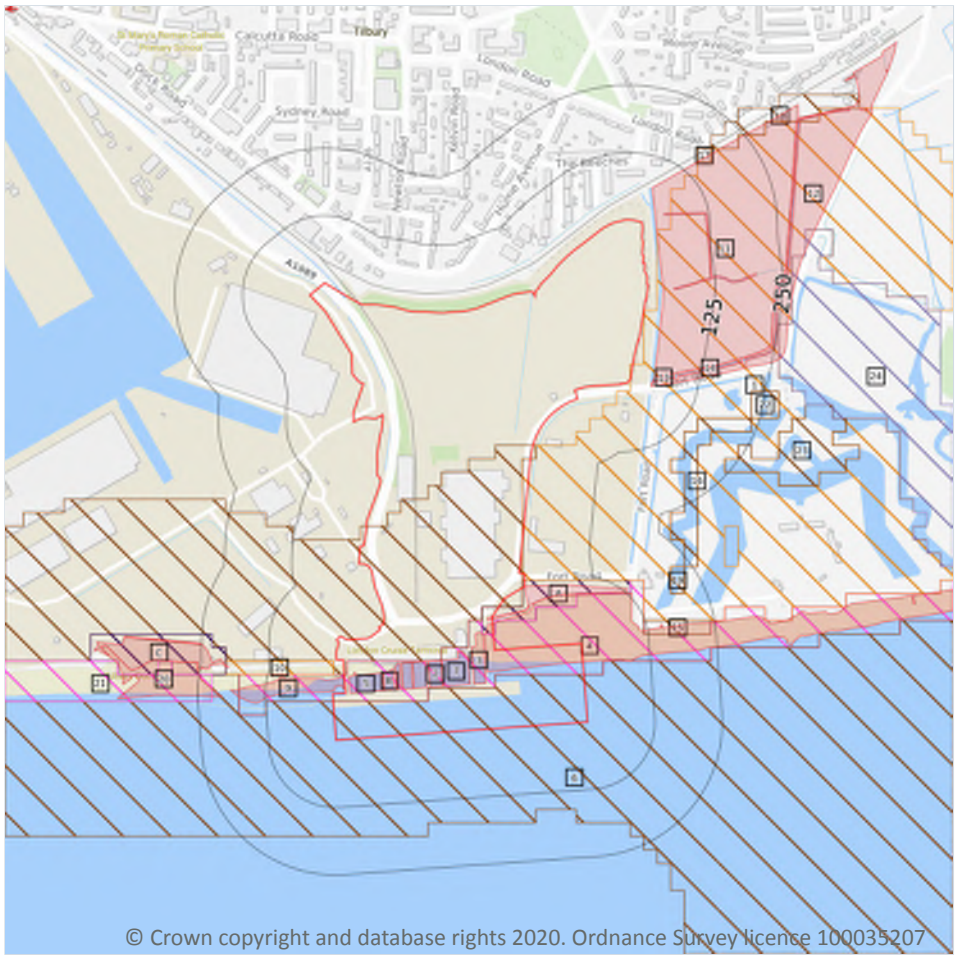
12.5 Countryside Stewardship Schemes

Records within 250m	**0**

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.

13 Habitat designations



Site Outline

Search buffers in metres (m)

Priority Habitat Inventory
Open Mosaic Habitat
Limestone Pavement Orders

Habitat Networks

Primary Habitat
Restorable Habitat
Associated Habitats
Habitat Restoration-Creation
Network Enhancement Zone 1
Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m	18

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

Features are displayed on the Habitat designations map on **page 109**

ID	Location	Main Habitat	Other habitats
2	**On site**	**Mudflats**	**Main habitat: MUDFL (INV > 50%)**
3	**On site**	**Mudflats**	**Main habitat: MUDFL (INV > 50%)**
5	**On site**	**Mudflats**	**Main habitat: MUDFL (INV > 50%)**
7	**On site**	**Mudflats**	**Main habitat: MUDFL (INV > 50%)**

ID	Location	Main Habitat	Other habitats
8	**On site**	**Mudflats**	**Main habitat: MUDFL (INV > 50%)**
A	**On site**	**Coastal saltmarsh**	**Main habitat: SALTM (INV > 50%)**
B	**On site**	**Mudflats**	**Main habitat: MUDFL (INV > 50%)**
B	**On site**	**Mudflats**	**Main habitat: MUDFL (INV > 50%)**
B	**On site**	**Mudflats**	**Main habitat: MUDFL (INV > 50%)**
B	**On site**	**Mudflats**	**Main habitat: MUDFL (INV > 50%)**
9	1m W	Mudflats	Main habitat: MUDFL (INV > 50%)
11	25m E	No main habitat but additional habitats present	Main habitat: RBEDS (INV > 50%)
12	39m E	No main habitat but additional habitats present	Main habitat: RBEDS (INV > 50%)
13	41m E	No main habitat but additional habitats present	Main habitat: RBEDS (INV > 50%)
14	84m E	No main habitat but additional habitats present	Main habitat: RBEDS (INV > 50%)
C	199m W	Coastal saltmarsh	Main habitat: MUDFL (INV > 50%); SALTM (INV > 50%)
20	205m W	Mudflats	Main habitat: MUDFL (INV > 50%)
25	250m W	Coastal saltmarsh	Main habitat: MUDFL (INV > 50%); SALTM (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	**15**

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

Features are displayed on the Habitat designations map on **page 109**

ID	Location	Type	Habitat
1	**On site**	**Network Enhancement Zone 1**	**Not specified**
4	**On site**	**Associated Habitats**	**Other associated habitats**
6	**On site**	**Network Enhancement Zone 2**	**Not specified**
A	**On site**	**Primary Habitat**	**Saltmarsh**
10	6m W	Network Enhancement Zone 1	Not specified
15	117m E	Network Enhancement Zone 2	Not specified

ID	Location	Type	Habitat
16	139m SE	Network Enhancement Zone 2	Not specified
17	153m NE	Network Enhancement Zone 2	Not specified
18	188m NE	Network Enhancement Zone 2	Not specified
19	189m NE	Network Enhancement Zone 2	Not specified
C	202m W	Primary Habitat	Saltmarsh
21	223m W	Associated Habitats	Other associated habitats
22	225m E	Network Enhancement Zone 2	Not specified
23	229m SE	Network Enhancement Zone 2	Not specified
24	249m E	Restorable Habitat	Not specified

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	**0**

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

Records within 250m	**0**

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability



Site Outline

Search buffers in metres (m)

Full coverage

Partial coverage

No coverage

14.1 10k Availability

Records within 500m **4**

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 112**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**TQ67SW**
2	**On site**	**Full**	**Full**	**Full**	**No coverage**	**TQ67NW**
3	192m E	Full	Full	Full	No coverage	TQ67NE
4	304m E	Full	Full	Full	No coverage	TQ67SE

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Artificial and made ground



Site Outline

Search buffers in metres (m)

- Reclaimed ground
- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

14.2 Artificial and made ground (10k)

Records within 500m	10

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

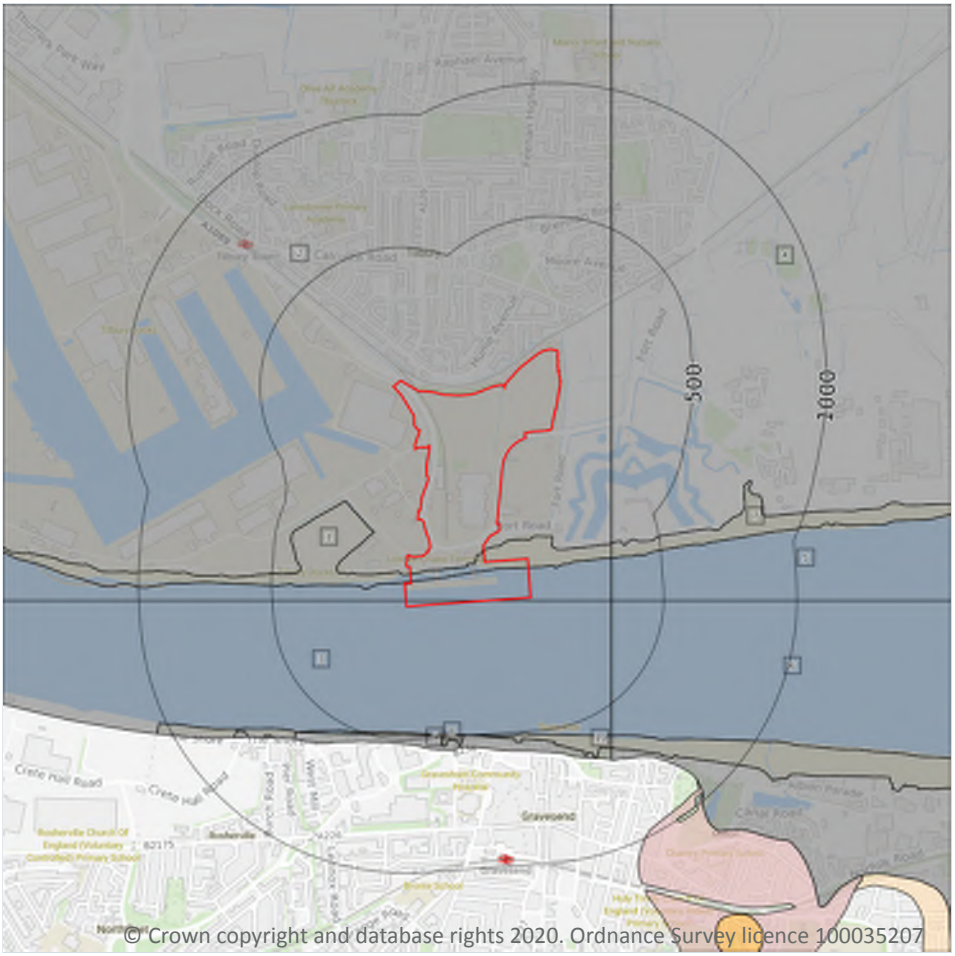
Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 114**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**MGR-UKNOWN**	**Made Ground (Undivided)**	**Unknown/unclassified Entry**
2	**On site**	**MGR-UKNOWN**	**Made Ground (Undivided)**	**Unknown/unclassified Entry**
A	30m SE	MGR-UKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
A	51m E	MGR-UKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry

ID	Location	LEX Code	Description	Rock description
3	82m N	MGR-UKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
B	170m S	MGR-UKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
B	179m E	MGR-UKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
4	243m E	MGR-UKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
5	327m SE	MGR-UKNOWN	Made Ground (Undivided)	Unknown/unclassified Entry
6	484m S	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial


500
1000
Grays
Grays Beach
Chafford Hundred
Thurrock Park Way
Askew Avenue
Moore Avenue
Fort Road
Crete Hall Road
West Hill
Orsett Road
Grays Beach Road
Bonnetts Lane
Bulphan Road
Stanford Road
Stanford-le-Hope
Corringham
Oliver Road
Manor Road
Wharf Road
Ship Lane
Hogg Lane
Mucking Wharf Road
Mucking
Linford
Fobbing
Vange
Basildon
Pitsea
Nethermayne
Basildon Hospital
Basildon Bridge
Basildon Park
Basildon Sporting Village
Gloucester Park
Gloucester Park Road
Dunton Road
Dunton Hills Gate
Dunton Hills Gate Primary School
Crays Hill
Crays Hill Primary School
Crays Hill Road
Billericay
Billericay School
Billericay Rugby Club
Billericay Cricket Club
Norsey Wood
Norsey Road
Norsey Lake
Norsey Wood Nature Reserve
Queens Park
Queens Park Primary School
Queens Park Road
Queens Park Avenue
Queens Park Drive
Queens Park Close
Queens Park Crescent
Queens Park Gardens
Queens Park Parade
Queens Park Shopping Centre
Queens Park Recreation Ground
Queens Park Sports Ground
Queens Park Tennis Courts
Queens Park Bowling Green
Queens Park Pavilion
Queens Park Play Area
Queens Park Skate Park
Queens Park Basketball Court
Queens Park Football Pitch
Queens Park Cricket Pitch
Queens Park Rugby Pitch
Queens Park Hockey Pitch
Queens Park Athletics Track
Queens Park Golf Course
Queens Park Golf Club
Queens Park Golf Clubhouse
Queens Park Golf Course Car Park
Queens Park Golf Course Pro Shop
Queens Park Golf Course Driving Range
Queens Park Golf Course Practice Area
Queens Park Golf Course Putting Green
Queens Park Golf Course Chipping Green
Queens Park Golf Course Bunkers
Queens Park Golf Course Water Hazards
Queens Park Golf Course Trees
Queens Park Golf Course Rough
Queens Park Golf Course Fairways
Queens Park Golf Course Greens
Queens Park Golf Course Tees
Queens Park Golf Course Holes
Queens Park Golf Course Par
Queens Park Golf Course Yardage
Queens Park Golf Course Slope
Queens Park Golf Course Rating
Queens Park Golf Course Handicap
Queens Park Golf Course Membership
Queens Park Golf Course Fees
Queens Park Golf Course Opening Hours
Queens Park Golf Course Contact Details
Queens Park Golf Course Website
Queens Park Golf Course Email
Queens Park Golf Course Phone Number
Queens Park Golf Course Address
Queens Park Golf Course Location
Queens Park Golf Course Directions
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Queens Park Golf Course Associations
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Queens Park Golf Course Players
Queens Park Golf Course Members
Queens Park Golf Course Visitors
Queens Park Golf Course Guests
Queens Park Golf Course Customers
Queens Park Golf Course Clients
Queens Park Golf Course Users
Queens Park Golf Course Stakeholders
Queens Park Golf Course Partners
Queens Park Golf Course Suppliers
Queens Park Golf Course Vendors
Queens Park Golf Course Contractors
Queens Park Golf Course Employees
Queens Park Golf Course Staff
Queens Park Golf Course Management
Queens Park Golf Course Owners
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Queens Park Golf Course Knowledge
Queens Park Golf Course Expertise
Queens Park Golf Course Skills
Queens Park Golf Course Training
Queens Park Golf Course Education
Queens Park Golf Course Learning
Queens Park Golf Course Development
Queens Park Golf Course Research
Queens Park Golf Course Innovation
Queens Park Golf Course Technology
Queens Park Golf Course Science
Queens Park Golf Course Engineering
Queens Park Golf Course Design
Queens Park Golf Course Architecture
Queens Park Golf Course Construction
Queens Park Golf Course Maintenance
Queens Park Golf Course Repair
Queens Park Golf Course Upgrade
Queens Park Golf Course Renovation
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ID	Location	LEX Code	Description	Rock description
5	304m E	ALV-Z	Alluvium - Silt (unlithified Deposits Coding Scheme)	Silt
6	304m E	ALV-Z	Alluvium - Silt (unlithified Deposits Coding Scheme)	Silt
7	314m E	TRD-Z	Tidal River Or Creek Deposits - Silt	Silt
8	473m S	TRD-Z	Tidal River Or Creek Deposits - Silt	Silt
9	484m S	ALV-Z	Alluvium - Silt (unlithified Deposits Coding Scheme)	Silt
10	497m S	TRD-Z	Tidal River Or Creek Deposits - Silt	Silt

This data is sourced from the British Geological Survey.

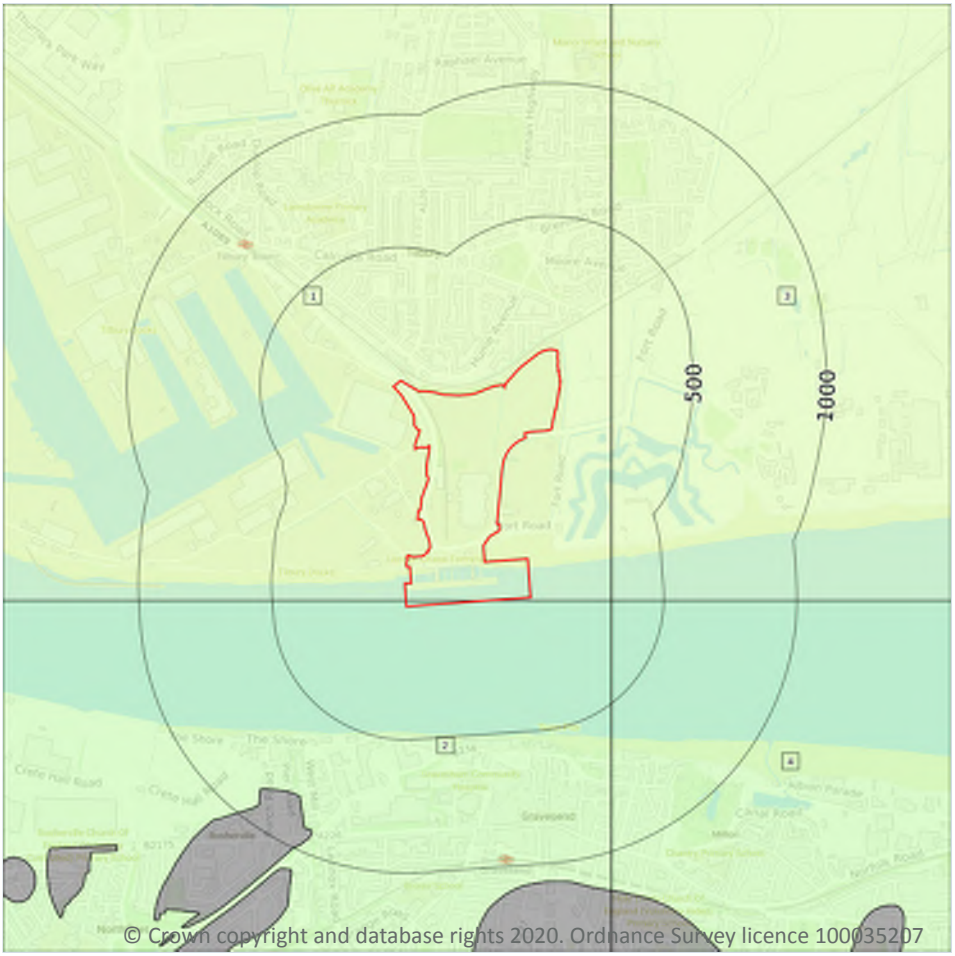
14.4 Landslip (10k)

Records within 500m	**0**

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



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Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

14.5 Bedrock geology (10k)

Records within 500m **4**

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 118**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**CK-CHLK**	**Chalk Group - Chalk**	**Maastrichtian Age - Cenomanian Age**
2	**On site**	**SECK-CHLK**	**Seaford Chalk Formation - Chalk**	**Santonian Age - Coniacian Age**
3	192m E	CK-CHLK	Chalk Group - Chalk	Maastrichtian Age - Cenomanian Age

ID	Location	LEX Code	Description	Rock age
4	304m E	SECK-CHLK	Seaford Chalk Formation - Chalk	Santonian Age - Coniacian Age

This data is sourced from the British Geological Survey.

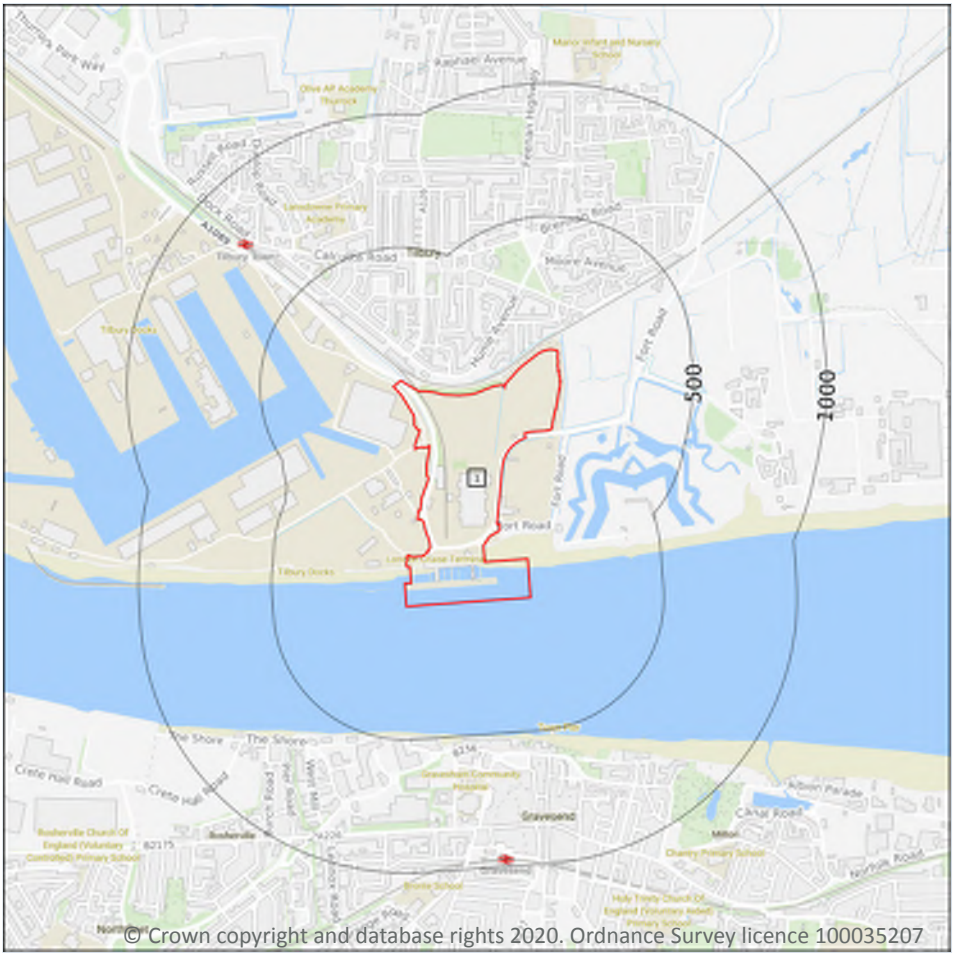
14.6 Bedrock faults and other linear features (10k)

Records within 500m	**0**

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 120**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**EW271_dartford_v4**

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Artificial and made ground



Site Outline

Search buffers in metres (m)

- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

15.2 Artificial and made ground (50k)

Records within 500m **4**

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 121**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**MGR-ARTDP**	**MADE GROUND (UNDIVIDED)**	**ARTIFICIAL DEPOSIT**
2	153m N	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
3	312m SE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
4	457m S	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

Records within 50m	**1**

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**Very High**	**Low**

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

Superficial geology (50k)
Please see table for more details.

15.4 Superficial geology (50k)

Records within 500m **5**

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 123**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**TRD-XCZ**	**TIDAL RIVER OR CREEK DEPOSITS**	**CLAY AND SILT**
2	**On site**	**ALV-XCZSP**	**ALLUVIUM**	**CLAY, SILT, SAND AND PEAT**
3	445m S	TRD-XCZ	TIDAL RIVER OR CREEK DEPOSITS	CLAY AND SILT
4	457m S	ALV-XCZSP	ALLUVIUM	CLAY, SILT, SAND AND PEAT

ID	Location	LEX Code	Description	Rock description
5	486m S	TRD-XCZ	TIDAL RIVER OR CREEK DEPOSITS	CLAY AND SILT

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	**3**

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Intergranular**	**Low**	**Very Low**
On site	**Intergranular**	**Moderate**	**Very Low**
On site	**Intergranular**	**Moderate**	**Very Low**

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	**0**

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

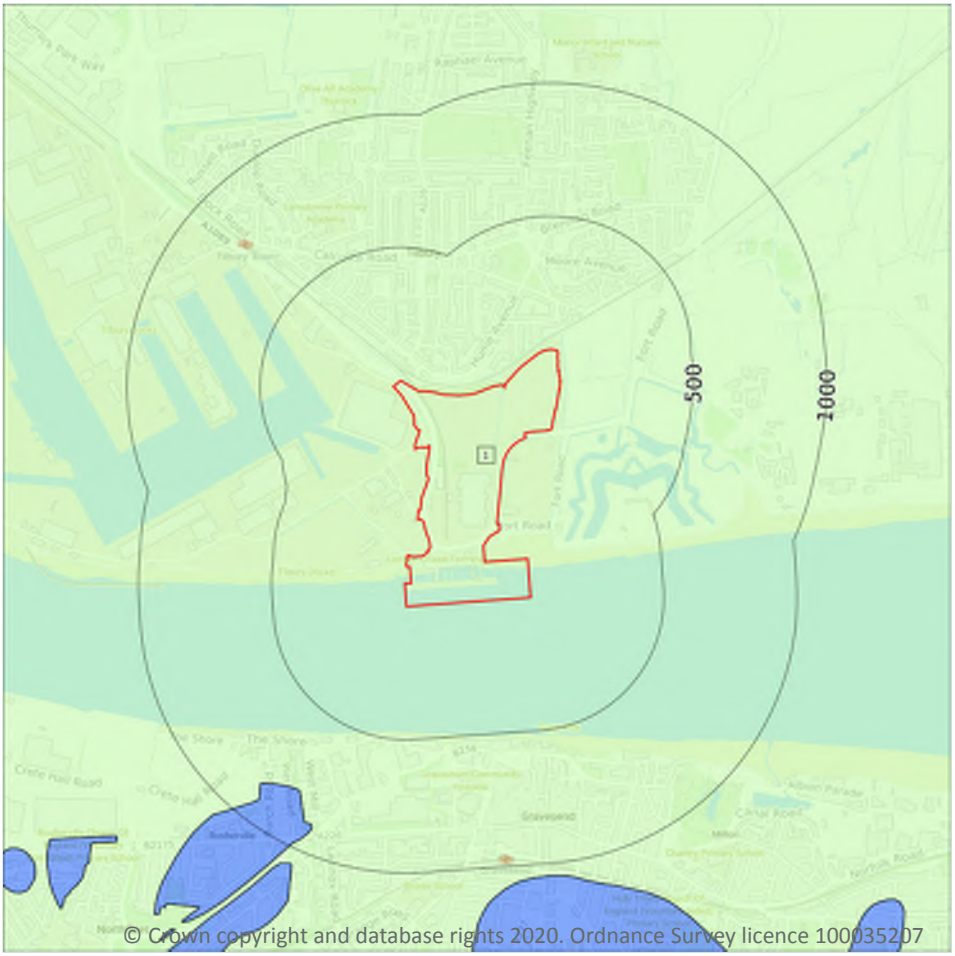
15.7 Landslip permeability (50k)

Records within 50m	**0**

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

15.8 Bedrock geology (50k)

Records within 500m	1

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 125**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**LSNCK-CHLK**	**LEWES NODULAR CHALK FORMATION, SEAFORD CHALK FORMATION AND NEWHAVEN CHALK FORMATION (UNDIFFERENTIATED) - CHALK**	**TURONIAN**

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	2

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Fracture**	**Very High**	**Very High**
On site	**Fracture**	**Very High**	**Very High**

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

16 Boreholes



16.1 BGS Boreholes

Records within 250m	47

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

Features are displayed on the Boreholes map on **page 127**

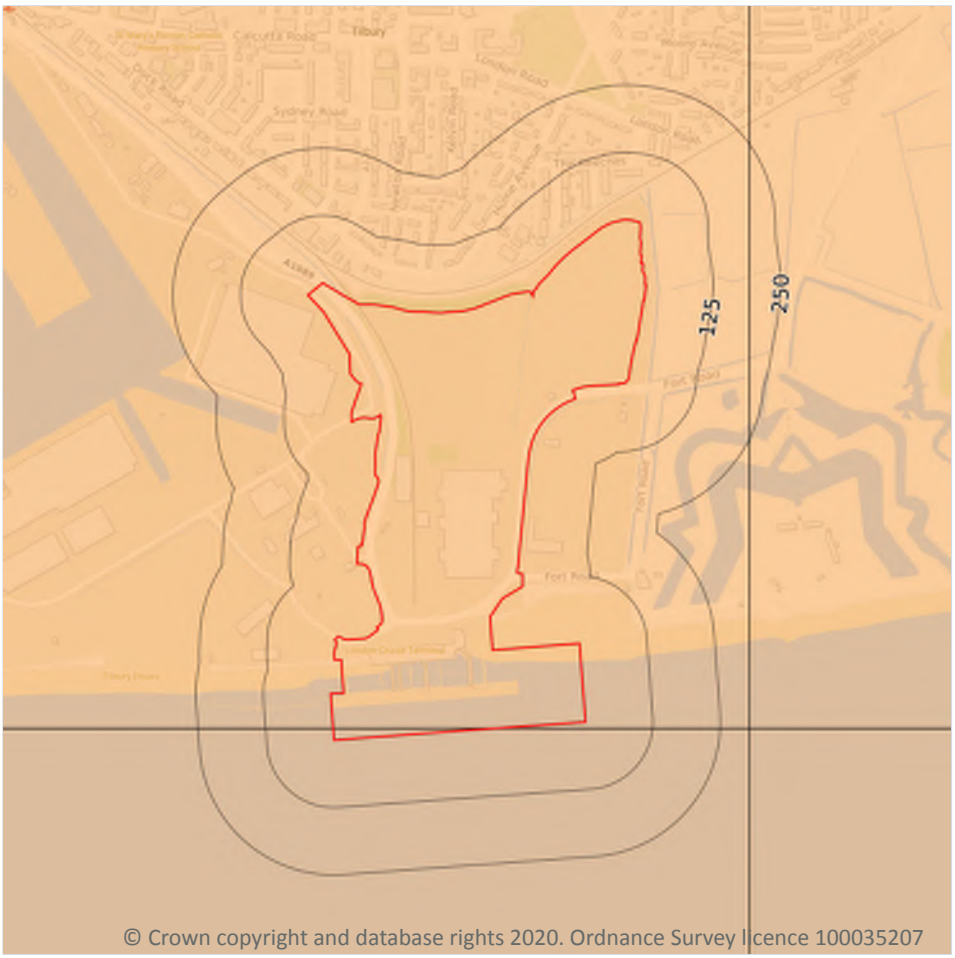
ID	Location	Grid reference	Name	Length	Confidential	Web link
1	On site	564270 175110	TILBURY DOCKS LANDING STAGE 7	23.16	N	815173
2	On site	564400 175110	TILBURY DOCKS LANDING STAGE 5	13.71	N	815171
3	On site	564470 175130	TILBURY DOCKS LANDING STAGE 6	17.29	N	815172

ID	Location	Grid reference	Name	Length	Confidential	Web link
4	**On site**	**564500 175280**	**LONDON INTERNATIONAL CRUISE TERMINAL A**	**26.0**	**N**	**815321**
5	**On site**	**564350 175180**	**TILBURY DOCKS LANDING STAGE 1**	**18.59**	**N**	**815167**
6	**On site**	**564520 175210**	**TILBURY DOCKS LANDING STAGE 2**	**19.5**	**N**	**815168**
7	**On site**	**564330 175110**	**TILBURY DOCKS LANDING STAGE 4**	**13.56**	**N**	**815170**
A	**On site**	**564274 175138**	**THAMES TIDAL DEFENCES CONTRACT 2, VOL 2 22**	**-**	**Y**	**N/A**
A	**On site**	**564256 175140**	**THAMES TIDAL DEFENCES CONTRACT 2, VOL 2 22A**	**-**	**Y**	**N/A**
B	**On site**	**564300 175400**	**EAST AND WEST INDIA DOCK EXTENSION 35**	**17.12**	**N**	**815210**
B	2m W	564290 175400	LONDON INTERNATIONAL CRUISE TERMINAL C	26.0	N	815323
8	4m N	564540 175150	TILBURY DOCKS LANDING STAGE 3	21.64	N	815169
9	32m W	564270 175260	EAST AND WEST INDIA DOCK EXTENSION 34	13.76	N	815209
10	40m N	564230 175210	LONDON INTERNATIONAL CRUISE TERMINAL D	25.0	N	815324
11	49m SW	564190 175100	TILBURY DOCKS LANDING STAGE 8	23.46	N	815174
12	51m W	564260 175230	LONDON INTERNATIONAL CRUISE TERMINAL B	4.0	N	815322
13	71m NW	564120 175840	EAST AND WEST INDIA DOCK EXTENSION 3A	6.4	N	815215
C	82m W	564100 175790	EAST AND WEST INDIA DOCK EXTENSION 20A	11.86	N	815232
C	91m W	564090 175800	EAST AND WEST INDIA DOCK EXTENSION 19A	12.54	N	815231
C	92m W	564090 175810	EAST AND WEST INDIA DOCK EXTENSION 18A	10.28	N	815230
14	92m E	564890 175754	TILBURY 1	-	Y	N/A
D	94m W	564170 175550	FINNISH PROJECT PORT OF TILBURY TP 213	2.8	N	815376
15	97m W	564130 175090	TILBURY DOCKS LANDING STAGE 9	22.02	N	815175
D	102m W	564160 175560	NEW CRY DOCK TILBURY DOCKS 12	22.86	N	815112
E	103m W	564160 175600	FINNISH PROJECT PORT OF TILBURY TP 214	4.0	N	815377
C	105m W	564080 175830	EAST AND WEST INDIA DOCK EXTENSION 17A	5.53	N	815229
E	122m W	564140 175590	NEW CRY DOCK TILBURY DOCKS 10	22.55	N	815110
16	126m NE	564784 175235	THAMES TIDAL DEFENCES CONTRACT 2, VOL 2 23	-	Y	N/A
17	135m W	564130 175540	NEW CRY DOCK TILBURY DOCKS 11	22.91	N	815111
18	140m W	564090 175140	EAST AND WEST INDIA DOCK EXTENSION 32	21.64	N	815207

ID	Location	Grid reference	Name	Length	Confidential	Web link
19	149m SW	564130 175500	FINNISH PROJECT PORT OF TILBURY TP 201	4.1	N	815364
20	156m E	564954 175749	TILBURY 2	-	Y	N/A
21	157m W	564030 175760	EAST AND WEST INDIA DOCK EXTENSION 28A	8.48	N	815239
22	161m NE	564760 175300	TILBURY-GRAVESEND TUNNEL	37.64	N	814957
23	162m NW	564100 175260	EAST AND WEST INDIA DOCK EXTENSION 1	17.75	N	815176
24	163m W	564100 175600	NEW CRY DOCK TILBURY DOCKS 8	22.86	N	815108
25	164m W	564060 175080	EAST AND WEST INDIA DOCK EXTENSION 36	13.1	N	815211
26	175m W	564010 175840	EAST AND WEST INDIA DOCK EXTENSION 29A	10.21	N	815240
27	183m W	564080 175550	NEW CRY DOCK TILBURY DOCKS 9	23.31	N	815109
28	213m W	564050 175620	NEW DRY DOCK TILBURY DOCKS 6	23.31	N	815106
29	216m SW	564070 175470	FINNISH PROJECT PORT OF TILBURY TP 202	3.7	N	815365
30	222m SW	563980 175710	EAST AND WEST INDIA DOCK EXTENSION 16 0	18.89	N	815228
31	223m W	564050 175500	FINNISH PROJECT PORT OF TILBURY TP 207	0.8	N	815370
32	232m W	564030 175580	NEW DRY DOCK TILBURY DOCKS 7	24.07	N	815107
33	244m W	564020 175540	FINNISH PROJECT PORT OF TILBURY TP 210	0.3	N	815373
34	246m W	563980 175100	EAST AND WEST INDIA DOCK EXTENSION 33	14.63	N	815208
35	246m NW	563970 175930	TILBURY DOCK - CUSTOM HOUSE 7	-	Y	N/A

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.1 Shrink swell clays

Records within 50m	1

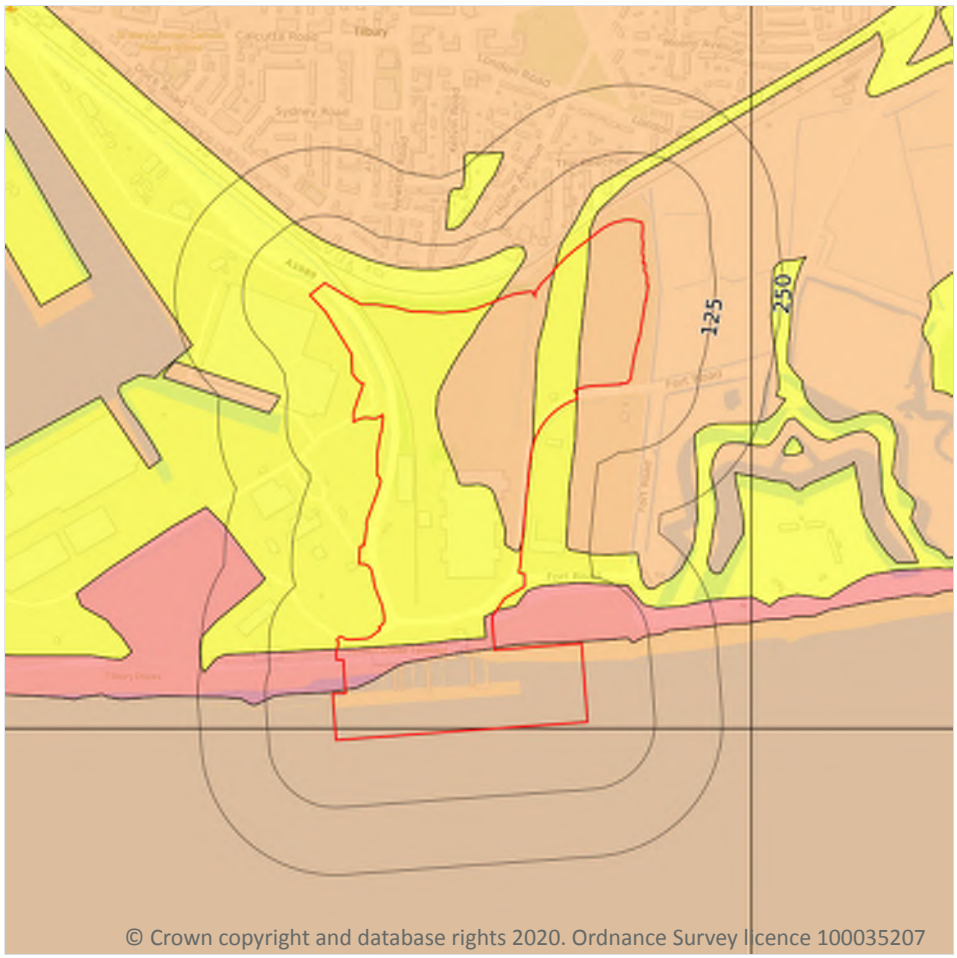
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 130**

Location	Hazard rating	Details
On site	**Low**	**Ground conditions predominantly medium plasticity.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



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Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.2 Running sands

Records within 50m	3

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

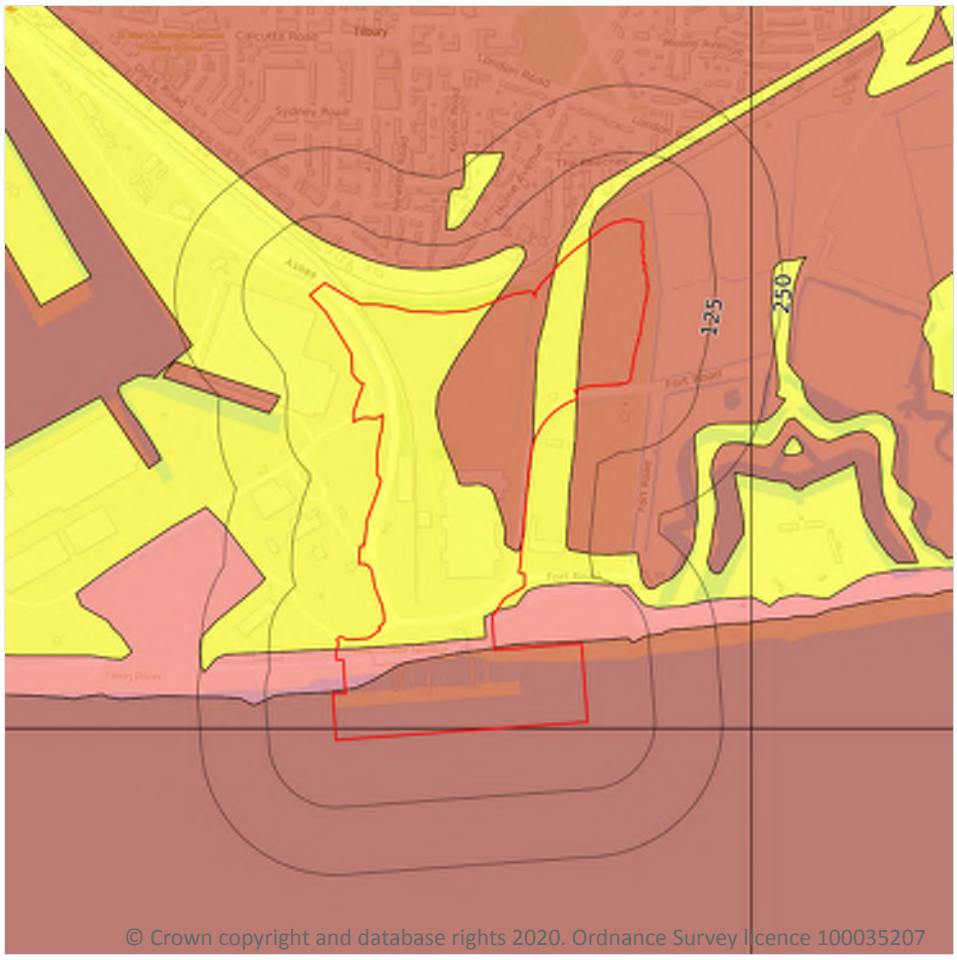
Features are displayed on the Natural ground subsidence - Running sands map on **page 131**

Location	Hazard rating	Details
On site	**Very low**	**Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.**

Location	Hazard rating	Details
On site	**Low**	**Running sand conditions may be present. Constraints may apply to land uses involving excavation or the addition or removal of water.**
On site	**Moderate**	**Running sand conditions are probably present. Constraints may apply to land uses involving excavation or the addition or removal of water.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.3 Compressible deposits

Records within 50m	3

The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

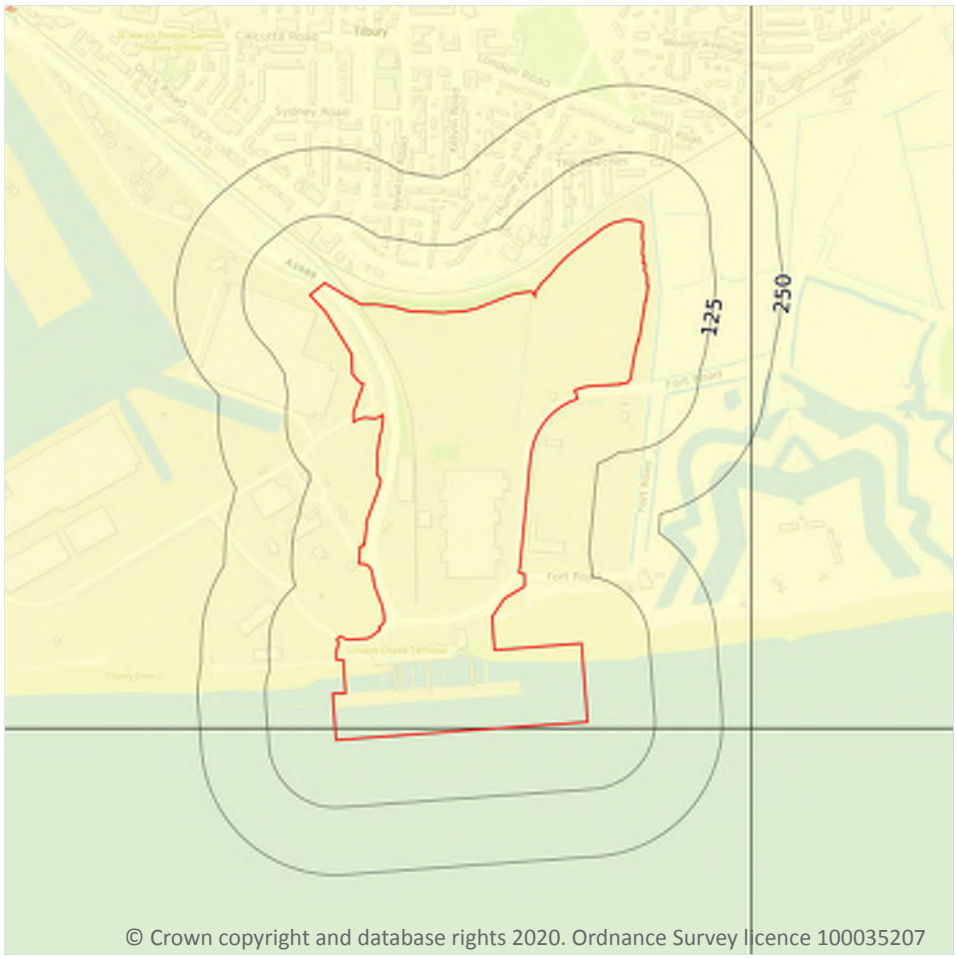
Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 133**

Location	Hazard rating	Details
On site	**Very low**	**Compressibility and uneven settlement problems are not likely to be significant on the site for most land uses.**

Location	Hazard rating	Details
On site	**Moderate**	**Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.**
On site	**High**	**Highly compressible strata present. Significant constraint on land use depending on thickness.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



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Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.4 Collapsible deposits

Records within 50m	1

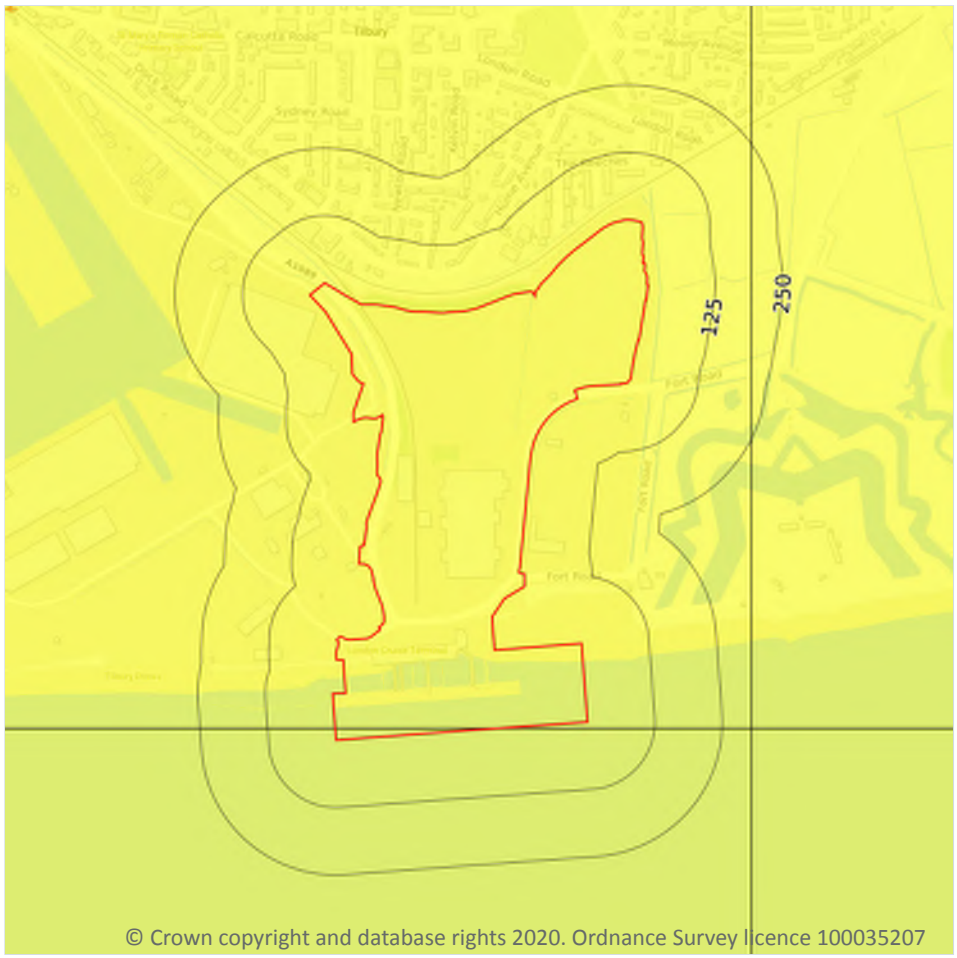
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 135**

Location	Hazard rating	Details
On site	**Negligible**	**Deposits with potential to collapse when loaded and saturated are believed not to be present.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.5 Landslides

Records within 50m	1

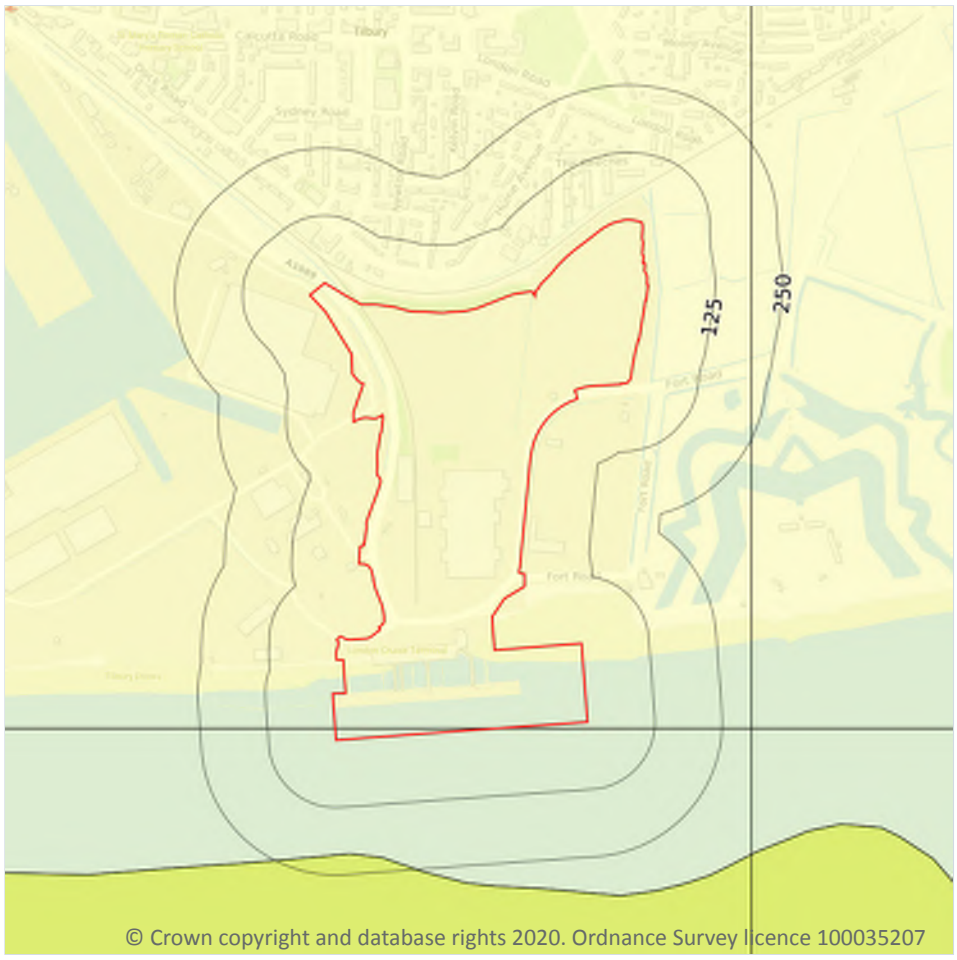
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 136**

Location	Hazard rating	Details
On site	**Very low**	**Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.6 Ground dissolution of soluble rocks

Records within 50m	1

The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 137**

Location	Hazard rating	Details
On site	**Negligible**	**Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.**

This data is sourced from the British Geological Survey.

18 Mining, ground workings and natural cavities



Site Outline

Search buffers in metres (m)

- Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- Surface ground workings
- Underground workings
- Historical Mineral Planning Areas
- Mining Cavities

Non Coal Mining

- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m	0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Peter Brett Associates (PBA).

18.2 BritPits

Records within 500m	0

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m	77

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining, ground workings and natural cavities map on **page 139**

ID	Location	Land Use	Year of mapping	Mapping scale
1	On site	Unspecified Heap	1863	1:10560
2	On site	Dry Docks	1938	1:10560
A	On site	Docks	1938	1:10560
B	On site	Dock	1993	1:10000
B	On site	Docks	1982	1:10000
B	On site	Unspecified Disused Wharf	1982	1:10000
B	On site	Unspecified Disused Wharf	1973	1:10000
B	On site	Unspecified Docks	1888	1:10560
C	On site	Dock	1955	1:10560
C	On site	Dock	1966	1:10560
D	On site	Mortuary	1923	1:10560
D	On site	Mortuary	1932	1:10560
D	On site	Mortuary	1907	1:10560
D	On site	Mortuary	1895	1:10560
D	On site	Mortuary	1938	1:10560
D	On site	Mortuary	1916	1:10560
D	On site	Mortuary	1888	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
E	2m NW	Docks	1938	1:10560
E	2m NW	Docks	1938	1:10560
F	8m W	Unspecified Dock	1899	1:10560
F	8m W	Unspecified Dock	1899	1:10560
3	15m W	Dock	1923	1:10560
G	22m W	Docks	1916	1:10560
4	35m W	Mortuary	1946	1:10560
5	47m SW	Dry Docks	1946	1:10560
H	78m N	Refuse Heap	1863	1:10560
I	79m NE	Unspecified Wharf	1938	1:10560
I	79m E	Unspecified Wharf	1993	1:10000
I	79m E	Unspecified Wharf	1982	1:10000
I	79m E	Unspecified Wharf	1973	1:10000
I	79m E	Unspecified Wharf	1992	1:10000
H	80m N	Refuse Heap	1955	1:10560
I	95m E	Unspecified Wharf	1955	1:10560
I	95m E	Unspecified Wharf	1863	1:10560
I	99m E	Unspecified Wharf	1923	1:10560
6	101m NW	Refuse Destructor	1863	1:10560
I	105m NE	Unspecified Wharf	1938	1:10560
I	105m NE	Unspecified Wharf	1938	1:10560
G	107m W	Docks	1932	1:10560
I	108m NE	Unspecified Wharf	1966	1:10560
J	110m W	Docks	1938	1:10560
J	110m W	Docks	1938	1:10560
A	110m W	Docks	1938	1:10560
A	110m W	Docks	1938	1:10560
G	117m SW	Docks	1907	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
G	117m SW	Docks	1895	1:10560
J	118m SW	Docks	1946	1:10560
F	119m W	Dry Dock	1973	1:10000
F	124m W	Dry Dock	1992	1:10000
I	127m E	Unspecified Heap	1863	1:10560
F	131m W	Dry Dock	1982	1:10000
K	140m SE	Pond	1993	1:10000
K	140m SE	Pond	1982	1:10000
K	140m SE	Pond	1973	1:10000
K	140m SE	Pond	1992	1:10000
I	149m NE	Pond	1907	1:10560
I	149m NE	Pond	1895	1:10560
I	152m NE	Pond	1895	1:10560
7	173m N	Unspecified Ground Workings	1863	1:10560
L	185m W	Pond	1907	1:10560
L	185m W	Pond	1895	1:10560
L	190m W	Pond	1899	1:10560
L	190m W	Pond	1899	1:10560
L	192m W	Pond	1895	1:10560
8	220m E	Refuse Heap	1863	1:10560
M	224m E	Water Body	1967	1:10560
9	225m E	Ponds	1973	1:10000
N	228m SE	Pond	1993	1:10000
N	228m SE	Pond	1982	1:10000
N	228m SE	Pond	1973	1:10000
N	228m SE	Pond	1992	1:10000
M	239m E	Pond	1991	1:10000
10	243m NE	Pond	1863	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
11	247m SW	Pond	1895	1:10560
O	247m SW	Dock	1993	1:10000
O	247m SW	Docks	1992	1:10000
P	250m E	Pond	1932	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	**1**

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

Features are displayed on the Mining, ground workings and natural cavities map on **page 139**

ID	Location	Land Use	Year of mapping	Mapping scale
AL	647m S	Tunnel	1977	1:10000

This is data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	**0**

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	**4**

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

Features are displayed on the Mining, ground workings and natural cavities map on **page 139**

ID	Location	Name	Commodity	Class	Likelihood
16	493m S	Not available	Chalk	A	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered
AH	522m S	Not available	Chalk	D	Underground mining is known or considered likely to have occurred within or close to the area. Potential for difficult ground conditions are at a level where they should be considered
AH	572m S	Not available	Chalk	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
24	662m SE	Not available	Chalk	A	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m	**3**

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

Features are displayed on the Mining, ground workings and natural cavities map on **page 139**

ID	Location	Mine Address	Mineral	Data source	Publisher
22	597m S	Clifton Road Tunnel, Gravesend, Kent	Chalk	-	Chelsea Speleological Society
AL	679m S	Gravesend, Kent	Chalk	-	-
26	716m S	Gravesend, Kent	Chalk	-	-

This data is sourced from Peter Brett Associates (PBA).

18.8 JPB mining areas

Records on site	0

Areas which could be affected by former coal mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site	0

Areas which could be affected by past, current or future coal mining.

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	0

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

18.11 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Mining Searches UK.

18.13 Clay mining

Records on site	0

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

19 Radon



Site Outline

Search buffers in metres (m)

- Greater than 30%
- Between 10% and 30%
- Between 5% and 10%
- Between 3% and 5%
- Between 1% and 3%
- Less than 1%

19.1 Radon

Records on site	1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 147**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Less than 1%**	**None****

This data is sourced from the British Geological Survey and Public Health England.

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m	10

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km^2. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km^2; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**15 - 25 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**30 - 45 mg/kg**
On site	**15 - 25 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**30 - 45 mg/kg**
On site	**15 - 25 mg/kg**	**No data**	**100 - 200 mg/kg**	**60 - 120 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**30 - 45 mg/kg**
On site	**15 - 25 mg/kg**	**No data**	**100 - 200 mg/kg**	**60 - 120 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**30 - 45 mg/kg**
On site	**15 - 25 mg/kg**	**No data**	**100 - 200 mg/kg**	**60 - 120 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**30 - 45 mg/kg**
On site	**15 - 25 mg/kg**	**No data**	**100 - 200 mg/kg**	**60 - 120 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**30 - 45 mg/kg**
On site	**15 - 25 mg/kg**	**No data**	**100 - 200 mg/kg**	**60 - 120 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**30 - 45 mg/kg**
On site	**15 - 25 mg/kg**	**No data**	**100 - 200 mg/kg**	**60 - 120 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**30 - 45 mg/kg**
On site	**15 - 25 mg/kg**	**No data**	**200 - 300 mg/kg**	**120 - 240 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**30 - 45 mg/kg**
On site	**15 - 25 mg/kg**	**No data**	**100 - 200 mg/kg**	**60 - 120 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**30 - 45 mg/kg**

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m **71**

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

Location	Arsenic (mg/kg)	Bioaccessible Arsenic (mg/kg)	Lead (mg/kg)	Bioaccessible Lead (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Nickel (mg/kg)	Tin (mg/kg)
On site	24	4.2	170	117	0.5	91	67	49	13
On site	23	4	181	124	0.5	87	71	51	13
On site	25	4.4	293	201	1	93	116	51	19
On site	29	5.1	107	74	0.6	108	41	55	12
On site	25	4.4	83	57	0.5	98	35	40	8
On site	21	3.7	196	135	0.3	79	74	52	12
On site	25	4.4	174	120	0.5	93	68	54	13
On site	20	3.5	228	157	0.3	75	87	54	12
On site	26	4.6	226	155	0.8	97	88	54	17
On site	25	4.4	93	64	0.5	96	39	41	9
On site	22	3.8	170	117	0.4	84	63	50	11
On site	24	4.2	135	93	0.5	91	54	46	11
On site	22	3.8	178	122	0.4	83	70	50	12
On site	23	4	130	89	0.4	89	52	46	10
On site	26	4.6	299	205	1	98	117	54	20
On site	28	4.9	130	89	0.6	103	50	57	13
On site	29	5.1	98	67	0.6	109	38	58	11
On site	24	4.2	121	83	0.4	91	49	45	10
On site	28	4.9	125	86	0.6	107	48	54	13
On site	27	4.7	181	124	0.7	102	70	56	15
On site	23	4	188	129	0.4	85	73	53	12
On site	24	4.2	99	68	0.5	95	41	42	9

Location	Arsenic (mg/kg)	Bioaccessible Arsenic (mg/kg)	Lead (mg/kg)	Bioaccessible Lead (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Nickel (mg/kg)	Tin (mg/kg)
On site	29	5.1	103	71	0.6	109	40	58	12
On site	25	4.4	217	149	0.7	94	85	52	15
On site	22	3.8	163	112	0.4	84	64	49	11
On site	25	4.4	195	134	0.6	92	76	52	14
On site	26	4.6	171	117	0.7	99	67	55	14
On site	21	3.7	214	147	0.3	78	83	53	12
On site	26	4.6	439	302	1.4	95	174	52	25
On site	28	4.9	128	88	0.6	105	50	57	13
On site	27	4.7	601	413	1.9	98	235	54	32
On site	23	4	156	107	0.4	86	62	49	11
On site	25	4.4	89	61	0.5	98	37	40	9
On site	25	4.4	80	55	0.5	99	33	39	8
On site	21	3.7	190	131	0.3	80	74	51	12
On site	27	4.7	112	77	0.5	105	43	51	12
On site	27	4.7	384	264	1.3	100	150	54	24
On site	26	4.6	246	169	0.8	96	97	51	17
On site	25	4.4	122	84	0.5	95	50	44	10
On site	25	4.4	103	71	0.5	96	42	42	9
On site	24	4.2	108	74	0.5	94	44	43	10
On site	26	4.6	147	101	0.6	97	57	55	13
On site	28	4.9	733	504	2.4	102	281	55	38
On site	24	4.2	124	85	0.5	91	50	45	10
On site	28	4.9	92	63	0.5	107	36	53	11
On site	26	4.6	181	124	0.8	97	72	48	15
On site	23	4	140	96	0.4	88	53	47	10
On site	25	4.4	90	62	0.5	98	37	41	9
On site	30	5.3	96	66	0.6	110	37	59	12

Location	Arsenic (mg/kg)	Bioaccessible Arsenic (mg/kg)	Lead (mg/kg)	Bioaccessible Lead (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Nickel (mg/kg)	Tin (mg/kg)
On site	**28**	**4.9**	**812**	**558**	**2.6**	**104**	**312**	**57**	**41**
On site	**25**	**4.4**	**170**	**117**	**0.6**	**94**	**68**	**48**	**13**
On site	**27**	**4.7**	**651**	**447**	**2.1**	**99**	**254**	**54**	**34**
On site	**26**	**4.6**	**139**	**95**	**0.6**	**97**	**55**	**47**	**12**
1m NE	27	4.7	88	60	0.4	104	35	48	10
4m SE	22	3.8	174	120	0.4	85	62	50	11
5m S	23	4	155	106	0.4	86	57	48	11
10m E	23	4	158	109	0.4	86	61	53	12
11m SE	22	3.8	186	128	0.4	82	68	51	12
13m SE	23	4	164	113	0.4	87	58	49	11
14m N	26	4.6	465	319	1.6	97	184	50	27
15m NE	30	5.3	98	67	0.6	110	38	59	12
17m N	25	4.4	281	193	1.1	95	112	48	19
20m SE	21	3.7	201	138	0.3	79	78	53	12
21m SE	21	3.7	216	148	0.3	77	83	53	12
23m SW	25	4.4	97	67	0.5	97	40	42	9
25m E	27	4.7	110	76	0.5	102	43	55	11
28m SW	25	4.4	107	74	0.5	96	44	43	10
30m SW	25	4.4	93	64	0.5	97	39	41	9
45m SE	22	3.8	192	132	0.4	81	71	52	12
47m NW	25	4.4	445	306	1.4	94	177	50	25
47m SW	25	4.4	103	71	0.5	97	42	42	10

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

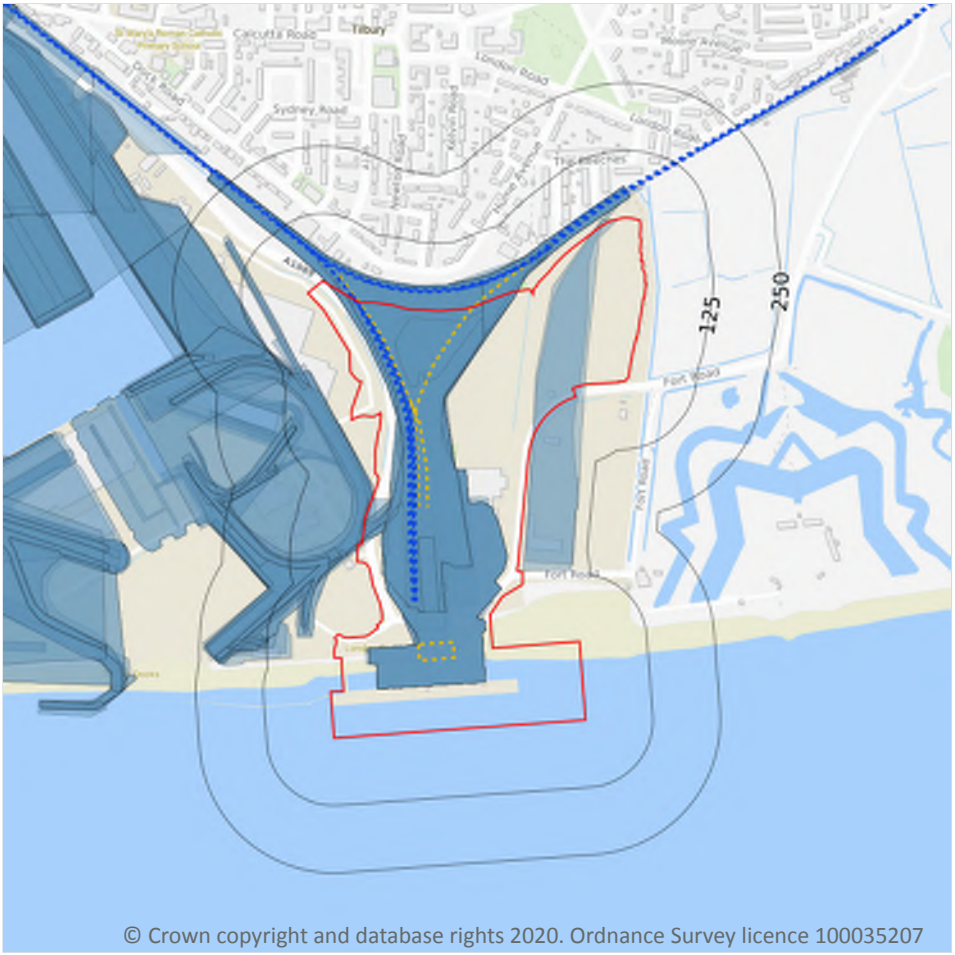
Records within 50m	3

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

Location	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Nickel (mg/kg)	Lead (mg/kg)	Tin (mg/kg)	Sample Type
On site	**25.2**	**0.5**	**99.6**	**32.6**	**38.9**	**77.9**	**8.1**	**Topsoil**
On site	**20.2**	**0.3**	**74.9**	**88.8**	**54.2**	**231.7**	**12.4**	**Topsoil**
39m NE	30.0	0.6	111.5	37.3	59.5	95.7	11.6	Topsoil

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects



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Site Outline

Search buffers in metres (m)

- Crossrail 1 Stations
- Crossrail 1 Route
- Crossrail 1 Worksites
- Crossrail 2 Stations
- Crossrail 2 Route
- Crossrail 2 Worksites
- Crossrail 2 Safeguarding
- Crossrail 2 Headhouses
- Railway stations
- Active railways
- Active tunnels
- Abandoned railways
- Historic railways
- Historic tunnels
- Underground stations
- Underground Lines
- Royal Mail tunnels
- HS2 optimised route
- HS2 Stations
- HS2 Depots
- HS2 Surface Safeguarding
- HS2 Subsurface Safeguarding

21.1 Underground railways (London)

Records within 250m	0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m	0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	71

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

Features are displayed on the Railway infrastructure and projects map on **page 153**

Location	Land Use	Year of mapping	Mapping scale
On site	**Railway Sidings**	**1920**	**2500**
On site	**Railway Sidings**	**1940**	**2500**
On site	**Railway Sidings**	**1959**	**2500**
On site	**Railway Sidings**	**1994**	**1250**
On site	**Railway Sidings**	**1961**	**1250**
On site	**Railway Sidings**	**1967**	**1250**
On site	**Railway Sidings**	**1976**	**1250**
On site	**Railway Sidings**	**1969**	**1250**
On site	**Railway Sidings**	**1950**	**1250**
On site	**Railway Sidings**	**1898**	**2500**
On site	**Railway Sidings**	**1978**	**2500**
On site	**Railway Sidings**	**1999**	**1250**
On site	**Railway Sidings**	**1870**	**2500**
On site	**Railway Sidings**	**1938**	**10560**
On site	**Railway Sidings**	**1923**	**10560**
On site	**Railway Sidings**	**1948**	**10560**
On site	**Railway Sidings**	**1946**	**10560**

Location	Land Use	Year of mapping	Mapping scale
On site	**Railway Sidings**	**1932**	**10560**
On site	**Railway Sidings**	**1907**	**10560**
On site	**Railway Sidings**	**1895**	**10560**
On site	**Railway Sidings**	**1916**	**10560**
On site	**Railway Sidings**	**1888**	**10560**
On site	**Railway Sidings**	**1899**	**10560**
On site	**Railway Sidings**	**1993**	**10000**
On site	**Railway Sidings**	**1982**	**10000**
On site	**Railway Sidings**	**1973**	**10000**
On site	**Railway Sidings**	**1863**	**10560**
On site	**Railway Sidings**	**1992**	**10000**
On site	**Railway Sidings**	**1955**	**10560**
On site	**Railway Sidings**	**1966**	**10560**
2m NW	Railway Sidings	1938	10560
15m W	Railway Sidings	1923	10560
27m W	Railway Sidings	1888	10560
29m N	Railway Sidings	1999	1250
29m W	Railway Sidings	1895	10560
51m W	Railway Sidings	1899	10560
76m SW	Railway Sidings	1895	10560
79m SW	Railway Sidings	1888	10560
91m W	Railway Sidings	1950	1250
91m W	Railway Sidings	1961	1250
91m W	Railway Sidings	1967	1250
103m W	Railway Sidings	1888	10560
107m W	Railway Sidings	1932	10560
109m SW	Railway Sidings	1969	1250
109m SW	Railway Sidings	1950	1250

Location	Land Use	Year of mapping	Mapping scale
110m W	Railway Sidings	1888	10560
112m W	Railway Sidings	1899	10560
112m W	Railway Sidings	1961	1250
113m W	Railway Sidings	1950	1250
115m NW	Railway Sidings	1920	2500
124m W	Railway Sidings	1976	1250
125m W	Railway Sidings	1888	10560
128m SW	Railway Sidings	1907	10560
128m SW	Railway Sidings	1895	10560
133m W	Railway Sidings	1895	10560
141m W	Railway Sidings	1976	1250
150m W	Railway Sidings	1920	2500
152m SW	Railway Sidings	1920	2500
152m NW	Railway Sidings	1888	10560
181m SW	Railway Sidings	1920	2500
181m W	Railway Sidings	1950	2500
182m W	Railway Sidings	1950	1250
192m W	Railway Sidings	1950	2500
193m W	Railway Sidings	1950	1250
196m W	Railway Sidings	1920	2500
199m W	Railway Sidings	1920	2500
209m SW	Railway Sidings	1888	10560
214m SW	Railway Sidings	1950	2500
215m NW	Railway	1920	-
226m SW	Railway Sidings	1899	10560
234m SW	Railway Sidings	1970	2500

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m	0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m	4

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

Features are displayed on the Railway infrastructure and projects map on **page 153**

Location	Description
On site	**Abandoned**
On site	**Abandoned**
On site	**Dismantled**
On site	**Disused**

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m	32

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

Features are displayed on the Railway infrastructure and projects map on **page 153**

Location	Name	Type
On site	-	**rail**
On site	-	**rail**
On site	-	**rail**
On site	-	**rail**
On site	-	**rail**

Location	Name	Type
On site	**-**	**rail**
On site	**-**	**rail**
On site	**-**	**rail**
On site	**Not given**	**Multi Track**
On site	**Not given**	**Multi Track**
On site	**Not given**	**Multi Track**
On site	**Not given**	**Single Track**
4m NE	Not given	Single Track
26m NW	Not given	Multi Track
30m NW	Not given	Multi Track
30m N	-	rail
31m NW	-	rail
31m N	Not given	Multi Track
31m N	Not given	Multi Track
33m N	Not given	Multi Track
33m N	Not given	Multi Track
34m N	-	rail
34m NW	-	rail
37m NE	Not given	Multi Track
37m N	Not given	Multi Track
37m NW	Not given	Multi Track
40m N	Not given	Multi Track
96m NW	-	rail
143m NW	Not given	Multi Track
165m NE	Not given	Multi Track
202m NW	Not given	Multi Track
249m NW	Not given	Multi Track

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m	0

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m	0

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m	0

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 ltd.

Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference.

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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896
Grid Ref: 564495, 175460

Map Name: County Series

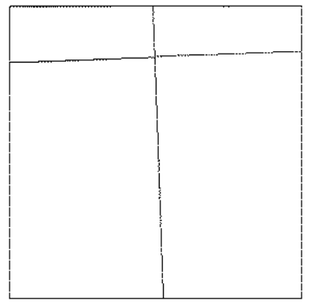
Map date: **1888**

Scale: 1:10,560

Printed at: 1:10,560

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



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

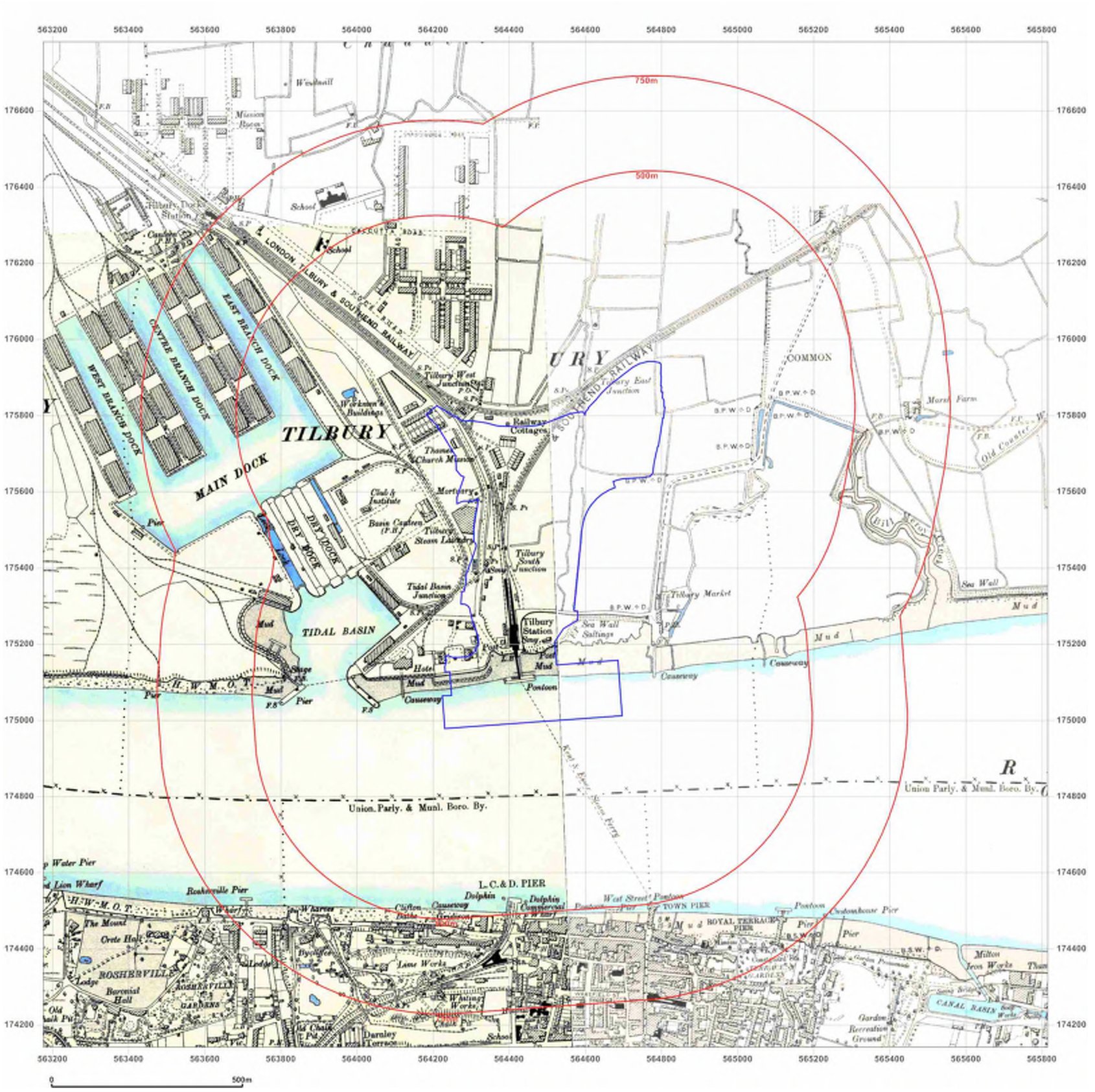
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896
Grid Ref: 564495, 175460

Map Name: County Series

Map date: **1895**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1866
Revised 1895
Edition 1899
Copyright N/A
Levelled N/A

Surveyed 1864
Revised 1895
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1865
Revised 1895
Edition N/A
Copyright N/A
Levelled N/A

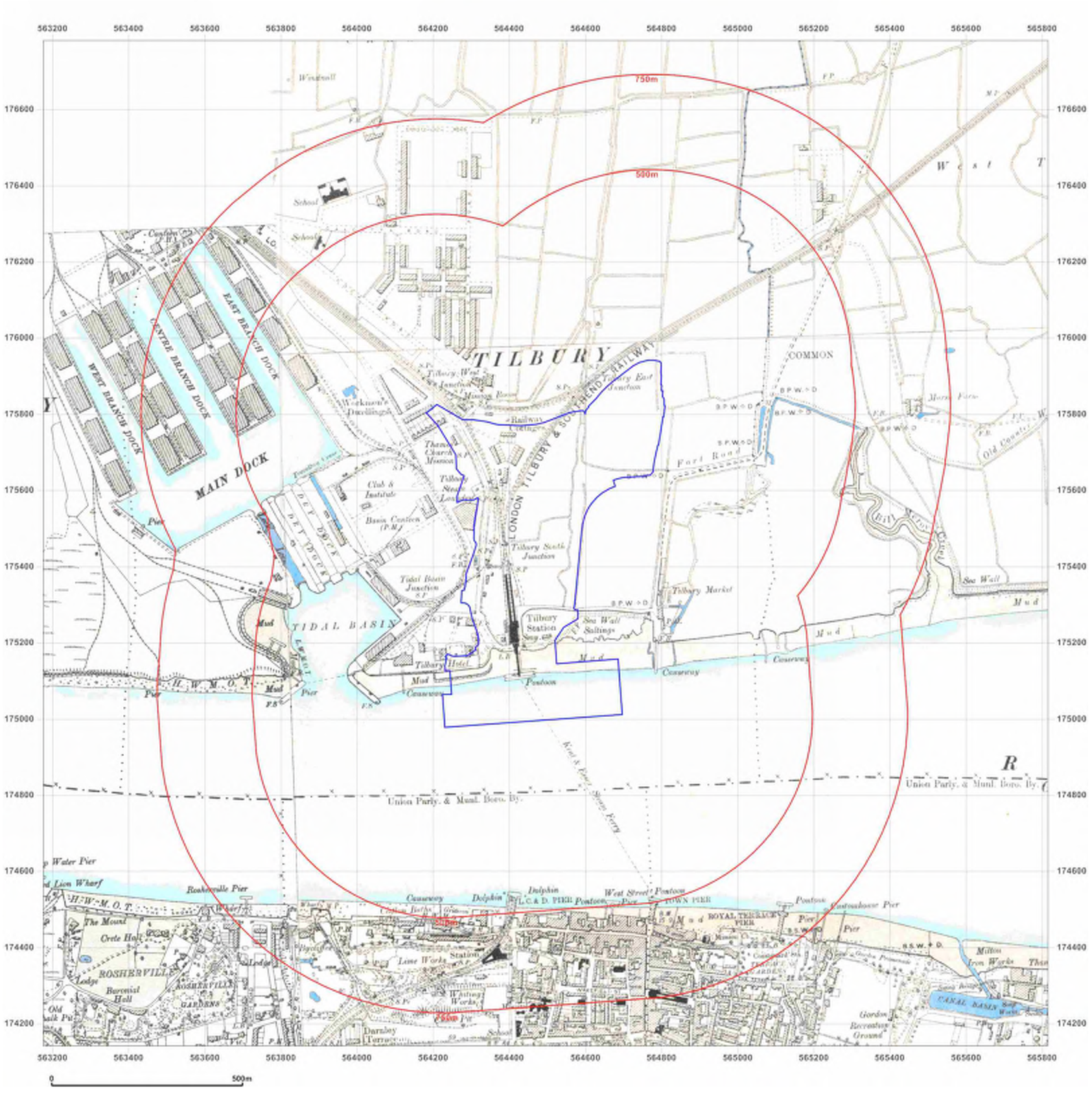
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750m
500m
TILBURY
MAIN DOCK
WEST BRANCH DOCK
CENTRE BRANCH DOCK
EAST BRANCH DOCK
DEY DOCK
TIDAL BASIN
COMMON
Tilbury Station
Tilbury Hotel
Tilbury Market
Fort Road
Tilbury Fort
Tilbury Landing Stage
Tilbury Pontoon
Tilbury Town Pier
Tilbury Riverside Station
Gravesend Town Pier
Gravesend Pier
Union Parly. & Mun. Boro. By.
Union Parly. & Mun. Boro. By.
Kent & Essex Steam Ferry
Roserville Pier
ROSHERVILLE
ROSHERVILLE GARDENS
Crete Hall
Burenial Hall
The Mount
Lime Works
Whiting Works
Darnley Terrace
Gordon Recreation Ground
CANAL BASIN
Millton Iron Works
ROYAL TERRACE PIER
Pontoon
Causeway
Dolphin
L.C.& D. PIER
West Street Pontoon
Mud
Sea Wall
Sea Wall Sidings
Railway
Club & Institute
Basin Caution (P.M.)
Tidal Basin Junction
Tilbury South Junction
Weekmen's Dwellings
Thames Church Mission
Tilbury West Junction
Tilbury East Junction
Missing Road
Morse Farm
Old Country
Westcroft
School
Pier
Pontoon
Causeway
Mud
Sea Wall
Railway
Lighthouse Pier
Water Pier
Lion Wharf
H.W.M.O.T.
L.W.M.O.T.
S.P.W.&D.
F.P.
F.B.
P.H.
Lodge
Station
Works



Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896
Grid Ref: 564495, 175460

Map Name: County Series

Map date: **1895-1899**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1866
Revised 1895
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1866
Revised 1895
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1864
Revised 1895
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1866
Revised 1895
Edition N/A
Copyright N/A
Levelled N/A

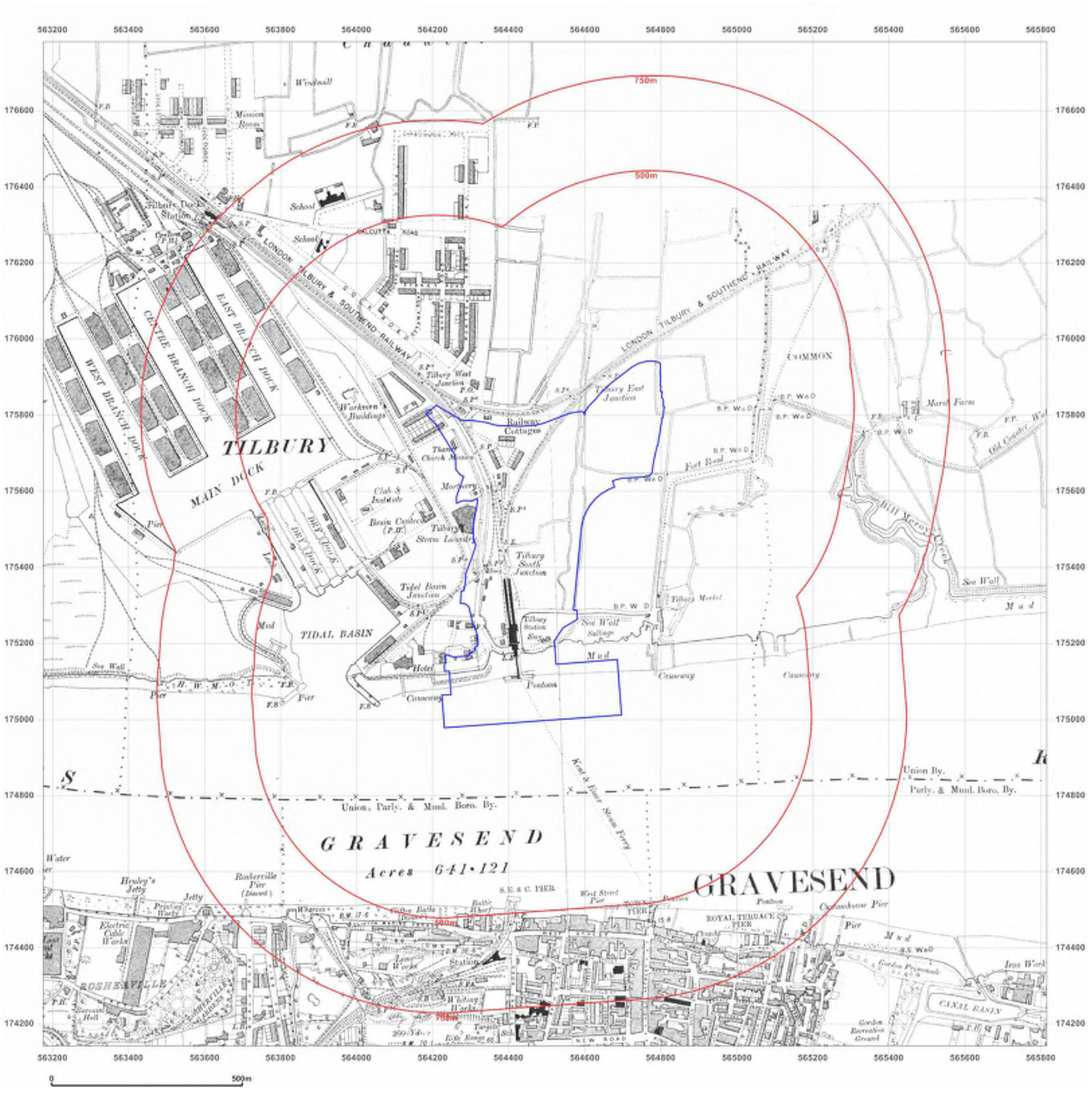
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896
Grid Ref: 564495, 175460

Map Name: County Series

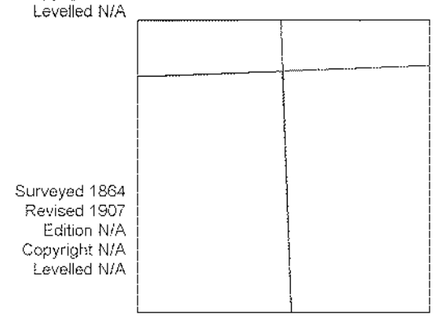
Map date: **1907-1910**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1864
Revised 1907
Edition 1910
Copyright N/A
Levelled N/A



Surveyed 1864
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1863
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896
Grid Ref: 564495, 175460

Map Name: County Series

Map date: **1916**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1864
Revised 1916
Edition N/A
Copyright N/A
Levelled N/A

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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896
Grid Ref: 564495, 175460

Map Name: County Series

Map date: **1923**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1864
Revised 1923
Edition N/A
Copyright N/A
Levelled N/A

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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896
Grid Ref: 564495, 175460

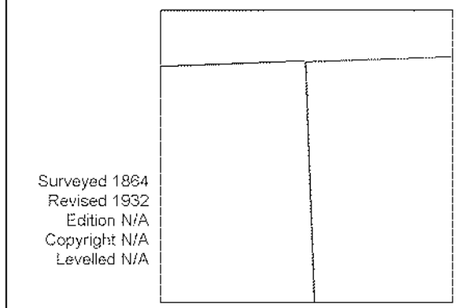
Map Name: County Series

Map date: **1932**

Scale: 1:10,560

Printed at: 1:10,560

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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896
Grid Ref: 564495, 175460

Map Name: County Series

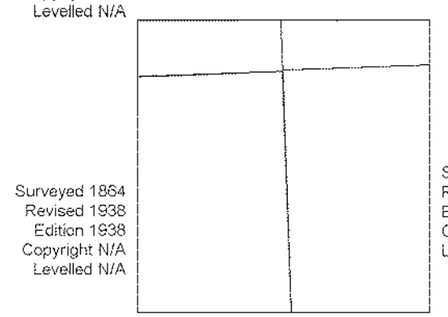
Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1864
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A



Surveyed 1863
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1864
Revised 1938
Edition 1938
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896
Grid Ref: 564495, 175460

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1864
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1864
Revised 1938
Edition 1938
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896
Grid Ref: 564495, 175460

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1864
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1866
Revised 1938
Edition N/A
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896
Grid Ref: 564495, 175460

Map Name: County Series

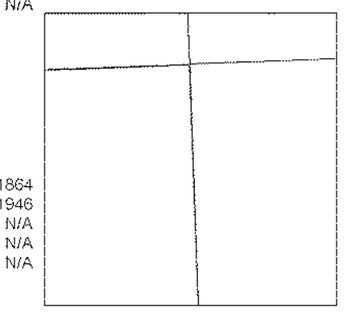
Map date: **1946-1948**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1864
Revised 1947
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1864
Revised 1946
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1863
Revised 1948
Edition 1951
Copyright N/A
Levelled N/A

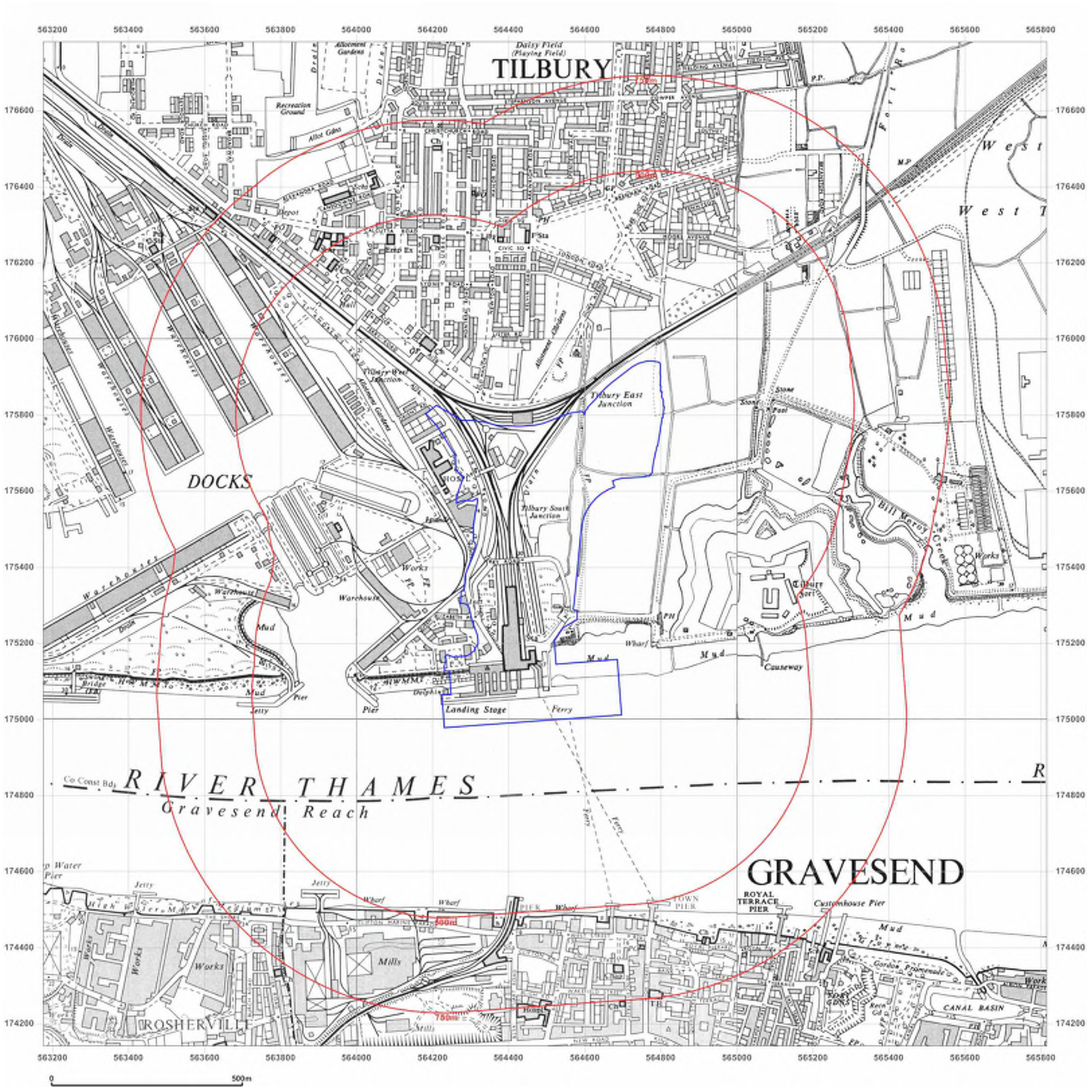
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896
Grid Ref: 564495, 175460

Map Name: Provisional

Map date: **1955**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1864
Revised 1955
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1864
Revised 1955
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1864
Revised 1955
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1863
Revised 1955
Edition N/A
Copyright N/A
Levelled N/A

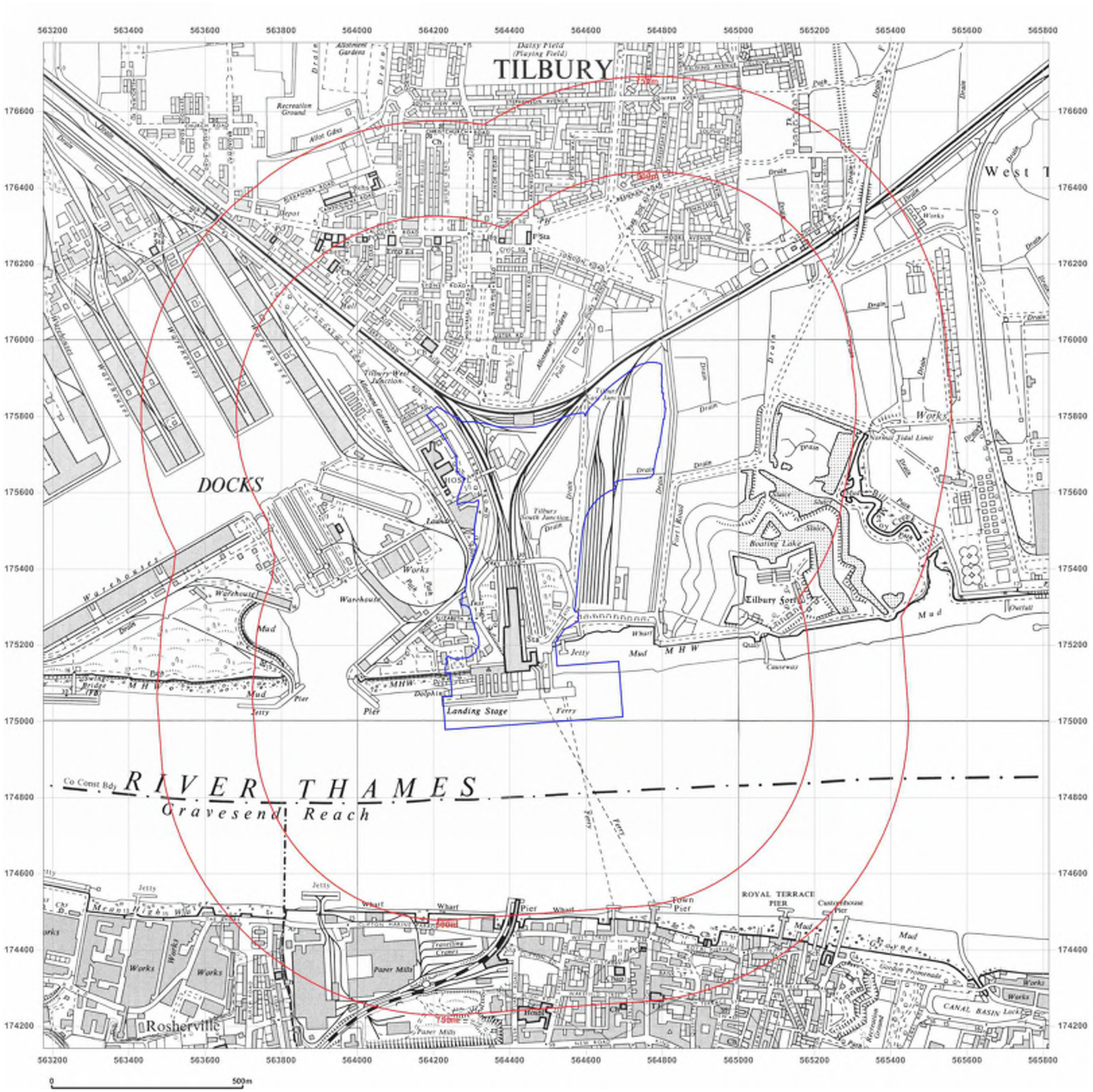
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896
Grid Ref: 564495, 175460

Map Name: Provisional

Map date: **1966-1967**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1966
Revised 1966
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1967
Revised 1967
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1966
Revised 1966
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1966
Revised 1966
Edition N/A
Copyright N/A
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896
Grid Ref: 564495, 175460

Map Name: National Grid

Map date: **1971-1973**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
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Surveyed 1973 Revised 1973 Edition N/A Copyright N/A Levelled N/A	Surveyed 1972 Revised 1973 Edition N/A Copyright N/A Levelled N/A
Surveyed 1971 Revised 1971 Edition N/A Copyright N/A Levelled N/A	Surveyed 1973 Revised 1973 Edition N/A Copyright N/A Levelled N/A

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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896
Grid Ref: 564495, 175460

Map Name: National Grid

Map date: **1977-1982**

Scale: 1:10,000

Printed at: 1:10,000

N
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Surveyed 1981
Revised 1982
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1977
Revised 1977
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1980
Revised 1981
Edition N/A
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896
Grid Ref: 564495, 175460

Map Name: National Grid

Map date: **1990-1992**

Scale: 1:10,000

Printed at: 1:10,000

N
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Surveyed 1981
Revised 1992
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1990
Revised 1991
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1988
Revised 1990
Edition N/A
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896
Grid Ref: 564495, 175460

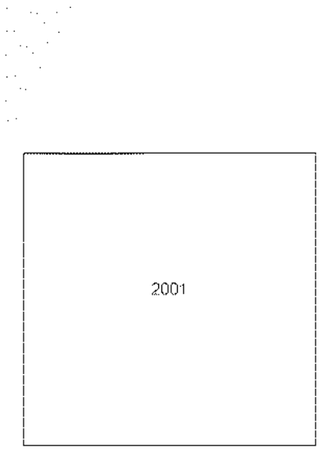
Map Name: National Grid

Map date: **2001**

Scale: 1:10,000

Printed at: 1:10,000

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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896
Grid Ref: 564495, 175460

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

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2010

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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896
Grid Ref: 564495, 175460

Map Name: National Grid

Map date: **2020**

Scale: 1:10,000

Printed at: 1:10,000

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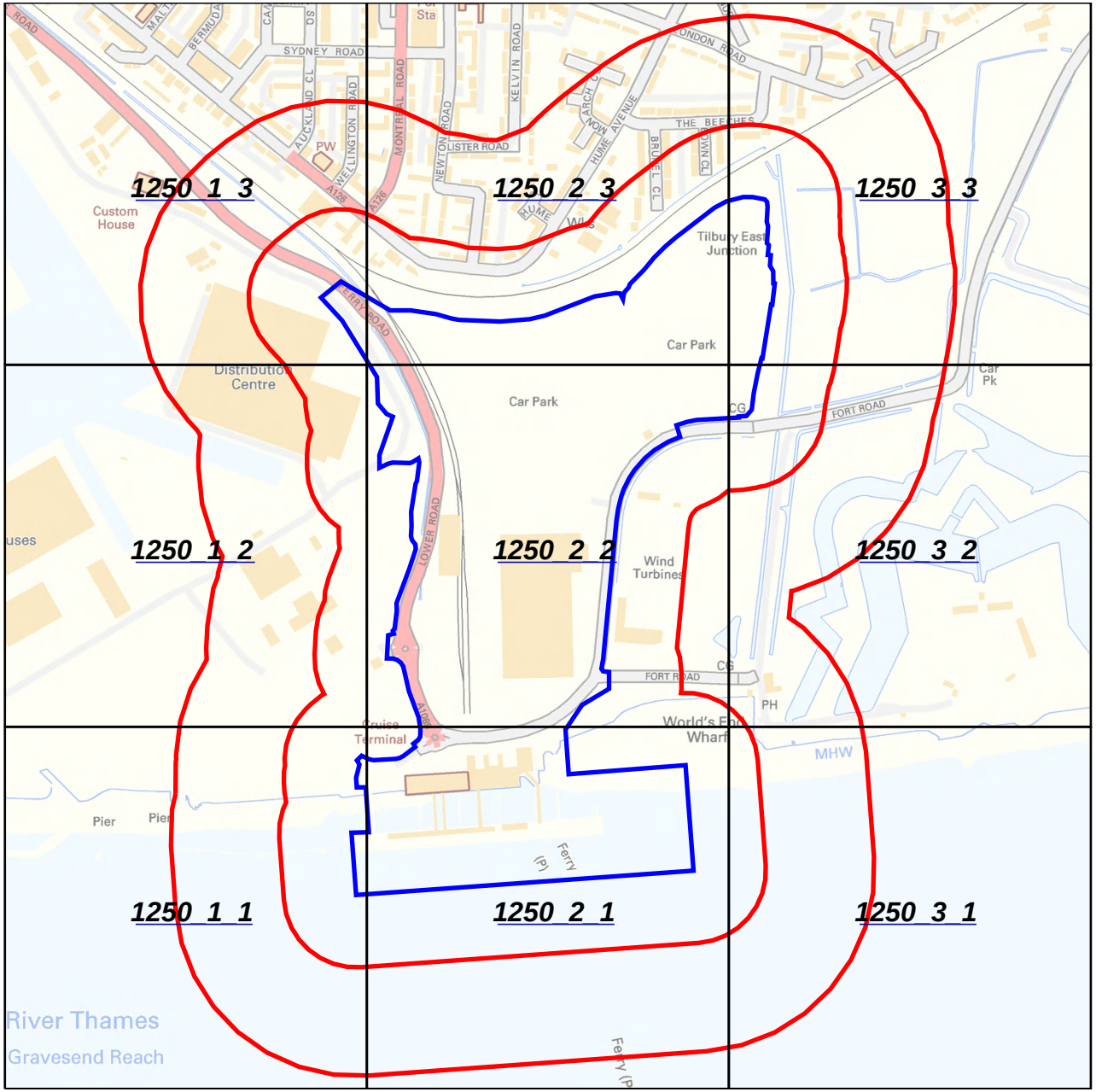
2020

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Production date: 15 June 2020

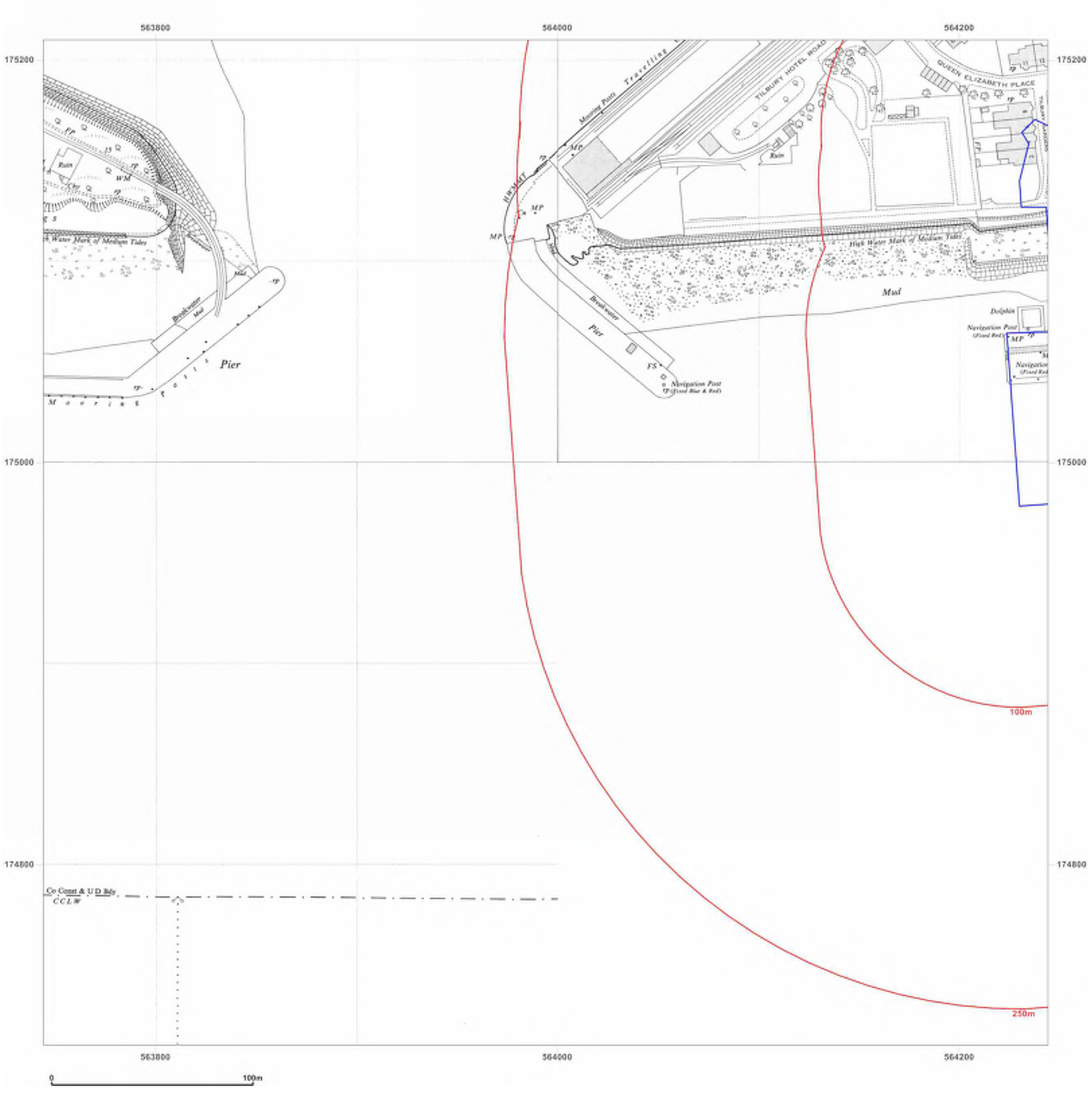
Map legend available at:
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Groundsure INSIGHTS

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1:1250 Scale Grid Index



Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_1_1
Grid Ref: 563994, 174960

Map Name: National Grid
Map date: **1950-1952**
Scale: 1:1,250
Printed at: 1:2,000

N
W E
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Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled 1948

Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled 1950

Surveyed 1952
Revised 1952
Edition N/A
Copyright N/A
Levelled 1952

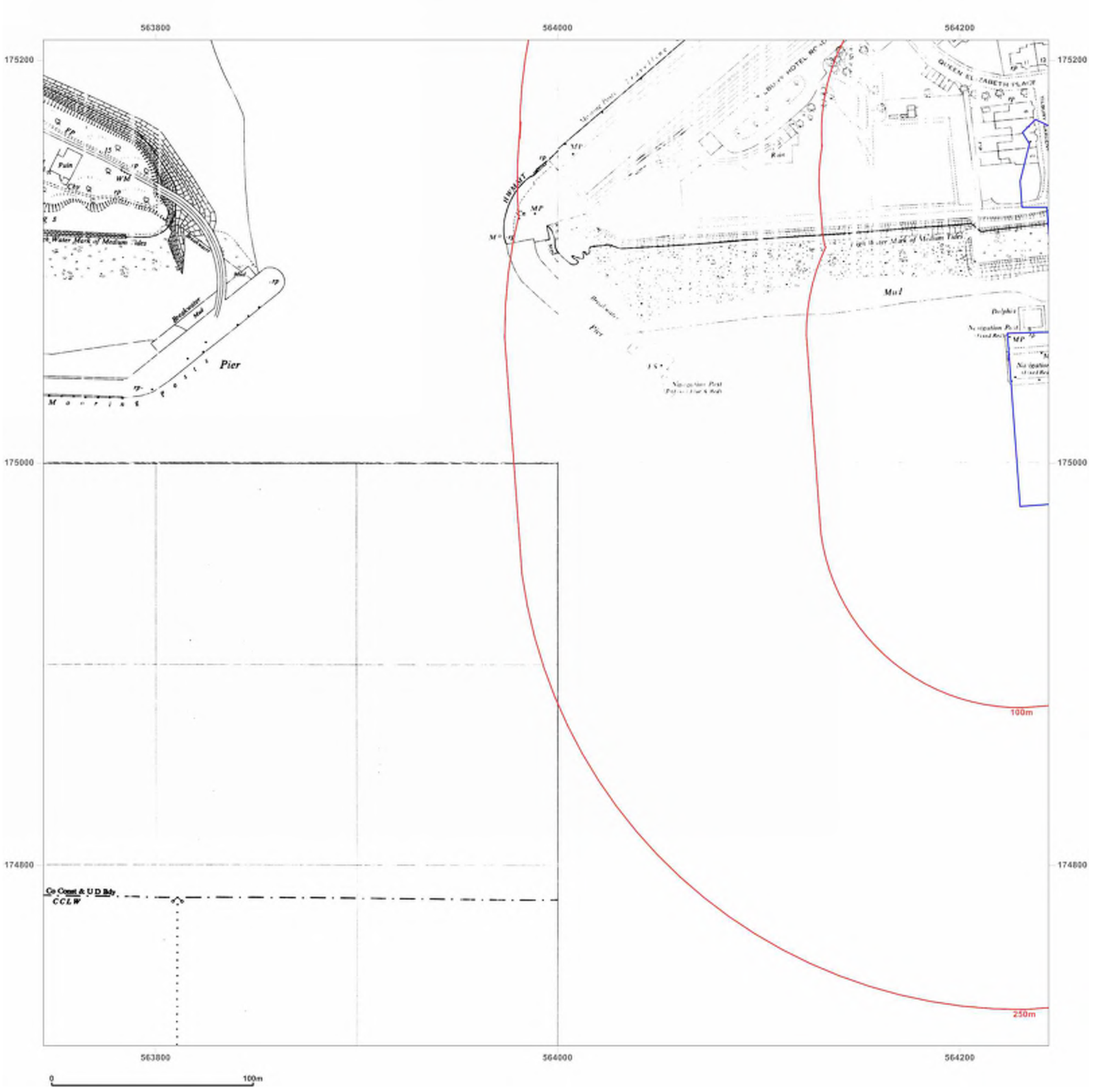
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Groundsure INSIGHTS

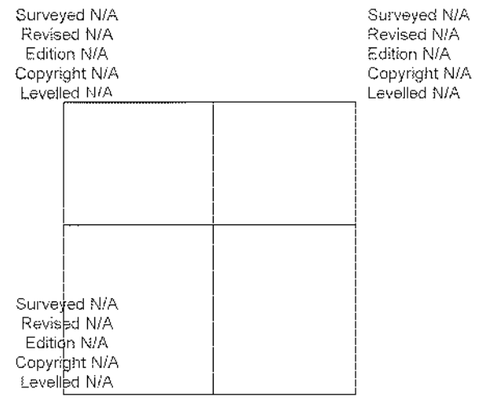
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_1_1
Grid Ref: 563994, 174960

Map Name: National Grid
Map date: **1951-1953**
Scale: 1:1,250
Printed at: 1:2,000

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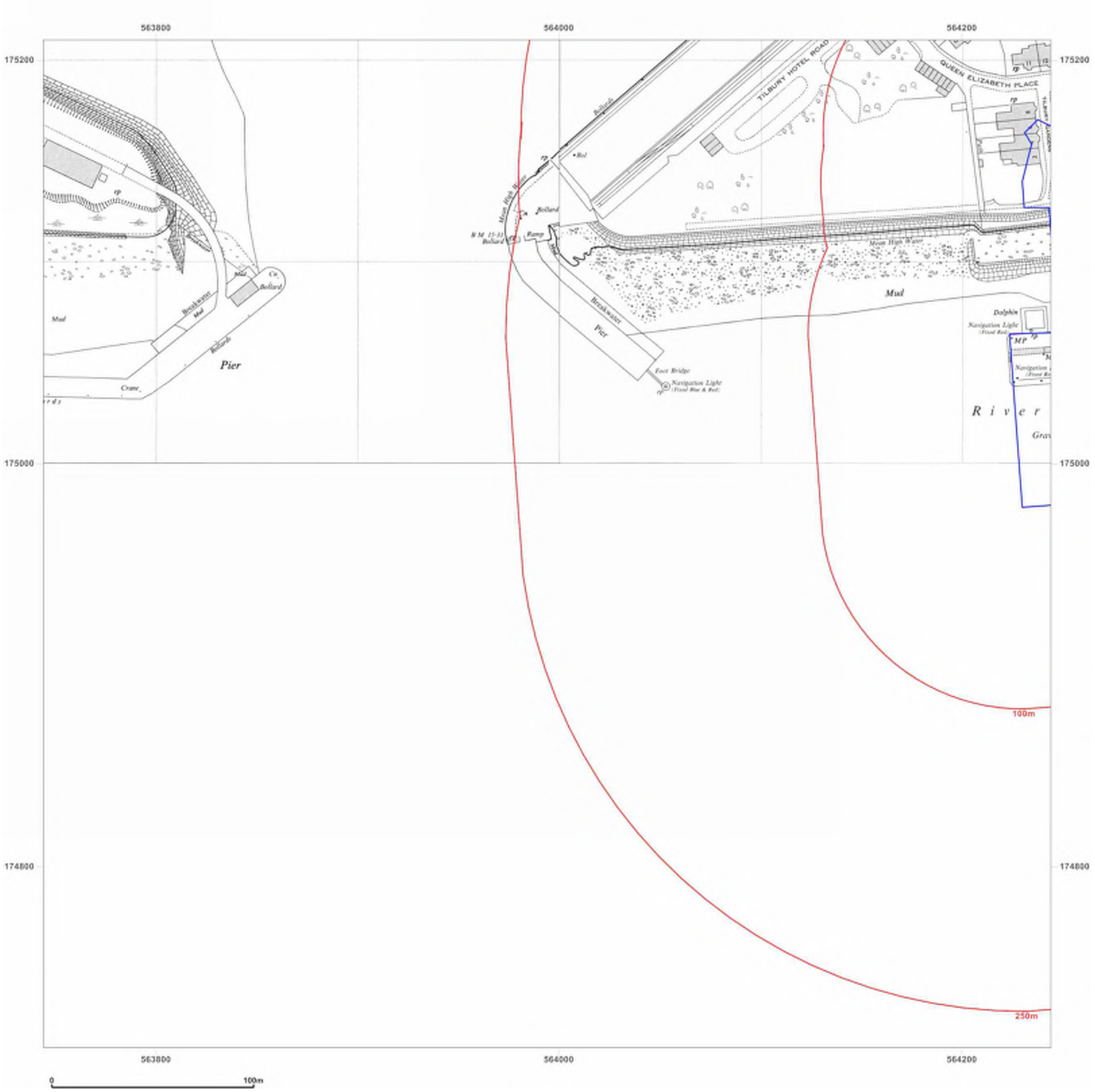
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Groundsure INSIGHTS

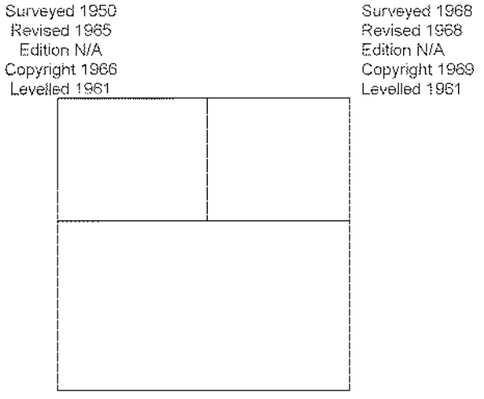
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_1_1
Grid Ref: 563994, 174960

Map Name: National Grid
Map date: **1966-1969**
Scale: 1:1,250
Printed at: 1:2,000

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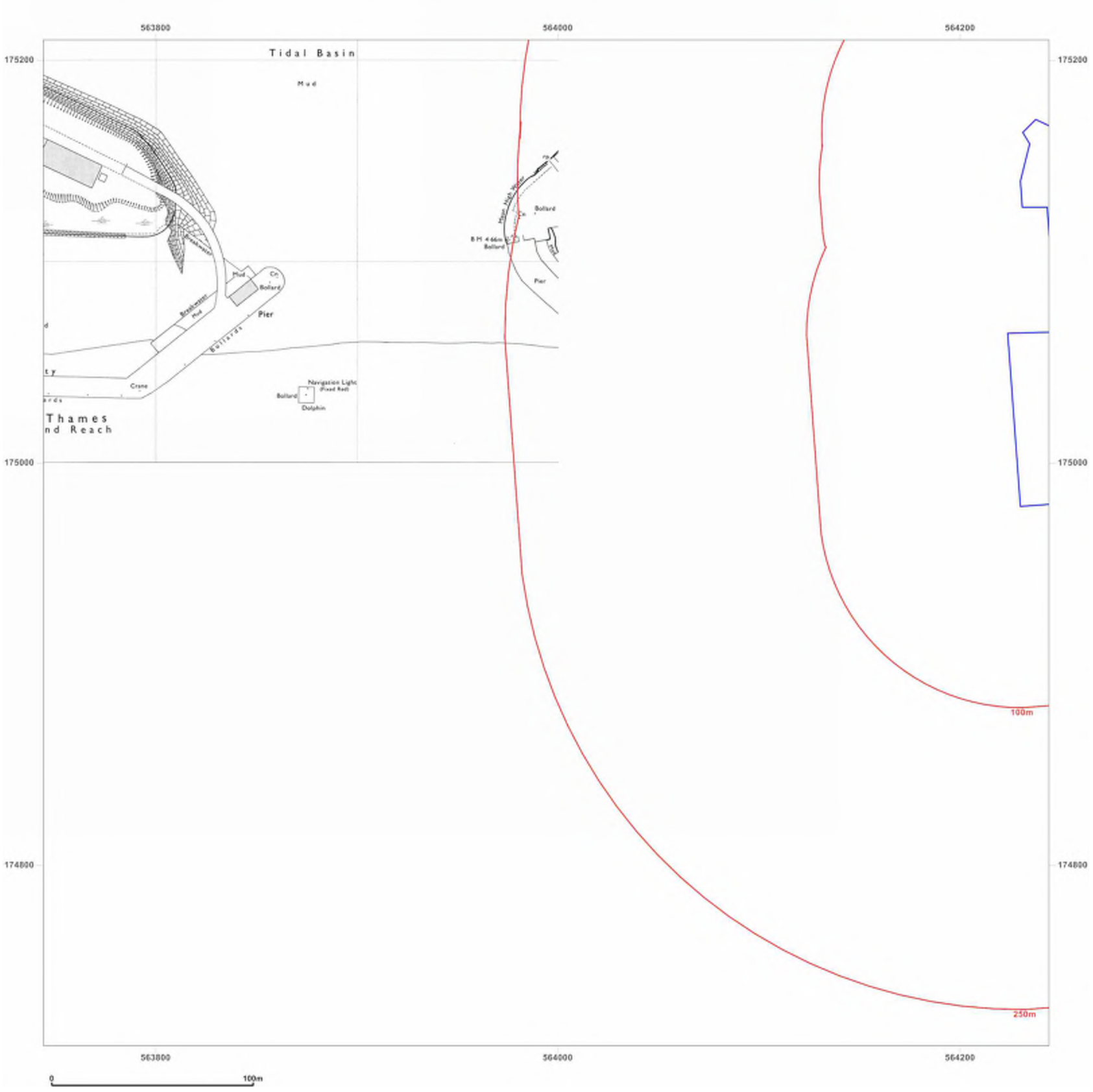
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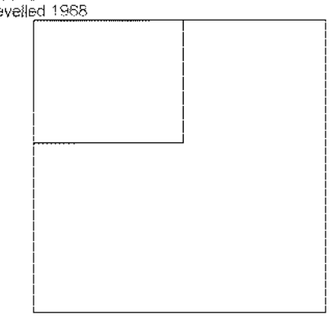
564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_1_1
Grid Ref: 563994, 174960

Map Name: National Grid
Map date: **1974**
Scale: 1:1,250
Printed at: 1:2,000

N
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Surveyed 1950
Revised 1974
Edition N/A
Copyright 1974
Levelled 1968



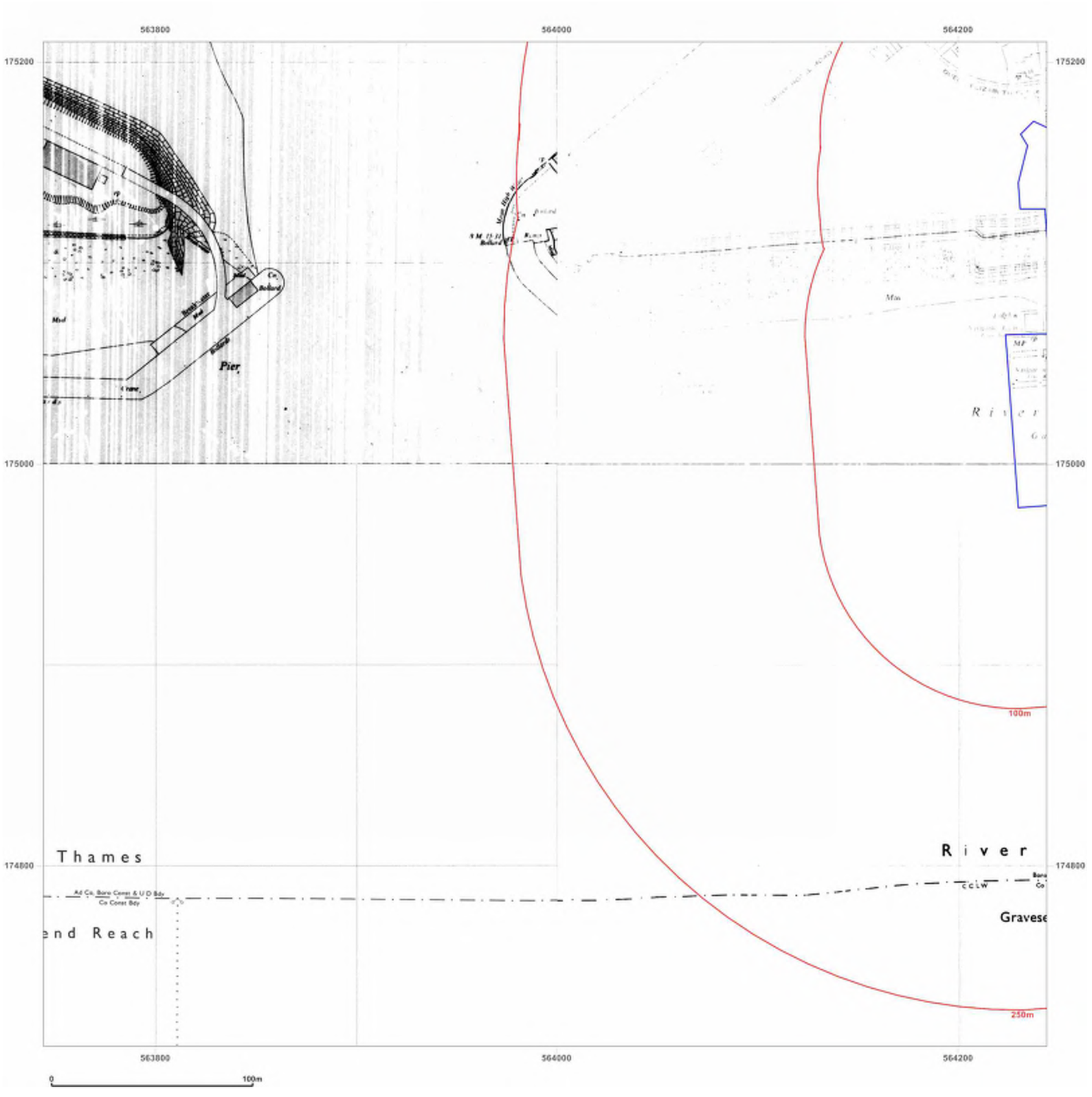
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_1_1
Grid Ref: 563994, 174960

Map Name: National Grid
Map date: **1973-1975**
Scale: 1:1,250
Printed at: 1:2,000

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

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1973
Levelled N/A

Surveyed 1952
Revised 1972
Edition N/A
Copyright 1973
Levelled 1956

Surveyed 1952
Revised 1974
Edition N/A
Copyright 1975
Levelled 1952

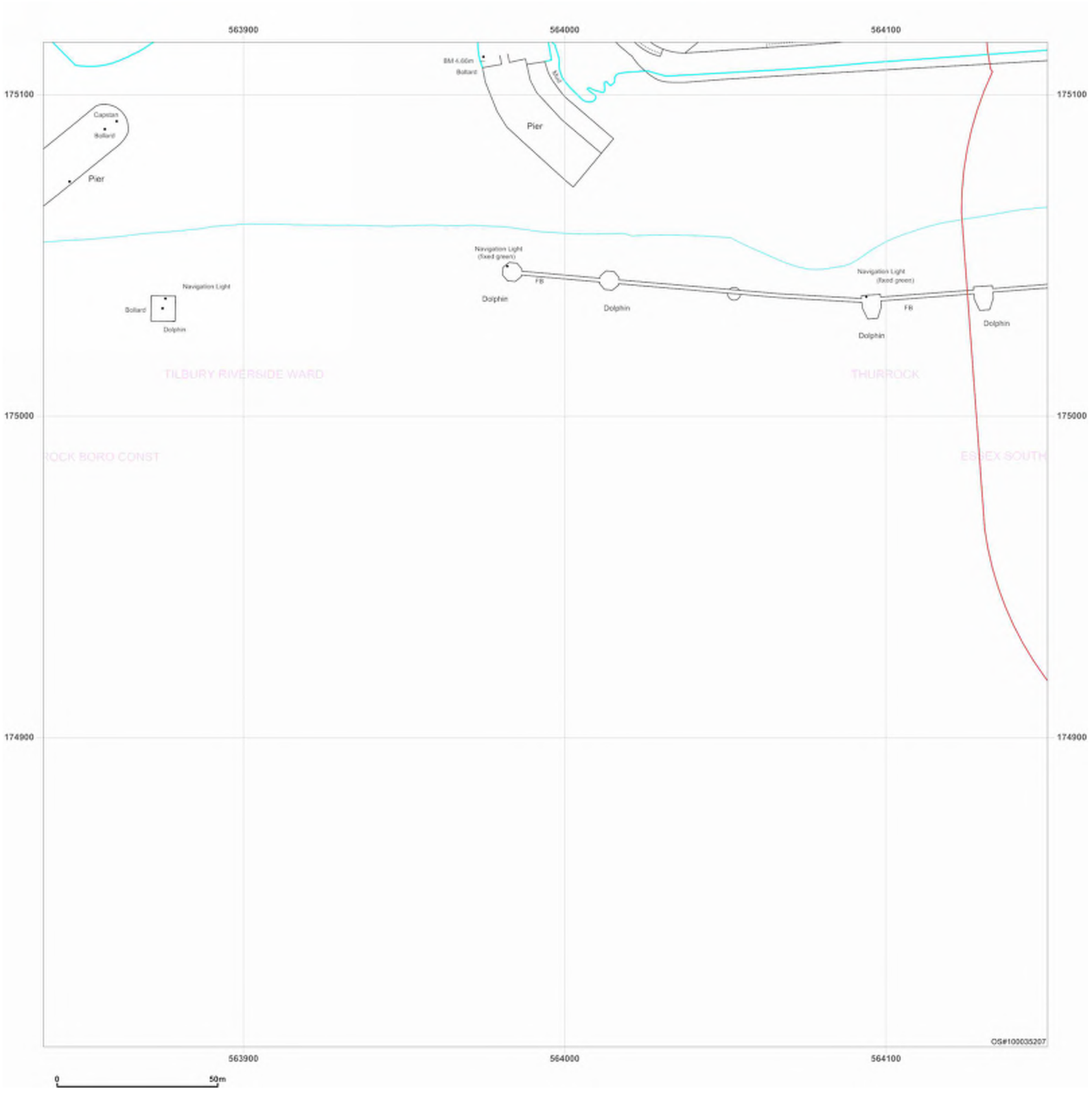
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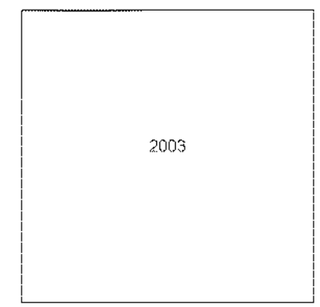
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_1_1
Grid Ref: 563994, 174960

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

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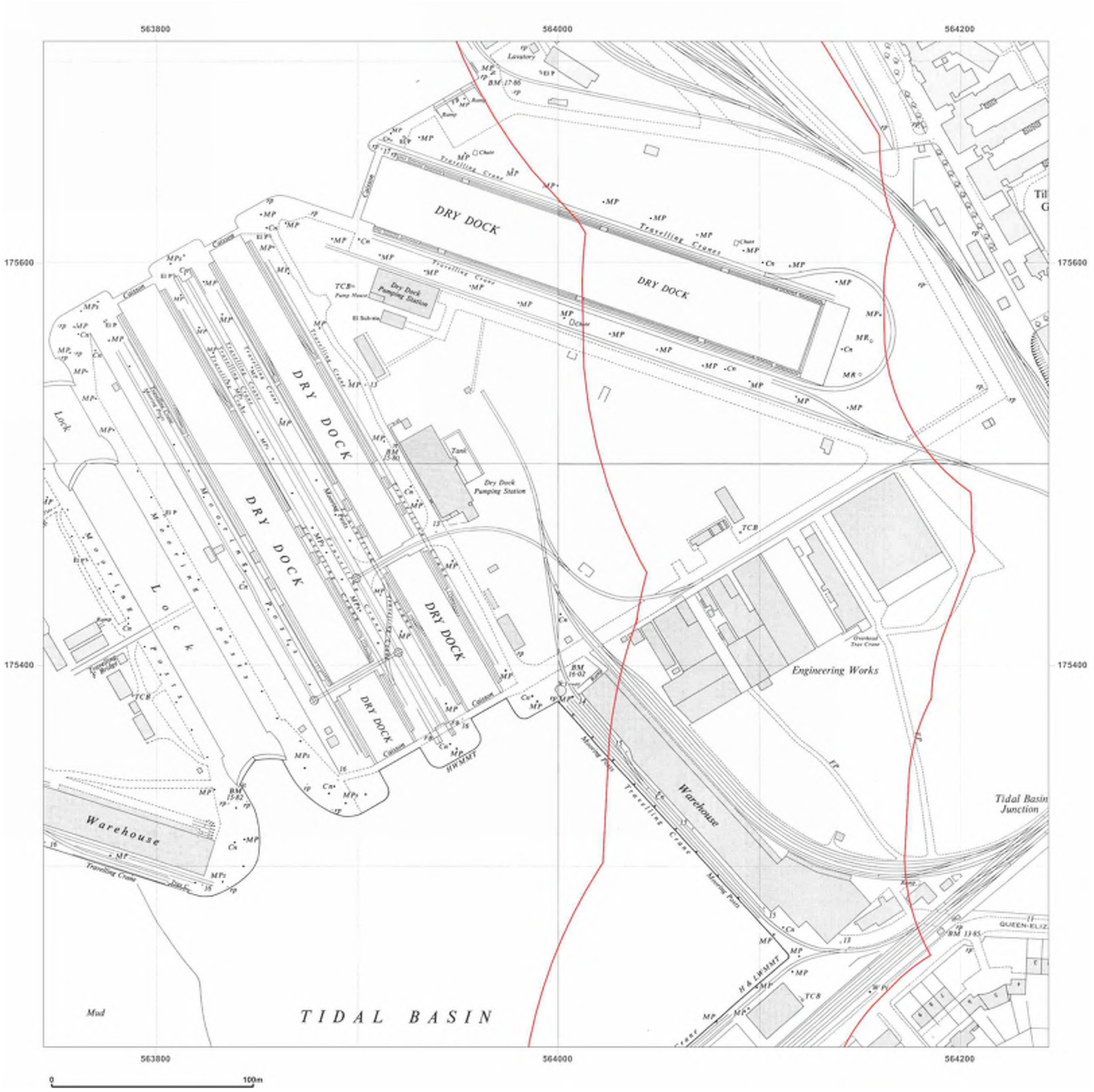
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_1_2
Grid Ref: 563994, 175460

Map Name: National Grid
Map date: **1950**
Scale: 1:1,250
Printed at: 1:2,000

N
W E
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Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled 1948

Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled 1948

Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled 1948

Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled 1950

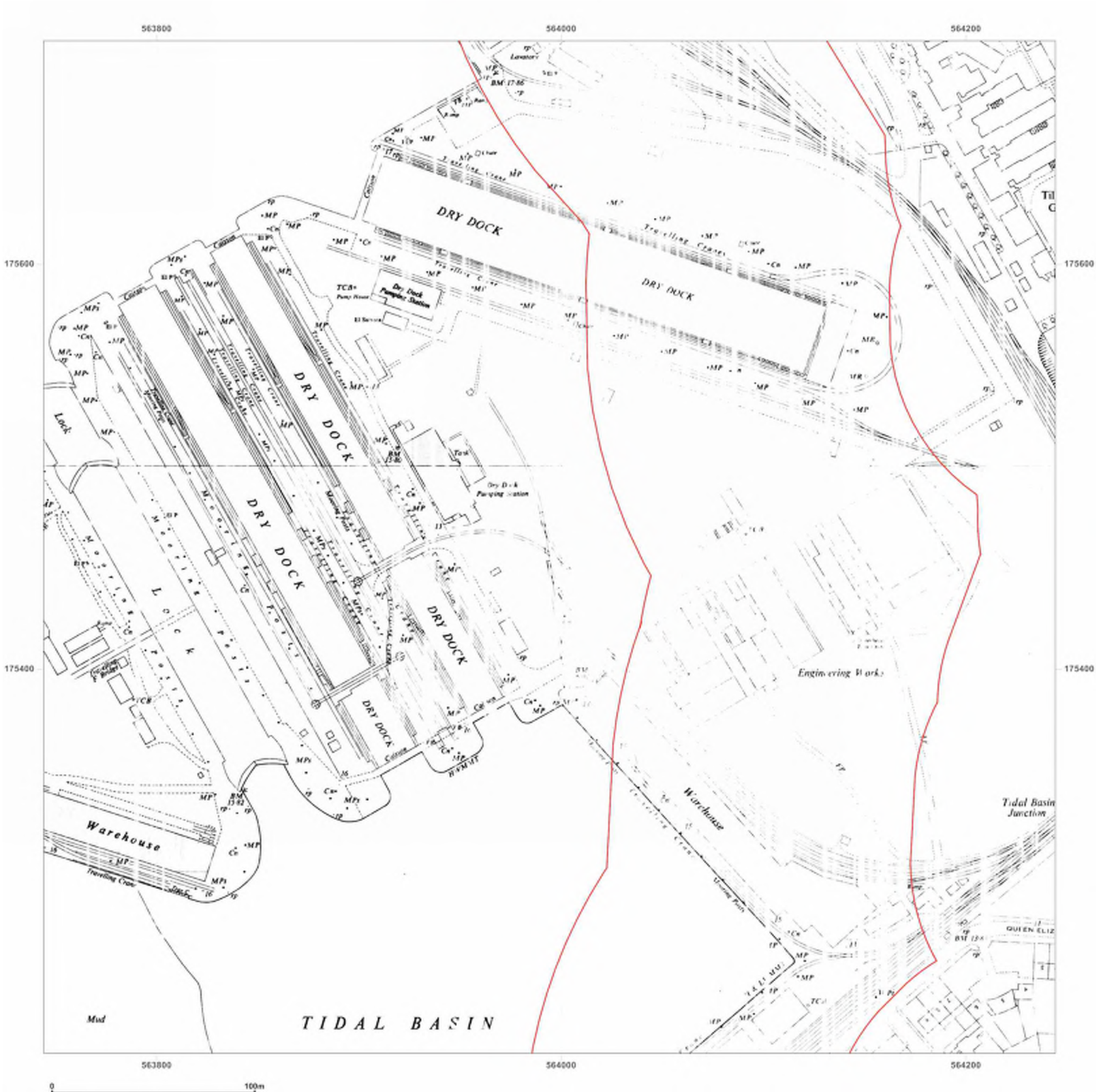
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_1_2
Grid Ref: 563994, 175460

Map Name: National Grid
Map date: **1951**
Scale: 1:1,250
Printed at: 1:2,000

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

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

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

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

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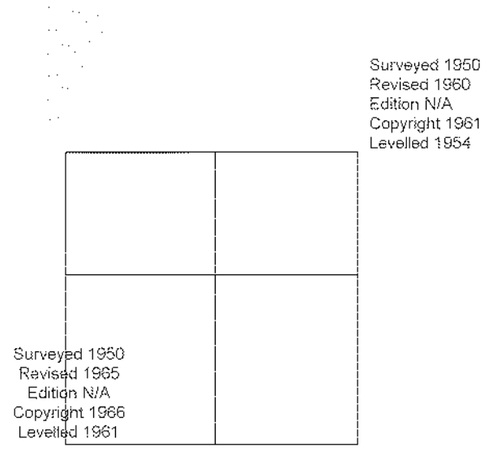
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_1_2
Grid Ref: 563994, 175460

Map Name: National Grid
Map date: **1961-1966**
Scale: 1:1,250
Printed at: 1:2,000

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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_1_2
Grid Ref: 563994, 175460

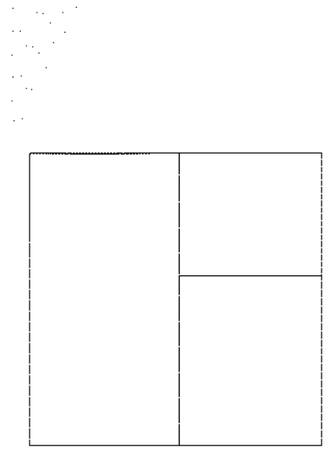
Map Name: National Grid

Map date: **1967-1969**

Scale: 1:1,250

Printed at: 1:2,000

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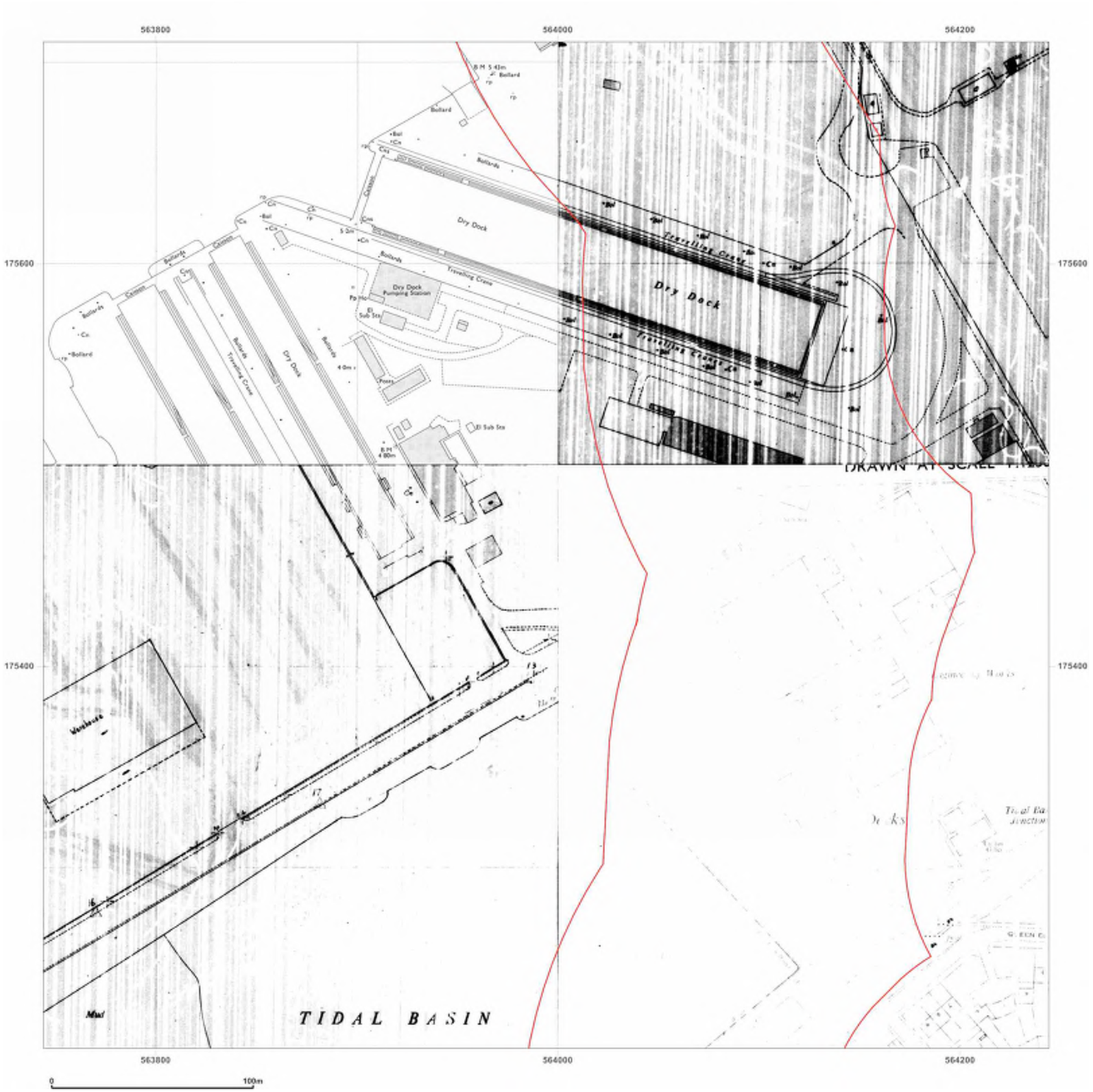
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_1_2
Grid Ref: 563994, 175460

Map Name: National Grid
Map date: **1973-1974**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1950 Revised 1972 Edition N/A Copyright 1973 Levelled 1961	Surveyed N/A Revised N/A Edition N/A Copyright N/A Levelled N/A
Surveyed N/A Revised N/A Edition N/A Copyright N/A Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright 1973 Levelled N/A

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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_1_2
Grid Ref: 563994, 175460

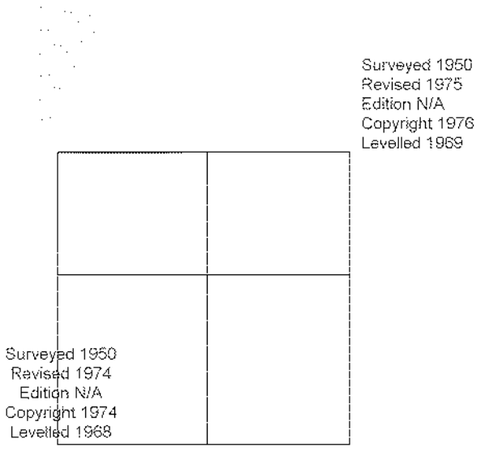
Map Name: National Grid

Map date: **1974-1976**

Scale: 1:1,250

Printed at: 1:2,000

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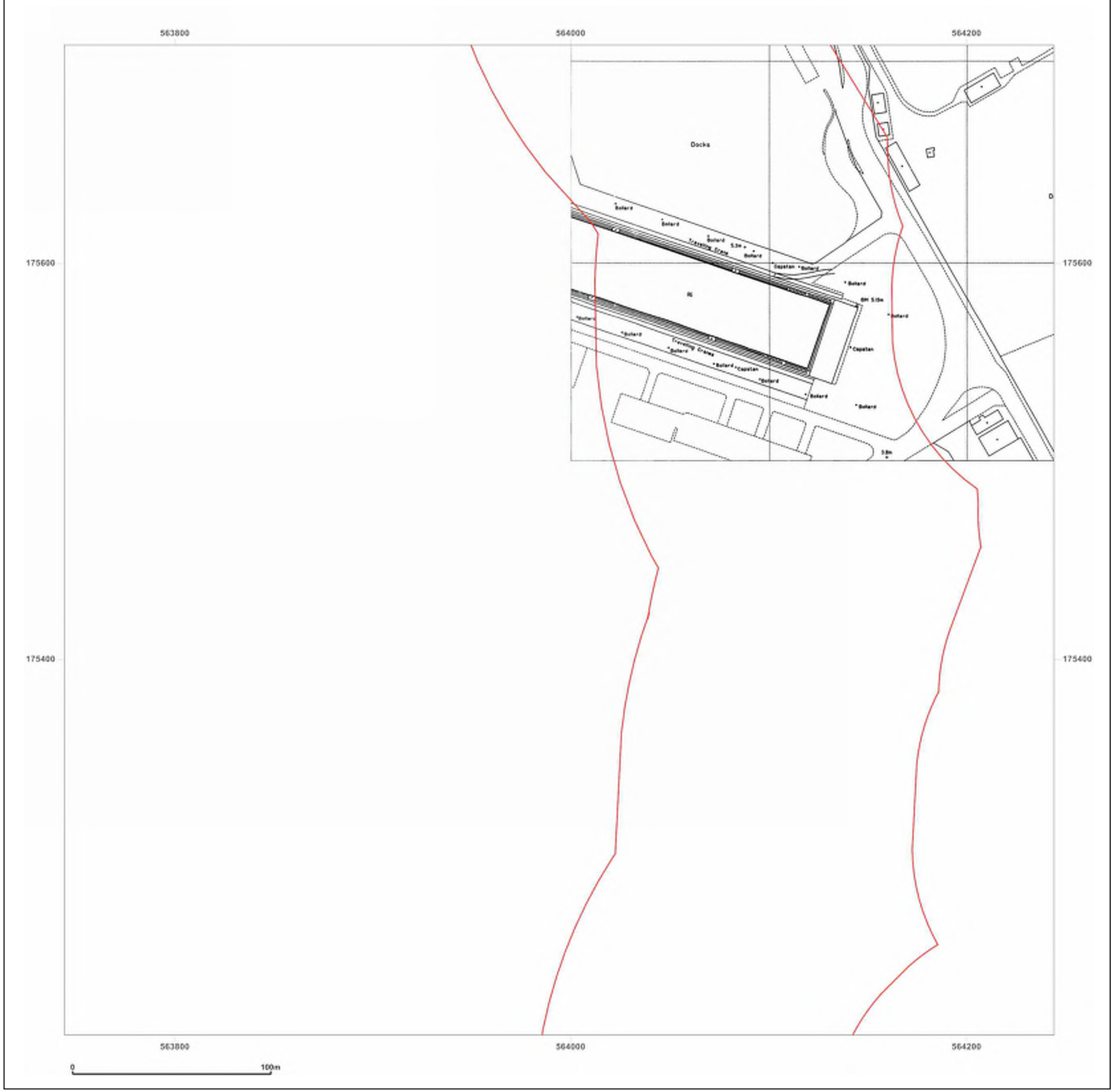
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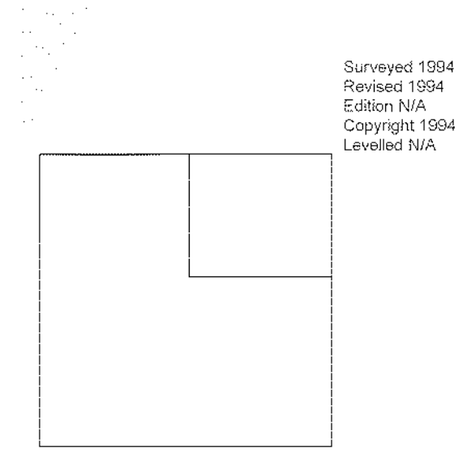
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_1_2
Grid Ref: 563994, 175460

Map Name: National Grid
Map date: **1994**
Scale: 1:1,250
Printed at: 1:2,000

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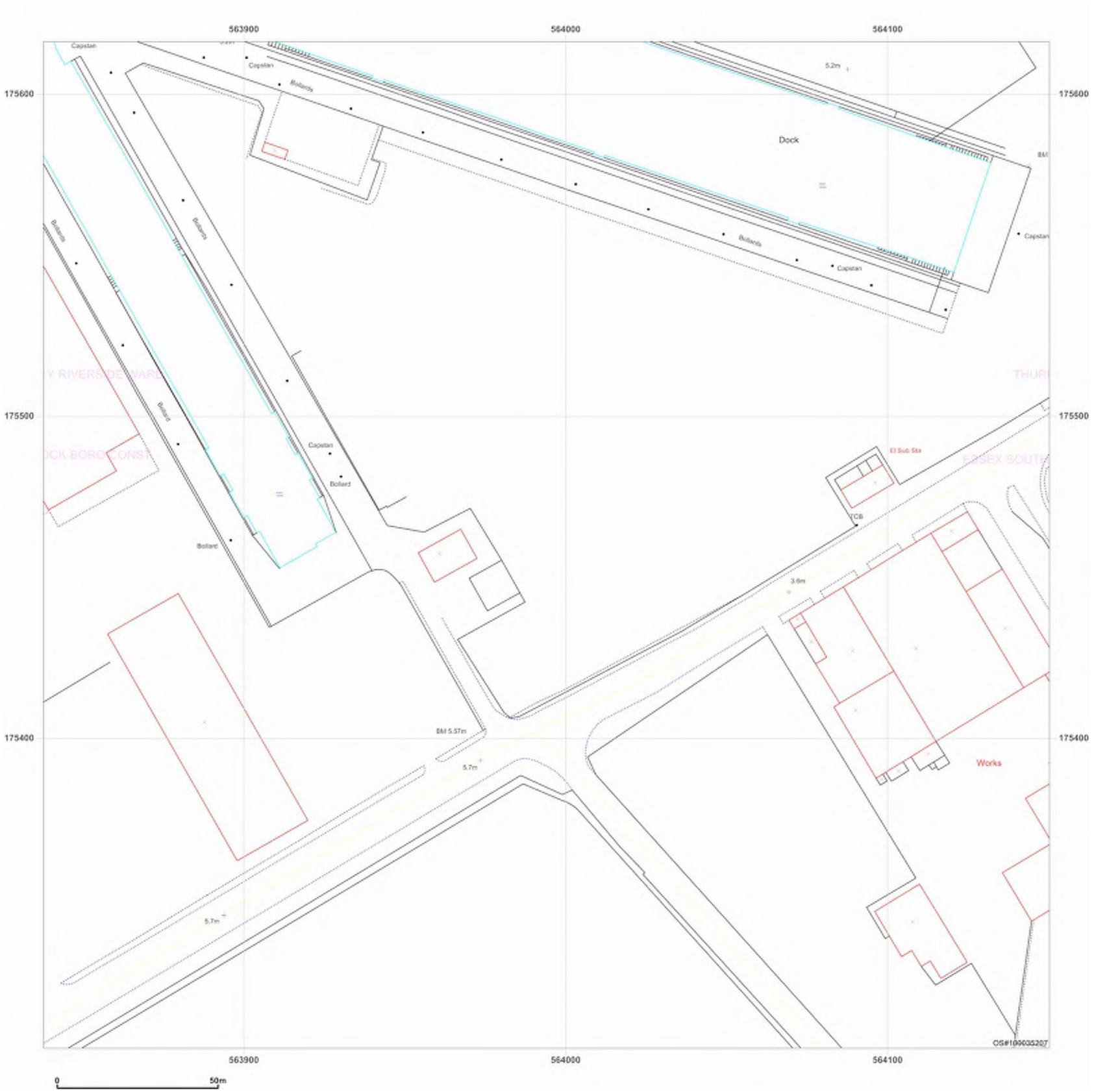
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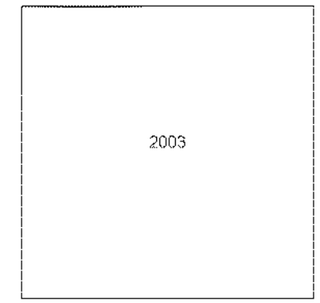
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_1_2
Grid Ref: 563994, 175460

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

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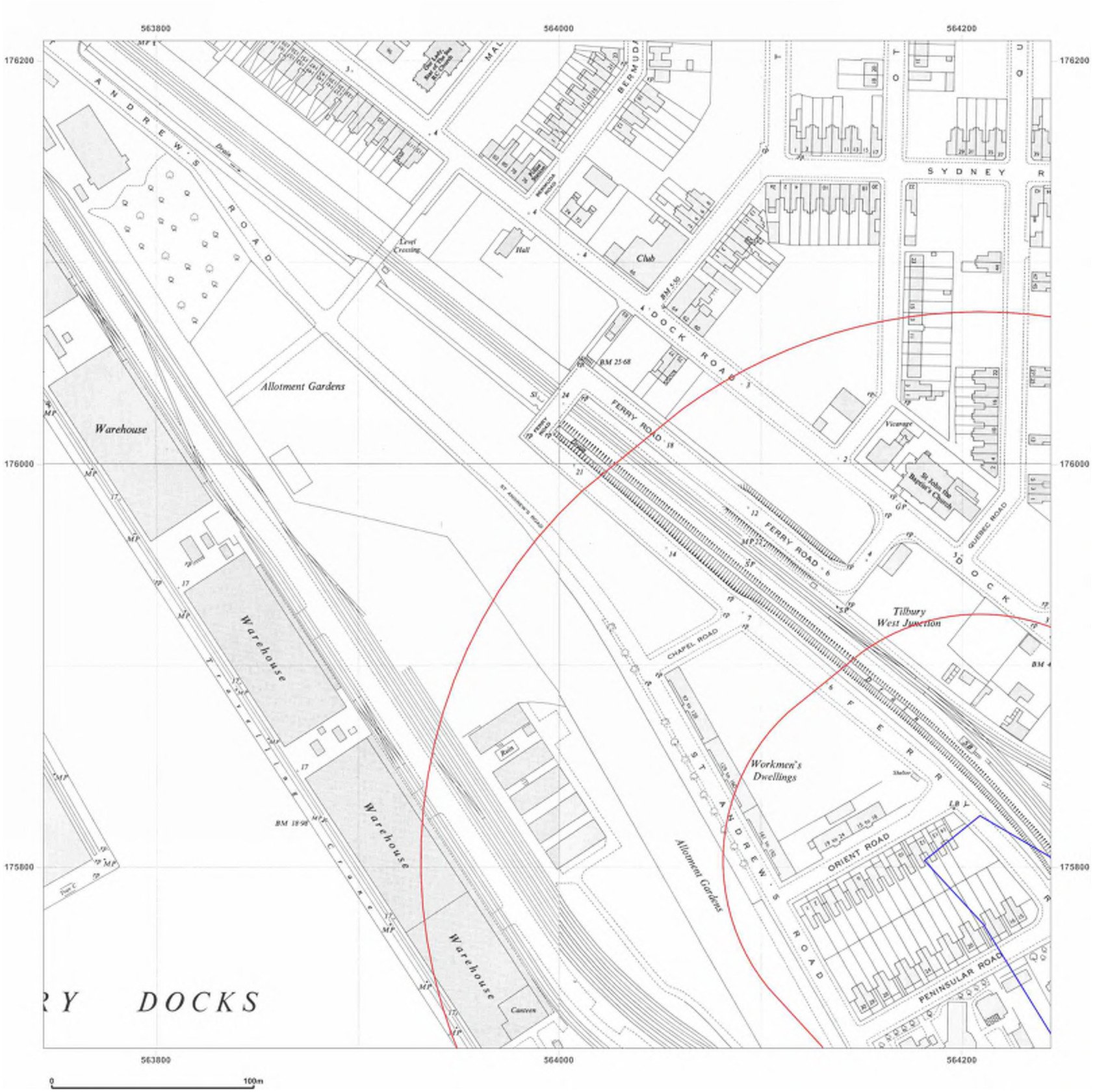
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_1_3
Grid Ref: 563994, 175960

Map Name: National Grid

Map date: **1950**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled 1948

Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled 1948

Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled 1948

Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled 1948

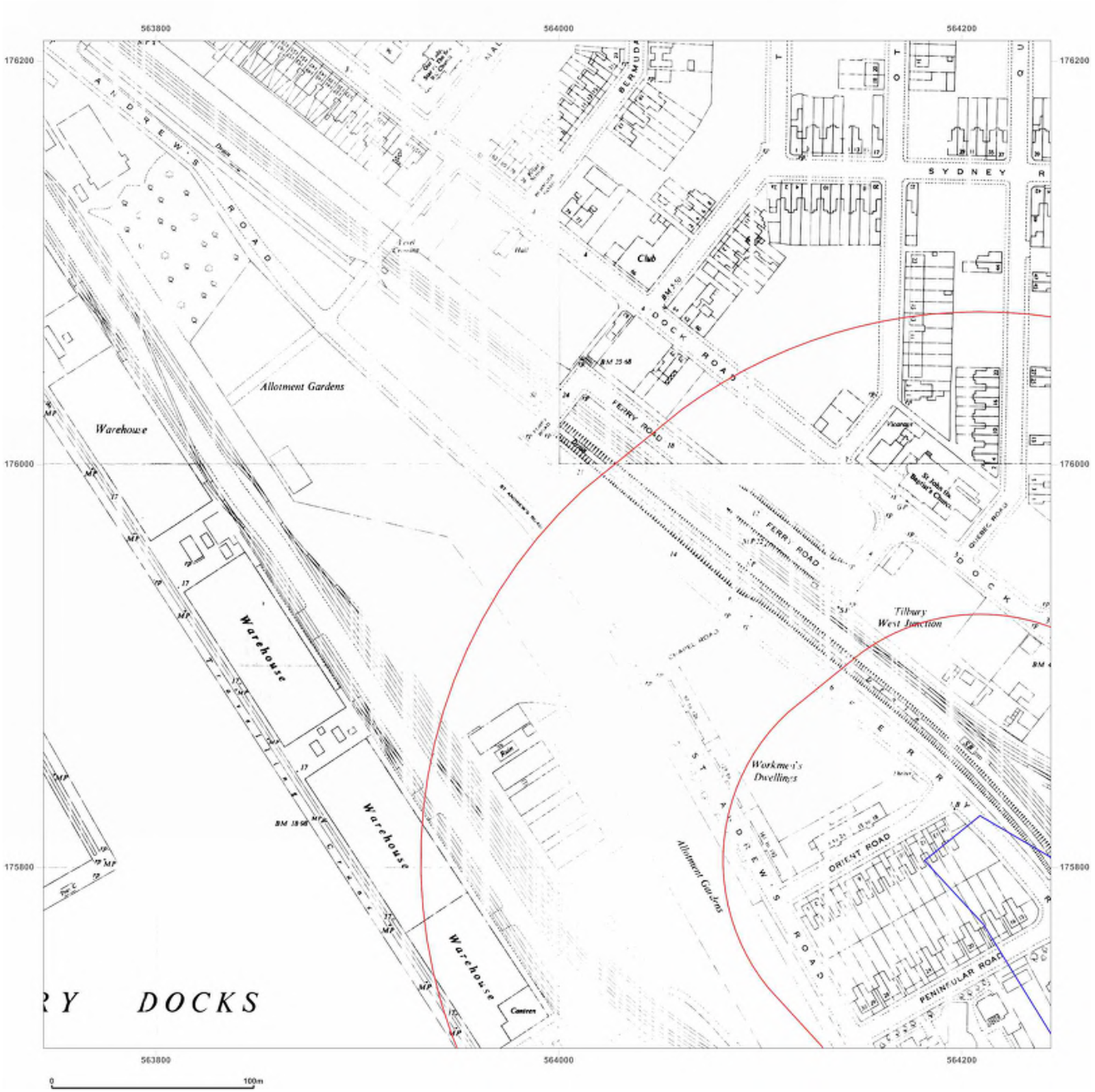
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_1_3
Grid Ref: 563994, 175960

Map Name: National Grid

Map date: **1951**

Scale: 1:1,250

Printed at: 1:2,000

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

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

Surveyed N/A
Revised N/A
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Levelled N/A

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Edition N/A
Copyright N/A
Levelled N/A

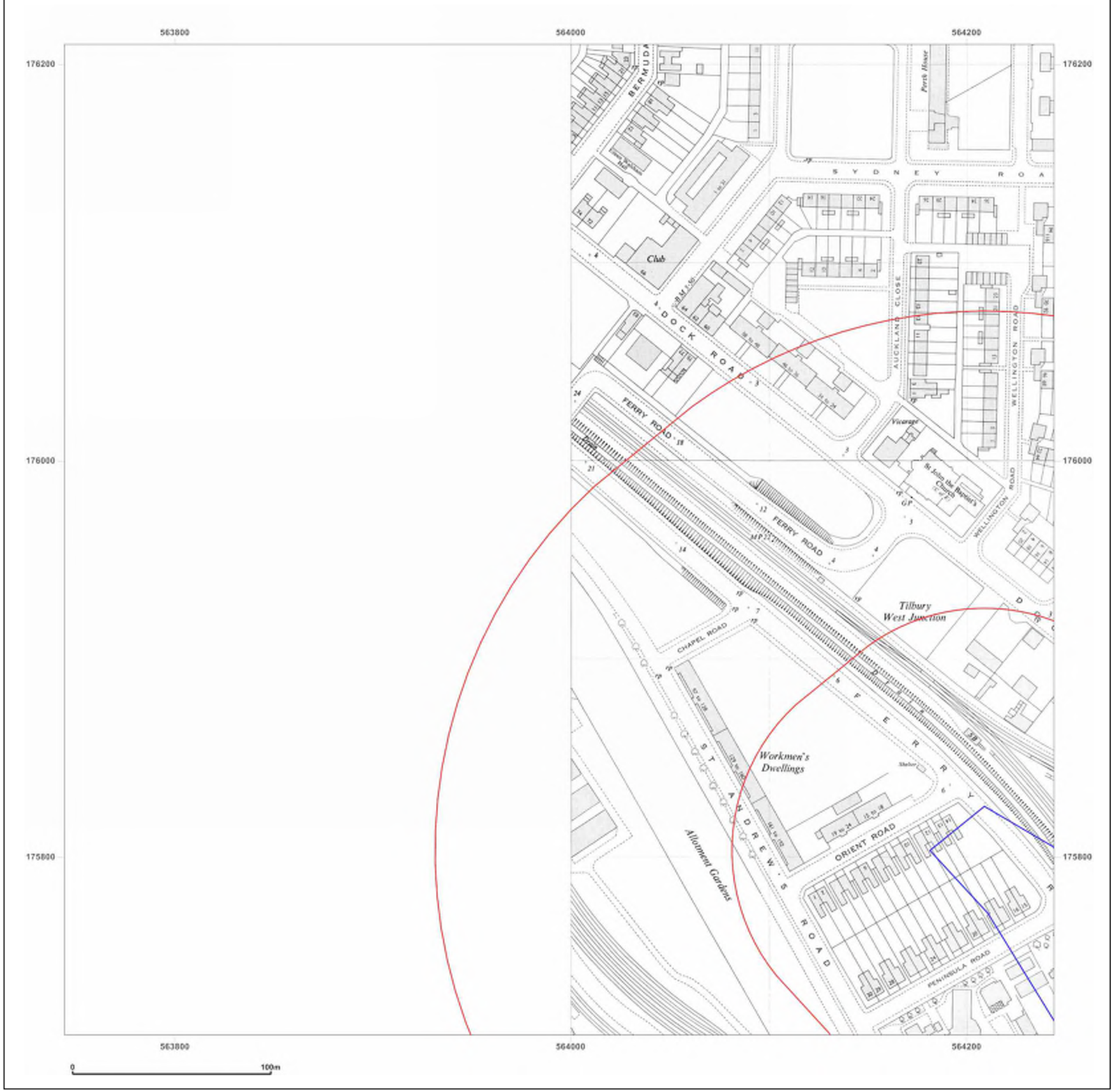
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_1_3
Grid Ref: 563994, 175960

Map Name: National Grid

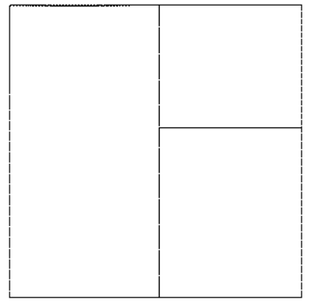
Map date: **1961**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1950
Revised 1960
Edition N/A
Copyright 1961
Levelled 1954



Surveyed 1950
Revised 1960
Edition N/A
Copyright 1961
Levelled 1954

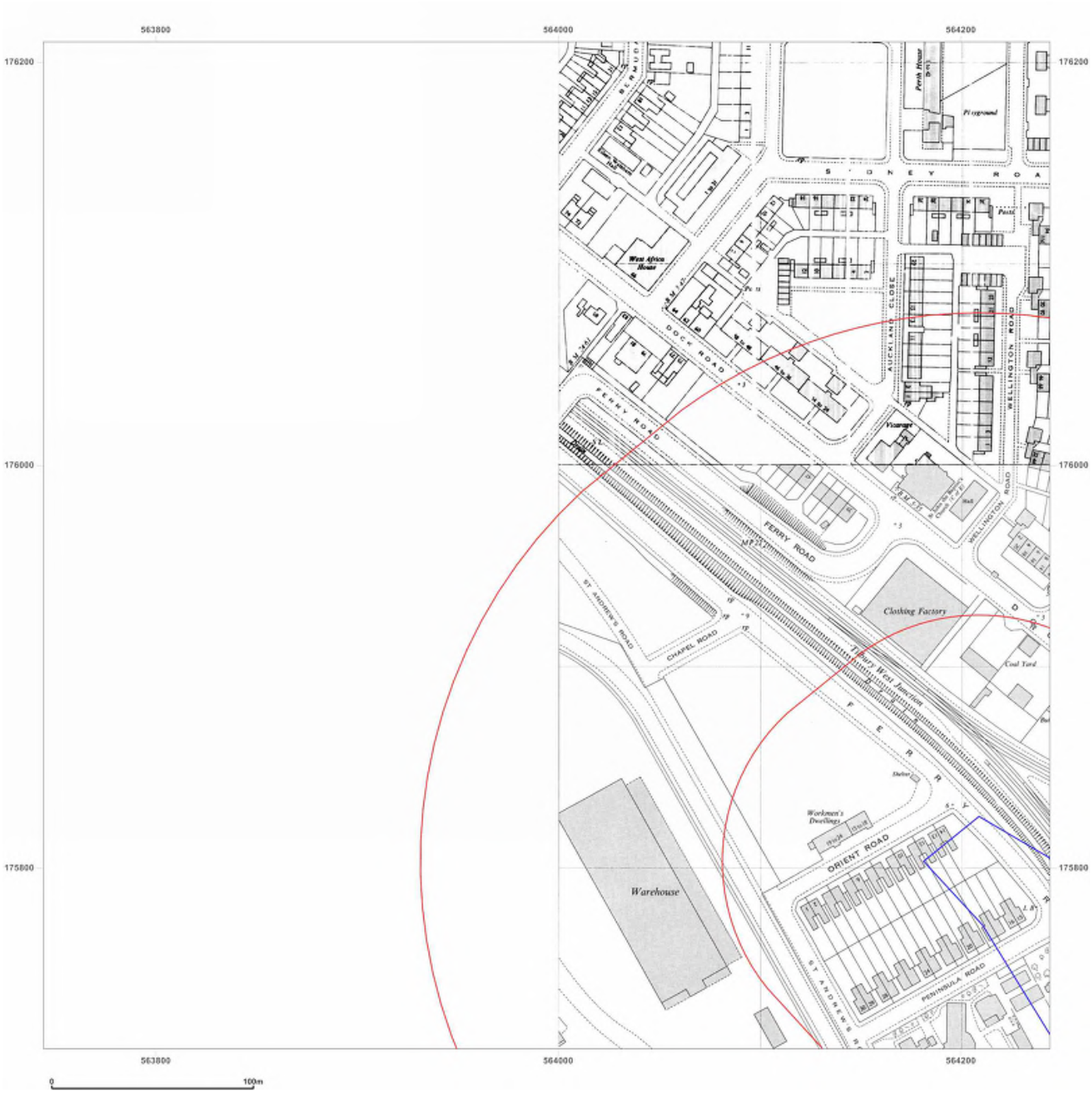
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_1_3
Grid Ref: 563994, 175960

Map Name: National Grid

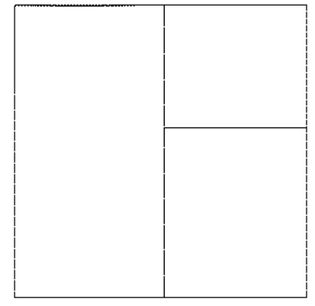
Map date: **1965-1967**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1950
Revised 1965
Edition N/A
Copyright 1965
Levelled 1961



Surveyed 1950
Revised 1966
Edition N/A
Copyright 1967
Levelled 1961

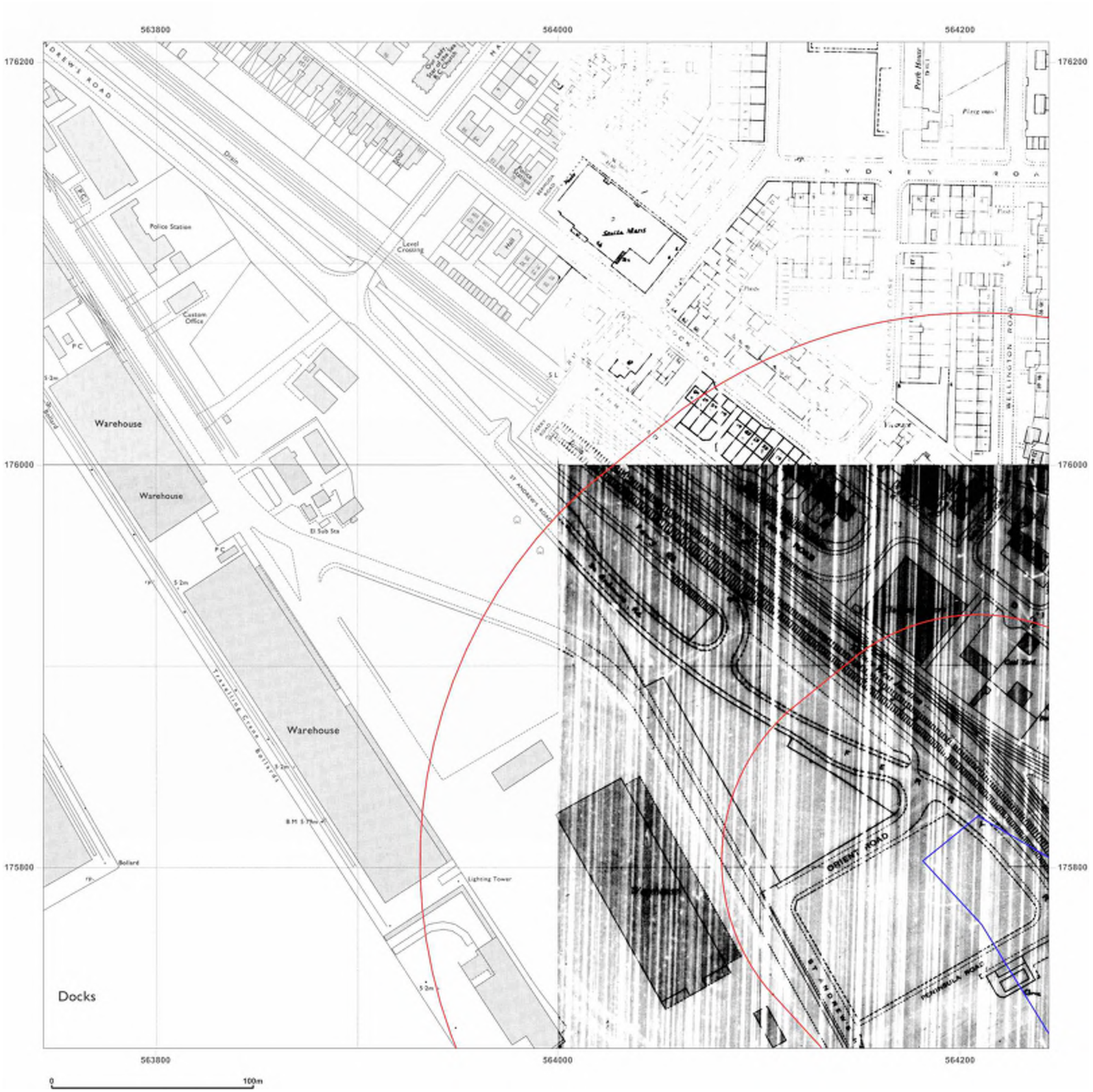
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_1_3
Grid Ref: 563994, 175960

Map Name: National Grid
Map date: **1971-1974**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1950
Revised 1970
Edition N/A
Copyright 1971
Levelled 1961

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1973
Levelled N/A

Surveyed 1950
Revised 1972
Edition N/A
Copyright 1973
Levelled 1961

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

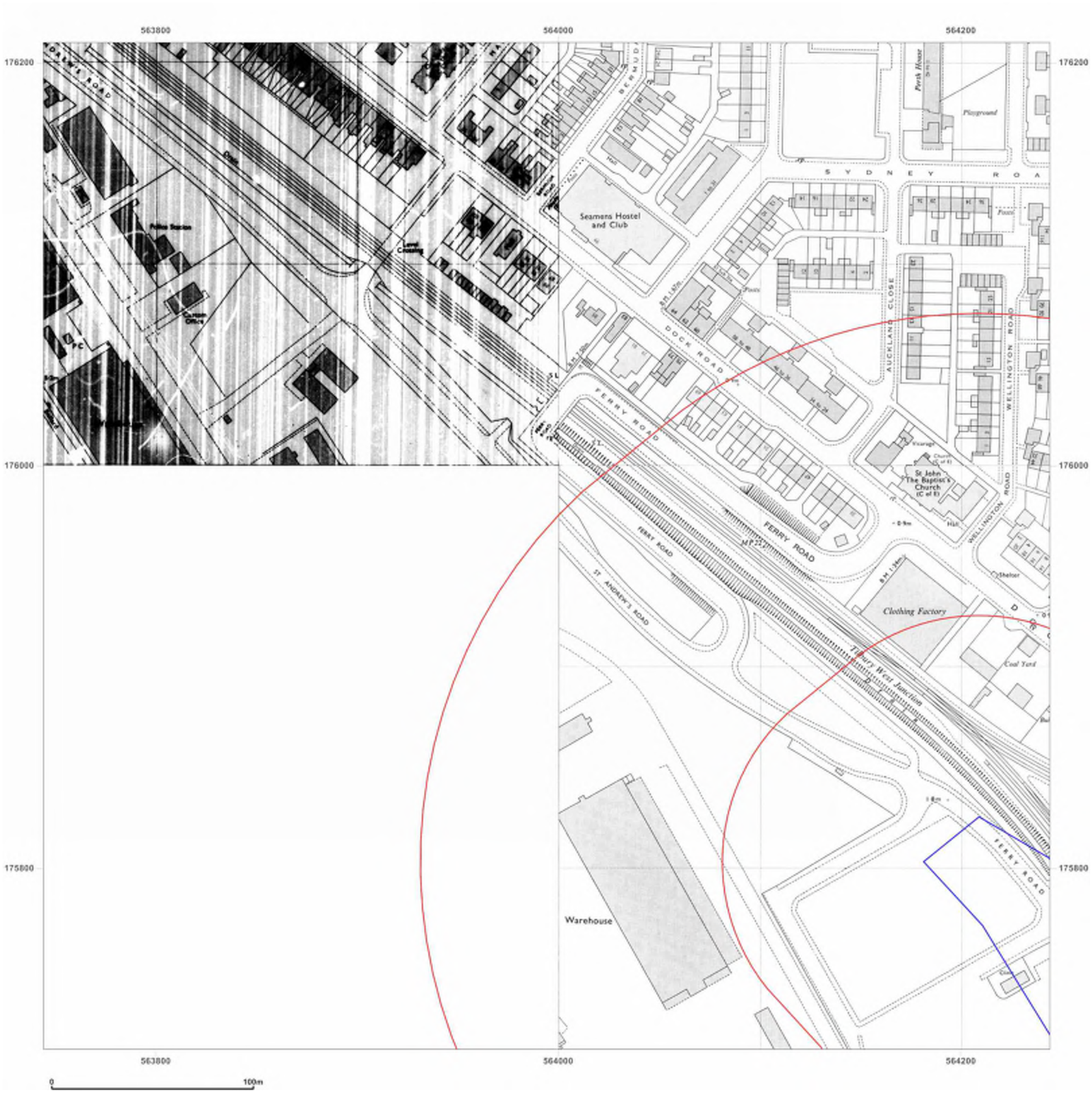
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_1_3
Grid Ref: 563994, 175960

Map Name: National Grid

Map date: **1974-1977**

Scale: 1:1,250

Printed at: 1:2,000

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Surveyed N/A
Revised N/A
Edition N/A
Copyright 1974
Levelled N/A

Surveyed 1950
Revised 1976
Edition N/A
Copyright 1977
Levelled 1969

Surveyed 1950
Revised 1975
Edition N/A
Copyright 1976
Levelled 1969

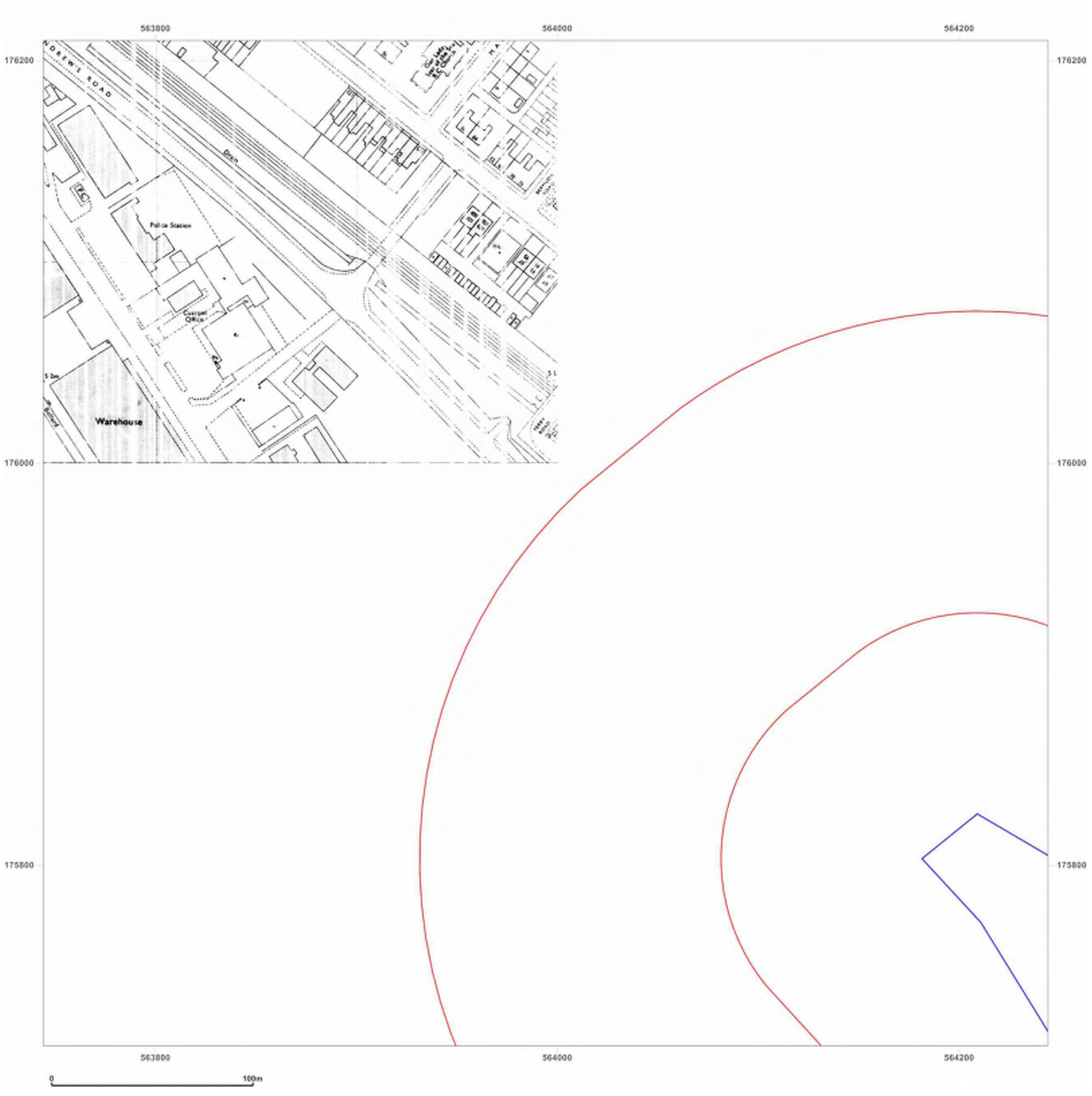
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Groundsure INSIGHTS

Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_1_3
Grid Ref: 563994, 175960

Map Name: National Grid

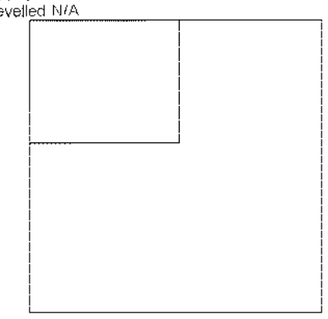
Map date: **1977**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed N/A
Revised N/A
Edition N/A
Copyright 1977
Levelled N/A



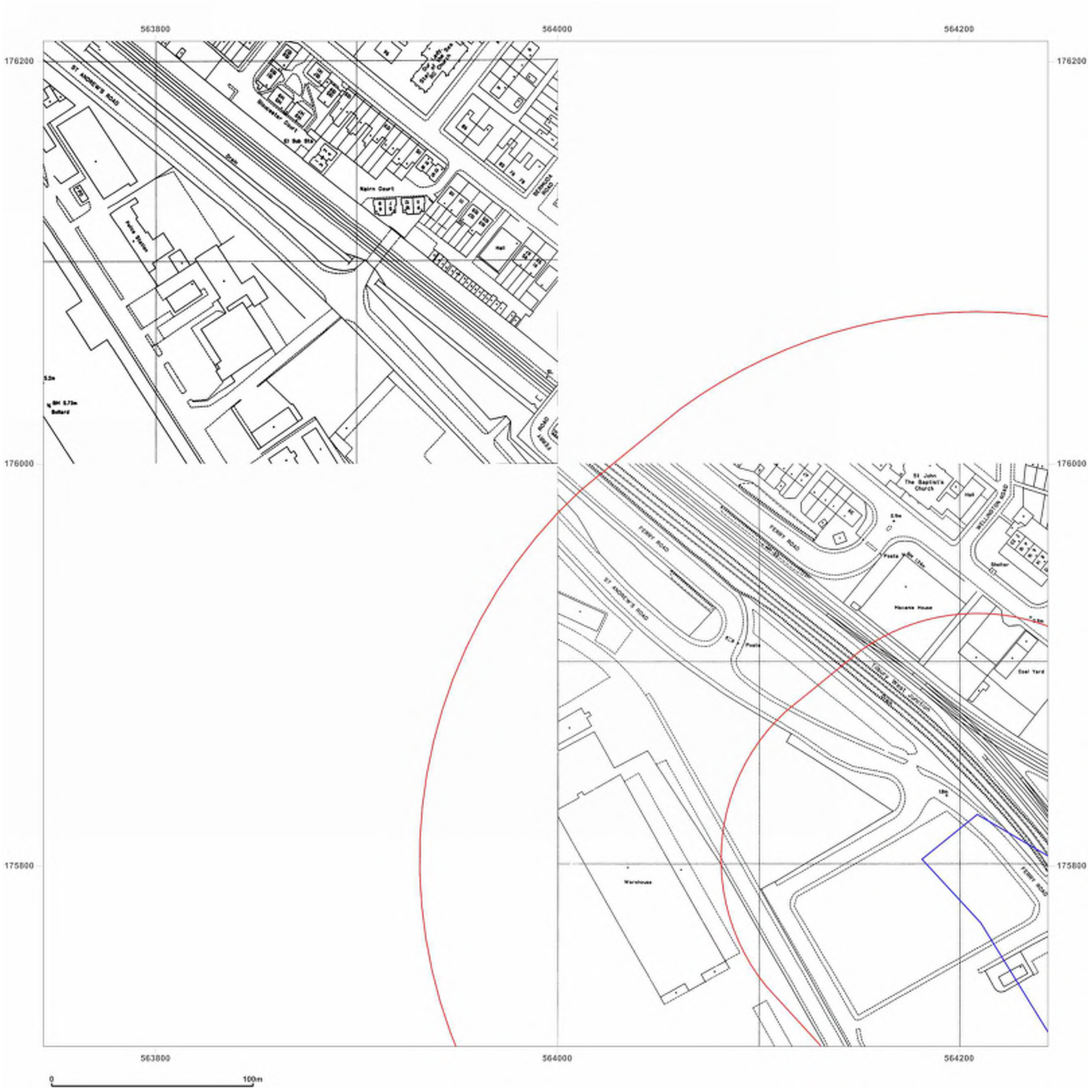
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Production date: 15 June 2020

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563800
564000
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175800
ST ANDREW'S ROAD
Nairn Court
Gas Valve Chamber
Hut
Hut
Hut



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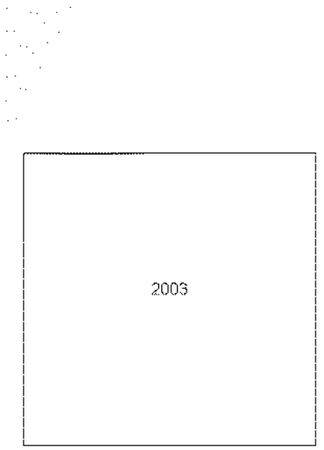
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_1_3
Grid Ref: 563994, 175960

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

N
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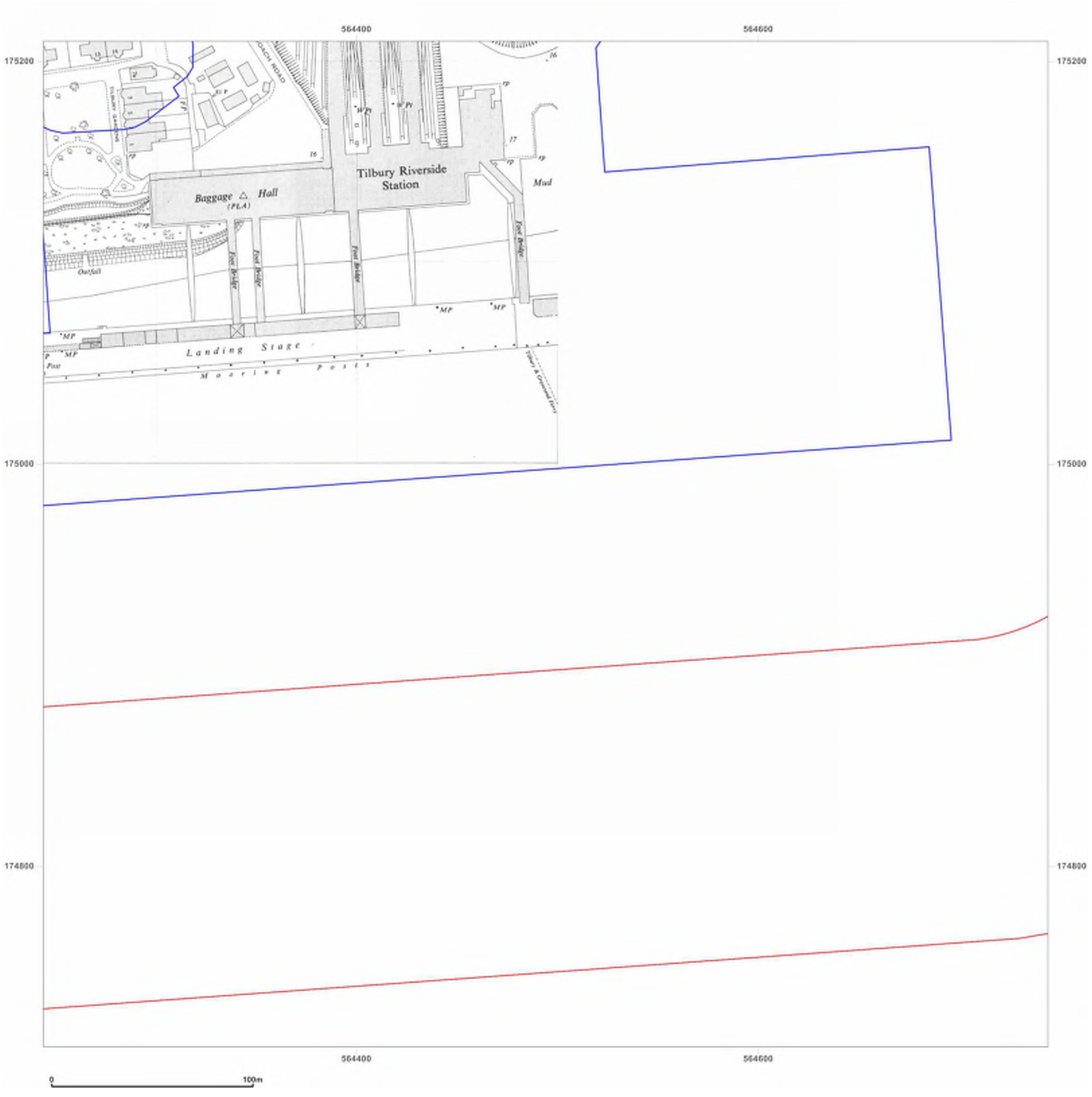
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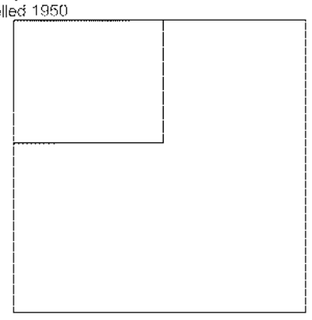
564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_2_1
Grid Ref: 564494, 174960

Map Name: National Grid
Map date: **1950**
Scale: 1:1,250
Printed at: 1:2,000

N
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Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled 1950



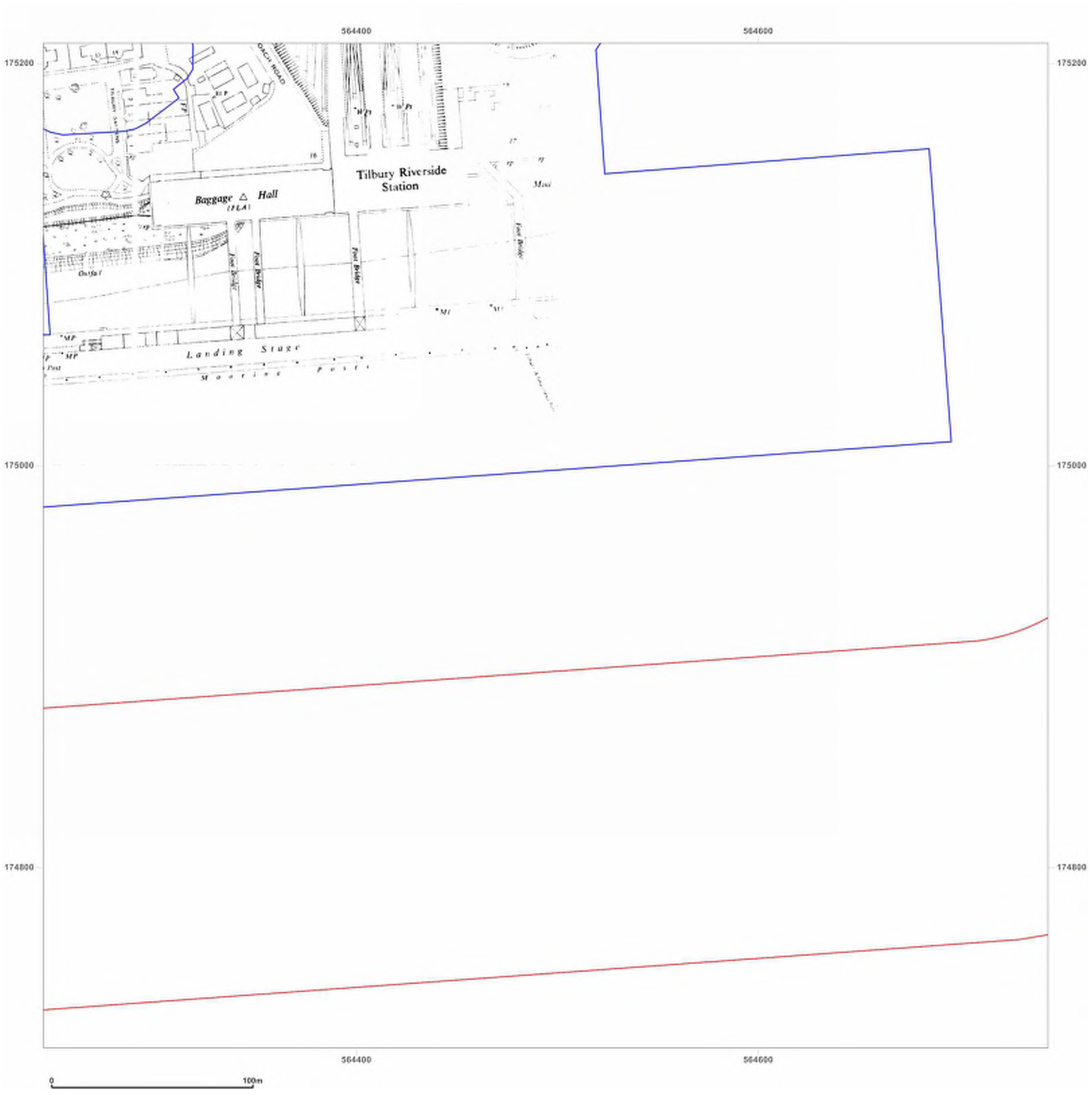
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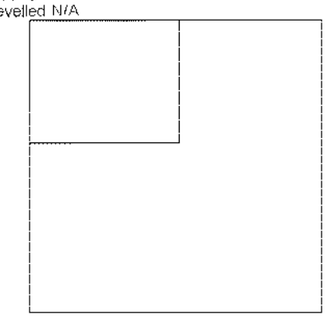
564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_2_1
Grid Ref: 564494, 174960

Map Name: National Grid
Map date: **1951**
Scale: 1:1,250
Printed at: 1:2,000

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



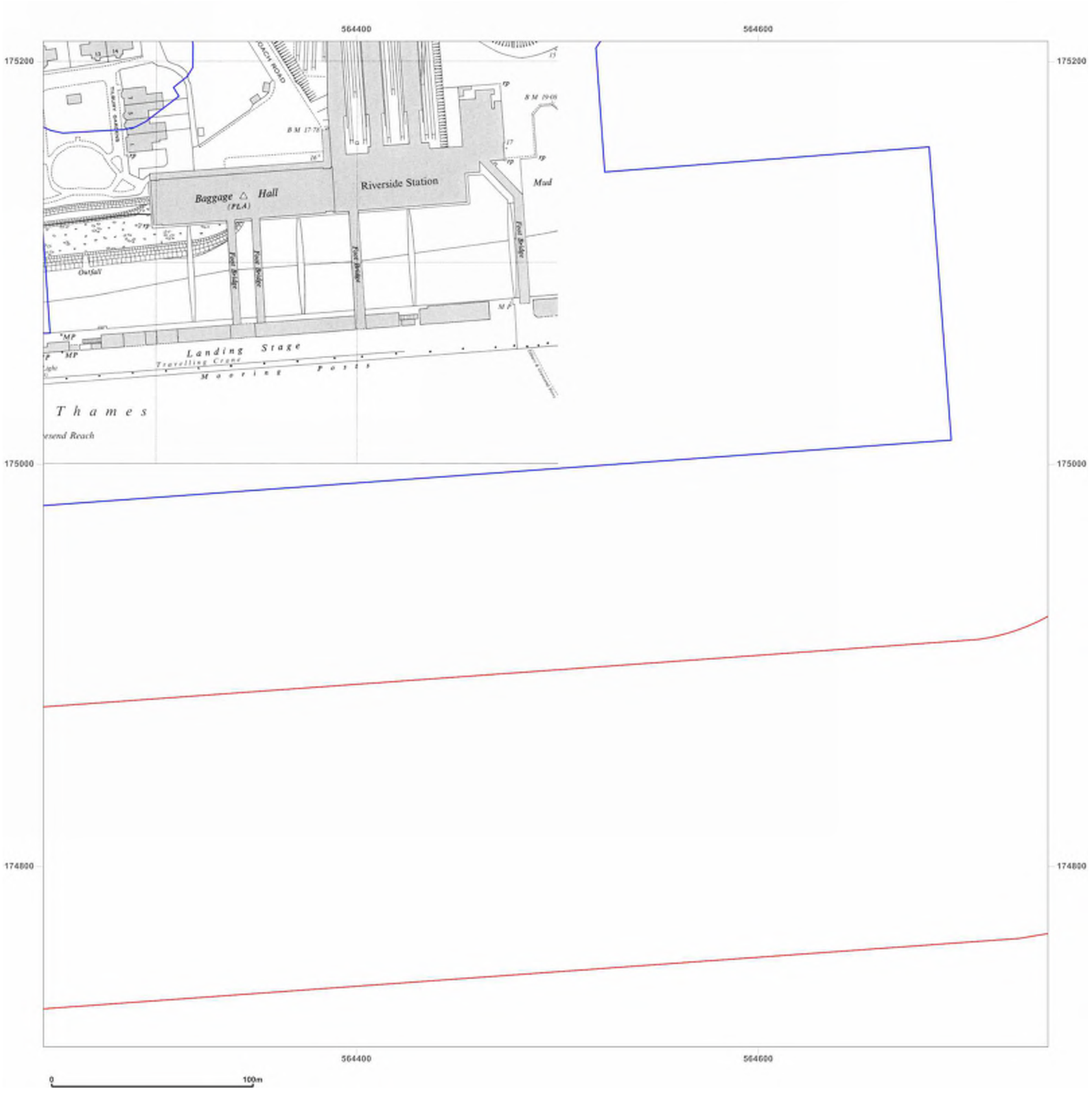
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_2_1
Grid Ref: 564494, 174960

Map Name: National Grid

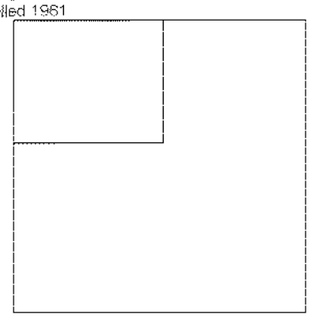
Map date: **1969**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1968
Revised 1968
Edition N/A
Copyright 1968
Levelled 1961

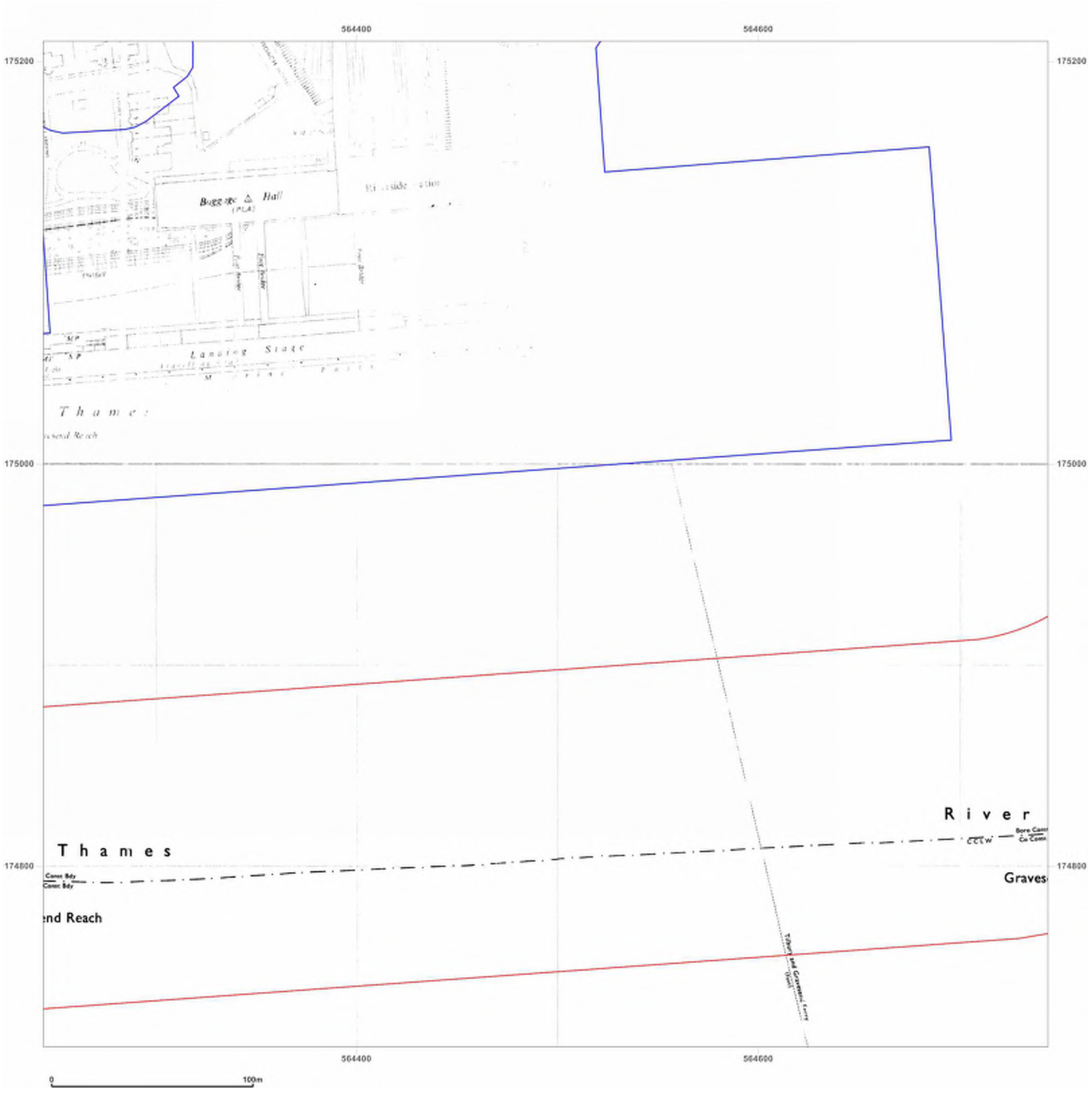


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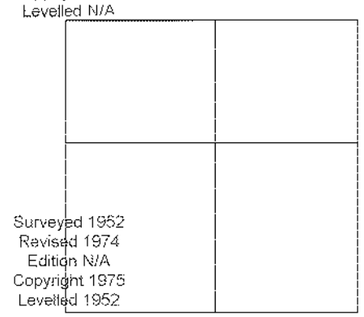
564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_2_1
Grid Ref: 564494, 174960

Map Name: National Grid
Map date: **1973-1975**
Scale: 1:1,250
Printed at: 1:2,000

N
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Surveyed N/A
Revised N/A
Edition N/A
Copyright 1973
Levelled N/A



Surveyed 1952
Revised 1974
Edition N/A
Copyright 1975
Levelled 1952

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

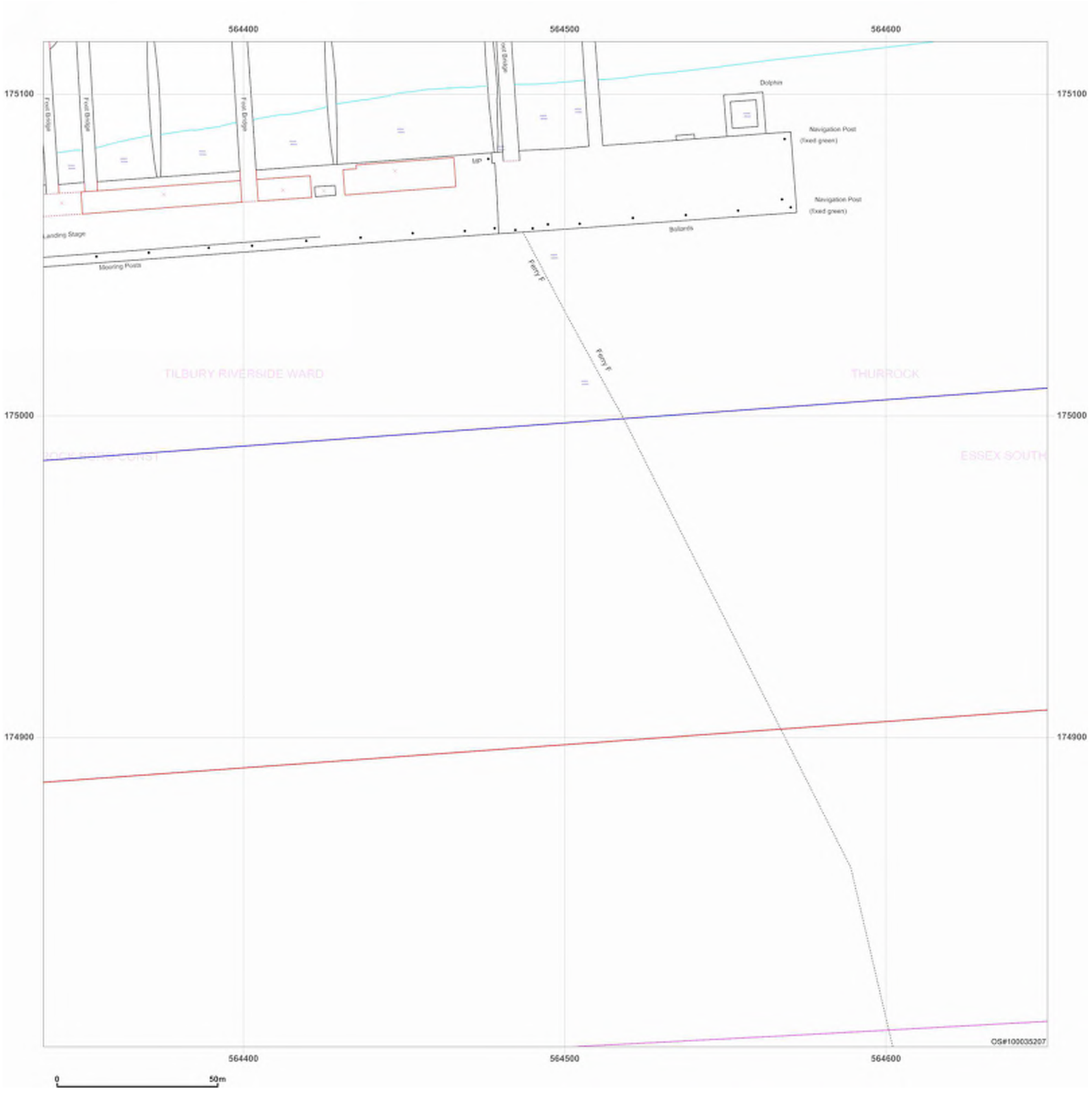
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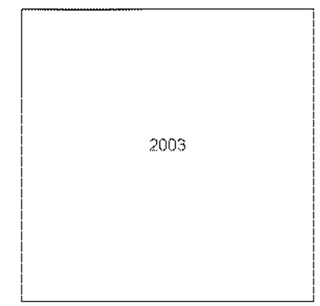
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_2_1
Grid Ref: 564494, 174960

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_2_2
Grid Ref: 564494, 175460

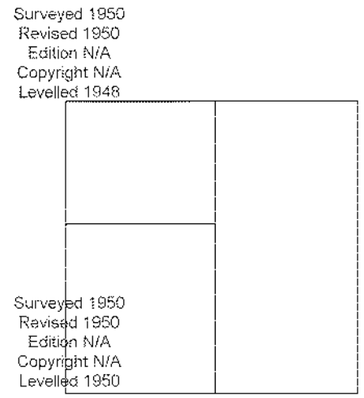
Map Name: National Grid

Map date: **1950**

Scale: 1:1,250

Printed at: 1:2,000

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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_2_2
Grid Ref: 564494, 175460

Map Name: National Grid

Map date: **1951**

Scale: 1:1,250

Printed at: 1:2,000

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

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

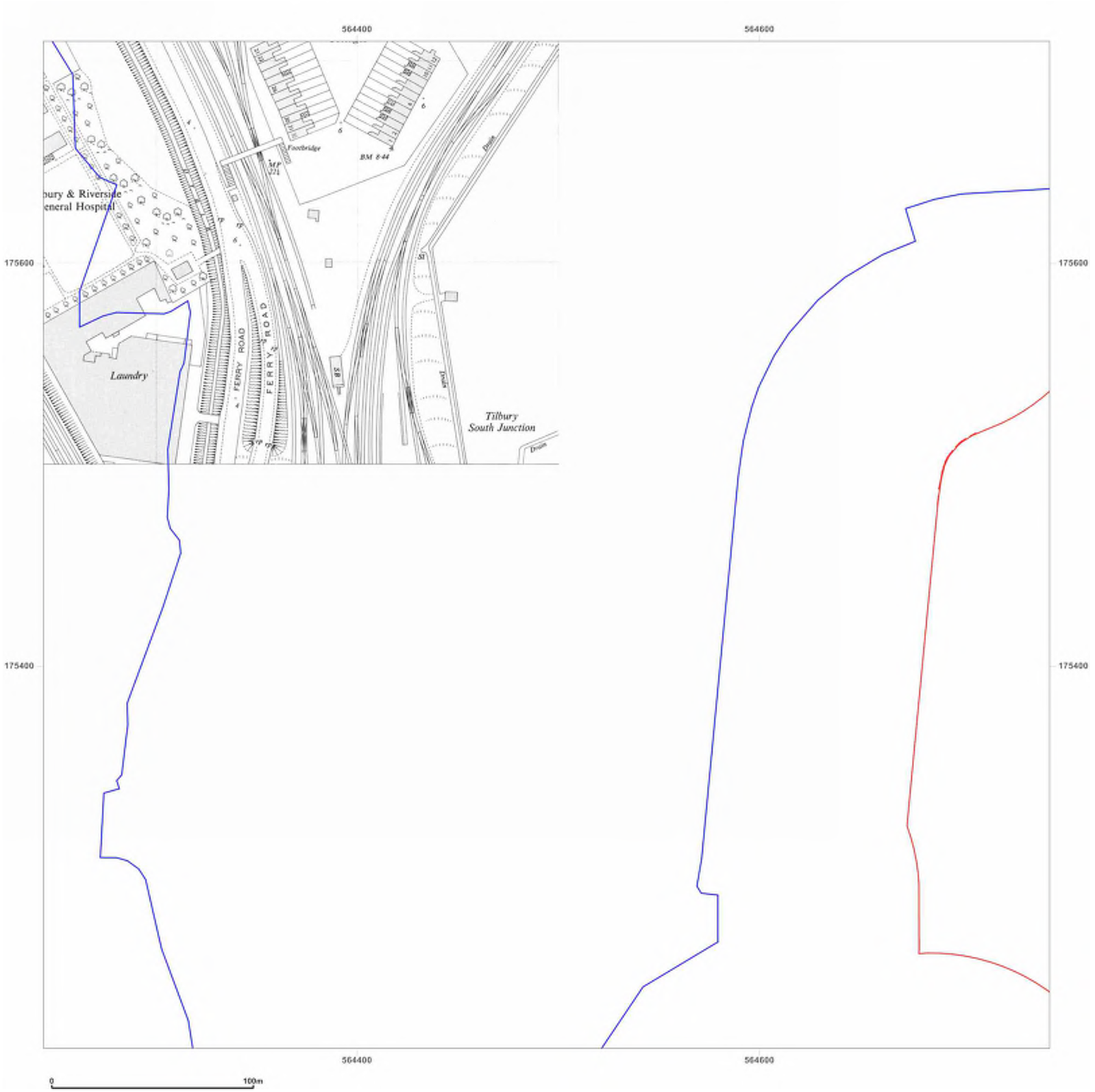
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_2_2
Grid Ref: 564494, 175460

Map Name: National Grid

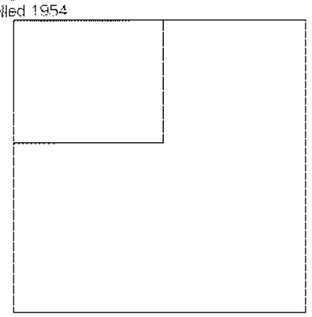
Map date: **1961**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
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Surveyed 1950
Revised 1960
Edition N/A
Copyright 1961
Levelled 1954



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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_2_2
Grid Ref: 564494, 175460

Map Name: National Grid
Map date: **1967-1969**
Scale: 1:1,250
Printed at: 1:2,000

N
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Surveyed 1950
Revised 1966
Edition N/A
Copyright 1967
Levelled 1961

Surveyed 1968
Revised 1968
Edition N/A
Copyright 1969
Levelled 1961

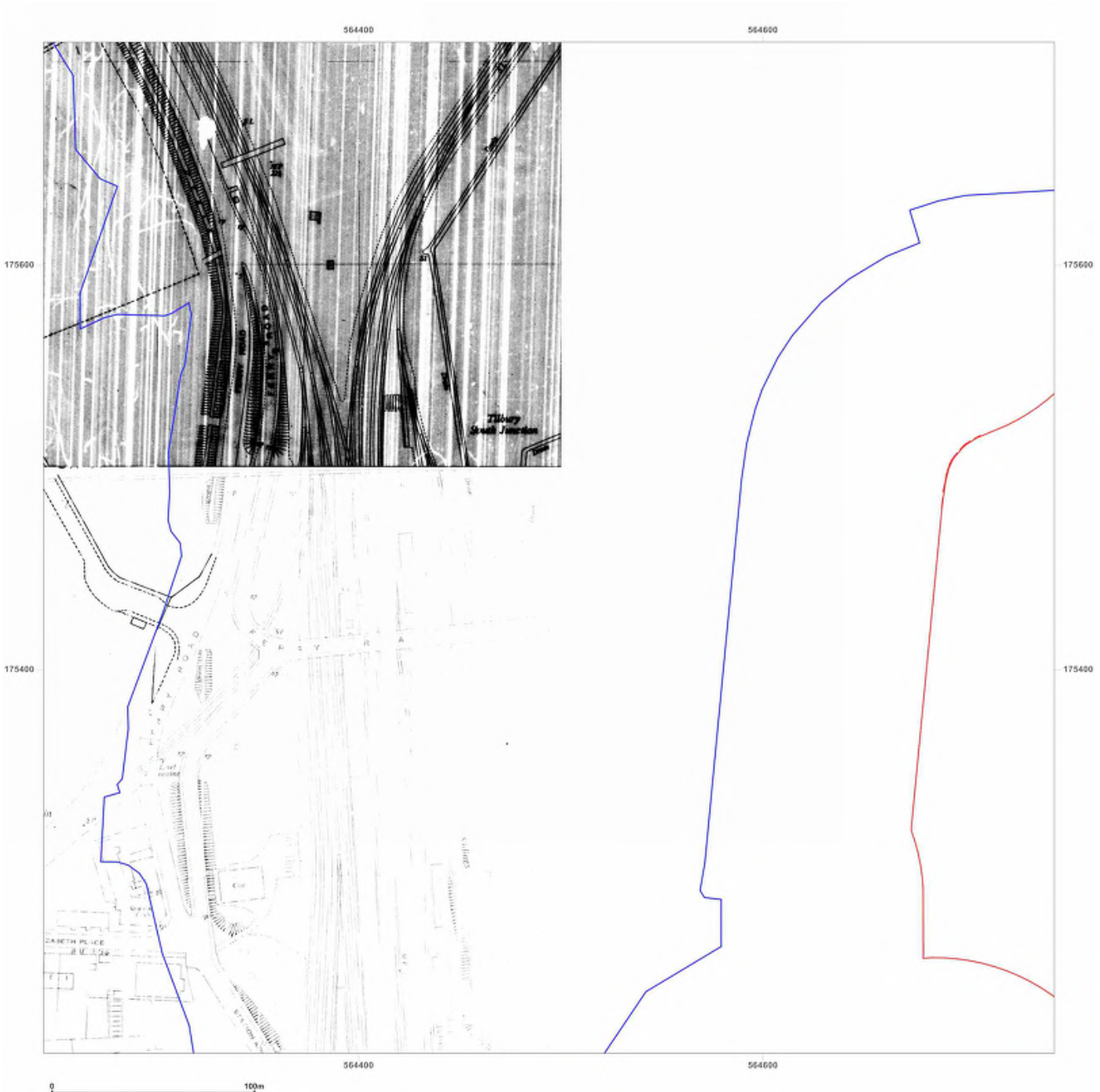
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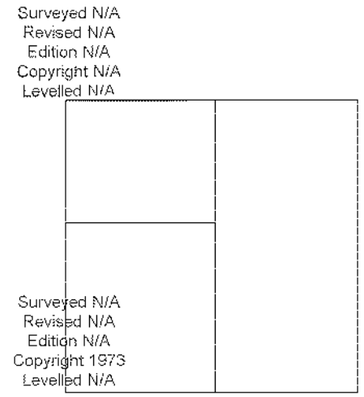
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_2_2
Grid Ref: 564494, 175460

Map Name: National Grid
Map date: **1973-1974**
Scale: 1:1,250
Printed at: 1:2,000

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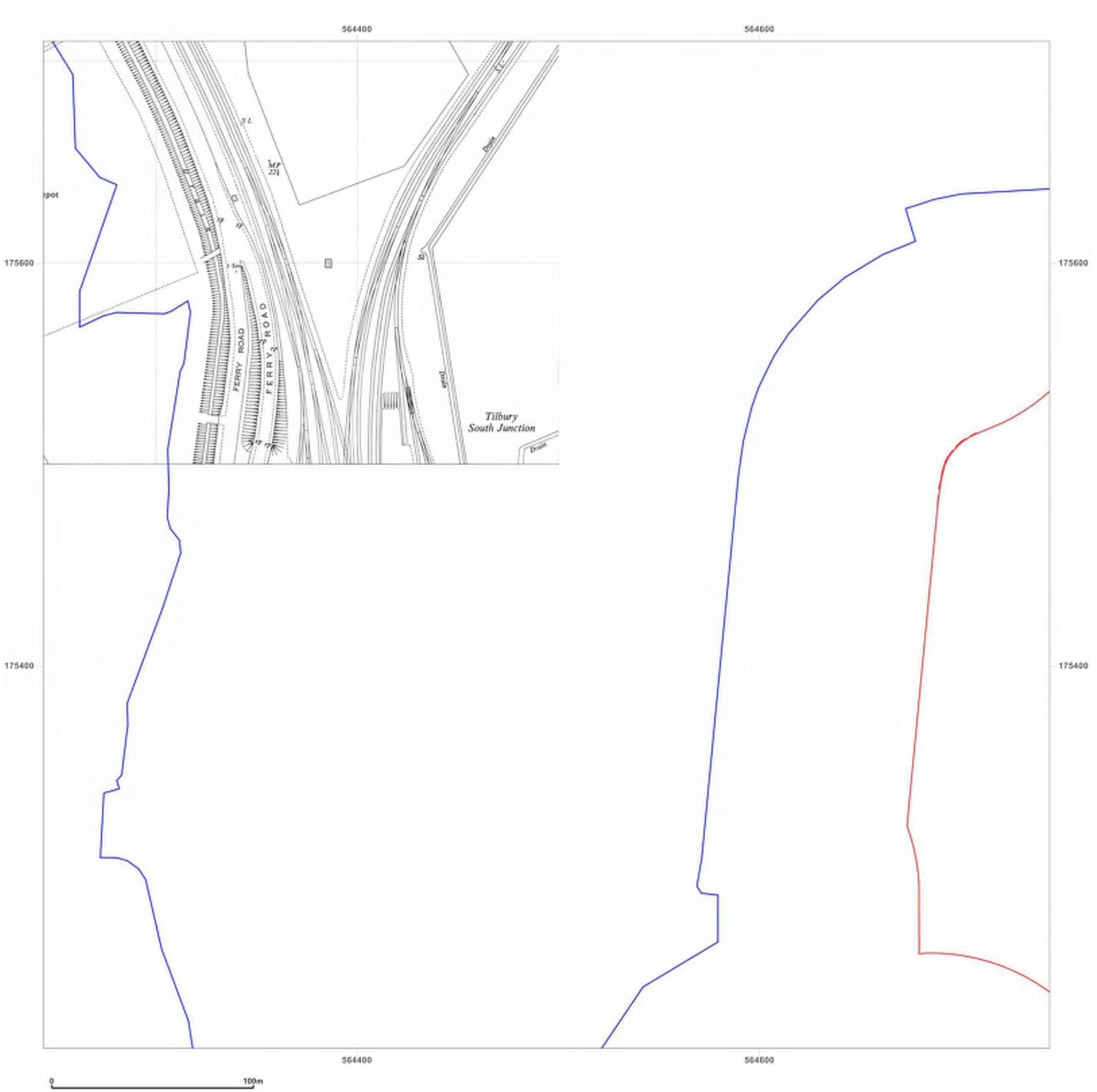
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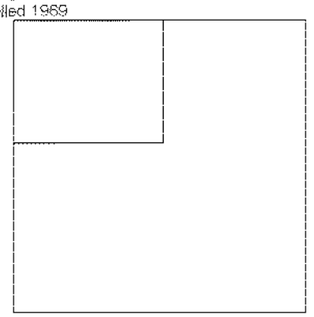
564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_2_2
Grid Ref: 564494, 175460

Map Name: National Grid
Map date: **1976**
Scale: 1:1,250
Printed at: 1:2,000

N
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Surveyed 1950
Revised 1975
Edition N/A
Copyright 1976
Levelled 1969



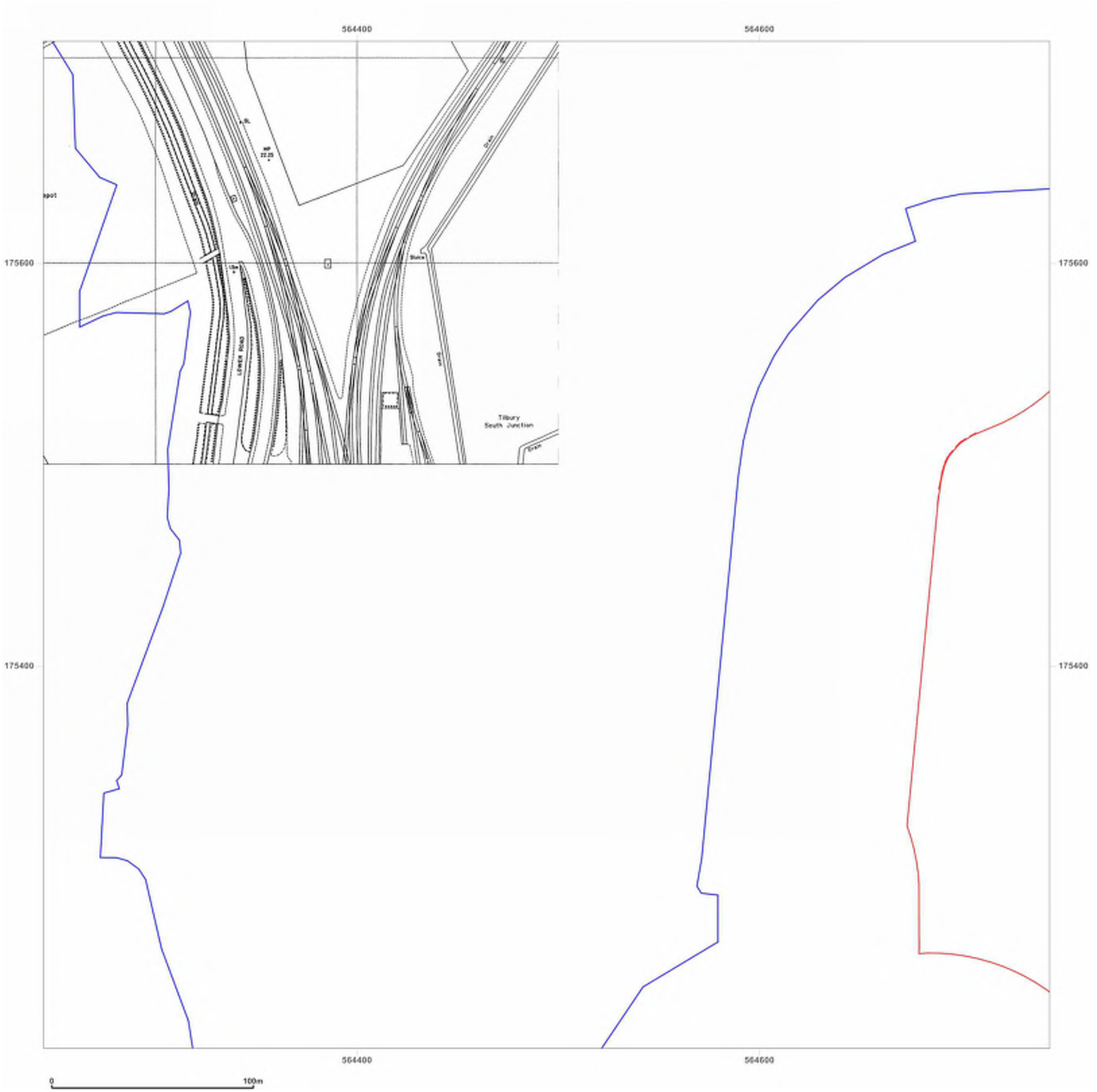
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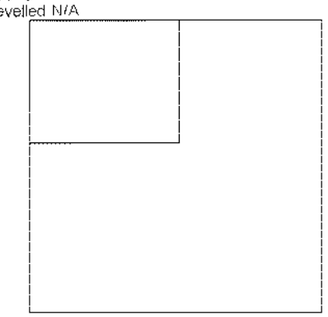
564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_2_2
Grid Ref: 564494, 175460

Map Name: National Grid
Map date: **1994**
Scale: 1:1,250
Printed at: 1:2,000

N
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Surveyed 1994
Revised 1994
Edition N/A
Copyright 1994
Levelled N/A



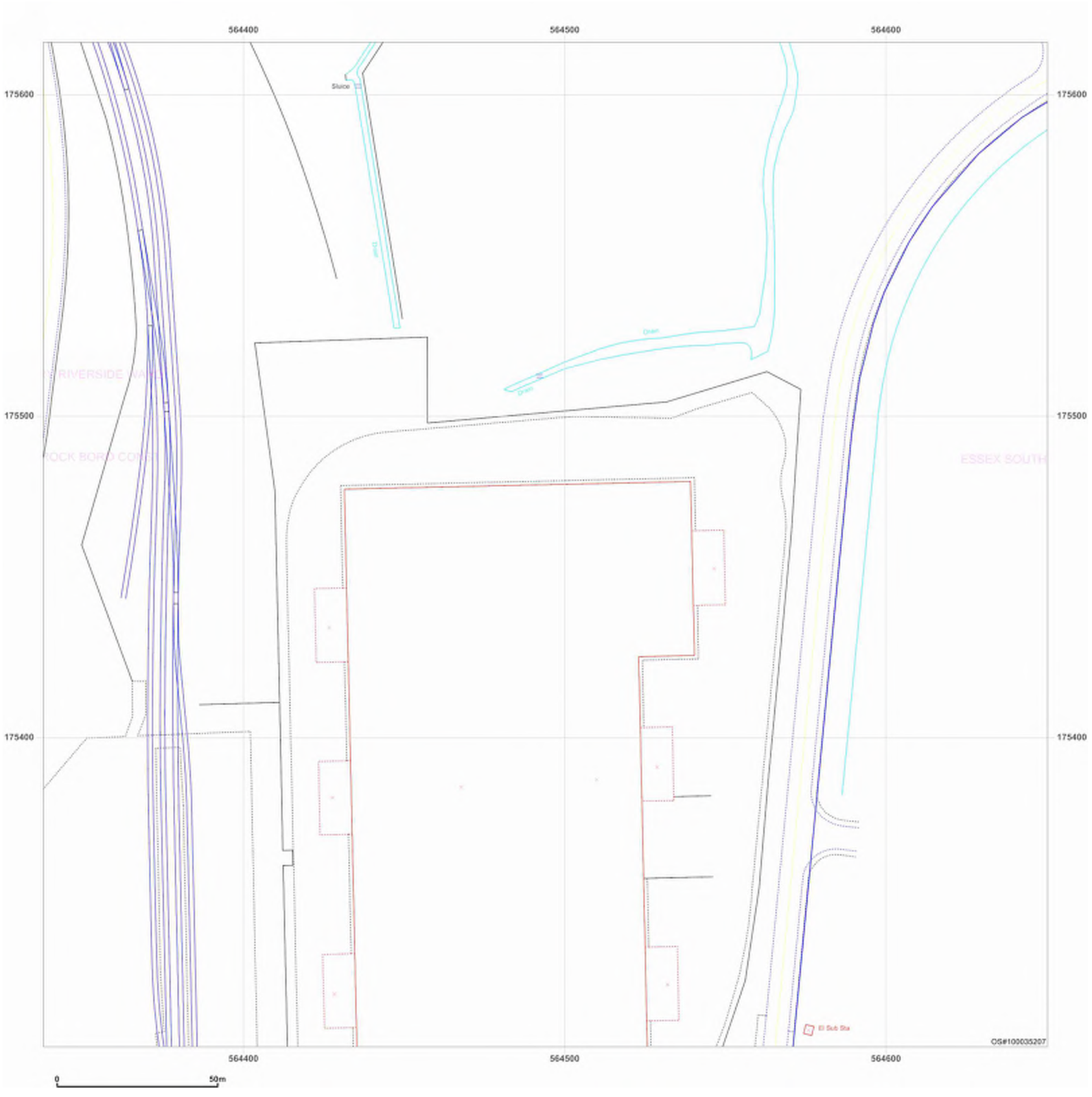
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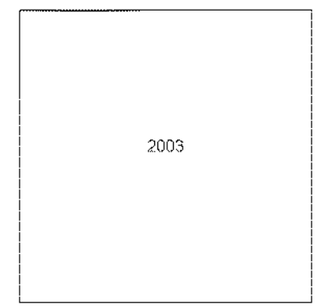
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_2_2
Grid Ref: 564494, 175460

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_2_3
Grid Ref: 564494, 175960

Map Name: National Grid

Map date: **1950**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled 1948

Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled 1948

Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled 1948

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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_2_3
Grid Ref: 564494, 175960

Map Name: National Grid

Map date: **1951**

Scale: 1:1,250

Printed at: 1:2,000

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

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

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

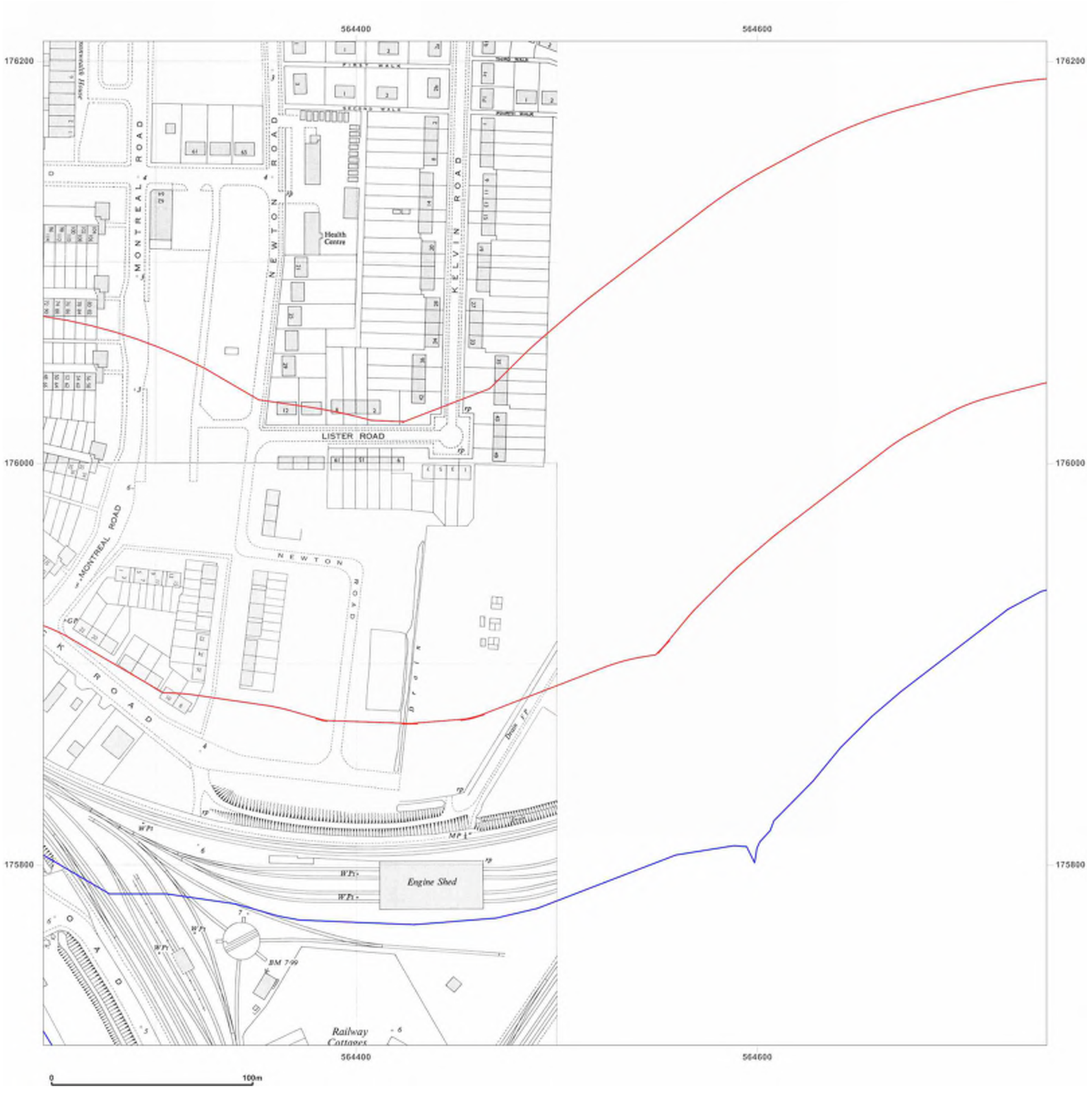
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_2_3
Grid Ref: 564494, 175960

Map Name: National Grid

Map date: **1961**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1950
Revised 1960
Edition N/A
Copyright 1961
Levelled 1954

Surveyed 1950
Revised 1960
Edition N/A
Copyright 1961
Levelled 1954

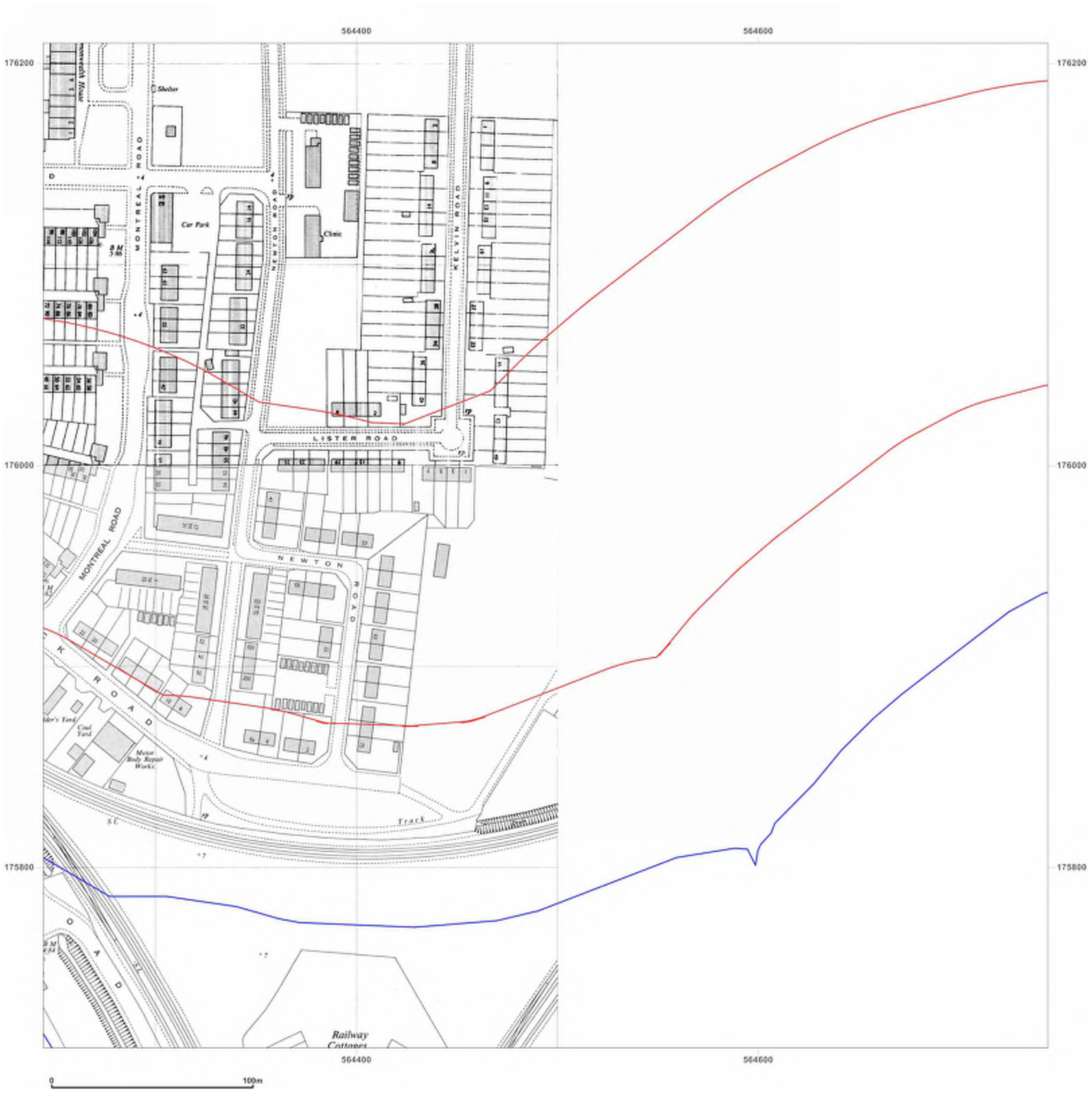
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_2_3
Grid Ref: 564494, 175960

Map Name: National Grid

Map date: **1965-1967**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
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Surveyed 1950
Revised 1965
Edition N/A
Copyright 1965
Levelled 1961

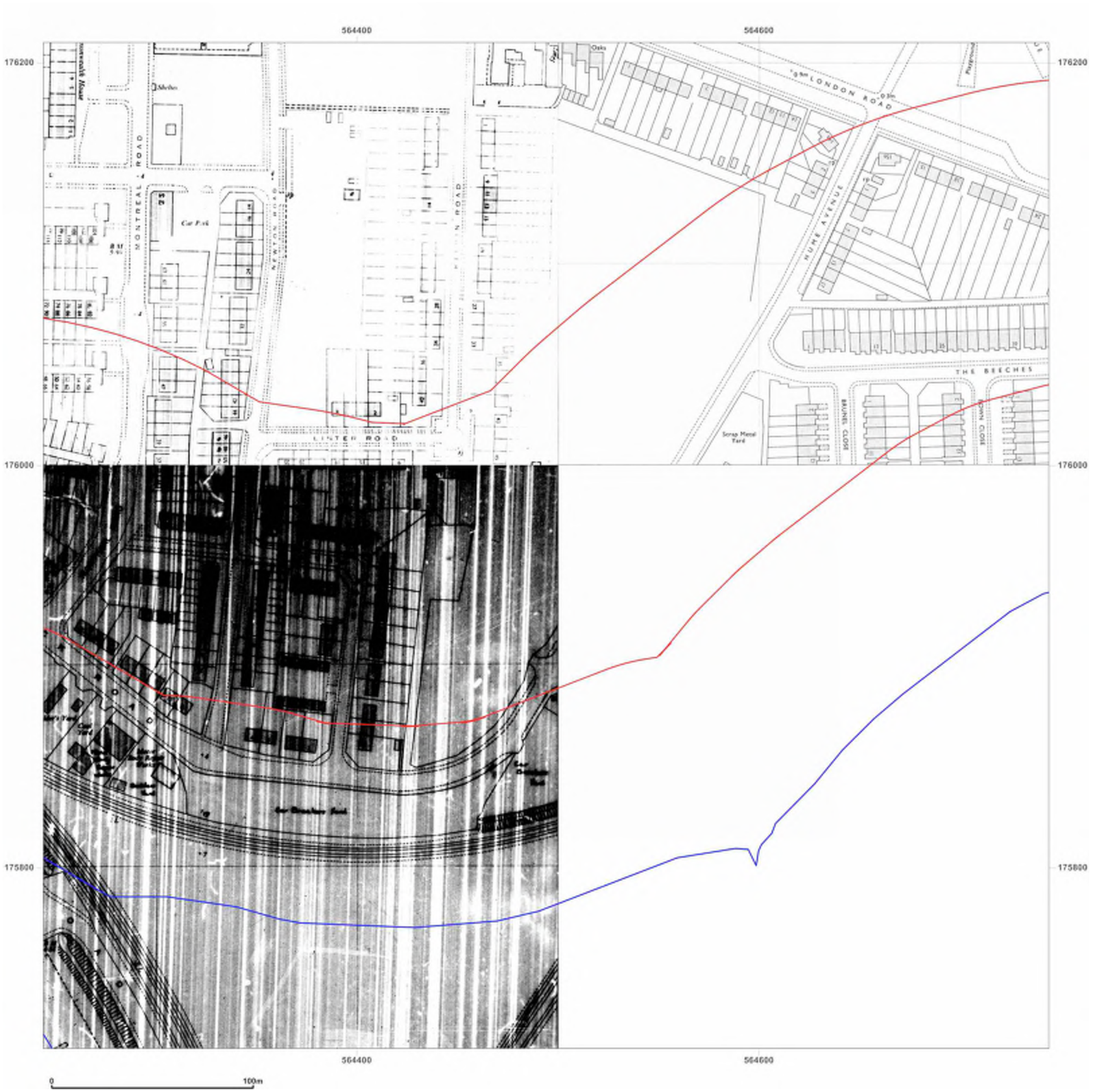
Surveyed 1950
Revised 1966
Edition N/A
Copyright 1967
Levelled 1961

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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_2_3
Grid Ref: 564494, 175960

Map Name: National Grid

Map date: **1971-1974**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1973
Levelled N/A

Surveyed 1950
Revised 1970
Edition N/A
Copyright 1971
Levelled 1961

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

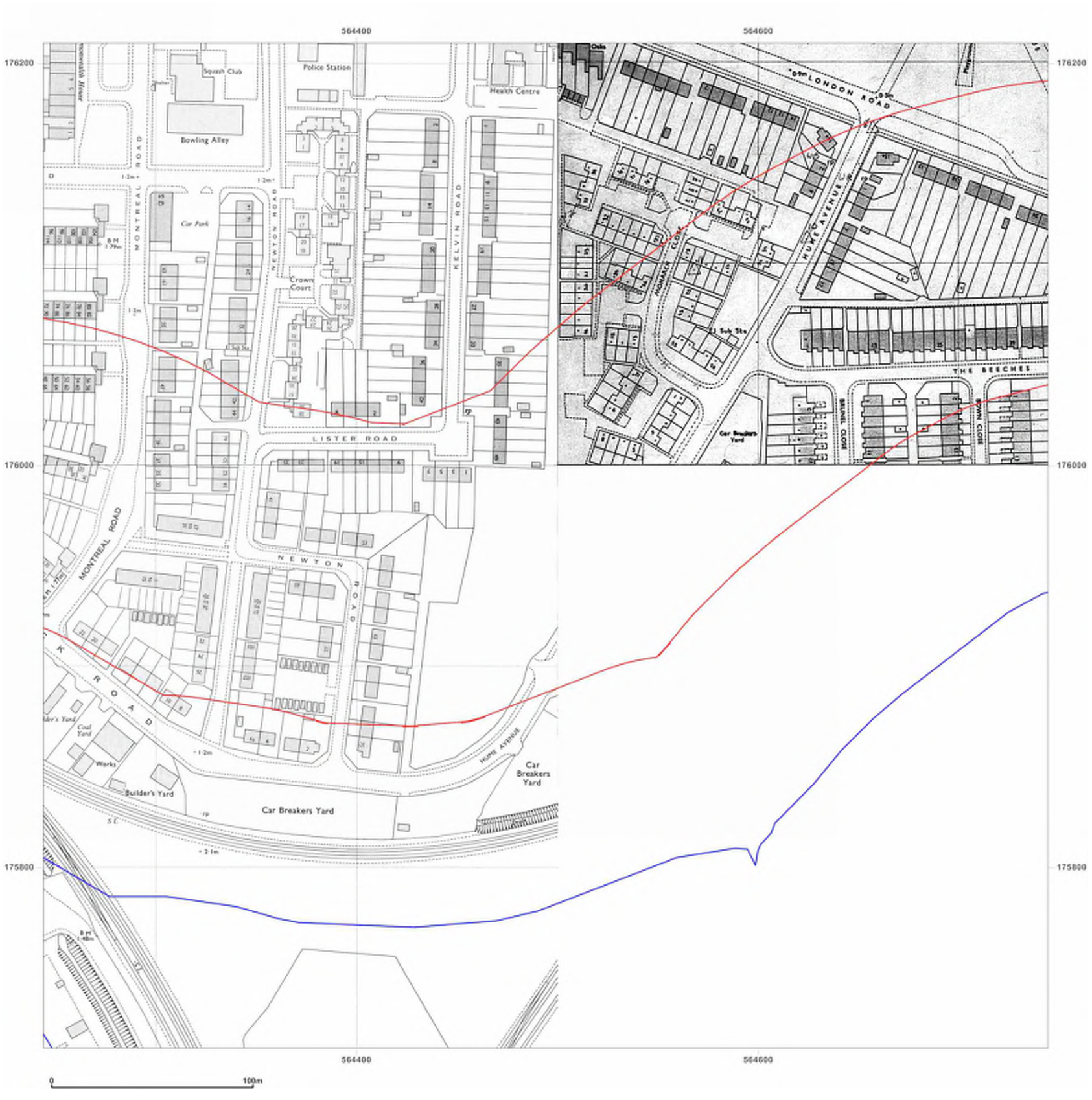
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_2_3
Grid Ref: 564494, 175960

Map Name: National Grid
Map date: **1976-1978**
Scale: 1:1,250
Printed at: 1:2,000

N
W E
S

Surveyed 1950
Revised 1976
Edition N/A
Copyright 1977
Levelled 1969

Surveyed 1978
Revised 1978
Edition N/A
Copyright 1978
Levelled N/A

Surveyed 1950
Revised 1975
Edition N/A
Copyright 1976
Levelled 1969

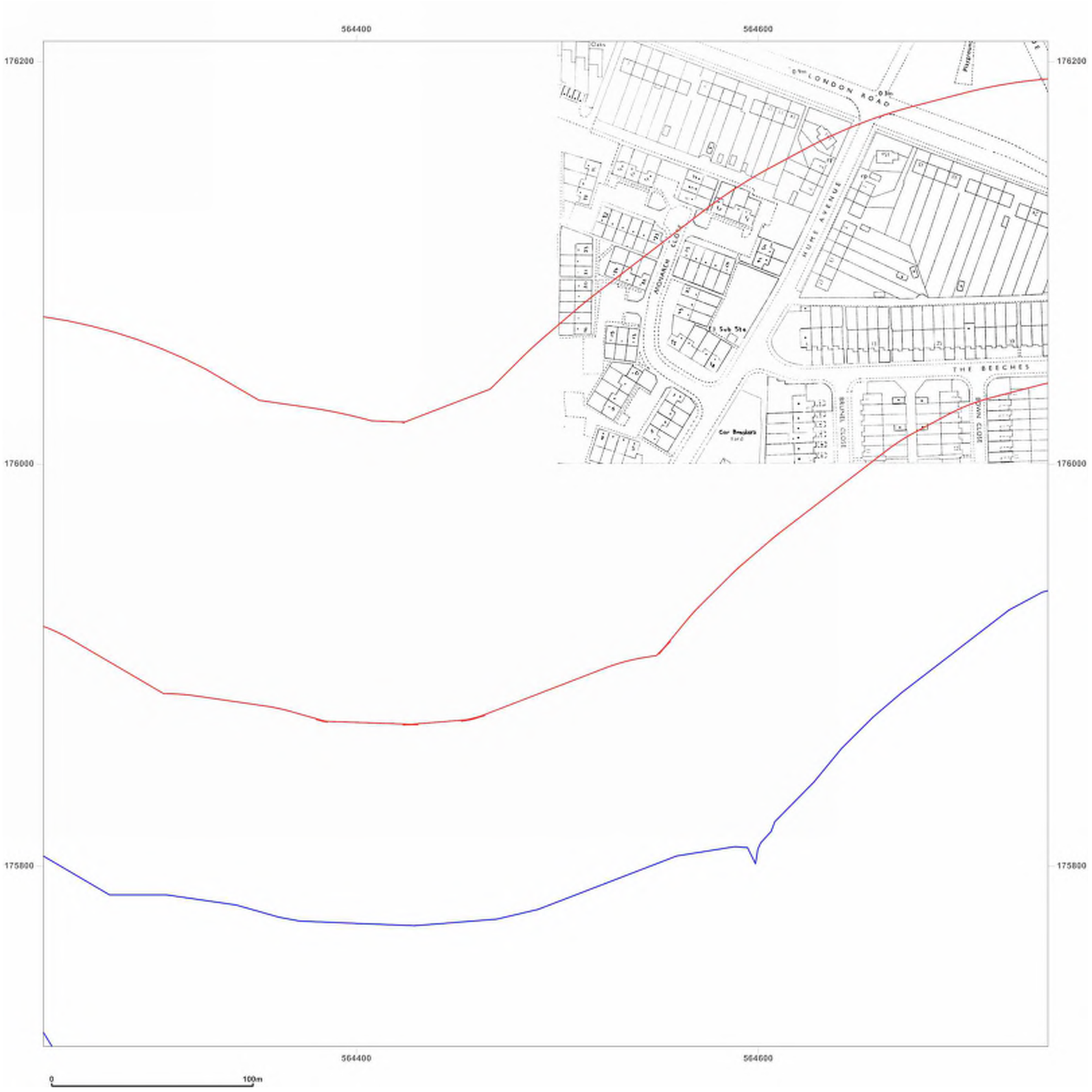
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_2_3
Grid Ref: 564494, 175960

Map Name: National Grid

Map date: **1983**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1983
Levelled 1961

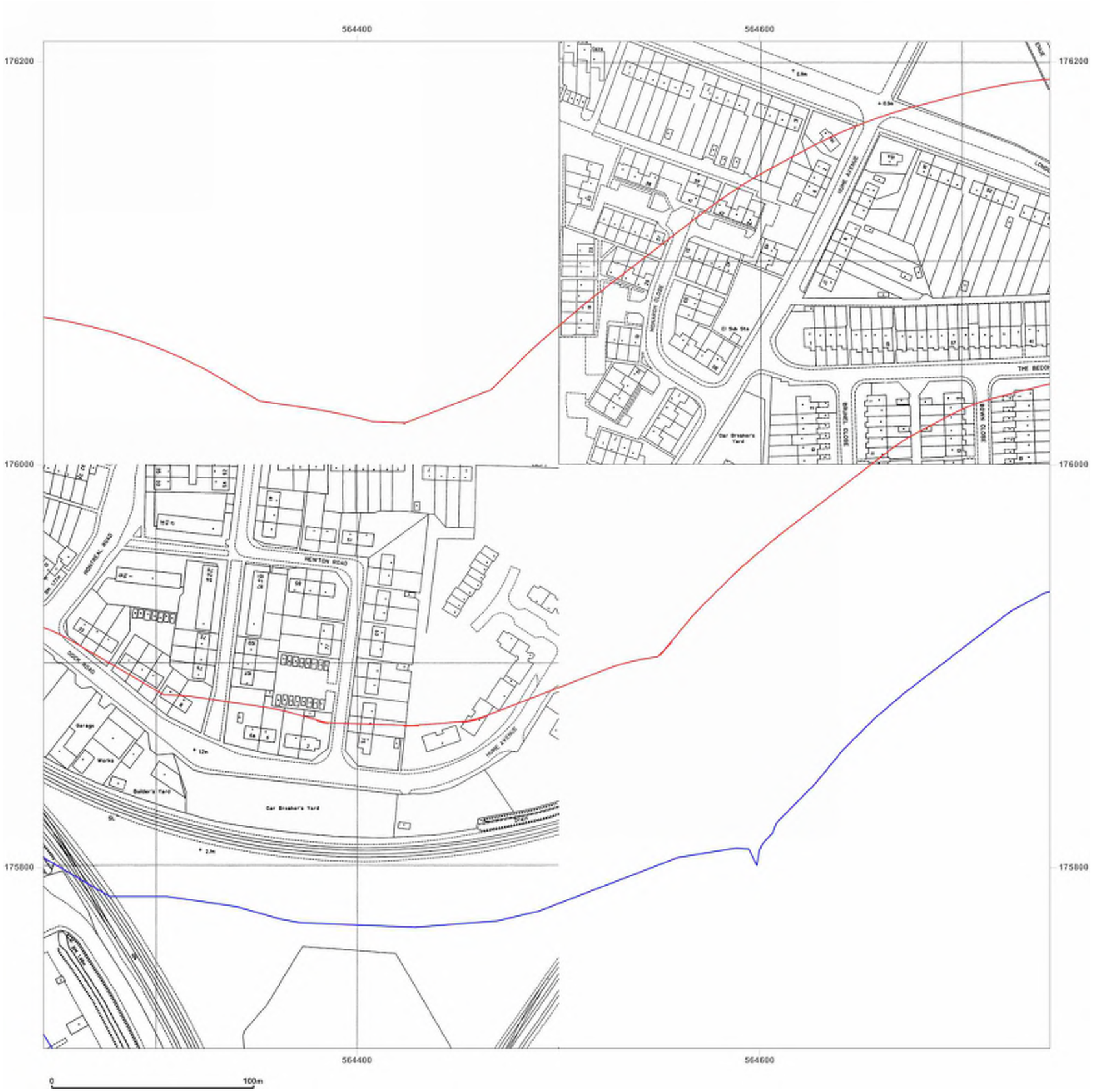
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_2_3
Grid Ref: 564494, 175960

Map Name: National Grid

Map date: **1994**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

Surveyed 1994
Revised 1994
Edition N/A
Copyright 1994
Levelled N/A

Surveyed 1994
Revised 1994
Edition N/A
Copyright 1994
Levelled N/A

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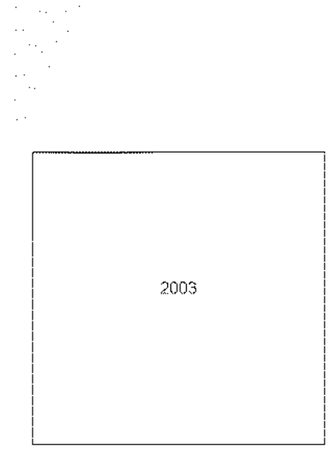
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_2_3
Grid Ref: 564494, 175960

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

N
W E
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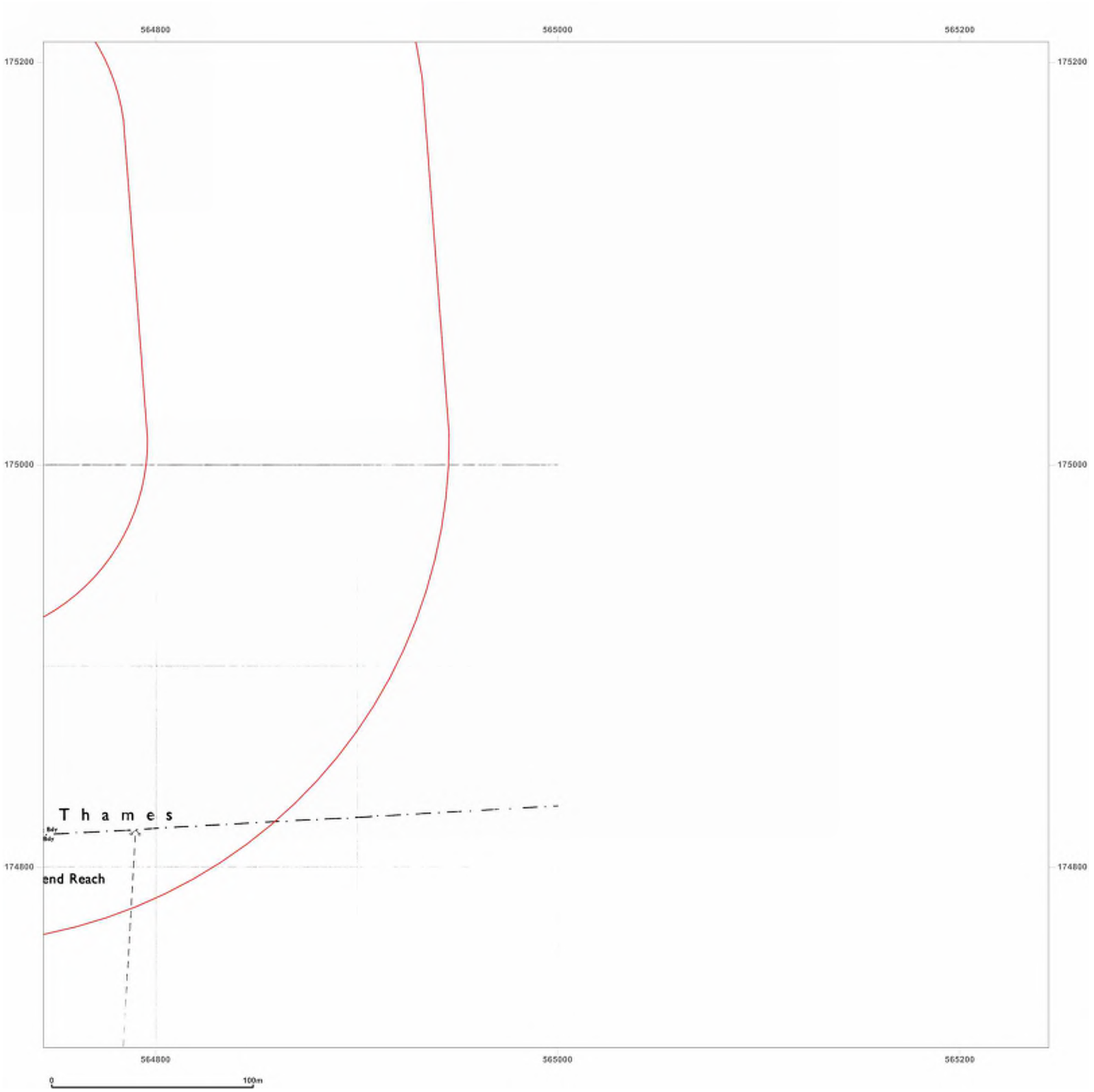
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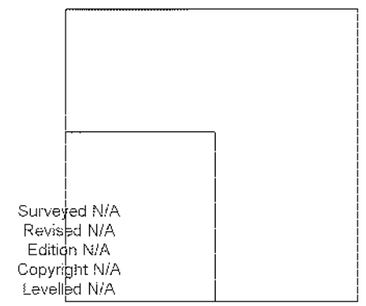
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_3_1
Grid Ref: 564994, 174960

Map Name: National Grid
Map date: **1975**
Scale: 1:1,250
Printed at: 1:2,000

N
W E
S



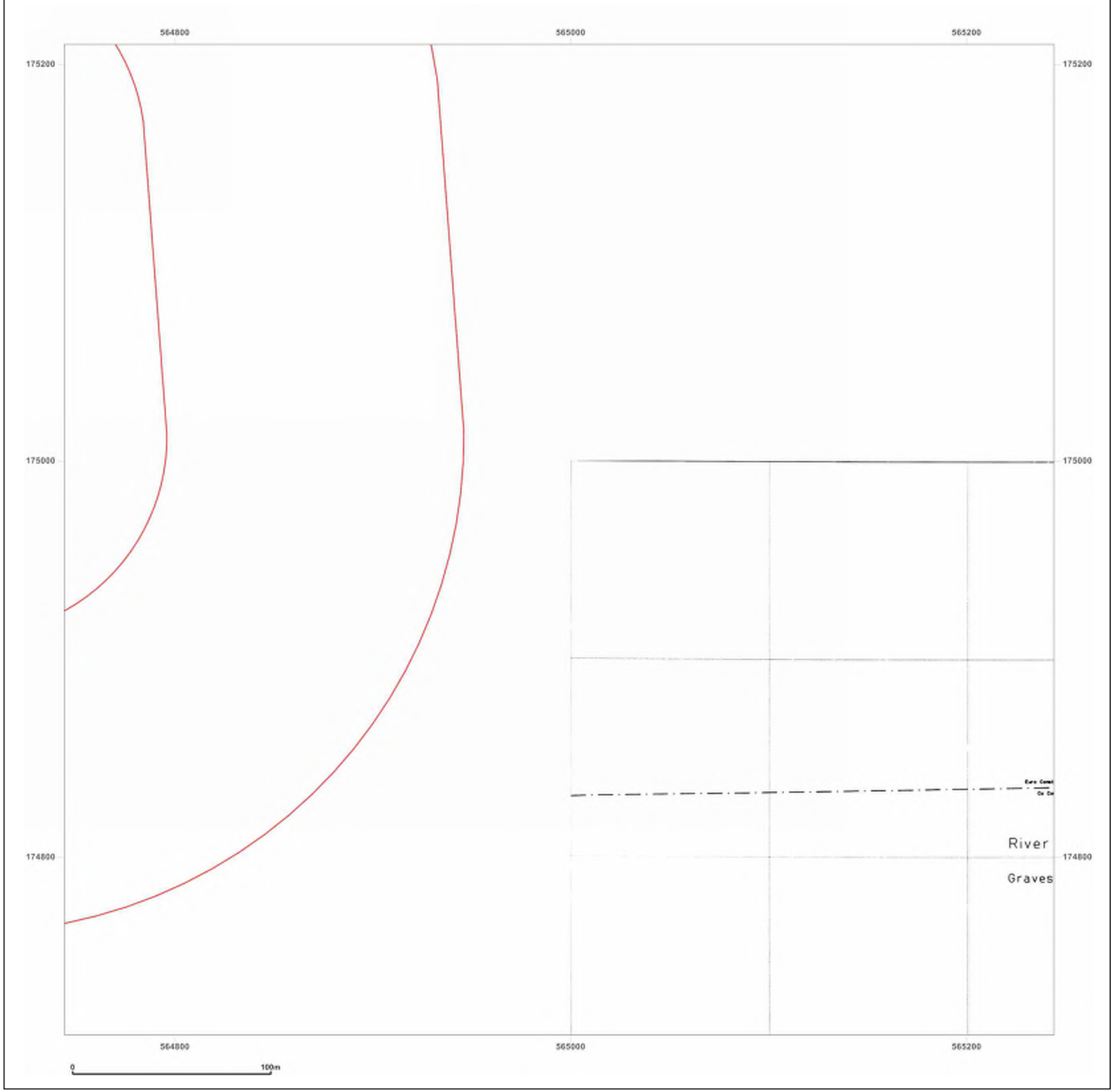
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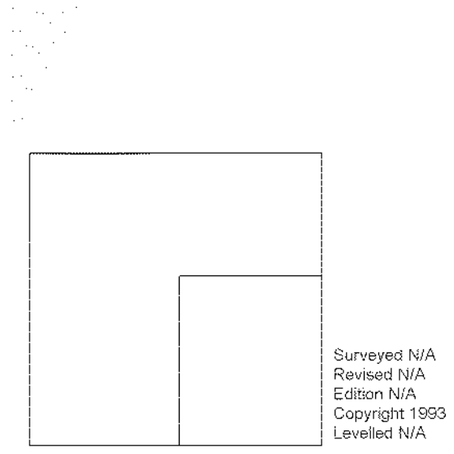
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_3_1
Grid Ref: 564994, 174960

Map Name: National Grid
Map date: **1993**
Scale: 1:1,250
Printed at: 1:2,000

N
W E
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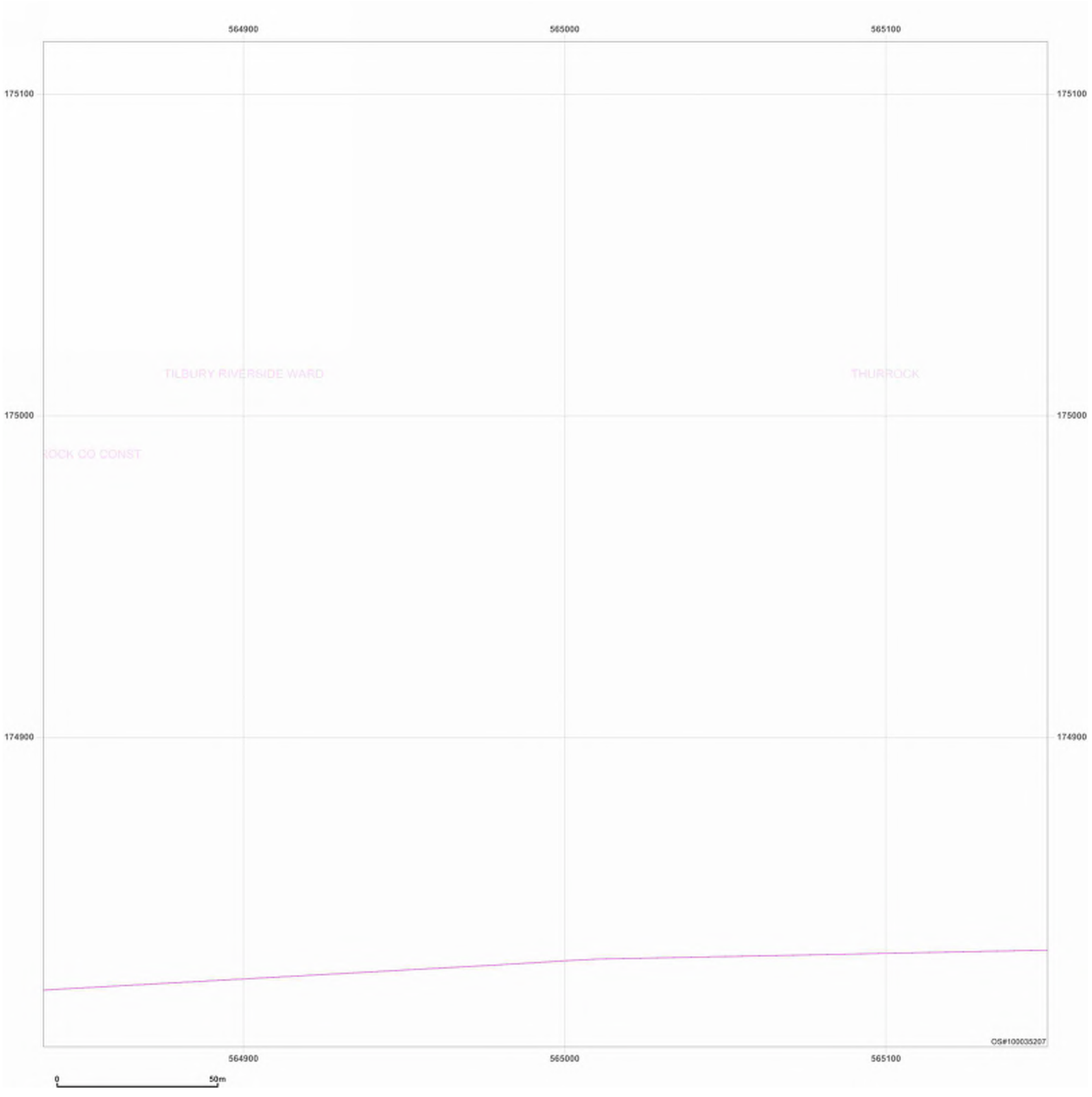
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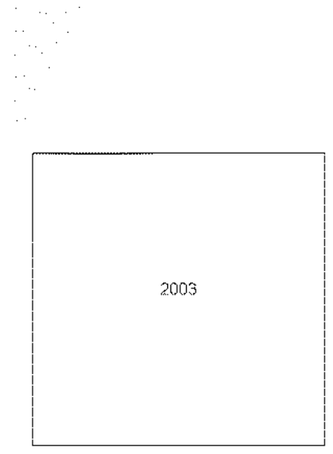
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_3_1
Grid Ref: 564994, 174960

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

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W E
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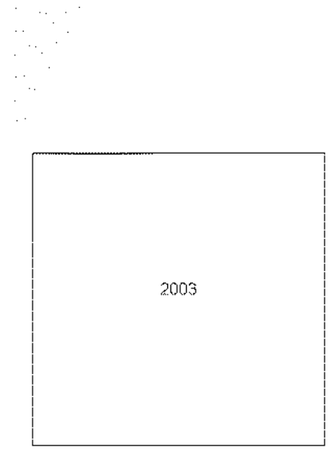
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_3_2
Grid Ref: 564994, 175460

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

N
W E
S



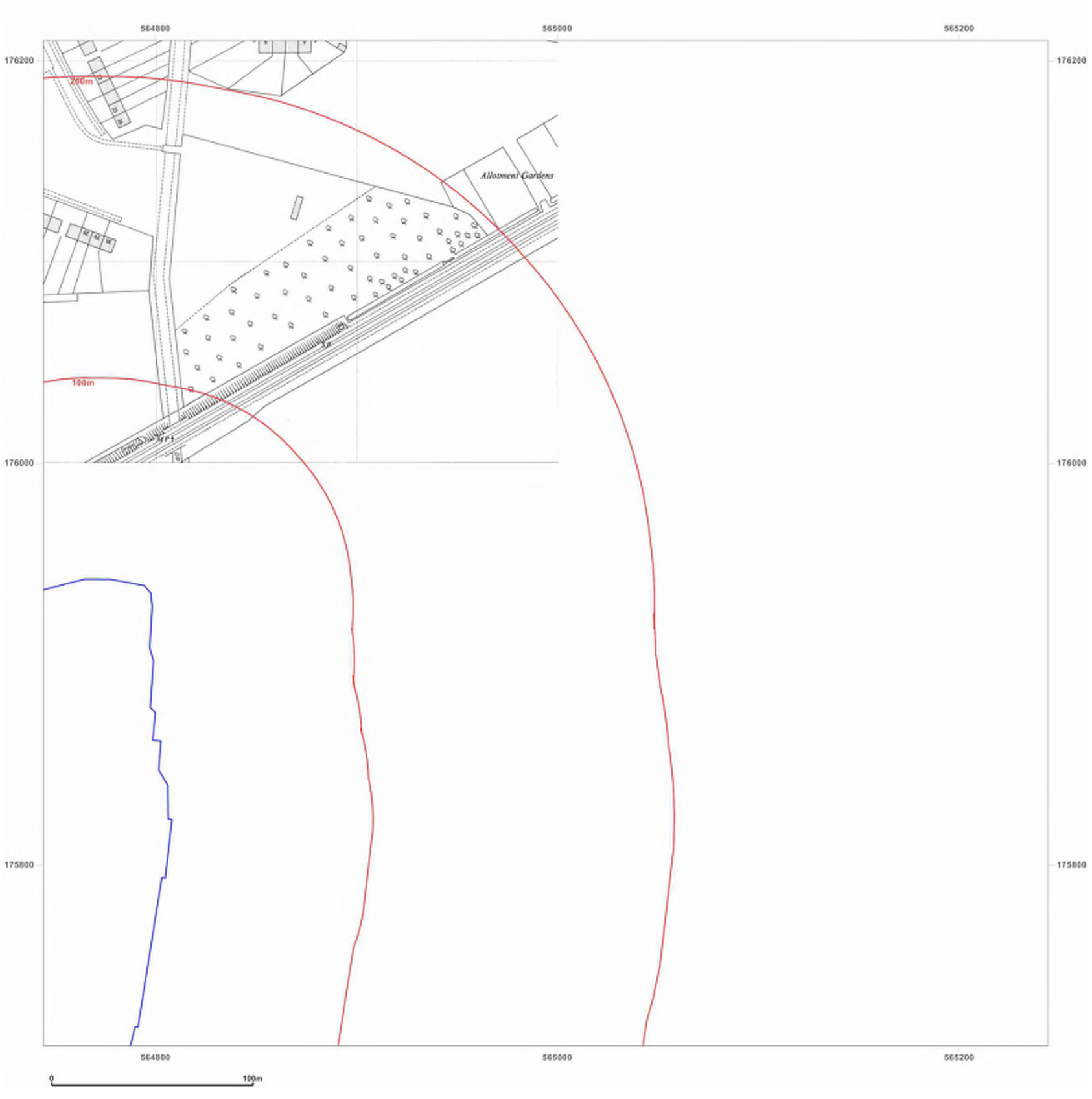
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_3_3
Grid Ref: 564994, 175960

Map Name: National Grid

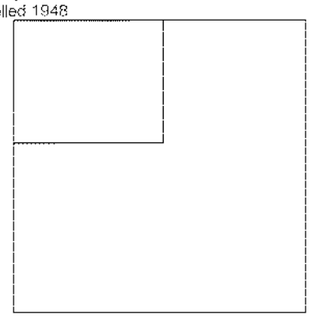
Map date: **1950**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled 1948



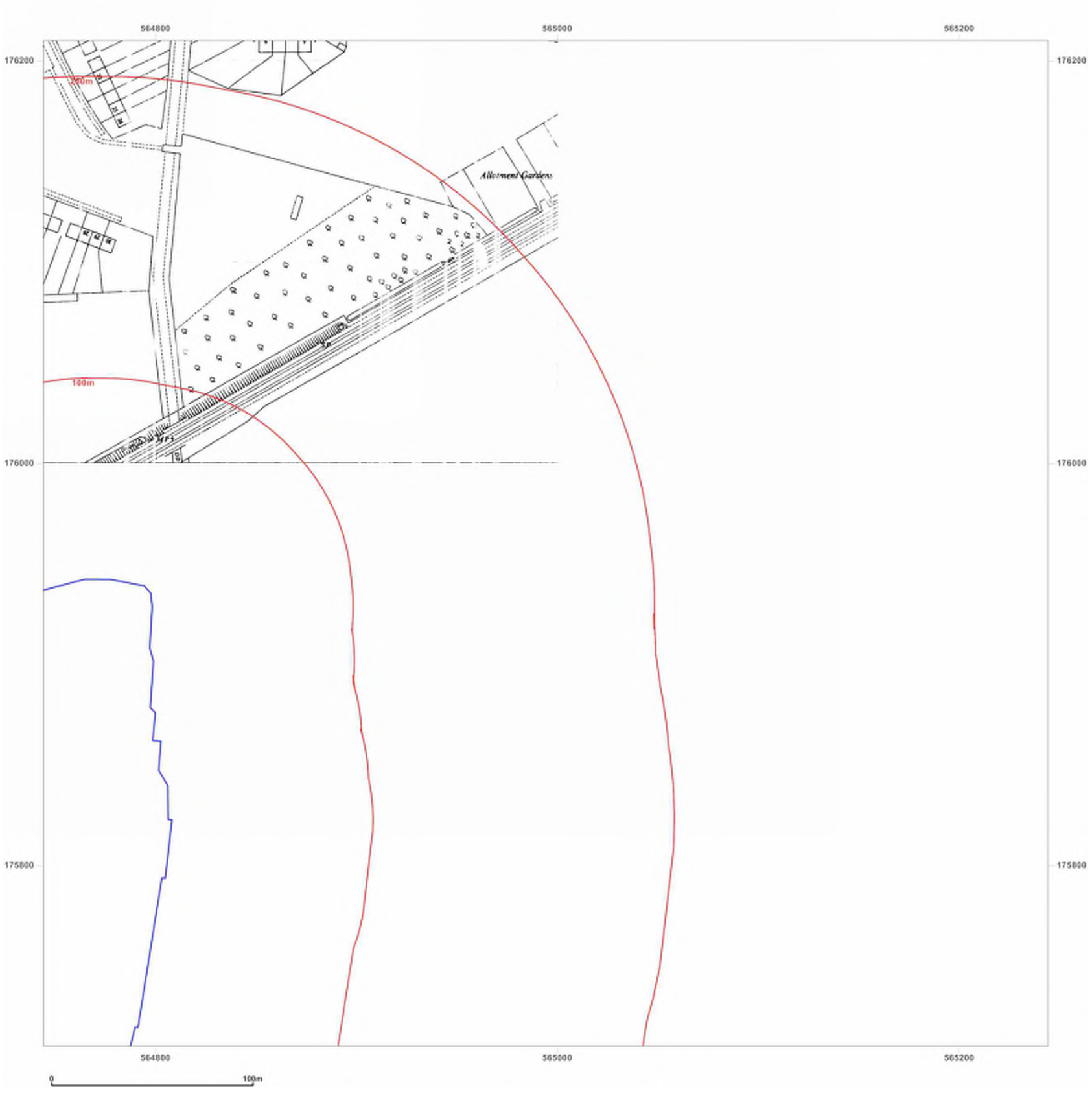
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_3_3
Grid Ref: 564994, 175960

Map Name: National Grid

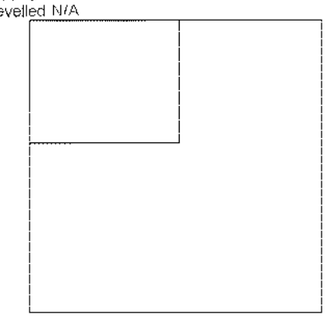
Map date: **1951**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

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



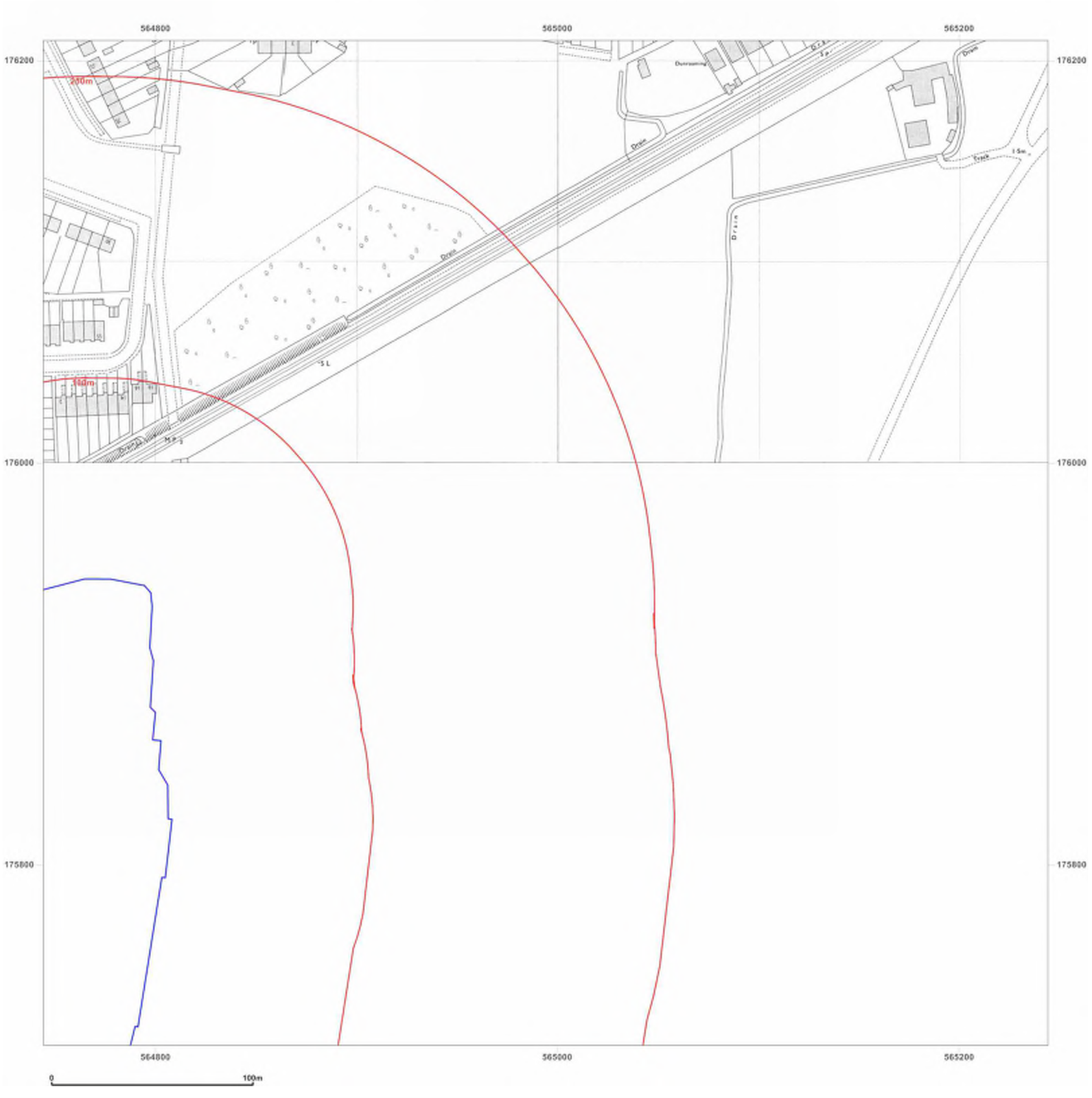
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_3_3
Grid Ref: 564994, 175960

Map Name: National Grid

Map date: **1971-1972**

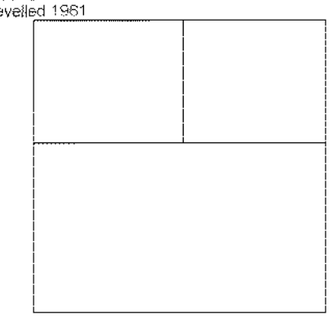
Scale: 1:1,250

Printed at: 1:2,000

N
W E
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Surveyed 1950
Revised 1970
Edition N/A
Copyright 1971
Levelled 1961

Surveyed 1971
Revised 1971
Edition N/A
Copyright 1972
Levelled 1961



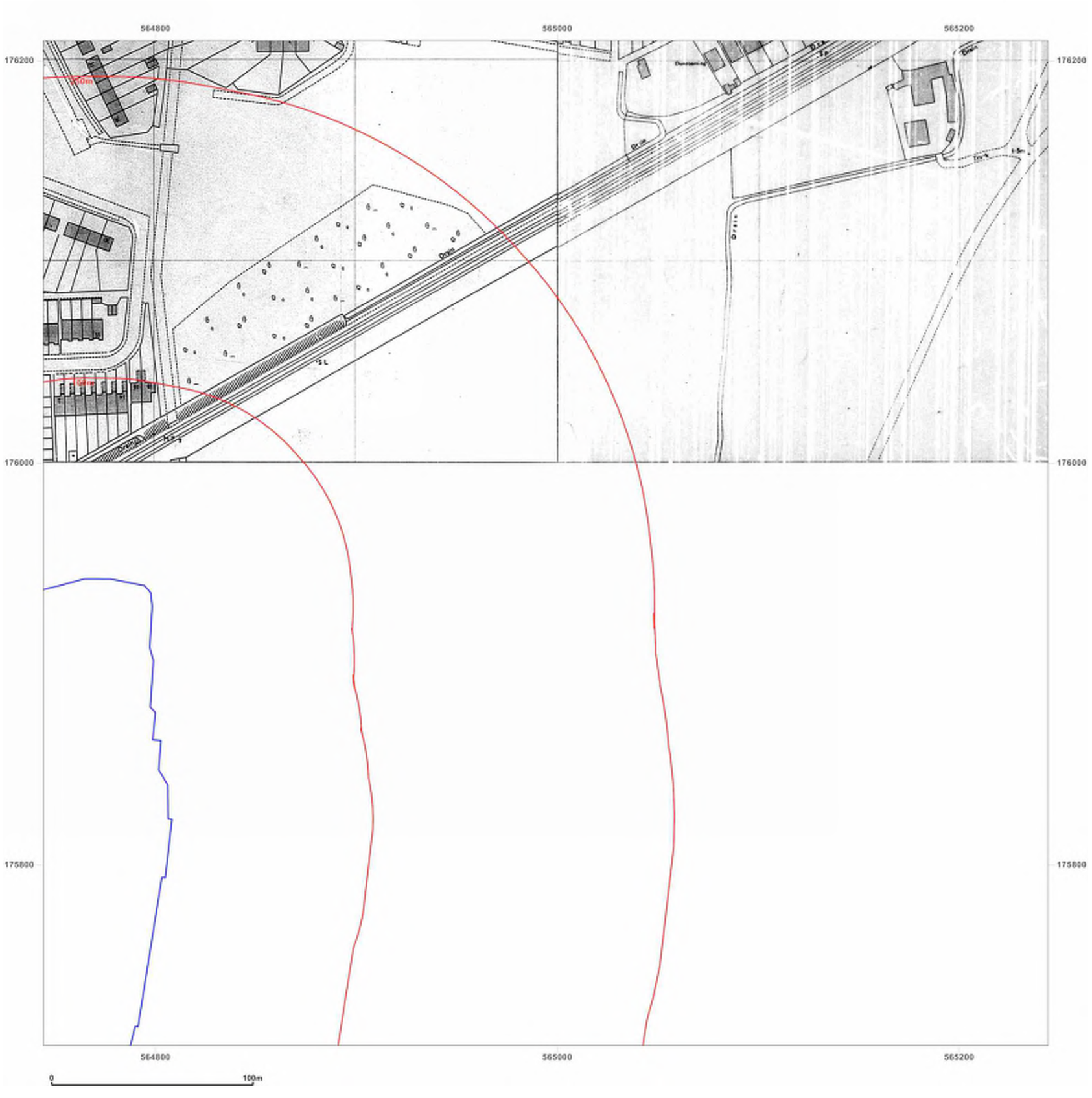
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Site Details:

564487,175529

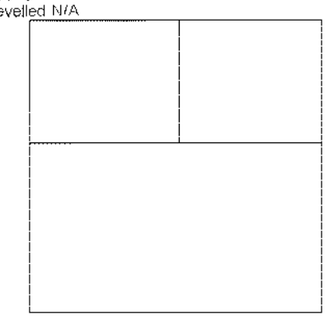
Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_3_3
Grid Ref: 564994, 175960

Map Name: National Grid
Map date: **1973-1978**
Scale: 1:1,250
Printed at: 1:2,000

N
W E
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Surveyed 1978
Revised 1978
Edition N/A
Copyright 1978
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1973
Levelled N/A



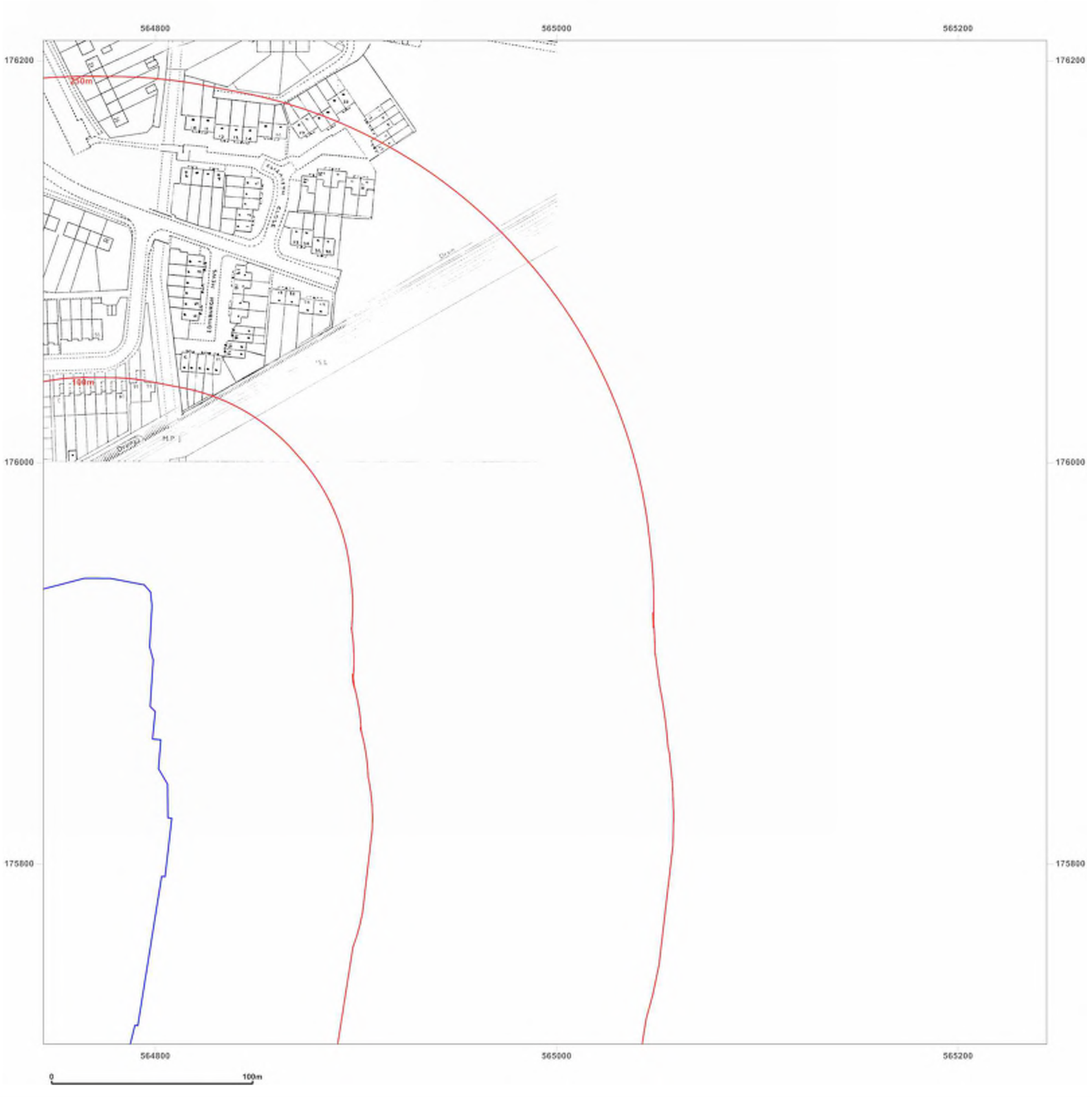
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_3_3
Grid Ref: 564994, 175960

Map Name: National Grid

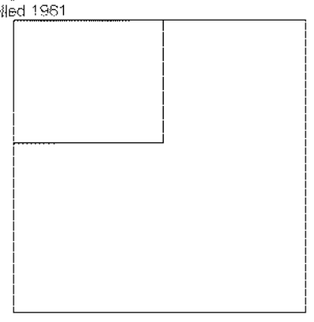
Map date: **1983**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
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Surveyed N/A
Revised N/A
Edition N/A
Copyright 1983
Levelled 1961



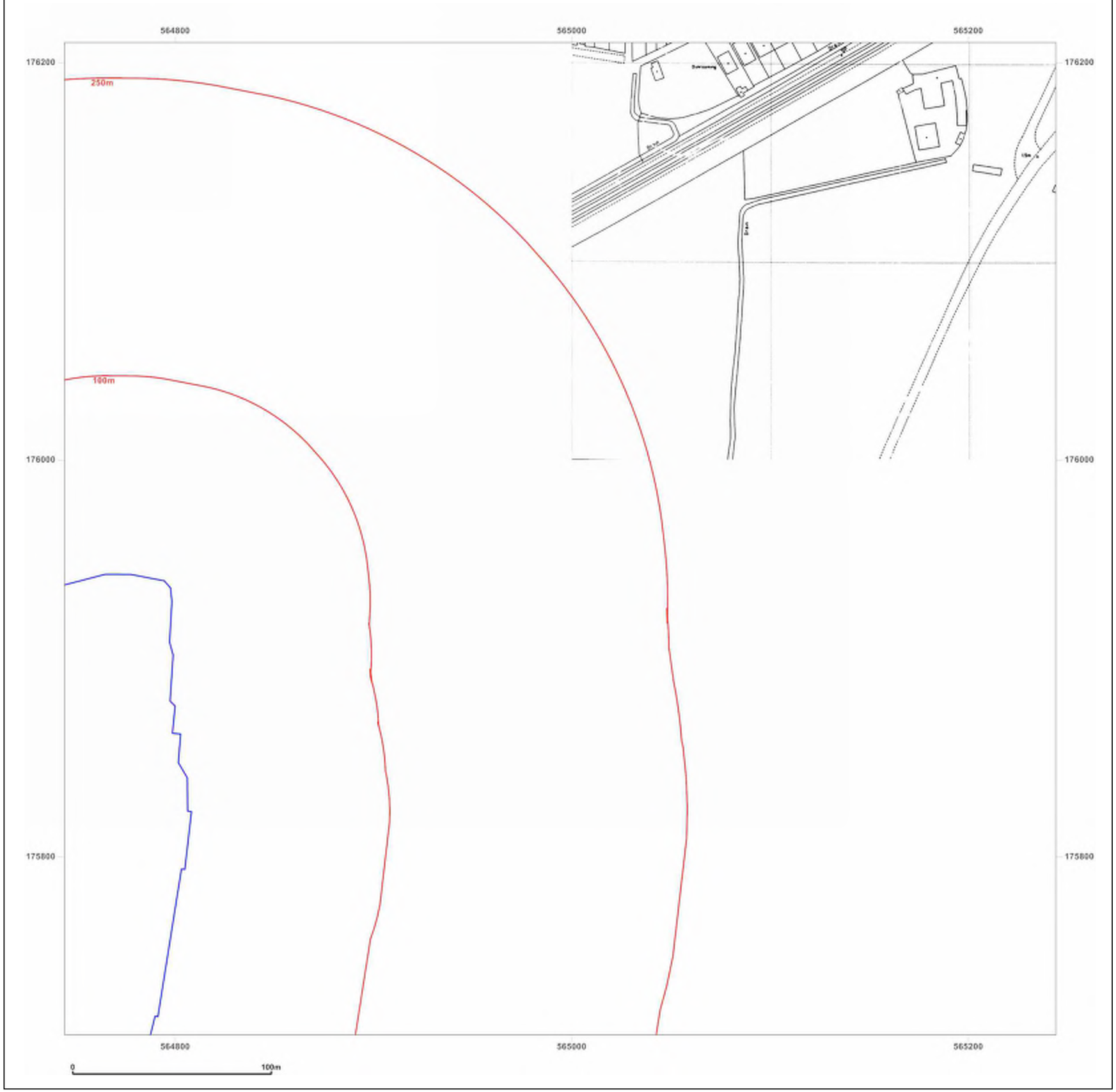
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_3_3
Grid Ref: 564994, 175960

Map Name: National Grid
Map date: **1992**
Scale: 1:1,250
Printed at: 1:2,000

N
W E
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Surveyed N/A
Revised N/A
Edition N/A
Copyright 1992
Levelled N/A

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Groundsure INSIGHTS

Site Details:

564487,175529

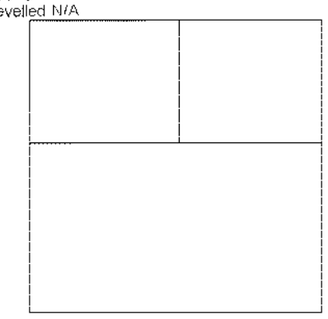
Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_3_3
Grid Ref: 564994, 175960

Map Name: National Grid
Map date: **1991-1994**
Scale: 1:1,250
Printed at: 1:2,000

N
W E
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Surveyed 1994
Revised 1994
Edition N/A
Copyright 1994
Levelled N/A

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



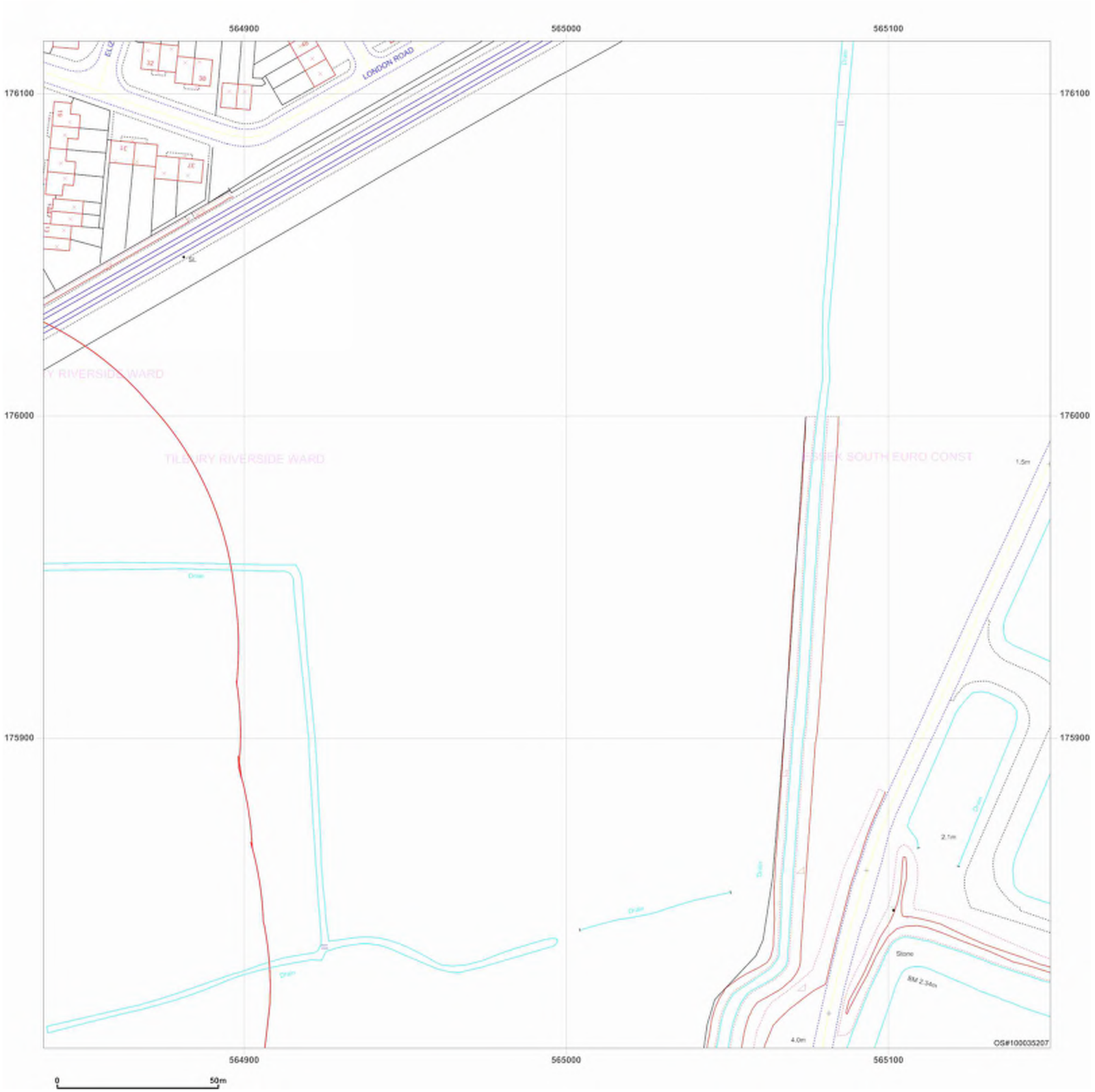
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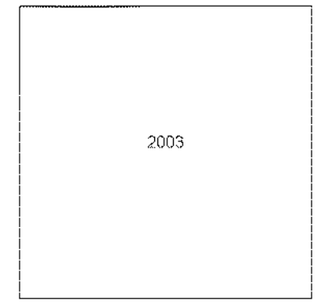
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_1250scale_3_3
Grid Ref: 564994, 175960

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

N
W E
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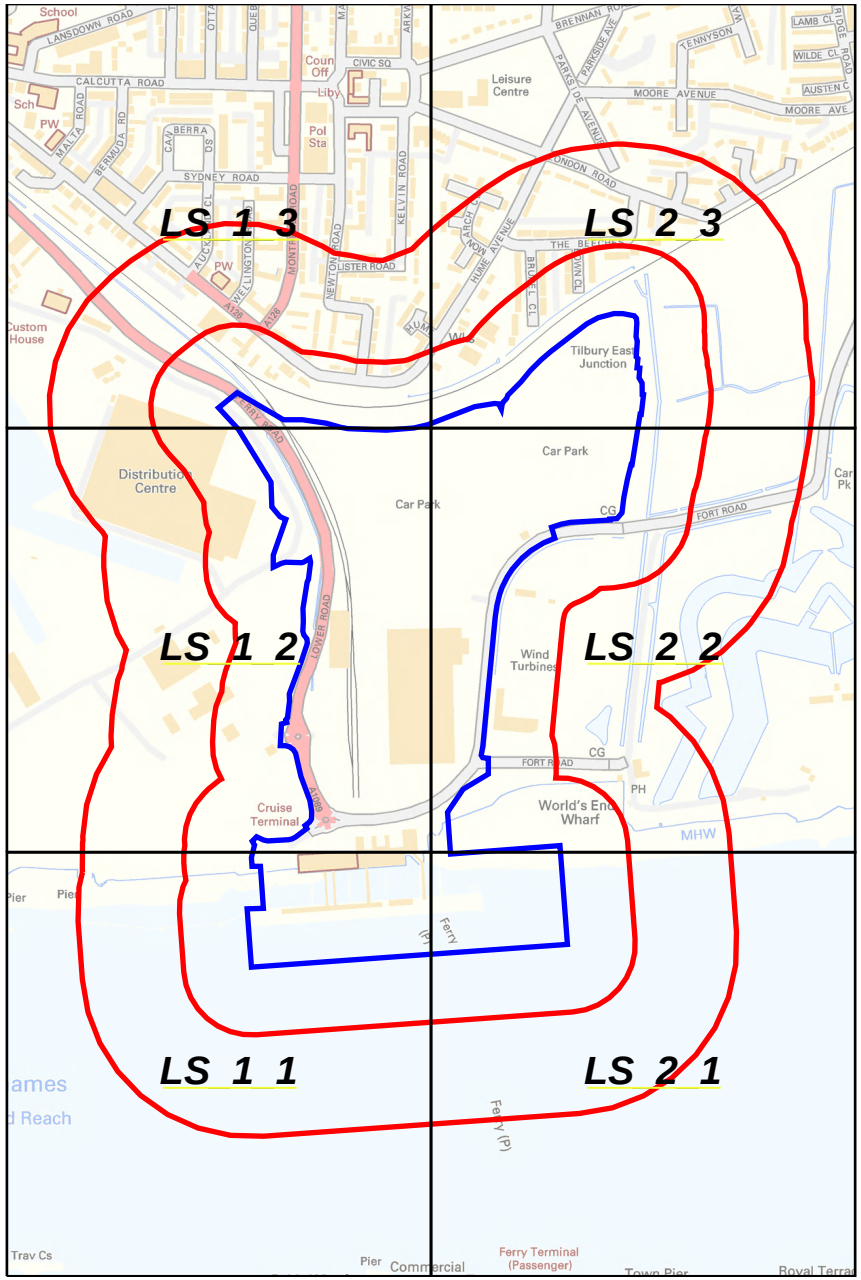
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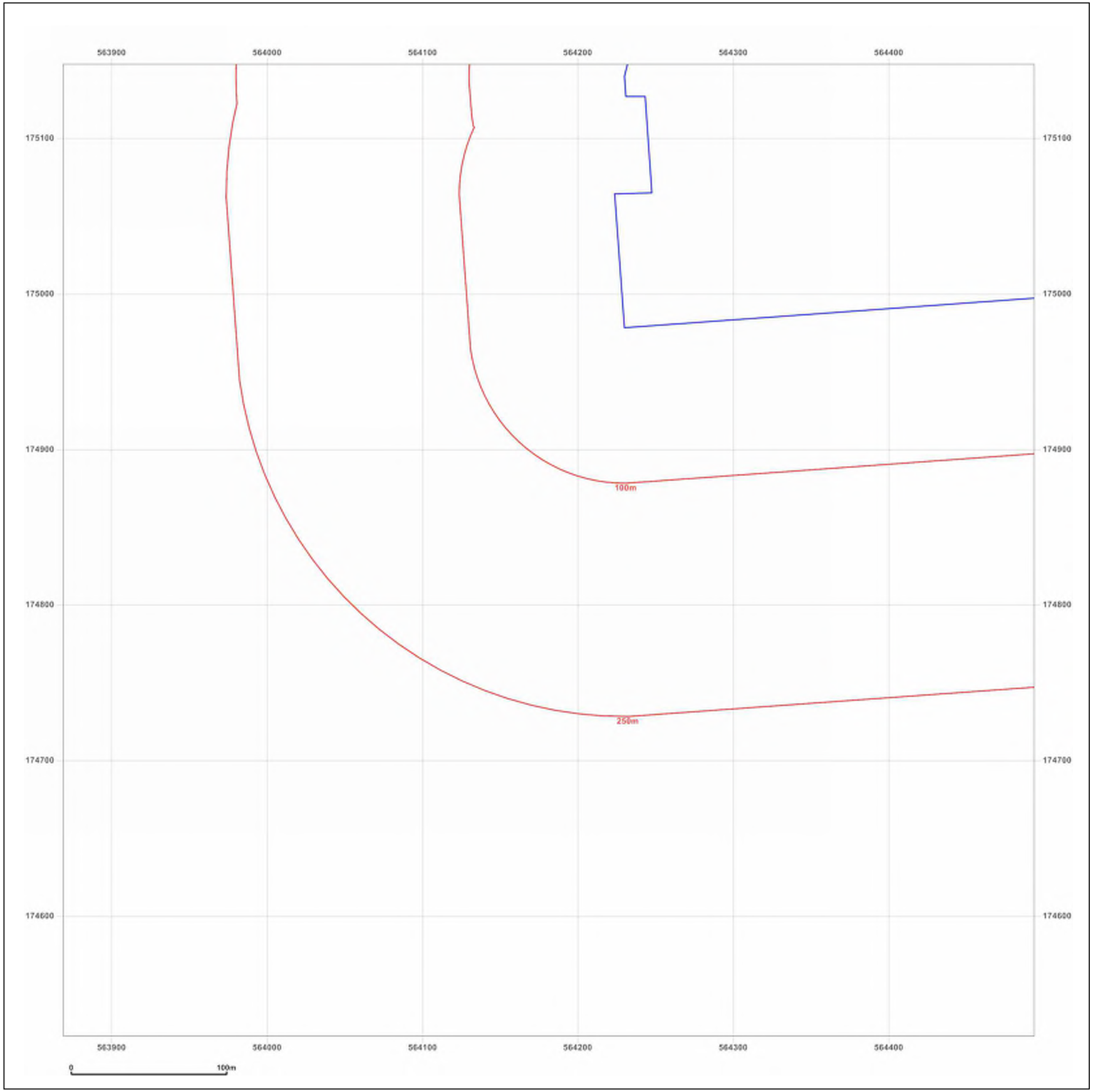
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1:2500 Scale Grid Index



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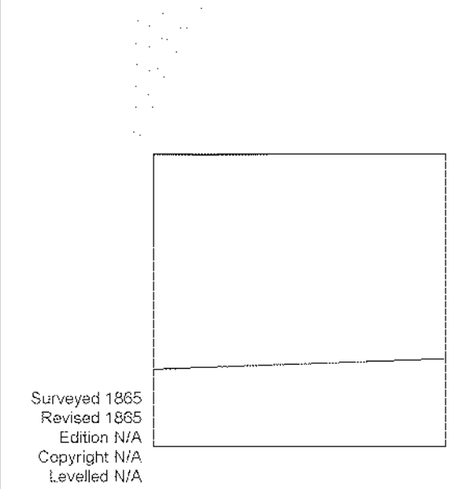
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_1
Grid Ref: 564181, 174835

Map Name: County Series
Map date: **1865**
Scale: 1:2,500
Printed at: 1:2,500

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

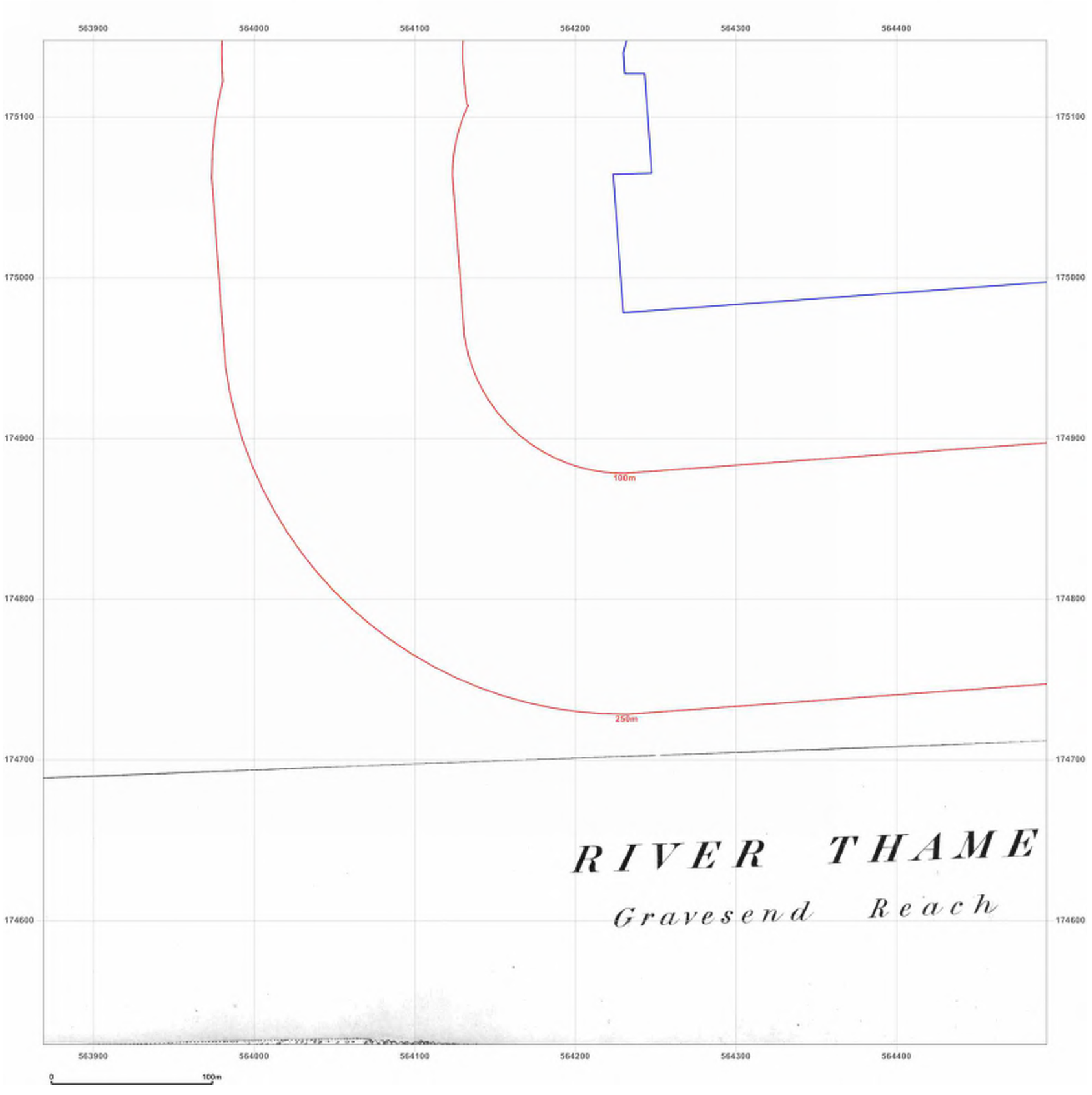
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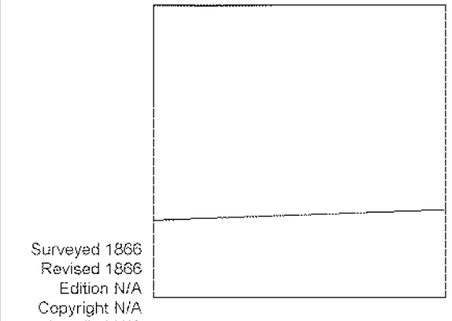
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564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_1
Grid Ref: 564181, 174835

Map Name: County Series
Map date: **1866**
Scale: 1:2,500
Printed at: 1:2,500

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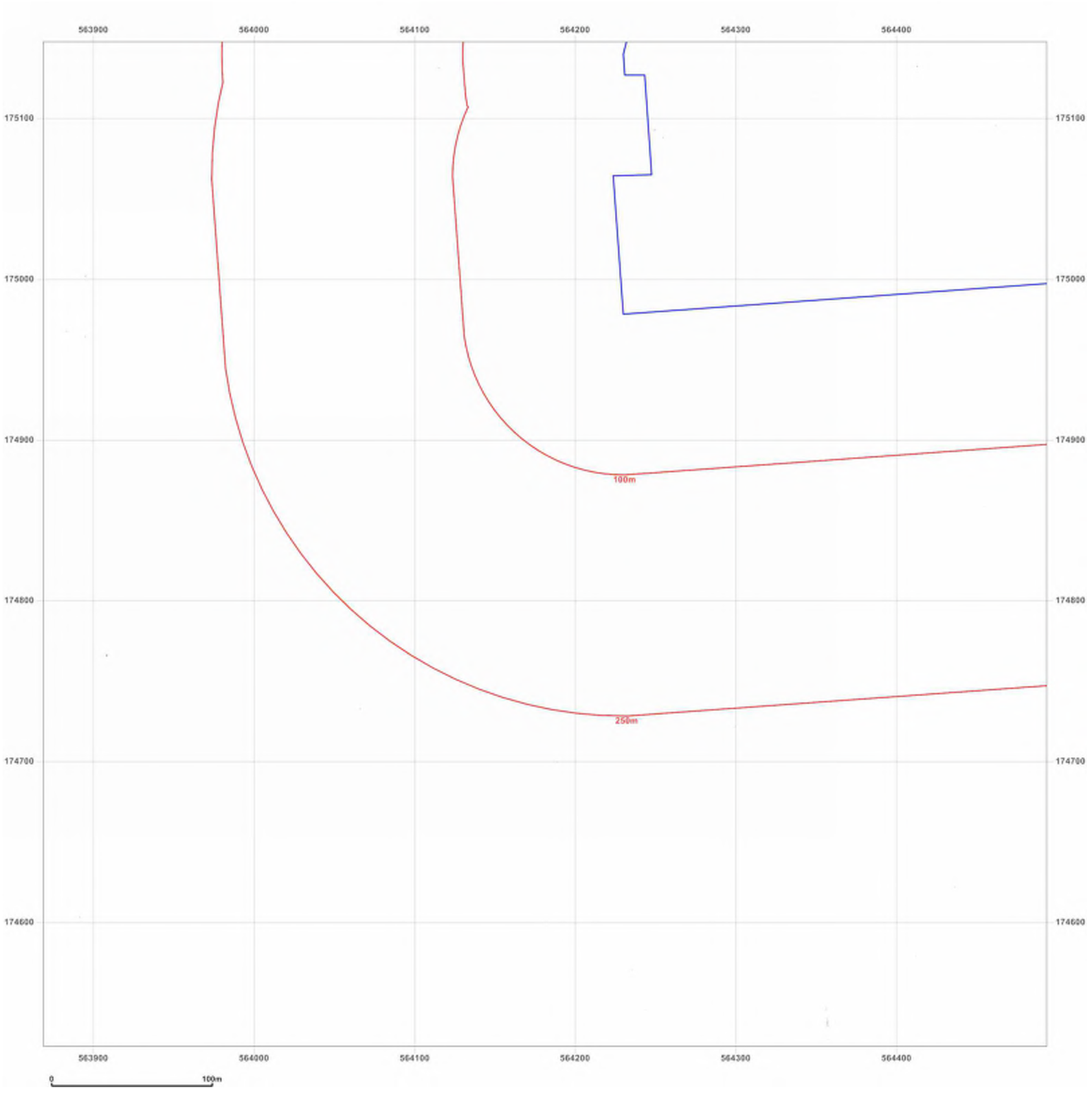
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_1
Grid Ref: 564181, 174835

Map Name: County Series

Map date: **1870**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1870
Revised 1870
Edition N/A
Copyright N/A
Levelled N/A

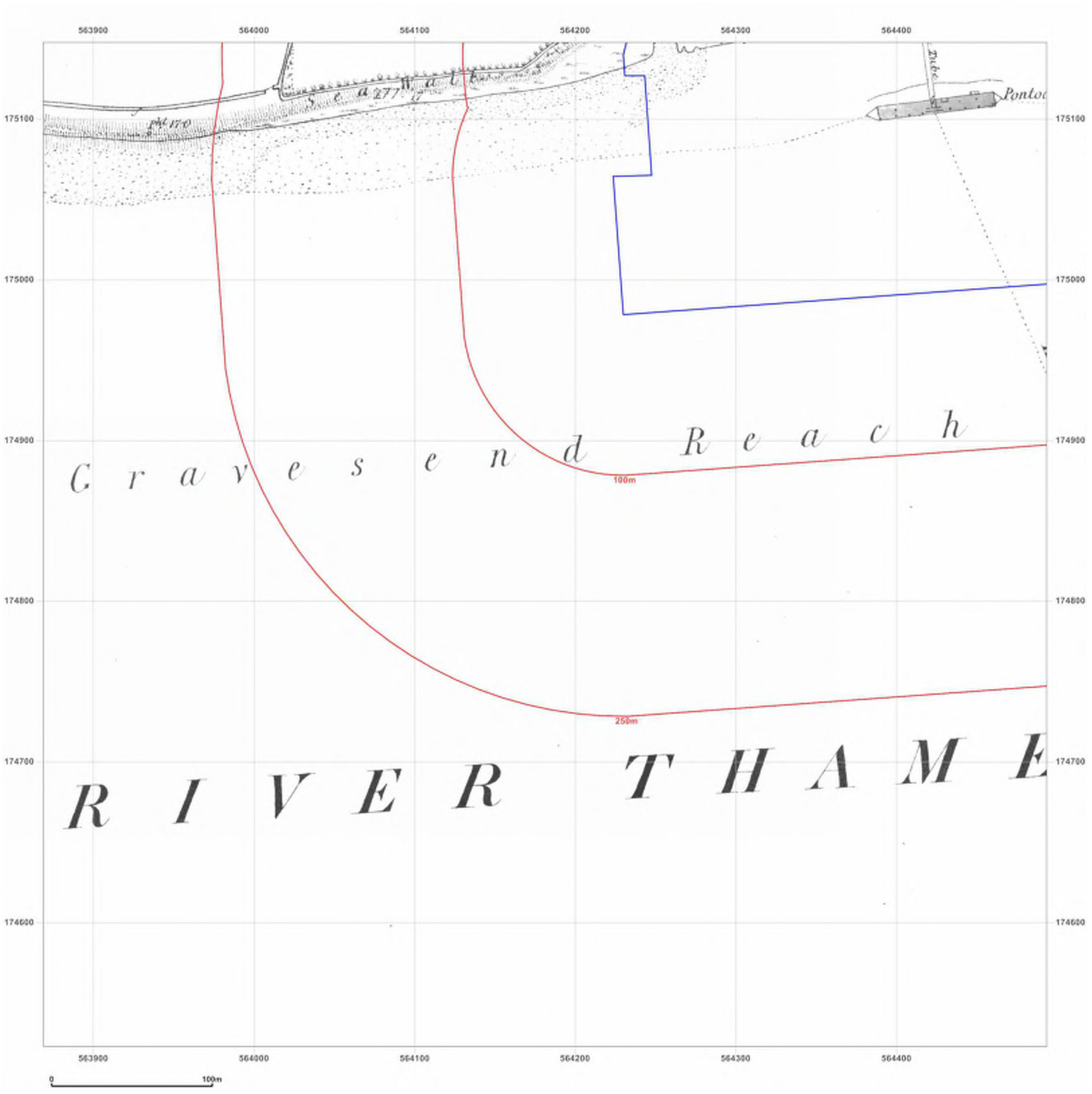
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_1
Grid Ref: 564181, 174835

Map Name: County Series
Map date: **1870**
Scale: 1:2,500
Printed at: 1:2,500

N
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Surveyed 1870
Revised 1870
Edition N/A
Copyright N/A
Levelled N/A

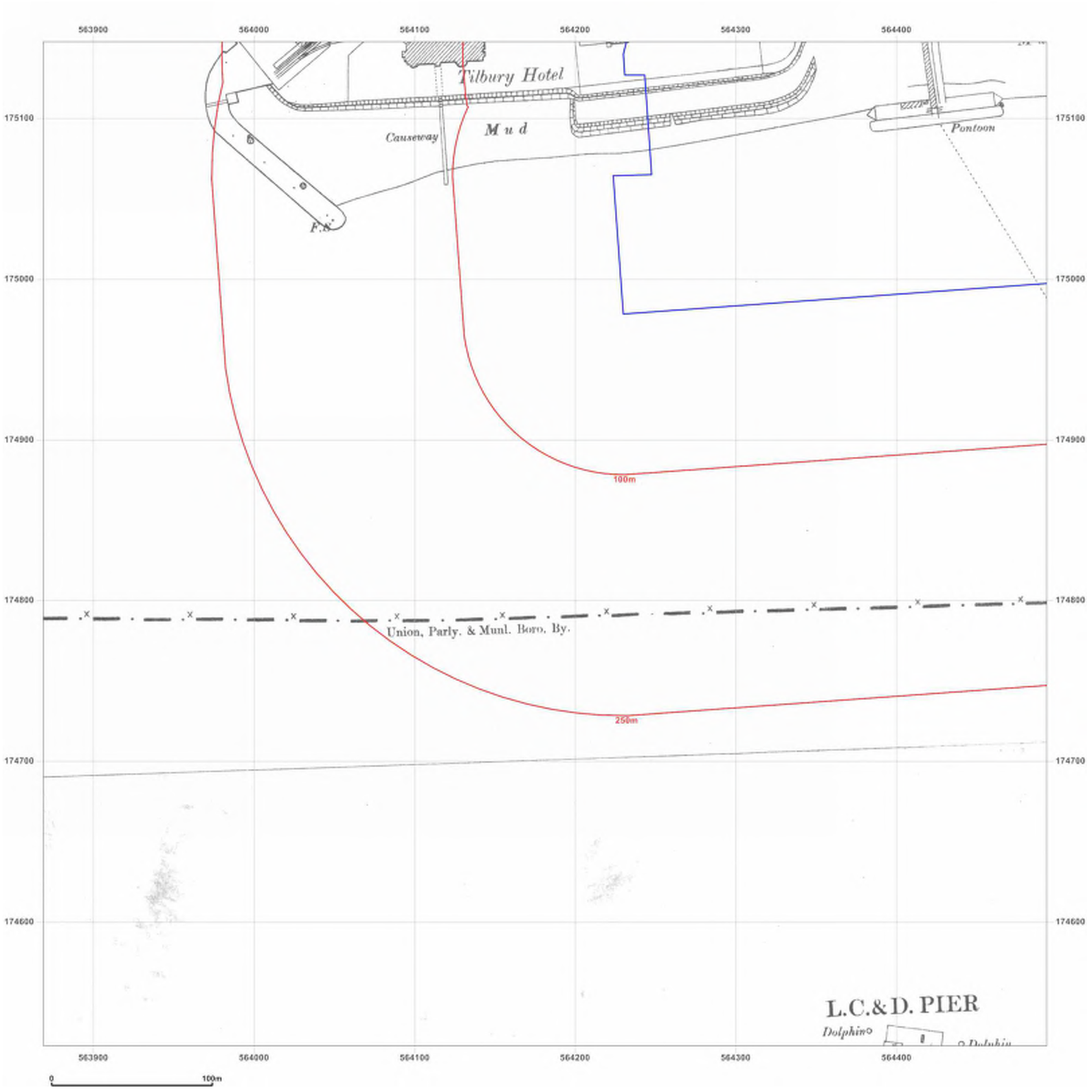
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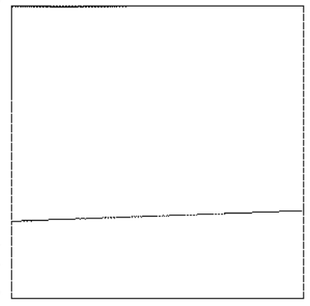
564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_1
Grid Ref: 564181, 174835

Map Name: County Series
Map date: **1897-1898**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
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Surveyed 1898
Revised 1898
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1897
Revised 1897
Edition N/A
Copyright N/A
Levelled N/A

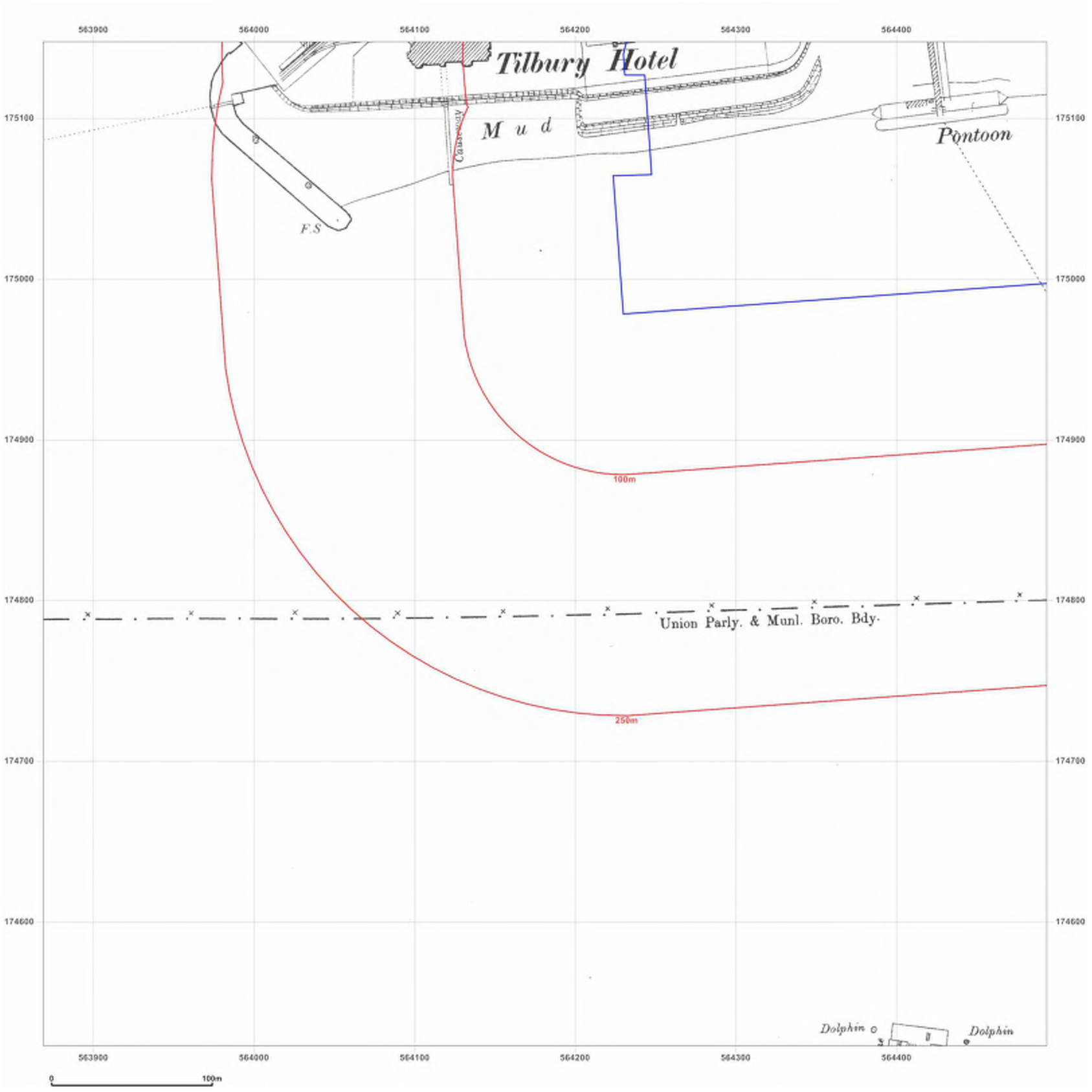
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_1
Grid Ref: 564181, 174835

Map Name: County Series
Map date: **1898**
Scale: 1:2,500
Printed at: 1:2,500

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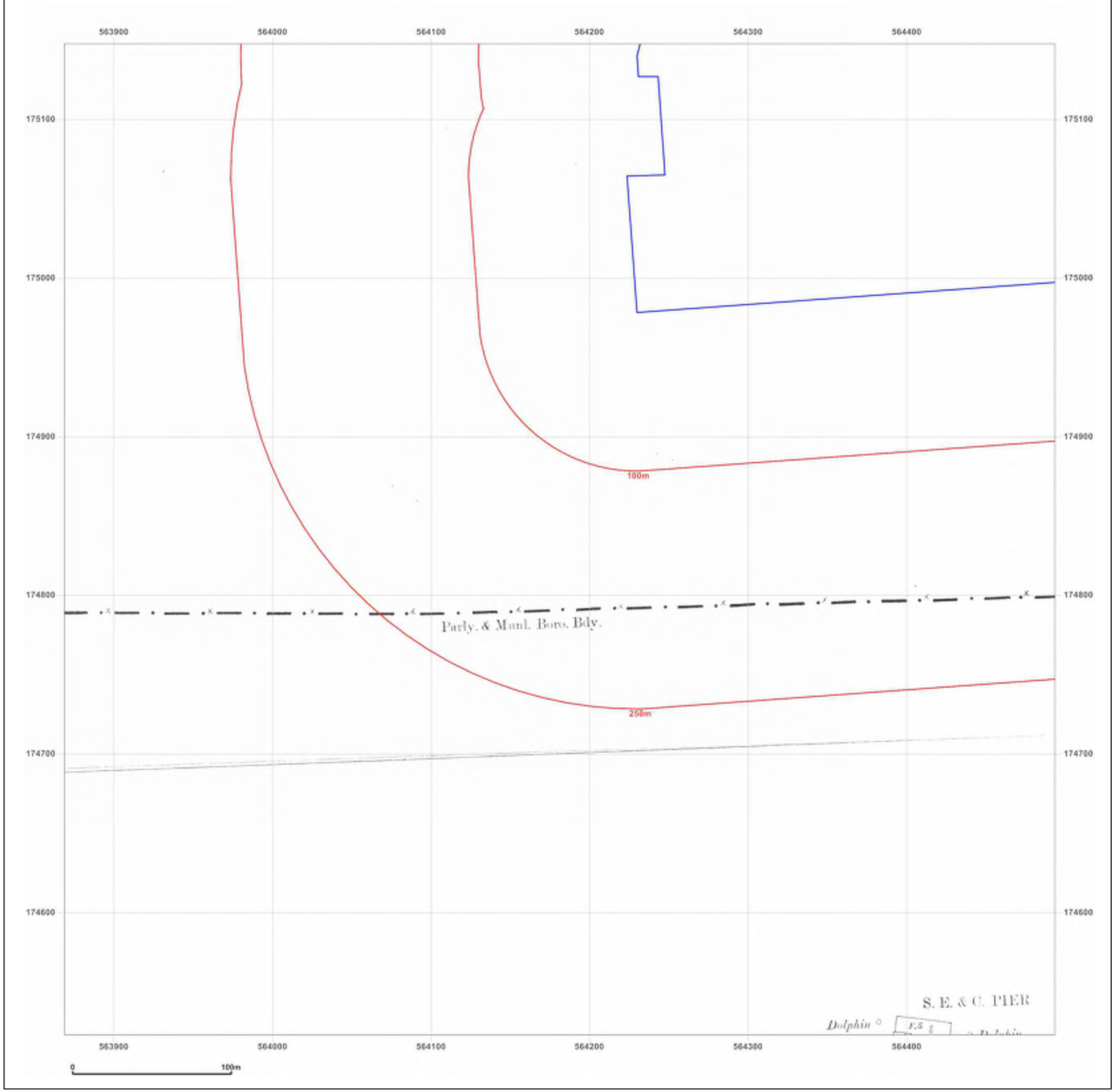
Surveyed 1898
Revised 1898
Edition N/A
Copyright N/A
Levelled N/A

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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_1
Grid Ref: 564181, 174835

Map Name: County Series

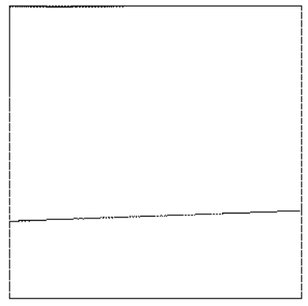
Map date: **1909**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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Surveyed 1909
Revised 1909
Edition N/A
Copyright N/A
Levelled N/A



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

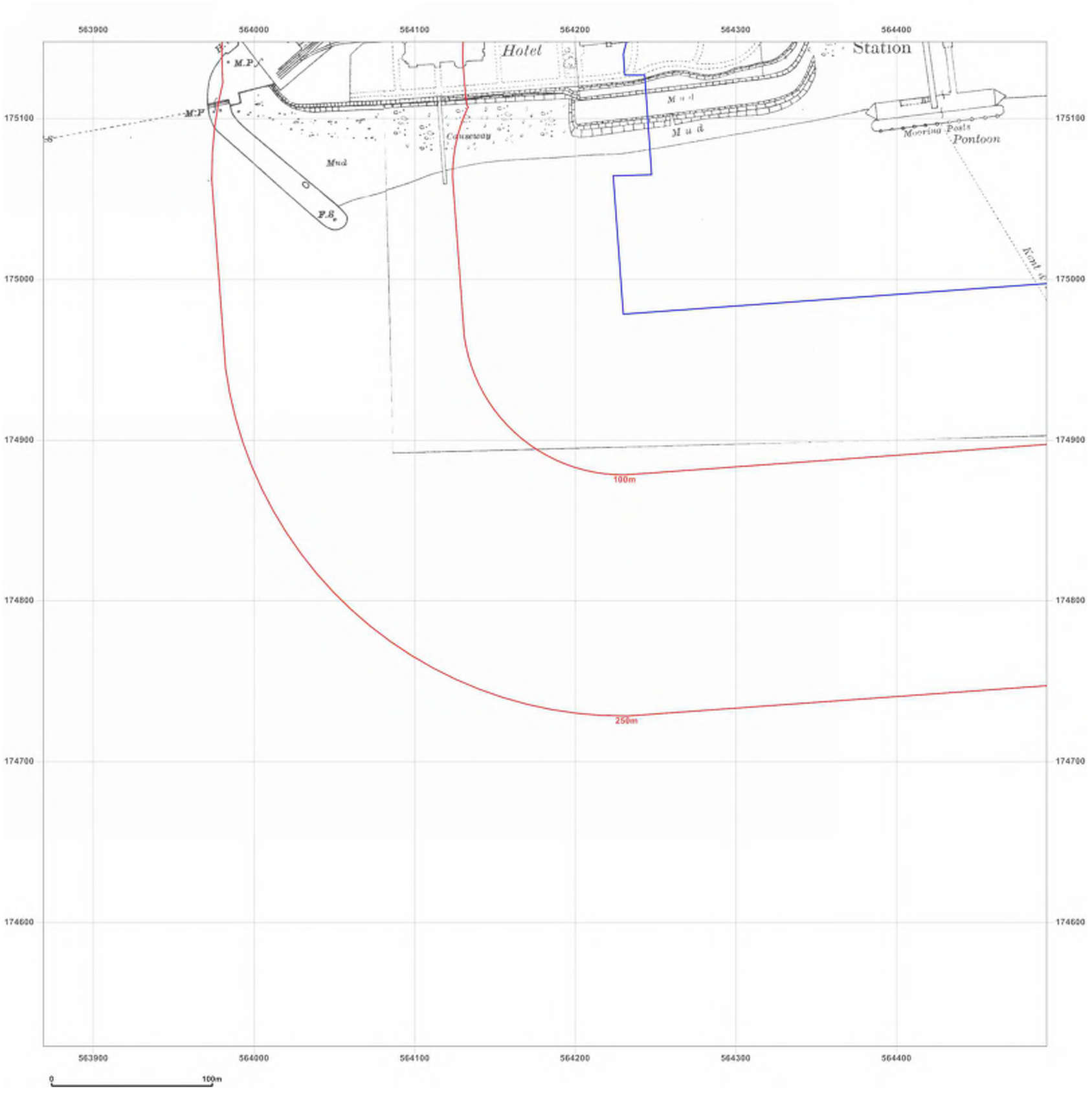
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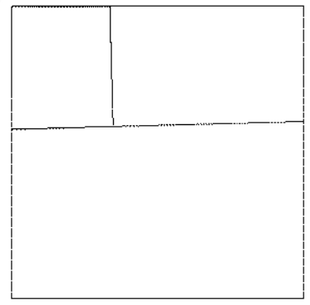
564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_1
Grid Ref: 564181, 174835

Map Name: County Series
Map date: **1920**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
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Surveyed 1920
Revised 1920
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1920
Revised 1920
Edition N/A
Copyright N/A
Levelled N/A

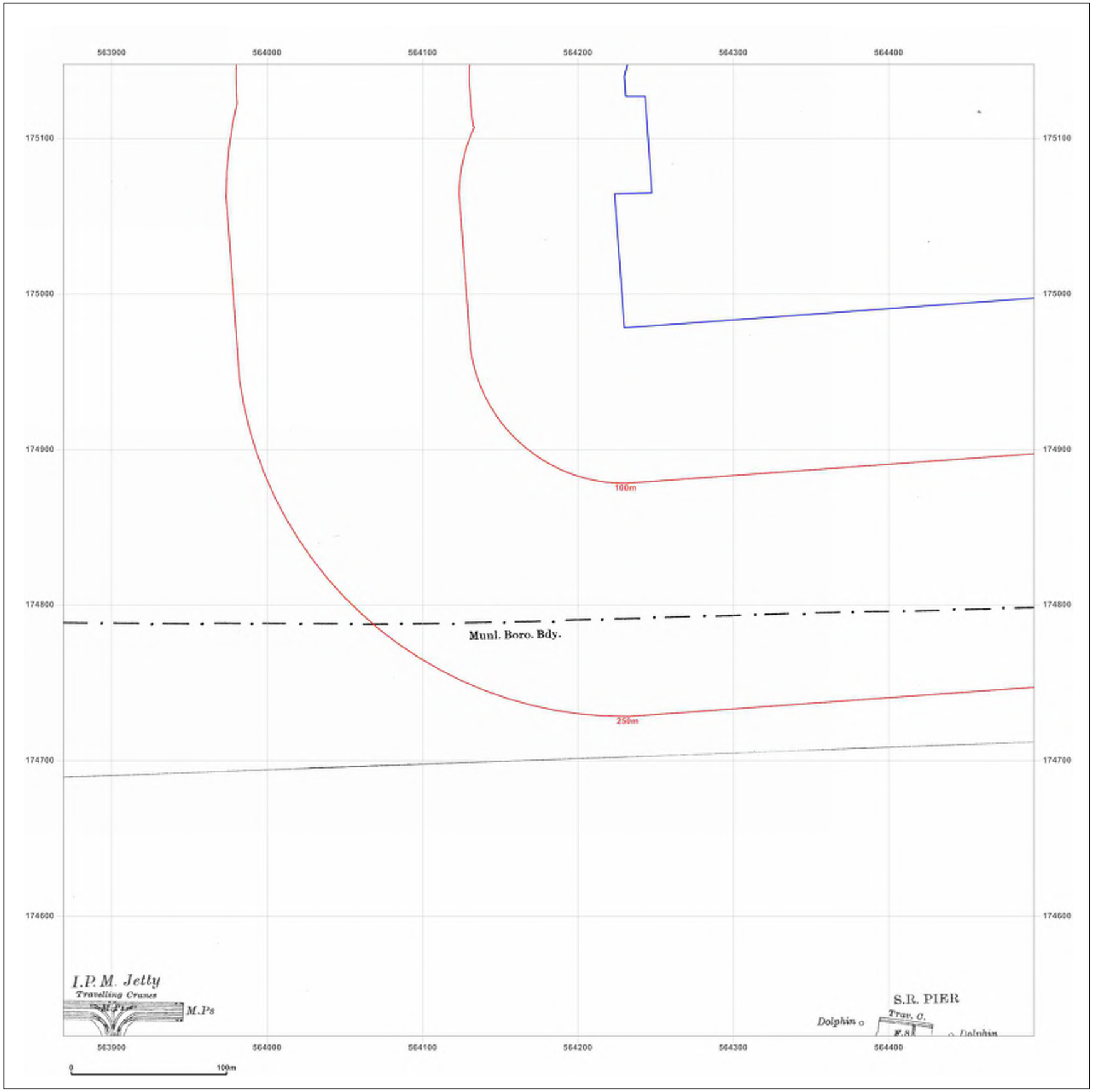
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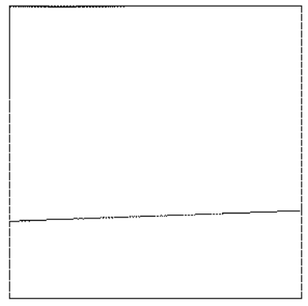
564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_1
Grid Ref: 564181, 174835

Map Name: County Series
Map date: **1932-1933**
Scale: 1:2,500
Printed at: 1:2,500

N
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Surveyed 1932
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1933
Revised 1933
Edition N/A
Copyright N/A
Levelled N/A

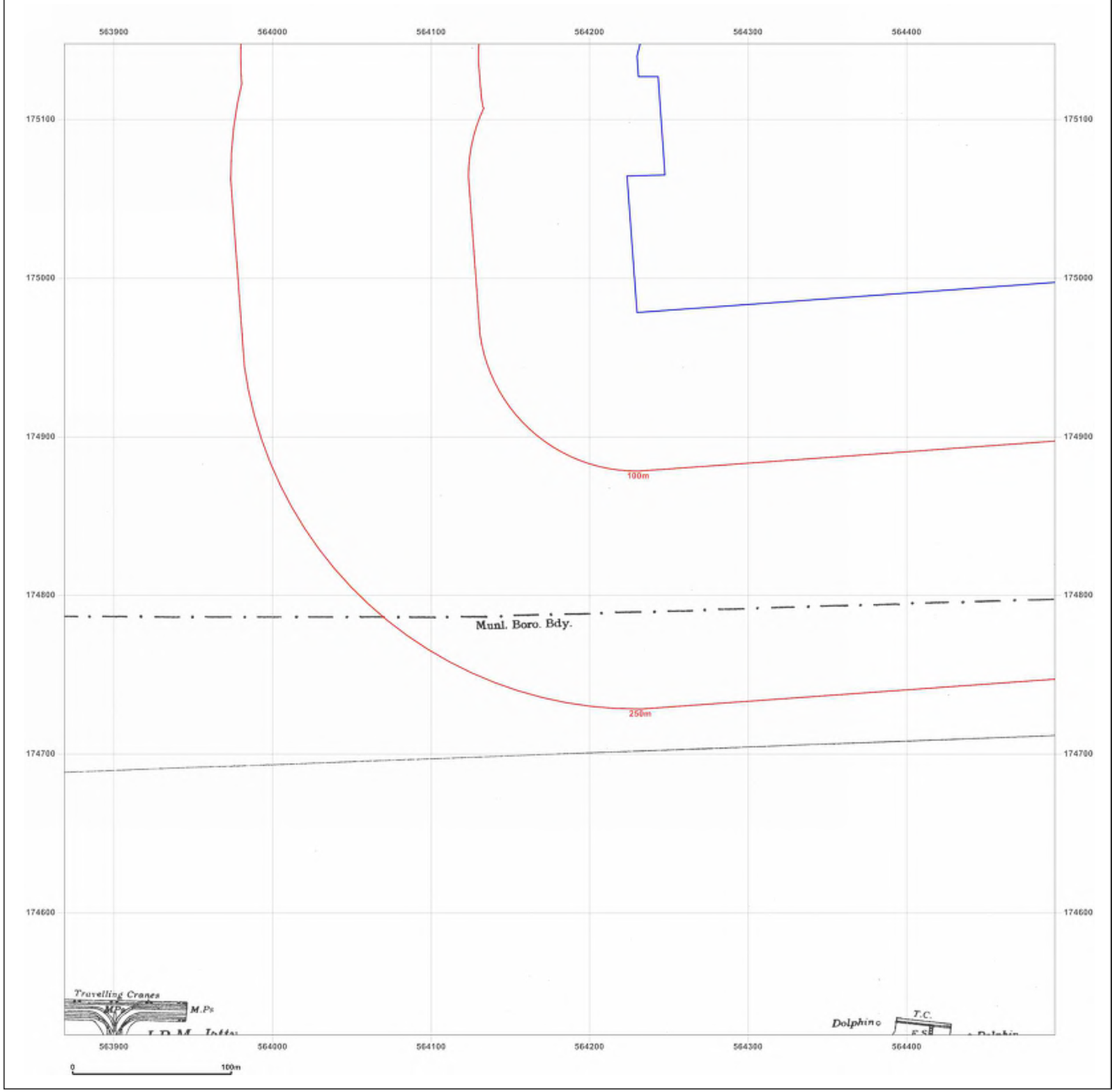
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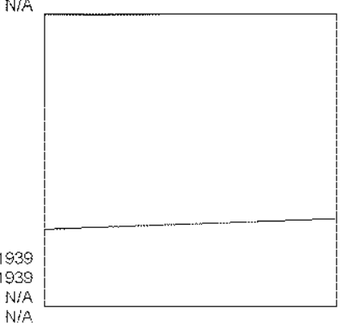
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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_1
Grid Ref: 564181, 174835

Map Name: County Series
Map date: **1939**
Scale: 1:2,500
Printed at: 1:2,500

N
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Surveyed 1939
Revised 1939
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1939
Revised 1939
Edition N/A
Copyright N/A
Levelled N/A

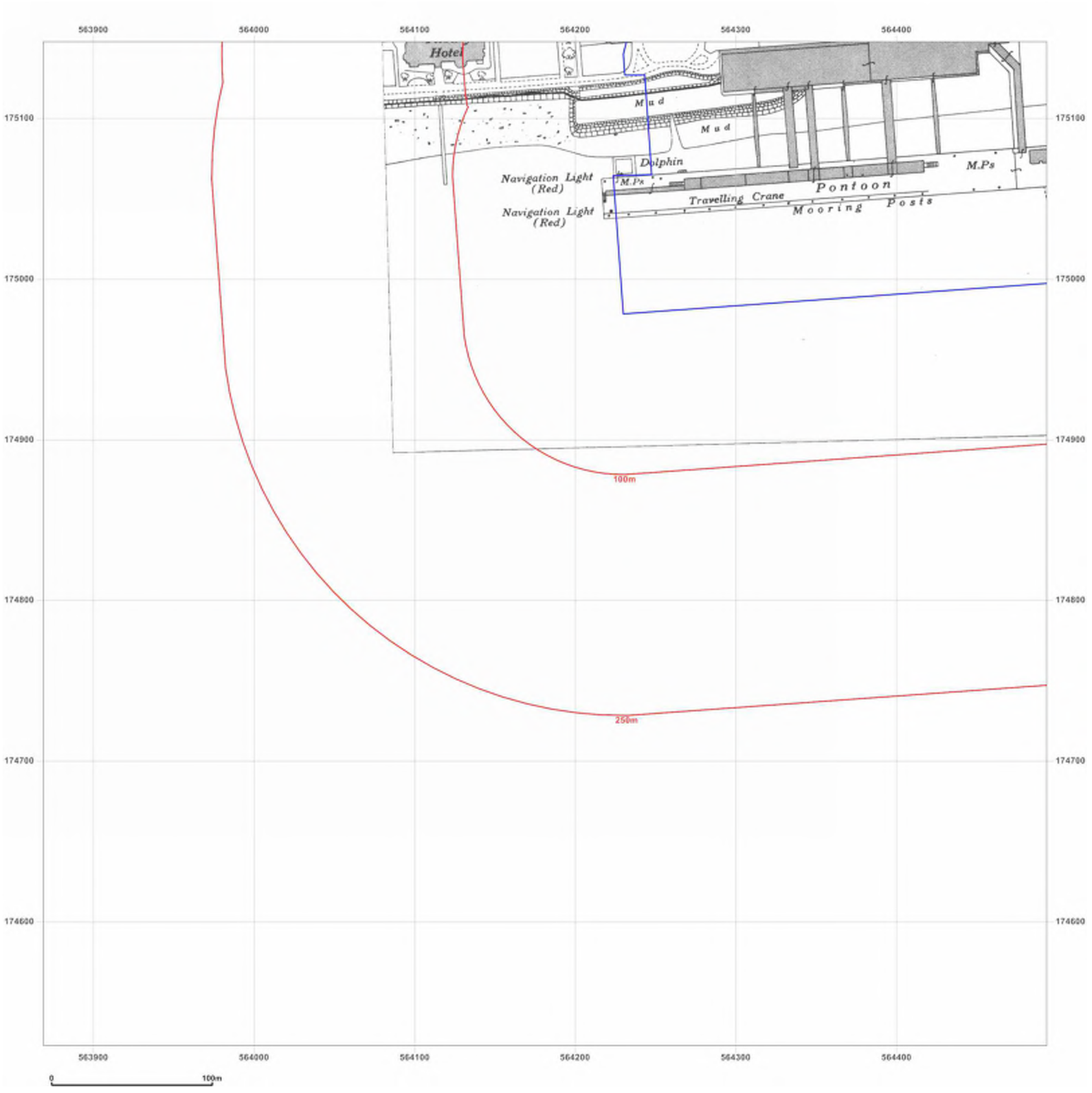
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_1
Grid Ref: 564181, 174835

Map Name: County Series

Map date: **1940**

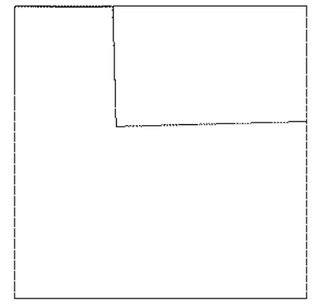
Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1940
Revised 1940
Edition N/A
Copyright N/A
Levelled N/A



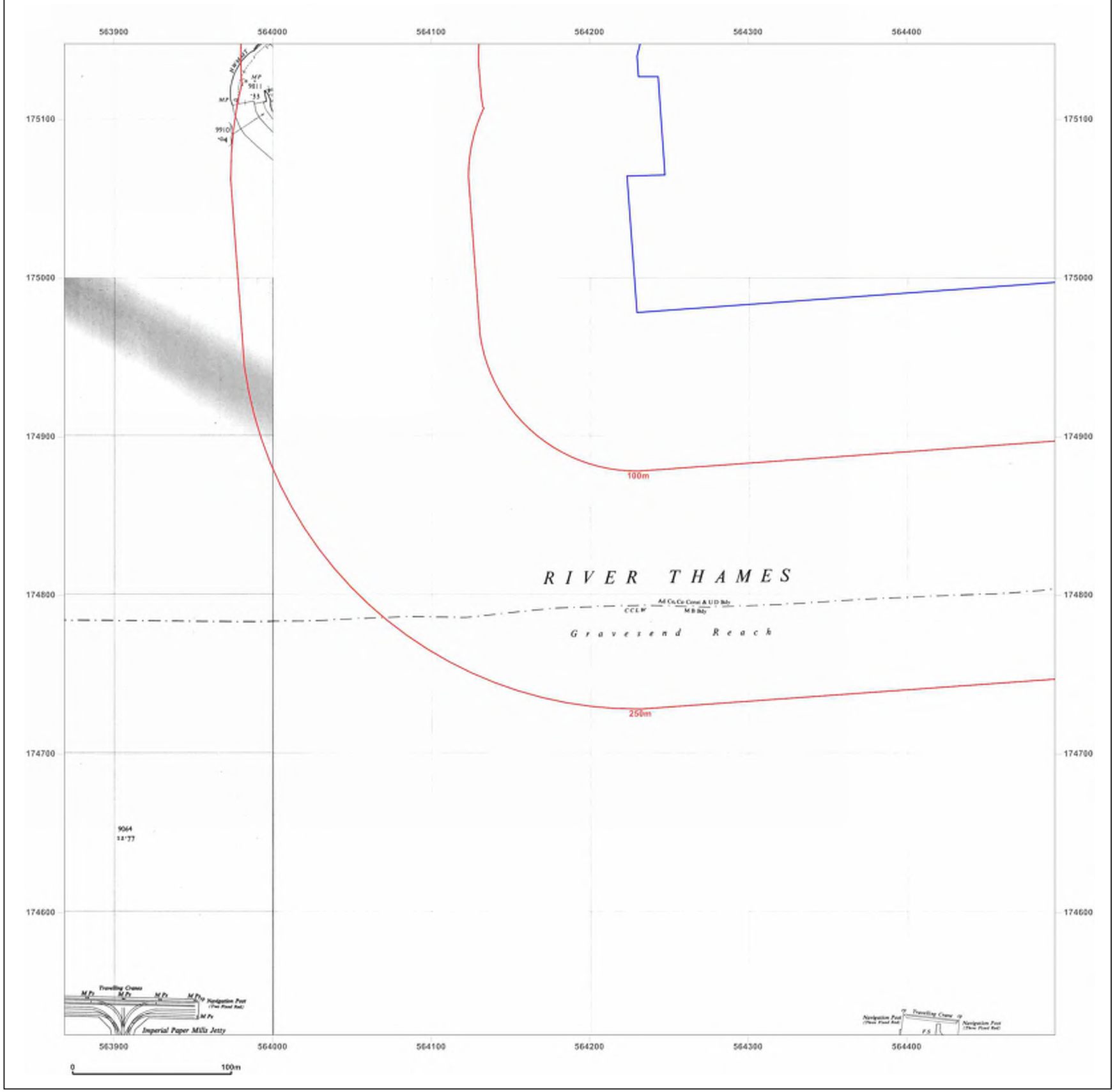
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_1
Grid Ref: 564181, 174835

Map Name: National Grid

Map date: **1950-1953**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled 1948

Surveyed 1952
Revised 1952
Edition 1954
Copyright N/A
Levelled 1952

Surveyed 1953
Revised 1953
Edition 1955
Copyright N/A
Levelled 1952

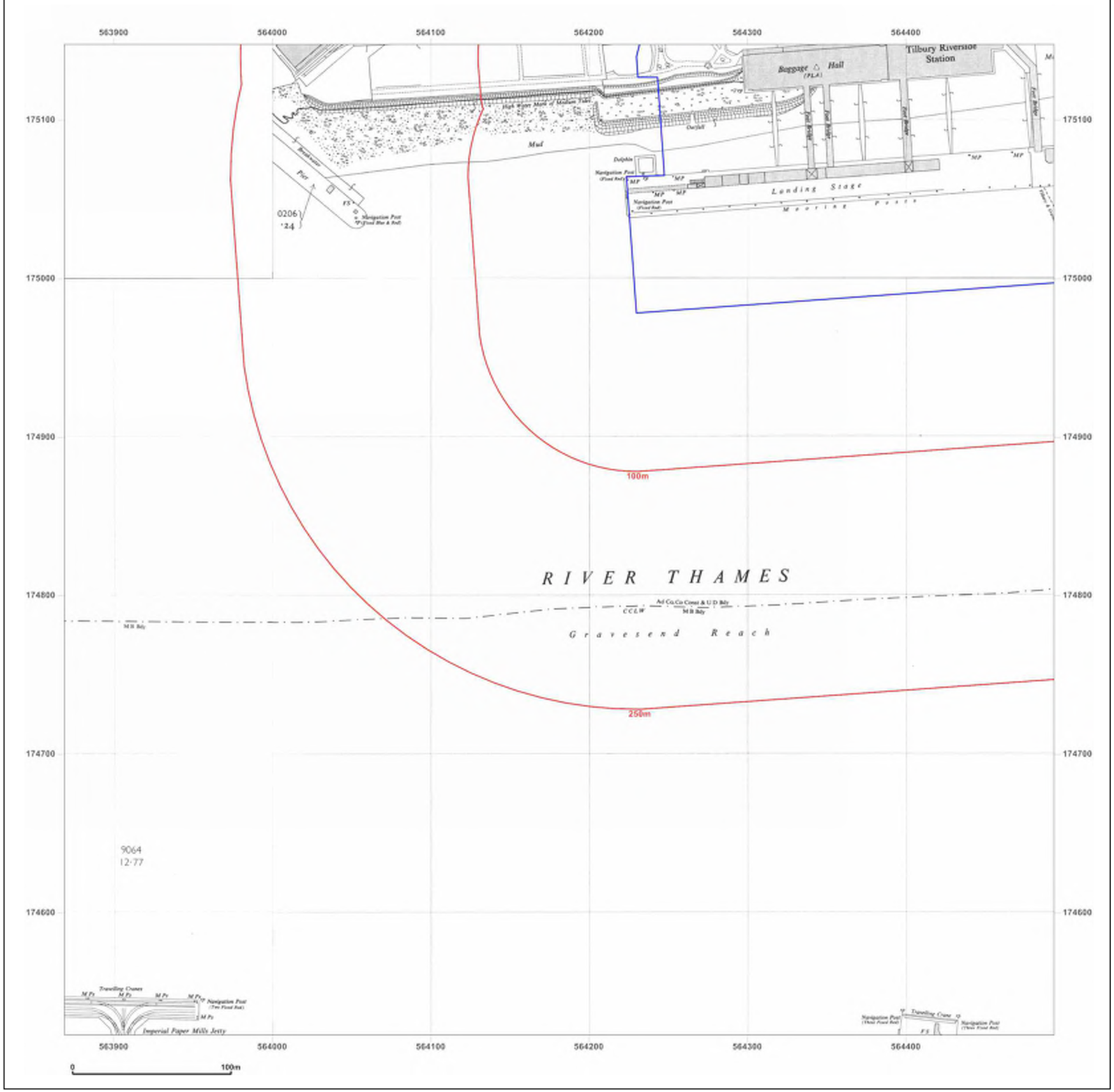
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_1
Grid Ref: 564181, 174835

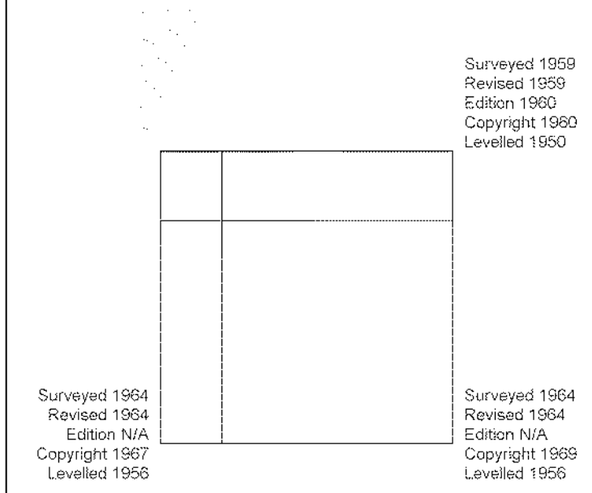
Map Name: National Grid

Map date: **1959-1964**

Scale: 1:2,500

Printed at: 1:2,500

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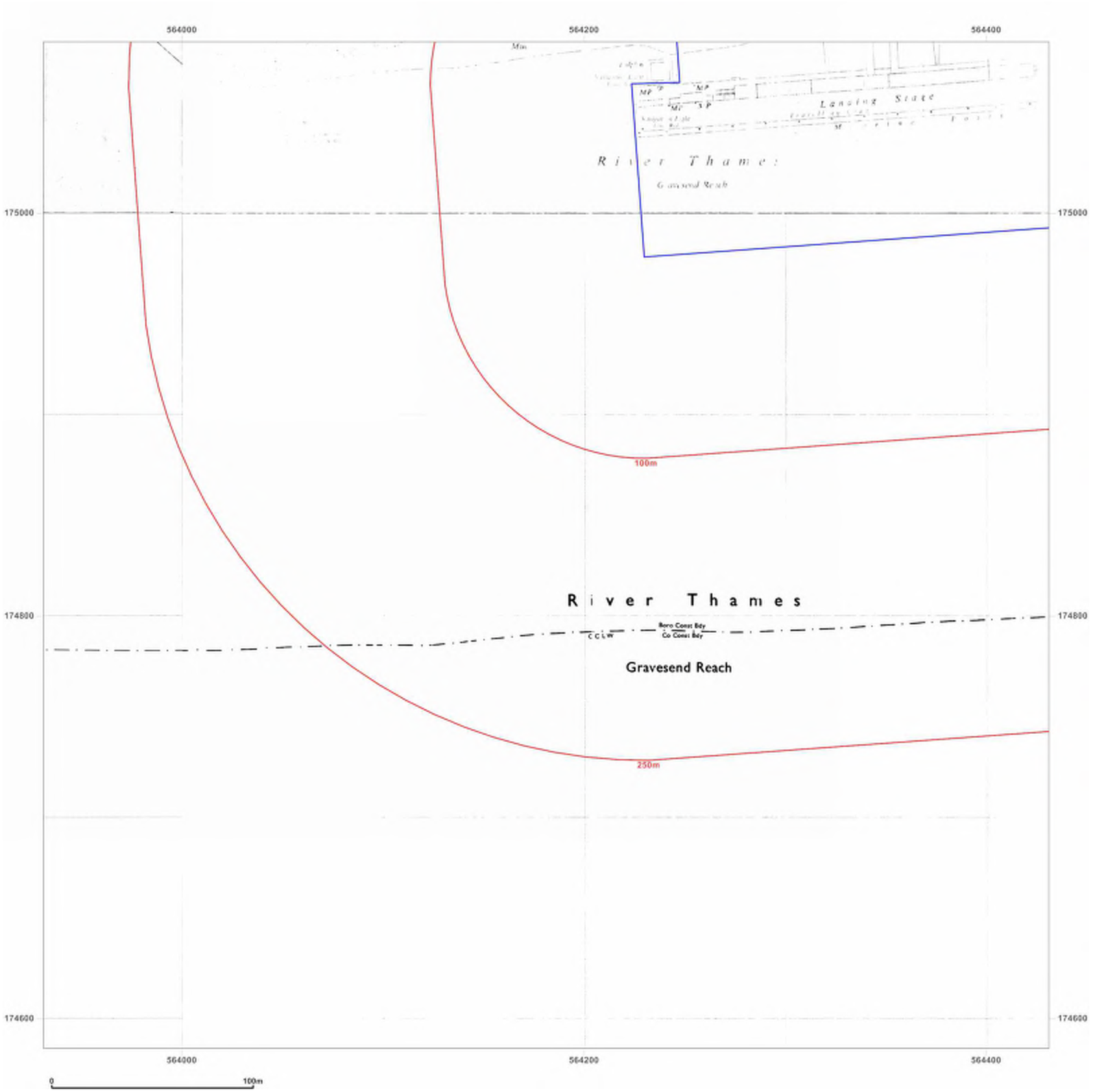
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_1
Grid Ref: 564181, 174835

Map Name: National Grid
Map date: **1973-1975**
Scale: 1:1,250
Printed at: 1:2,000

N
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Surveyed N/A Revised N/A Edition N/A Copyright N/A Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright 1973 Levelled N/A
Surveyed 1952 Revised 1972 Edition N/A Copyright 1973 Levelled 1956	Surveyed 1952 Revised 1974 Edition N/A Copyright 1975 Levelled 1952

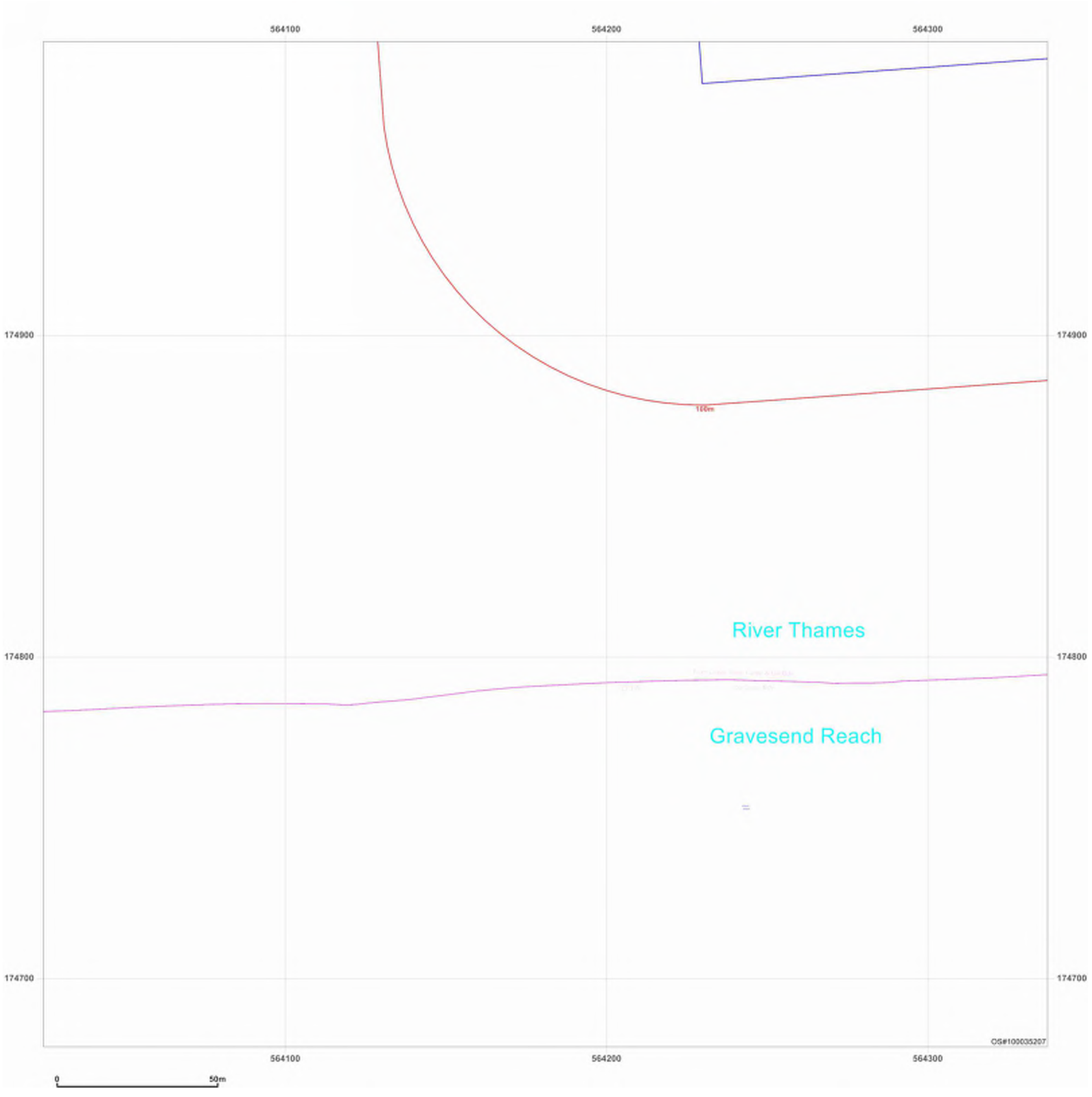
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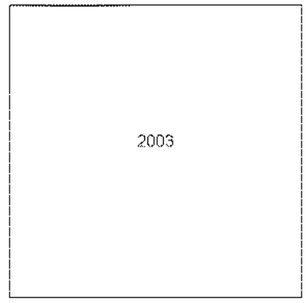
564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_1
Grid Ref: 564181, 174835

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

N
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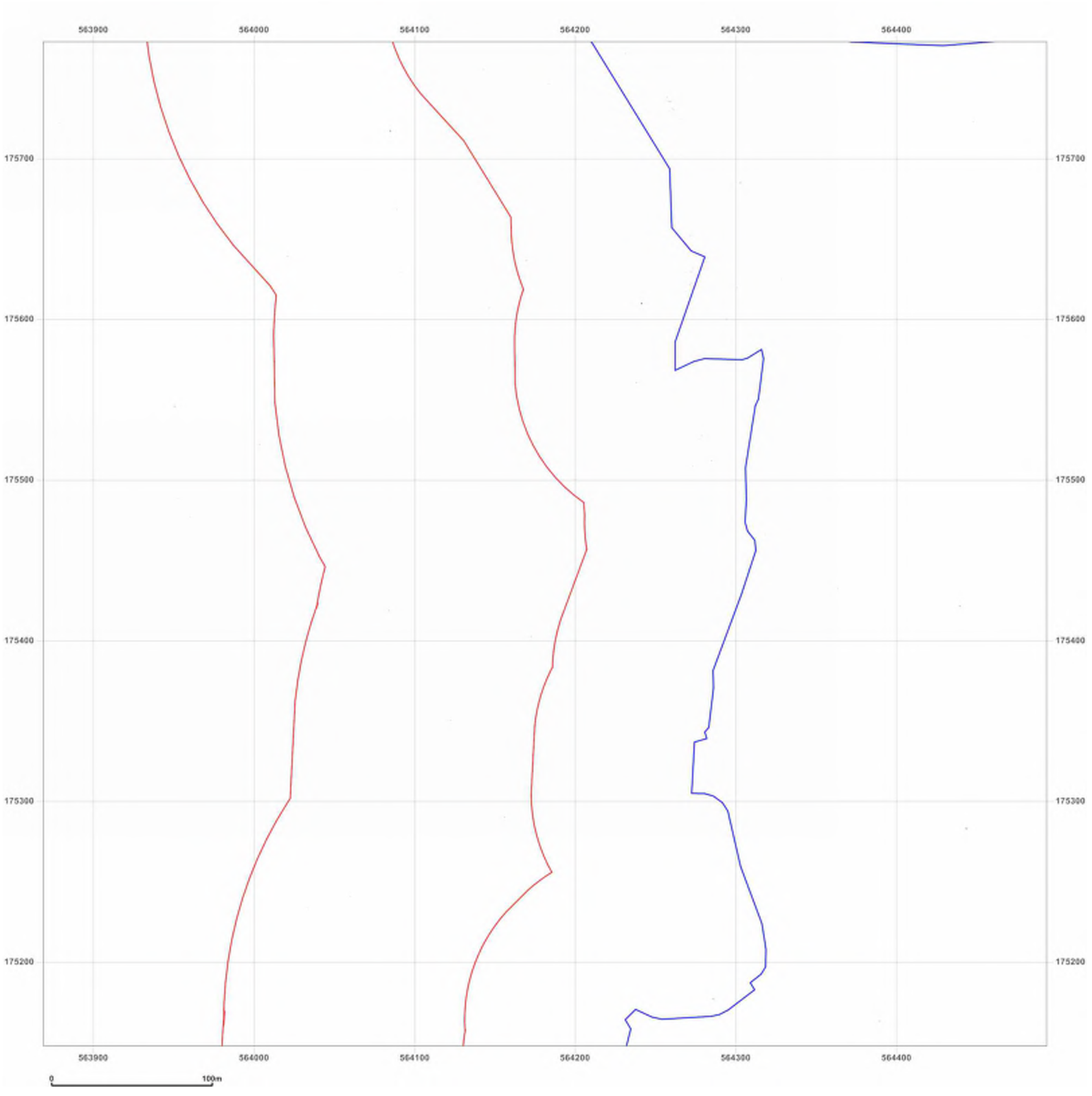
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_2
Grid Ref: 564181, 175460

Map Name: County Series
Map date: **1870**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
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Surveyed 1870
Revised 1870
Edition N/A
Copyright N/A
Levelled N/A

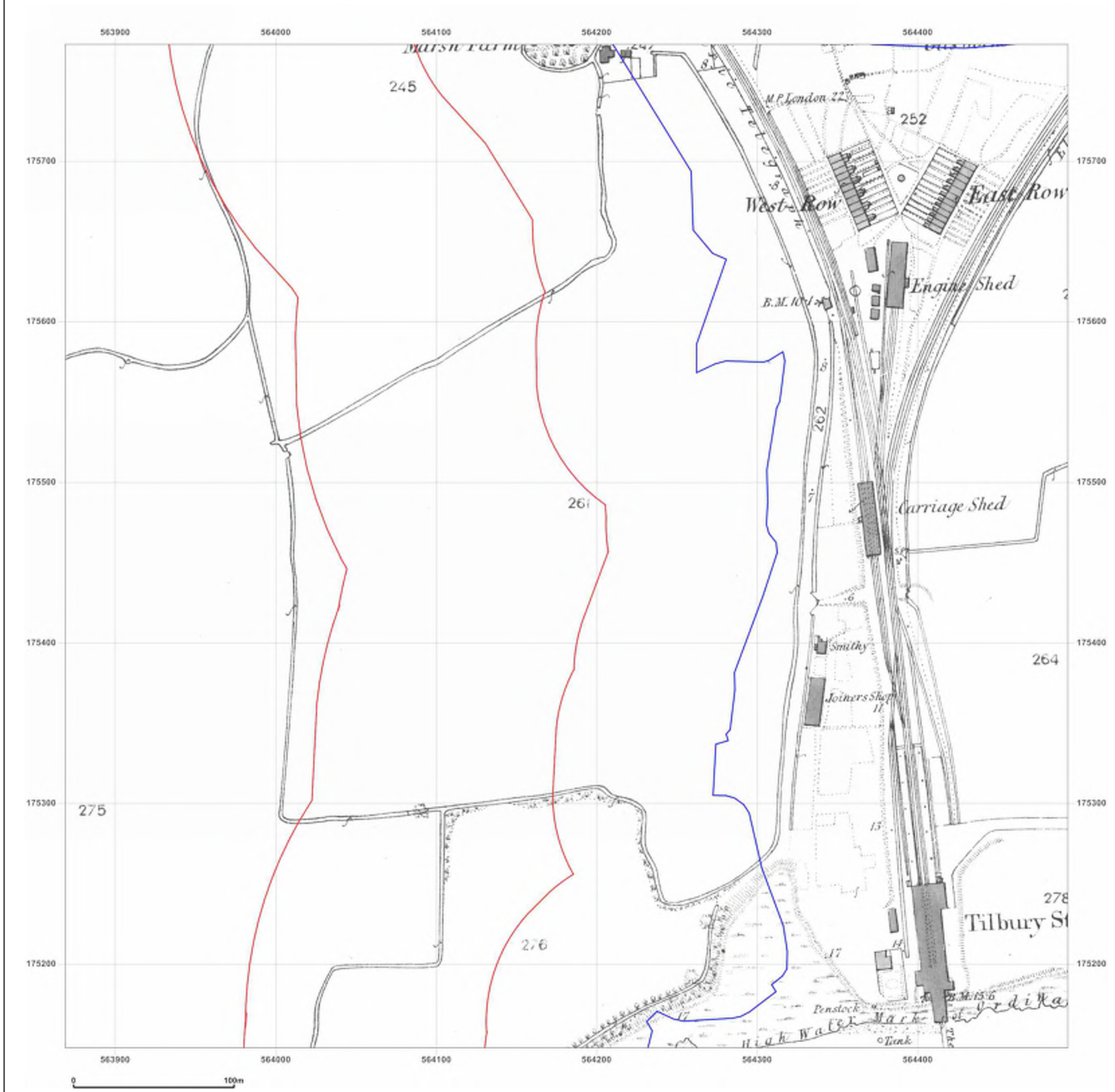
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_2
Grid Ref: 564181, 175460

Map Name: County Series

Map date: **1870**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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Surveyed 1870
Revised 1870
Edition N/A
Copyright N/A
Levelled N/A

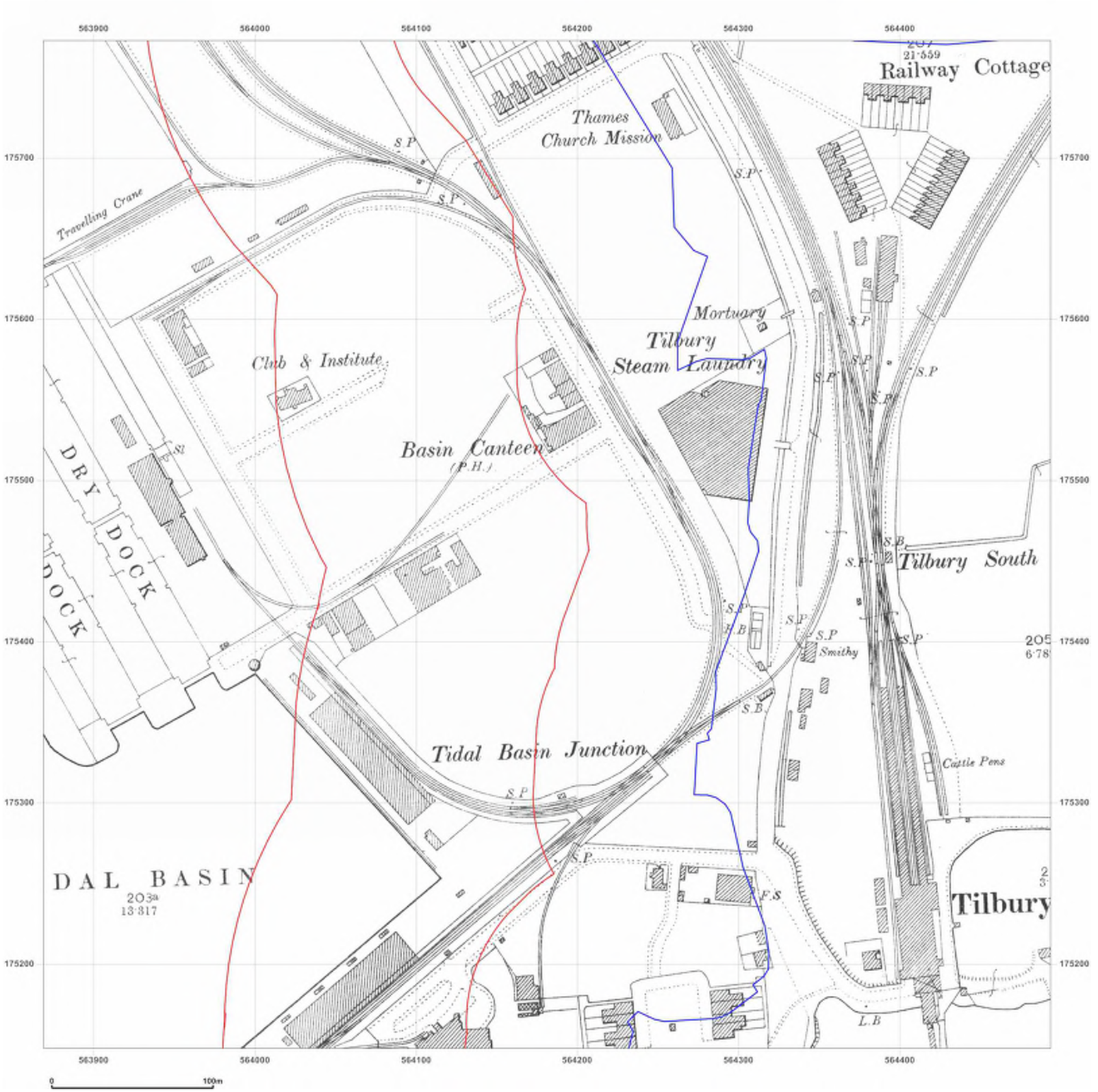
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_2
Grid Ref: 564181, 175460

Map Name: County Series
Map date: **1898**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
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Surveyed 1898
Revised 1898
Edition N/A
Copyright N/A
Levelled N/A

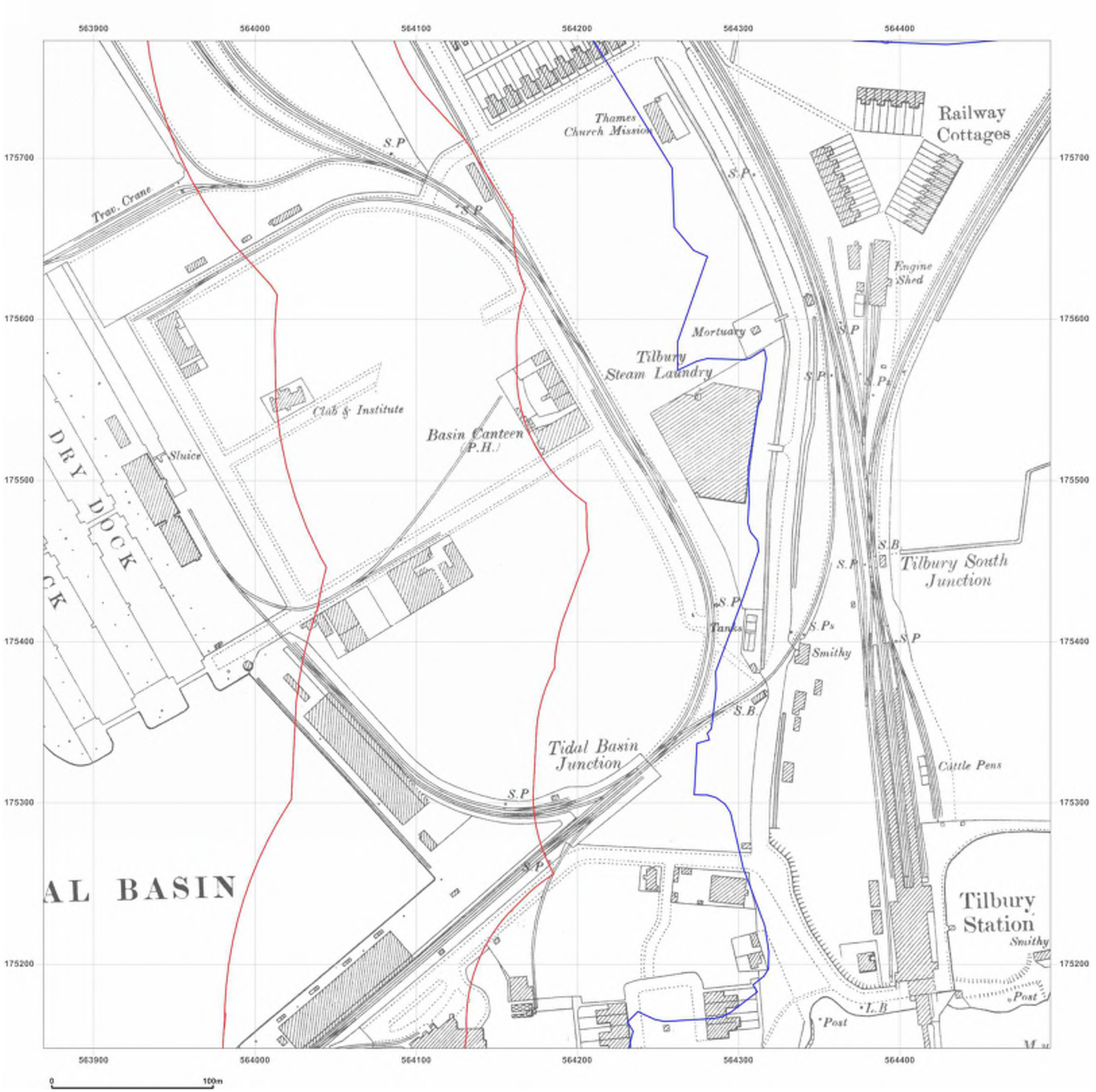
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_2
Grid Ref: 564181, 175460

Map Name: County Series
Map date: **1898**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

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

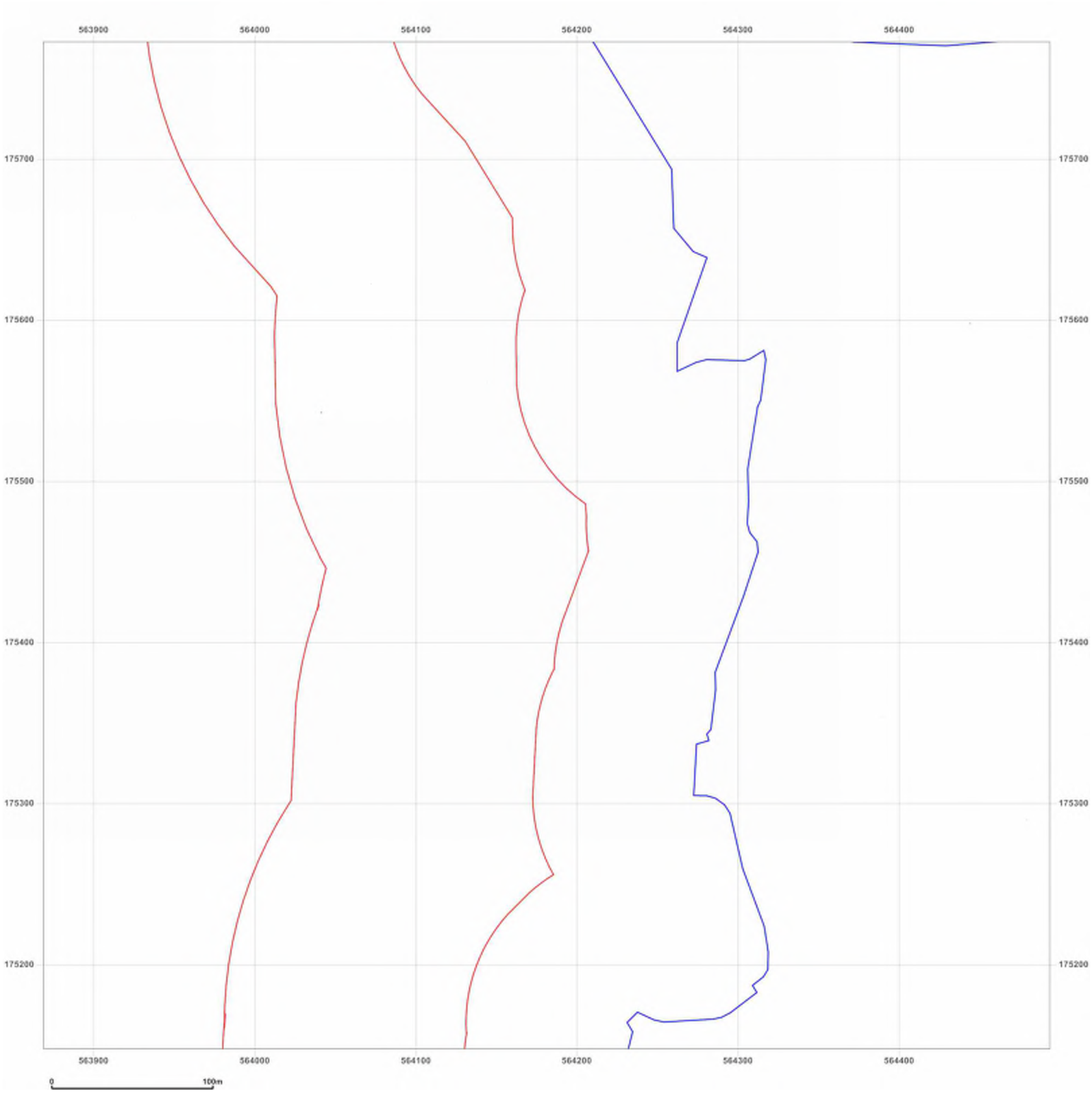
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_2
Grid Ref: 564181, 175460

Map Name: County Series

Map date: **1909**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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

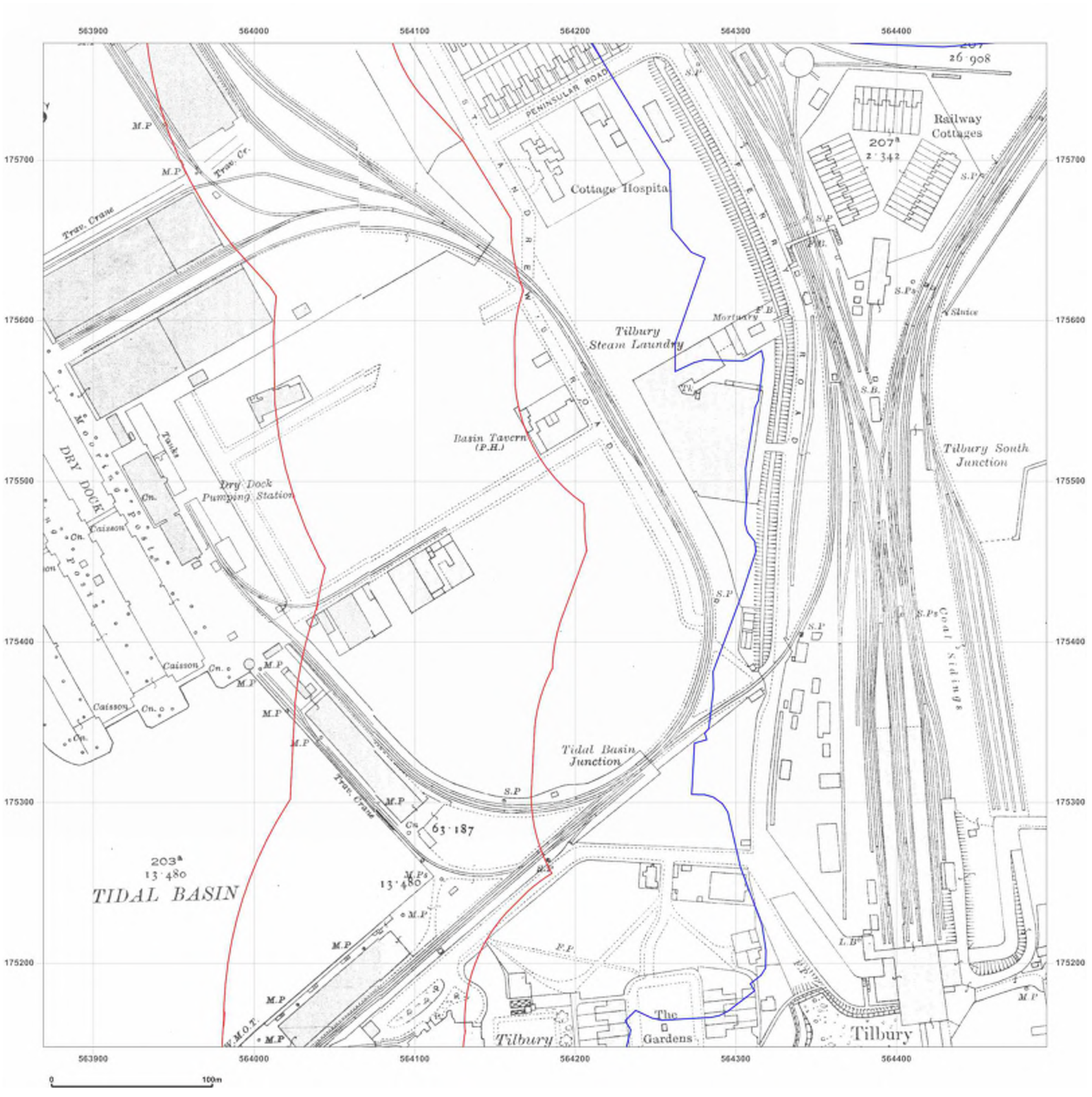
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_2
Grid Ref: 564181, 175460

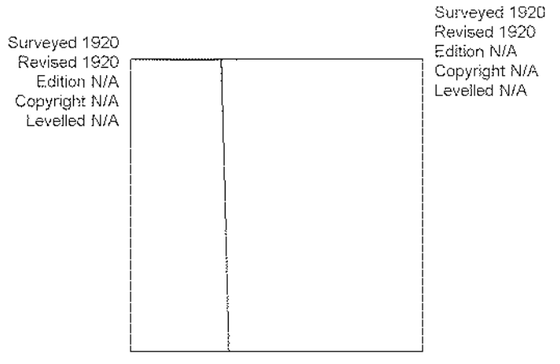
Map Name: County Series

Map date: **1920**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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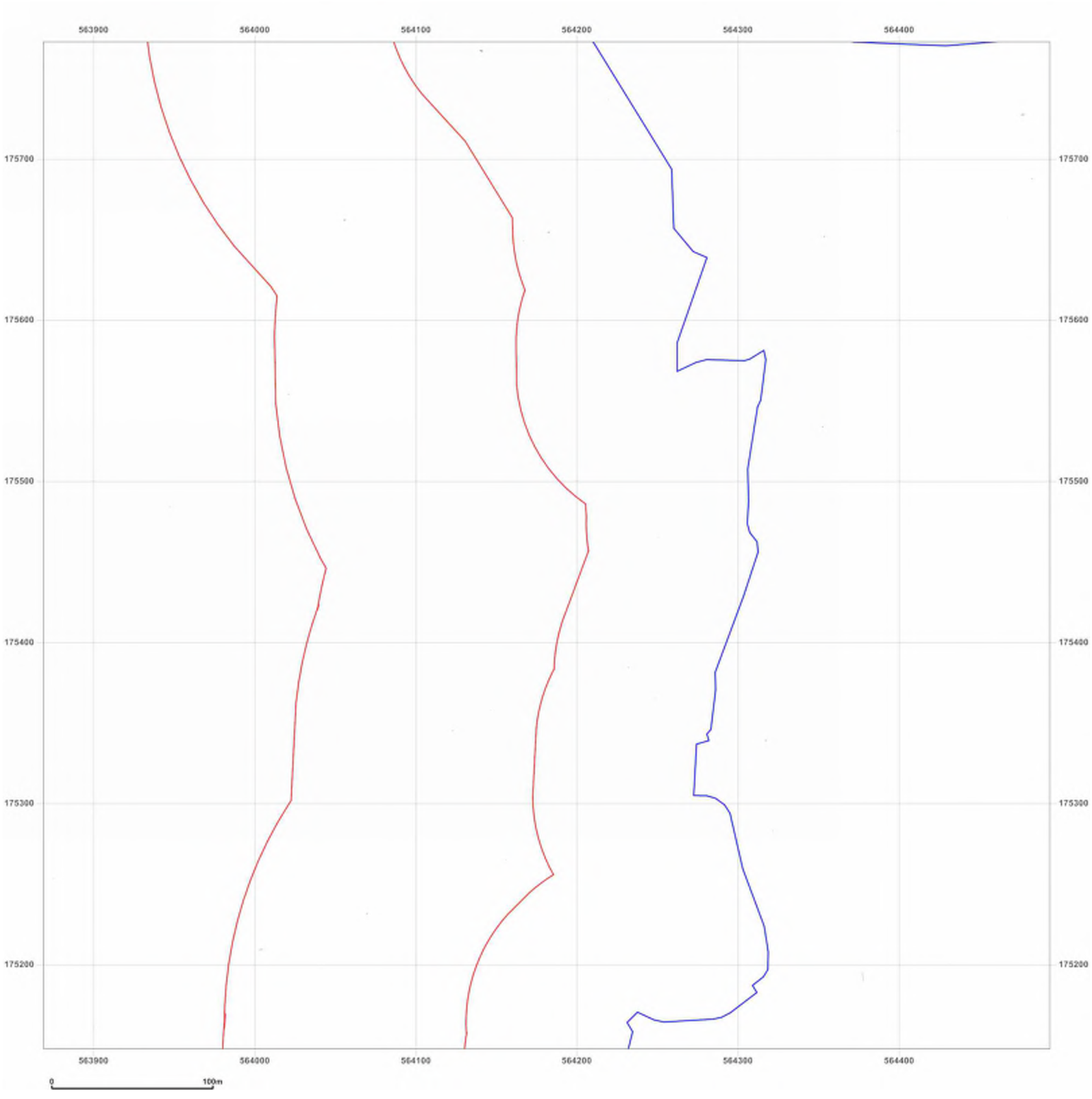
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_2
Grid Ref: 564181, 175460

Map Name: County Series
Map date: **1932**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1932
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

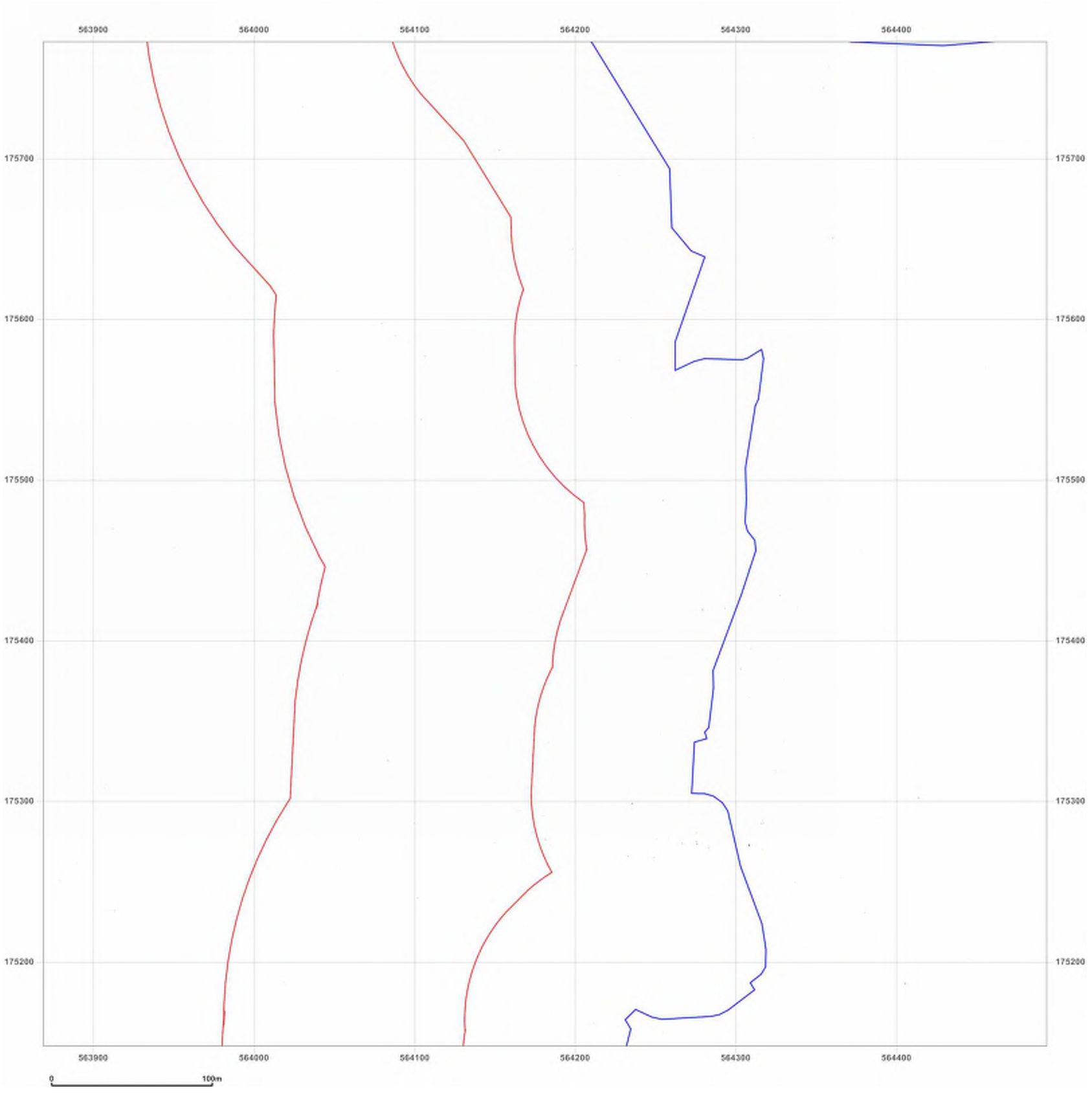
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_2
Grid Ref: 564181, 175460

Map Name: County Series

Map date: **1939**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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Surveyed 1939
Revised 1939
Edition N/A
Copyright N/A
Levelled N/A

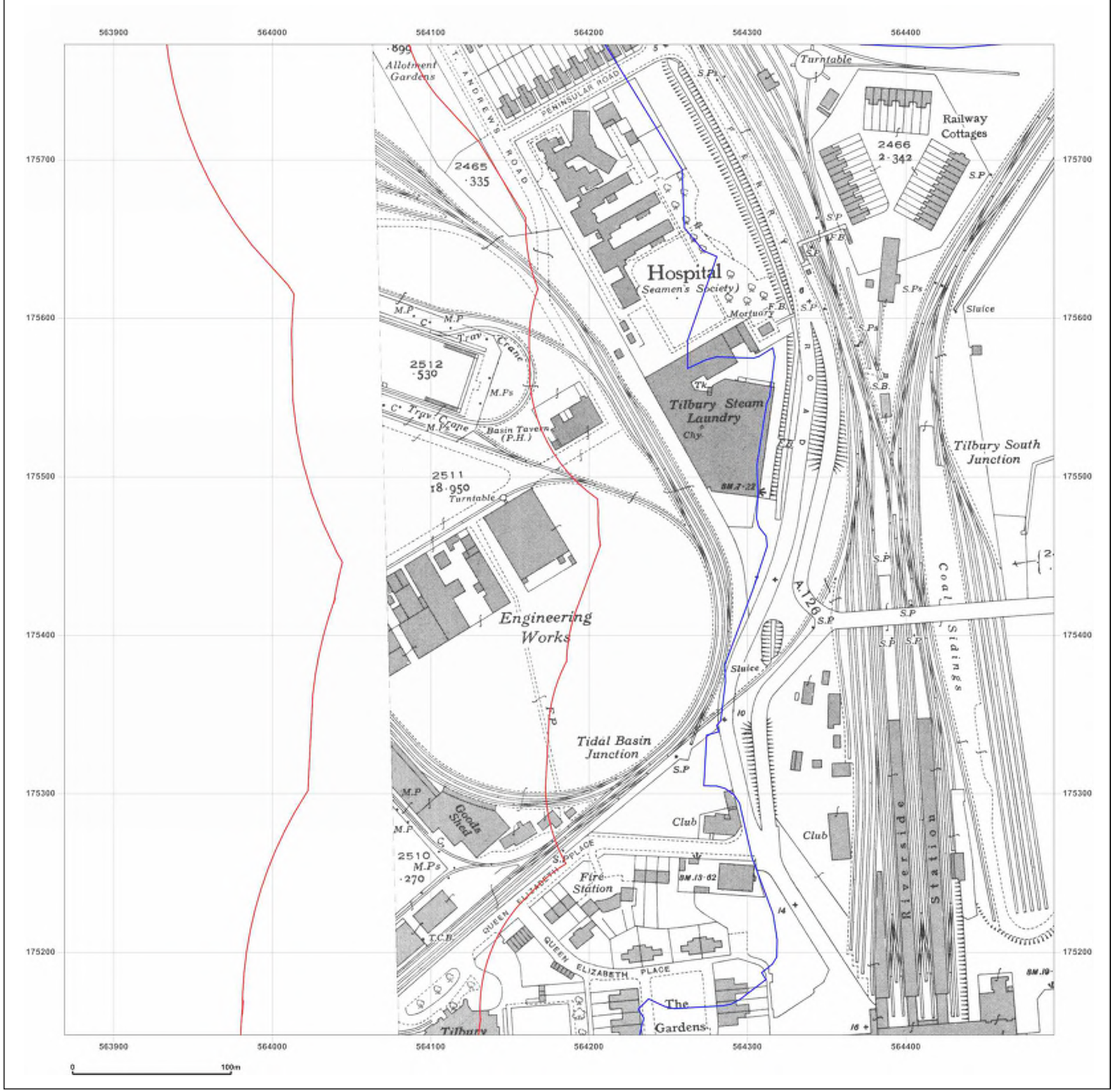
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_2
Grid Ref: 564181, 175460

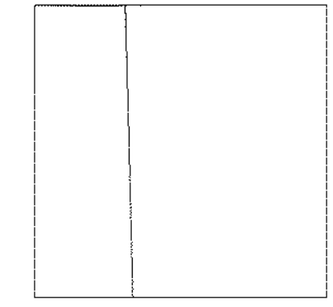
Map Name: County Series

Map date: **1940**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1940
Revised 1940
Edition N/A
Copyright N/A
Levelled N/A

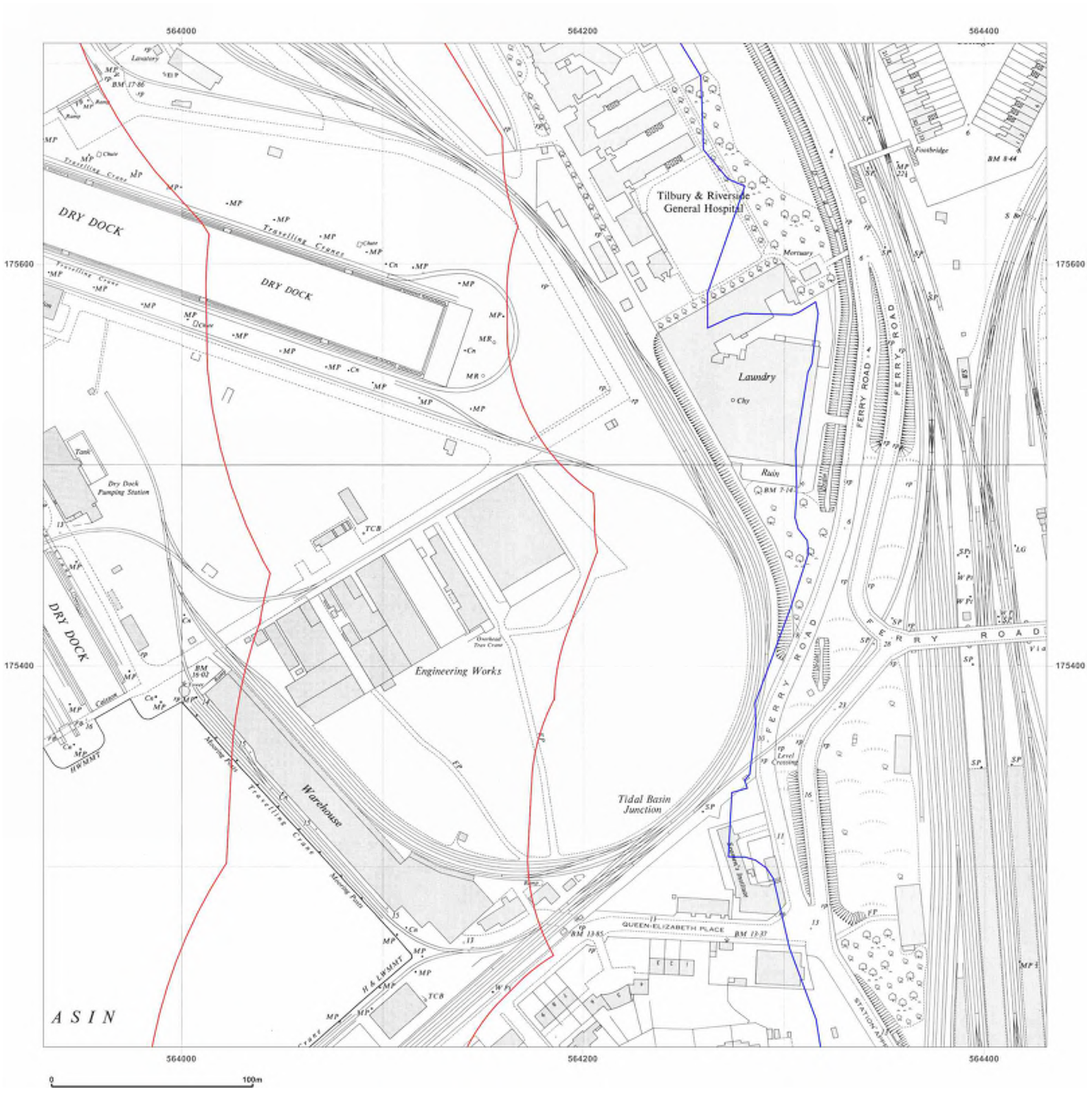
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_2
Grid Ref: 564181, 175460

Map Name: National Grid

Map date: **1950**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

Surveyed 1950 Revised 1950 Edition N/A Copyright N/A Levelled 1948	Surveyed 1950 Revised 1950 Edition N/A Copyright N/A Levelled 1948
Surveyed 1950 Revised 1950 Edition N/A Copyright N/A Levelled 1948	Surveyed 1950 Revised 1950 Edition N/A Copyright N/A Levelled 1950

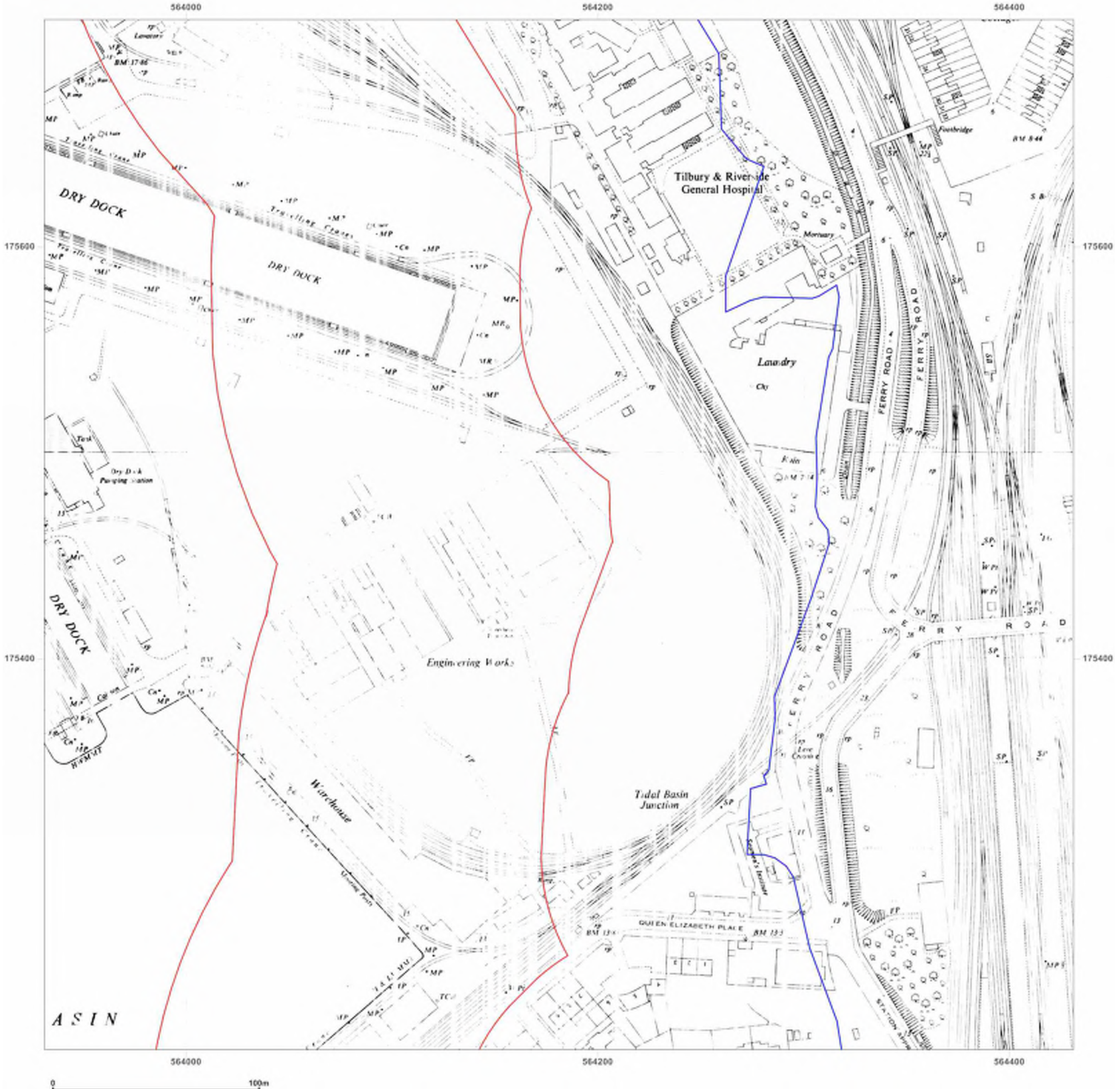
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_2
Grid Ref: 564181, 175460

Map Name: National Grid

Map date: **1951**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

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

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

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

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

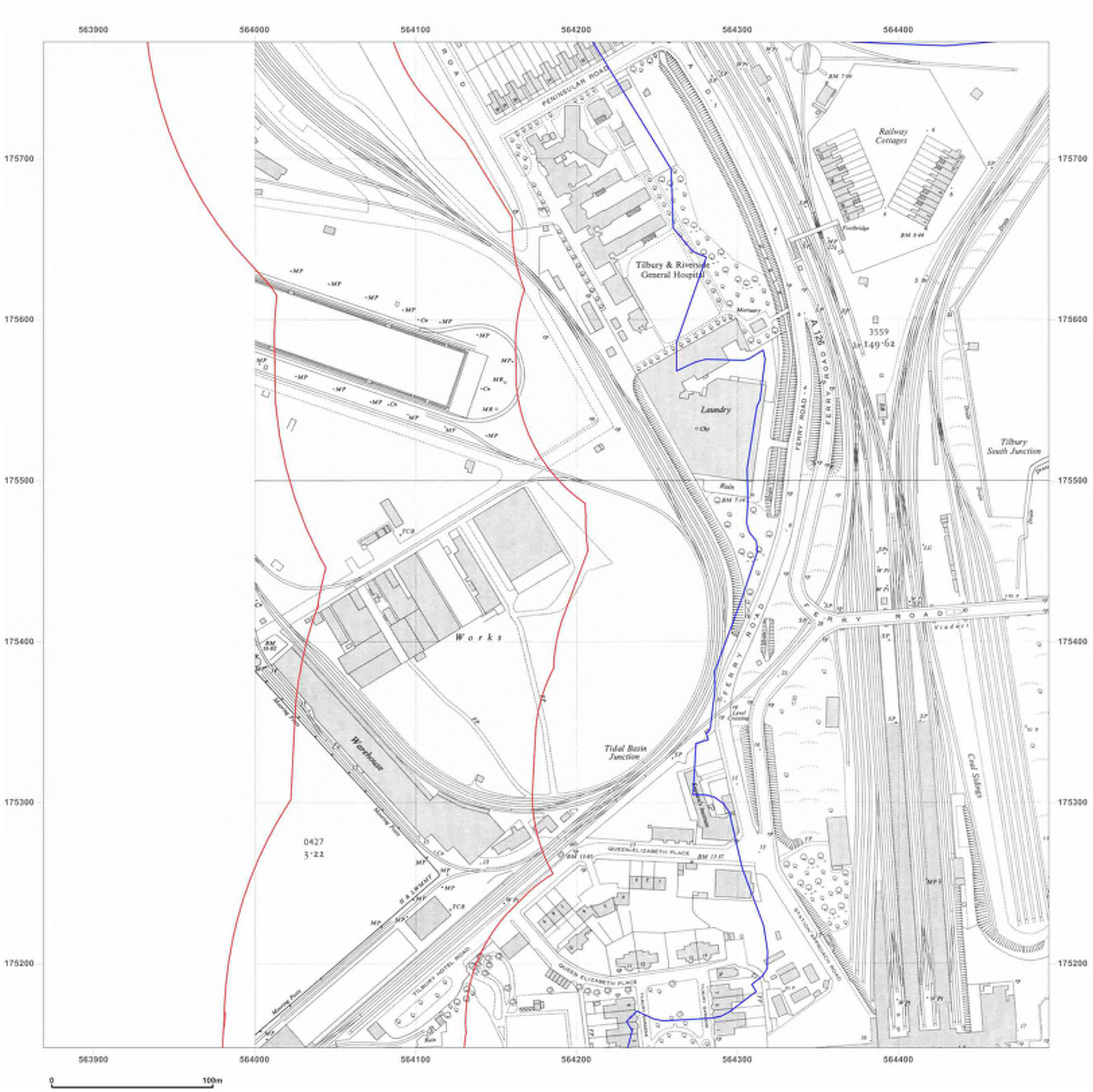
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_2
Grid Ref: 564181, 175460

Map Name: National Grid

Map date: **1959**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1959
Revised 1959
Edition 1960
Copyright 1960
Levelled 1950

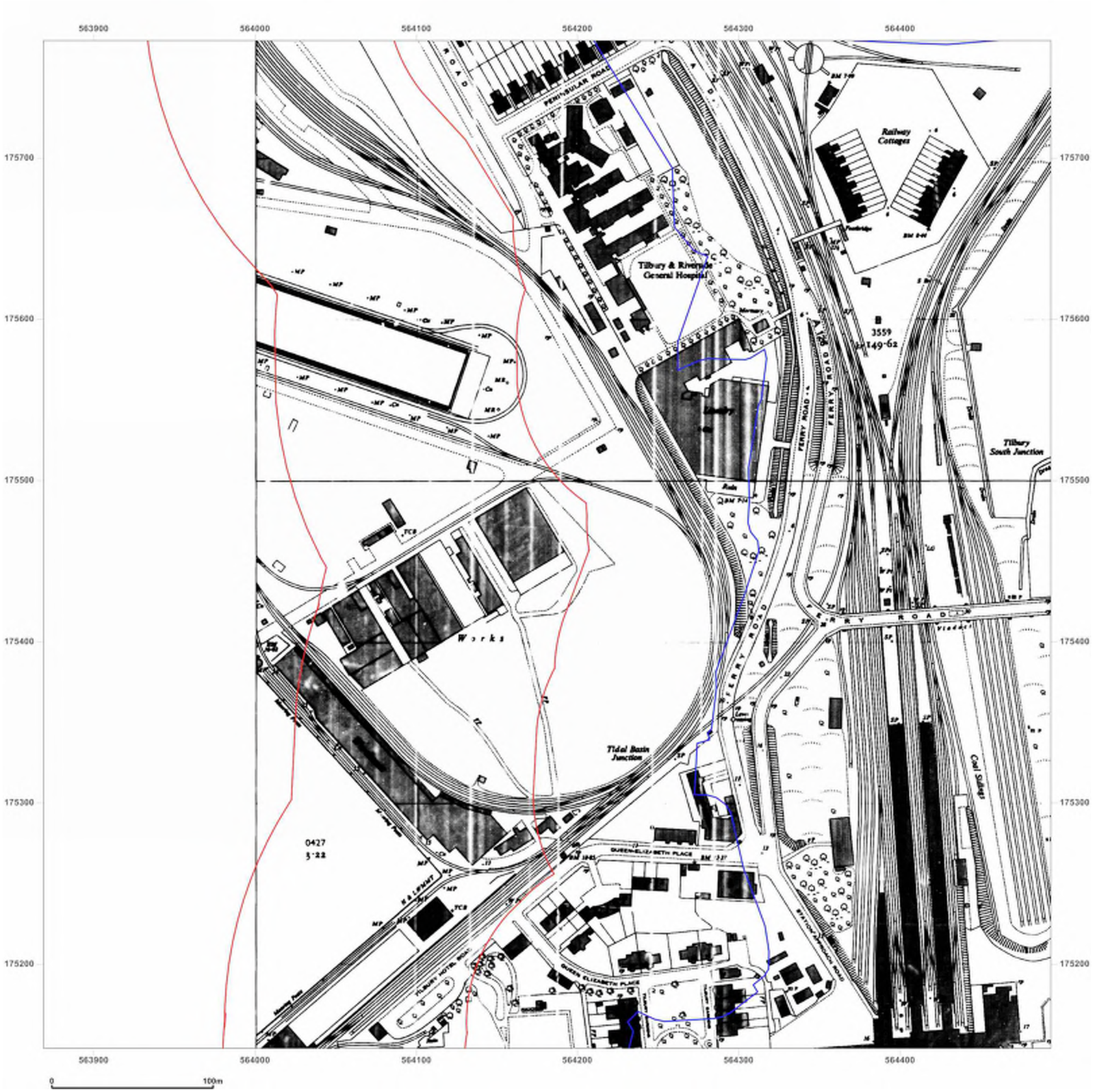
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_2
Grid Ref: 564181, 175460

Map Name: National Grid

Map date: **1961**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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

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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_2
Grid Ref: 564181, 175460

Map Name: National Grid

Map date: **1961-1966**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

Surveyed 1950
Revised 1960
Edition N/A
Copyright 1961
Levelled 1954

Surveyed 1950
Revised 1965
Edition N/A
Copyright 1966
Levelled 1961

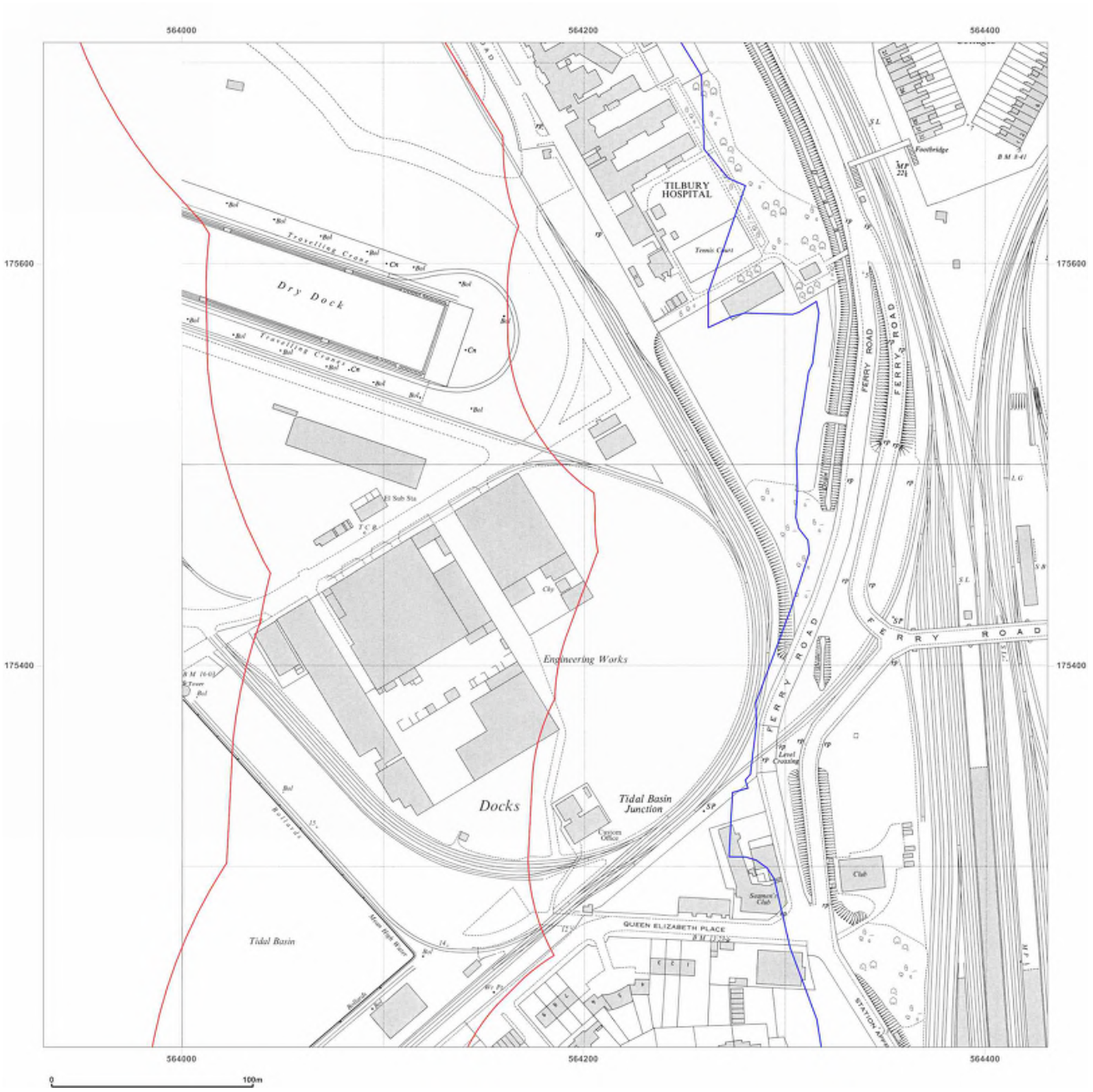
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_2
Grid Ref: 564181, 175460

Map Name: National Grid

Map date: **1967-1969**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1950
Revised 1966
Edition N/A
Copyright 1967
Levelled 1961

Surveyed 1968
Revised 1968
Edition N/A
Copyright 1969
Levelled 1961

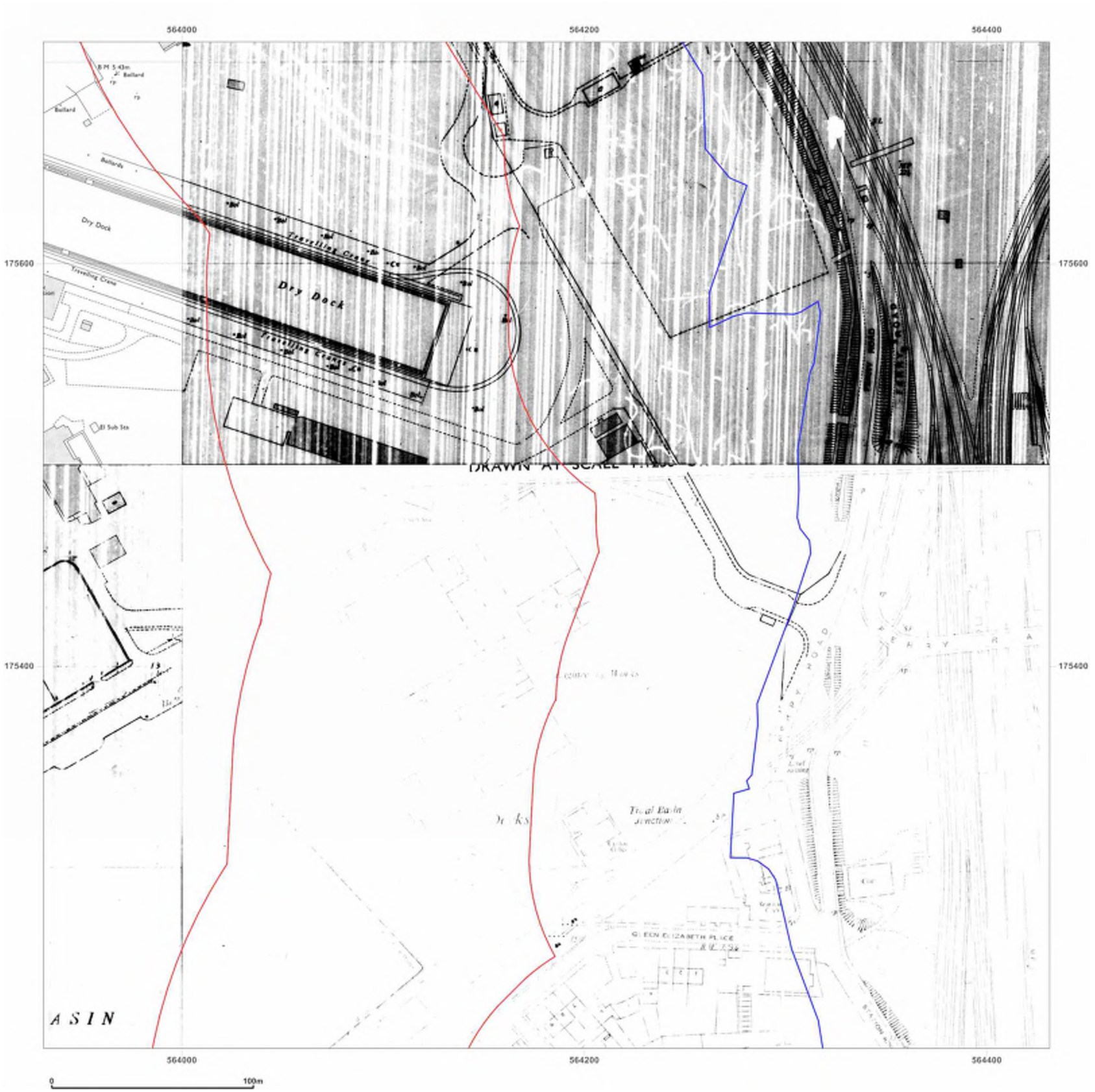
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_2
Grid Ref: 564181, 175460

Map Name: National Grid
Map date: **1973-1974**
Scale: 1:1,250
Printed at: 1:2,000

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Surveyed 1950 Revised 1972 Edition N/A Copyright 1973 Levelled 1961		Surveyed N/A Revised N/A Edition N/A Copyright N/A Levelled N/A
Surveyed N/A Revised N/A Edition N/A Copyright N/A Levelled N/A		Surveyed N/A Revised N/A Edition N/A Copyright 1973 Levelled N/A

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Groundsure INSIGHTS

Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_2
Grid Ref: 564181, 175460

Map Name: National Grid

Map date: **1974-1976**

Scale: 1:1,250

Printed at: 1:2,000

N
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S

Surveyed 1950
Revised 1975
Edition N/A
Copyright 1976
Levelled 1969

Surveyed 1950
Revised 1974
Edition N/A
Copyright 1974
Levelled 1968

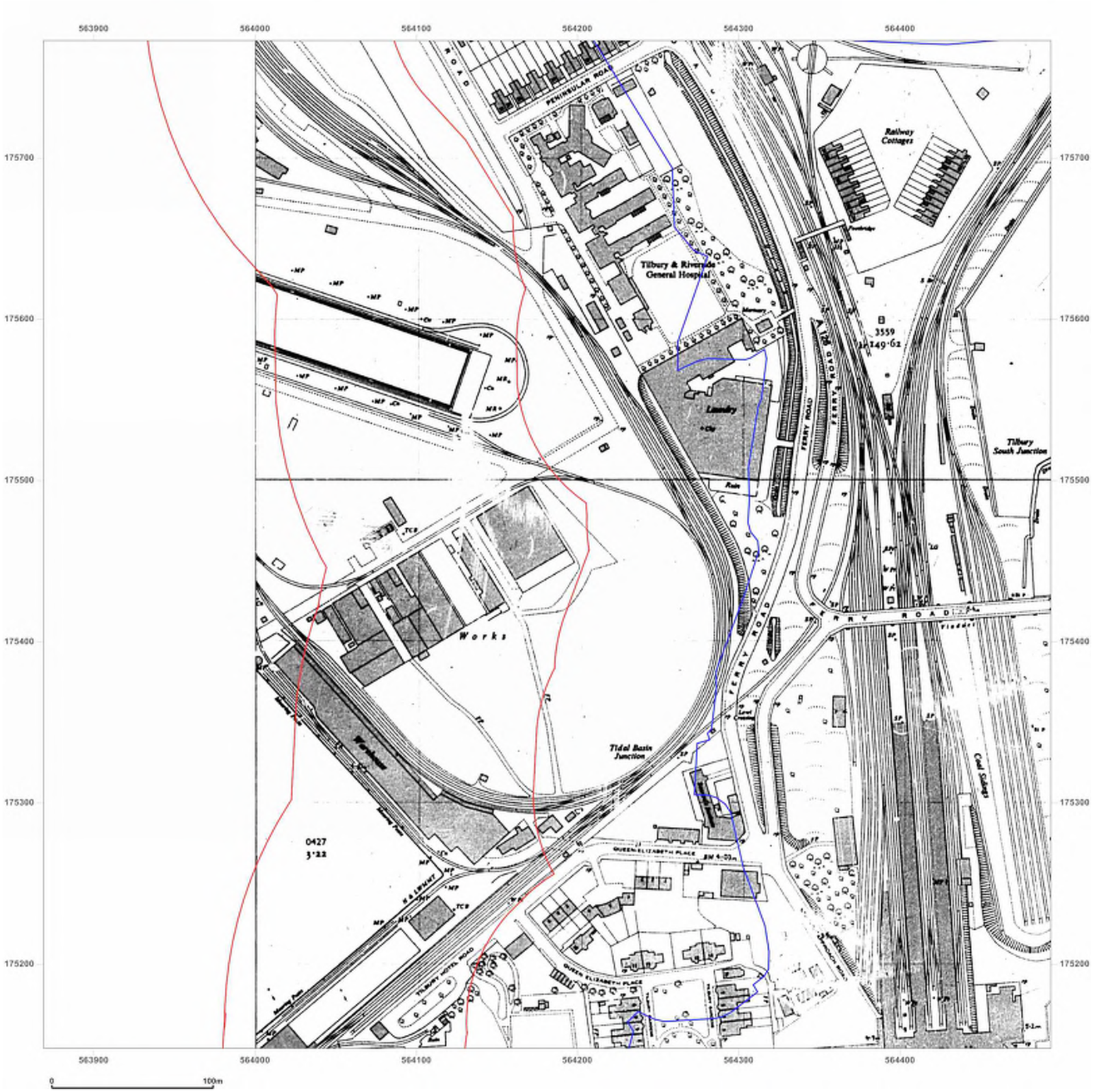
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_2
Grid Ref: 564181, 175460

Map Name: National Grid

Map date: **1978**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1978
Revised 1978
Edition N/A
Copyright 1978
Levelled N/A

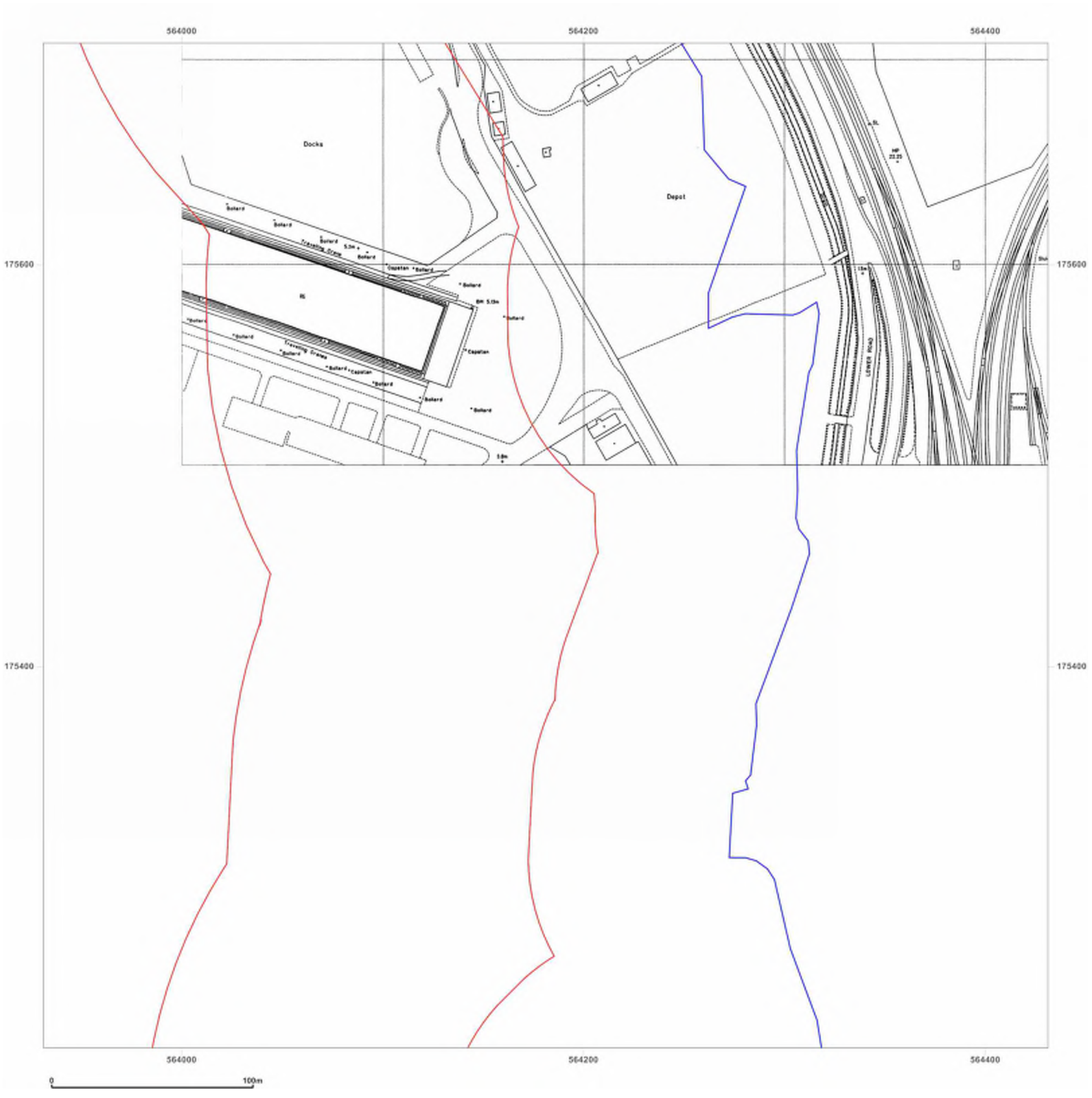
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_2
Grid Ref: 564181, 175460

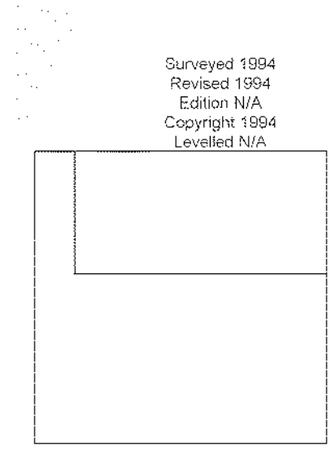
Map Name: National Grid

Map date: **1994**

Scale: 1:1,250

Printed at: 1:2,000

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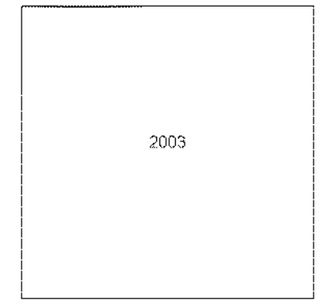
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_2
Grid Ref: 564181, 175460

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

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W E
S



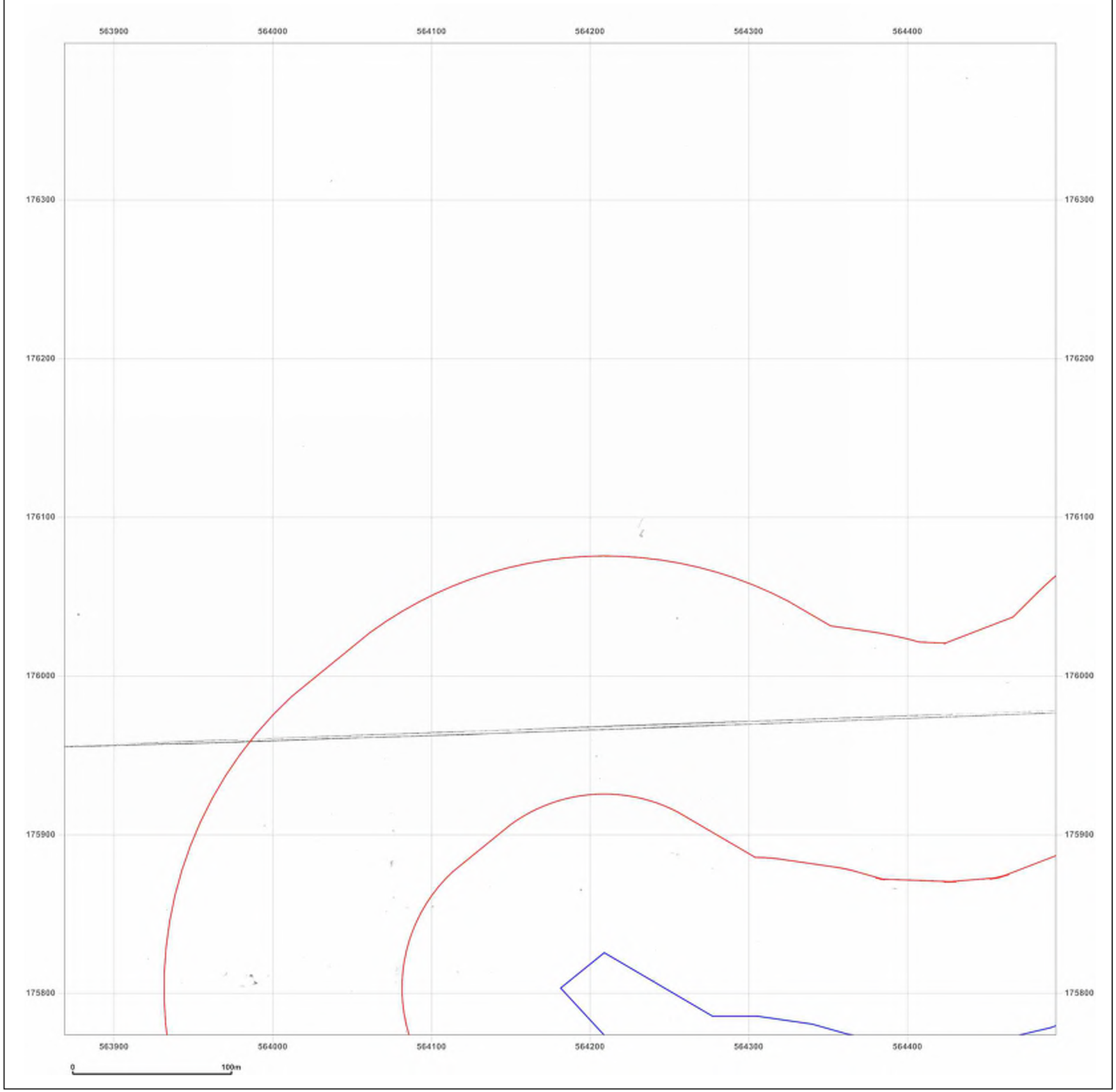
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_3
Grid Ref: 564181, 176086

Map Name: County Series

Map date: **1868-1870**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1868
Revised 1868
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1870
Revised 1870
Edition N/A
Copyright N/A
Levelled N/A

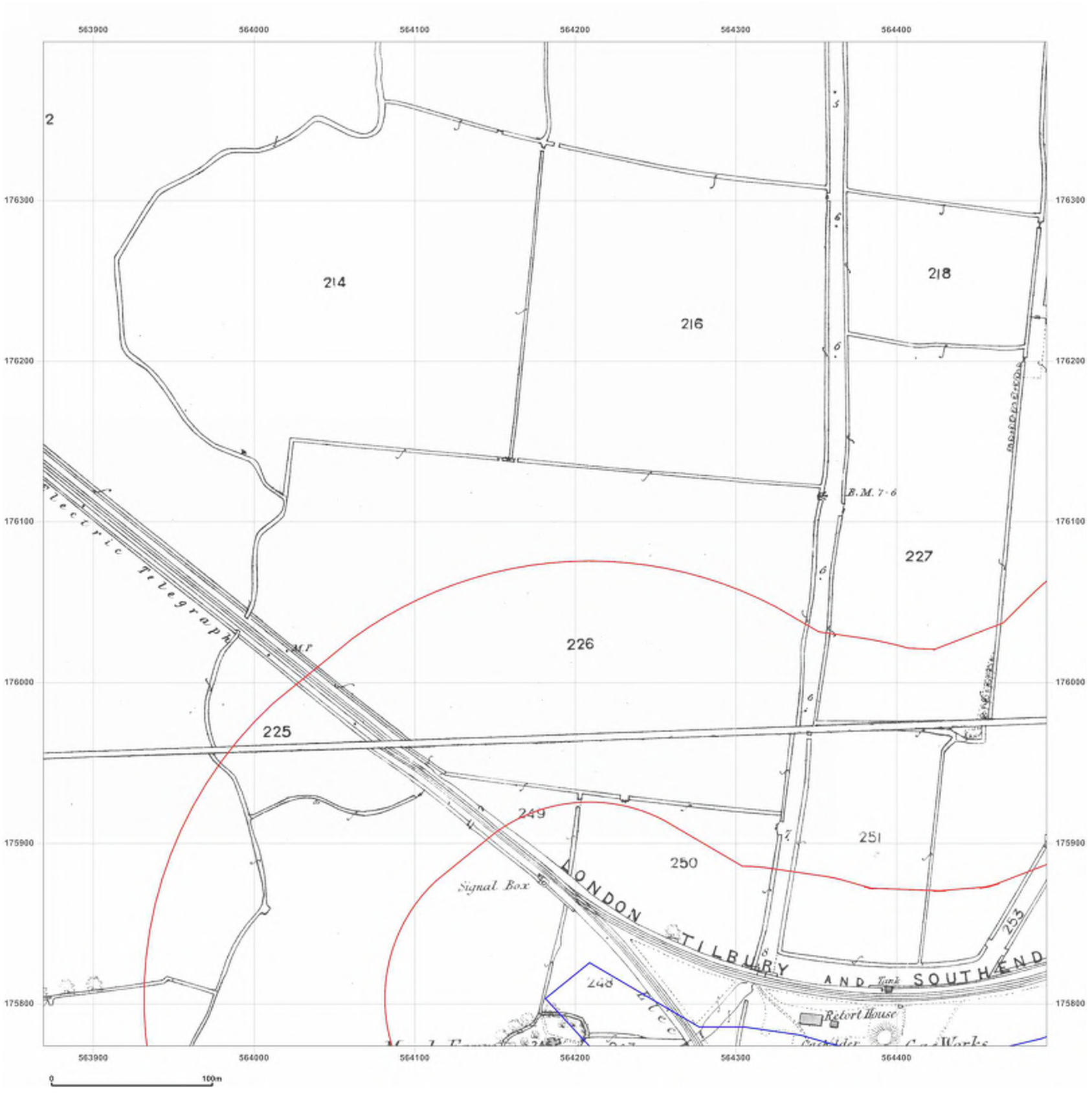
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_3
Grid Ref: 564181, 176086

Map Name: County Series

Map date: **1868-1870**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1868
Revised 1868
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1870
Revised 1870
Edition N/A
Copyright N/A
Levelled N/A

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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_3
Grid Ref: 564181, 176086

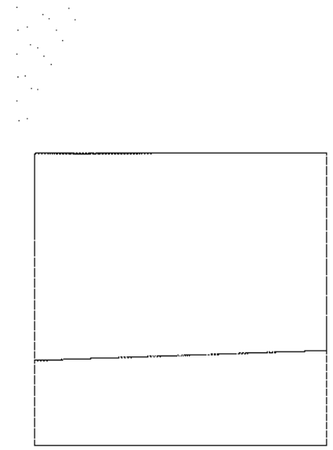
Map Name: County Series

Map date: **1897-1898**

Scale: 1:2,500

Printed at: 1:2,500

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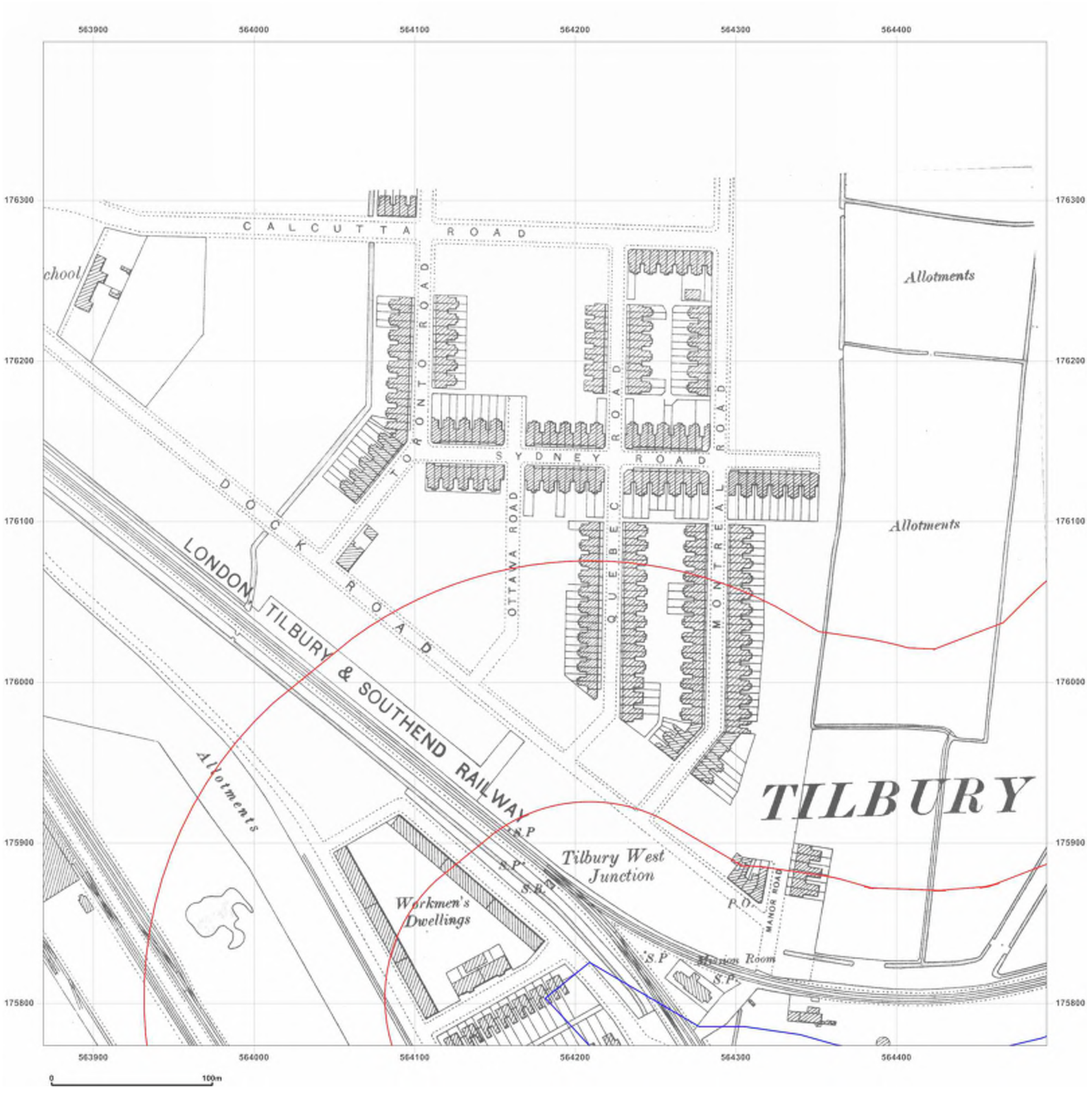
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_3
Grid Ref: 564181, 176086

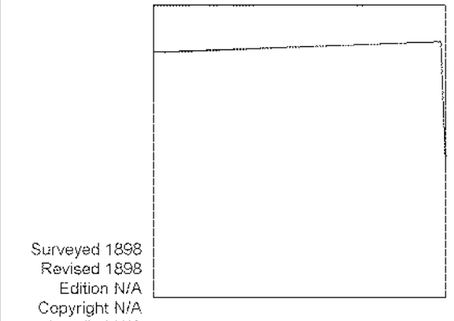
Map Name: County Series

Map date: **1898**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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Surveyed 1898
Revised 1898
Edition N/A
Copyright N/A
Levelled N/A

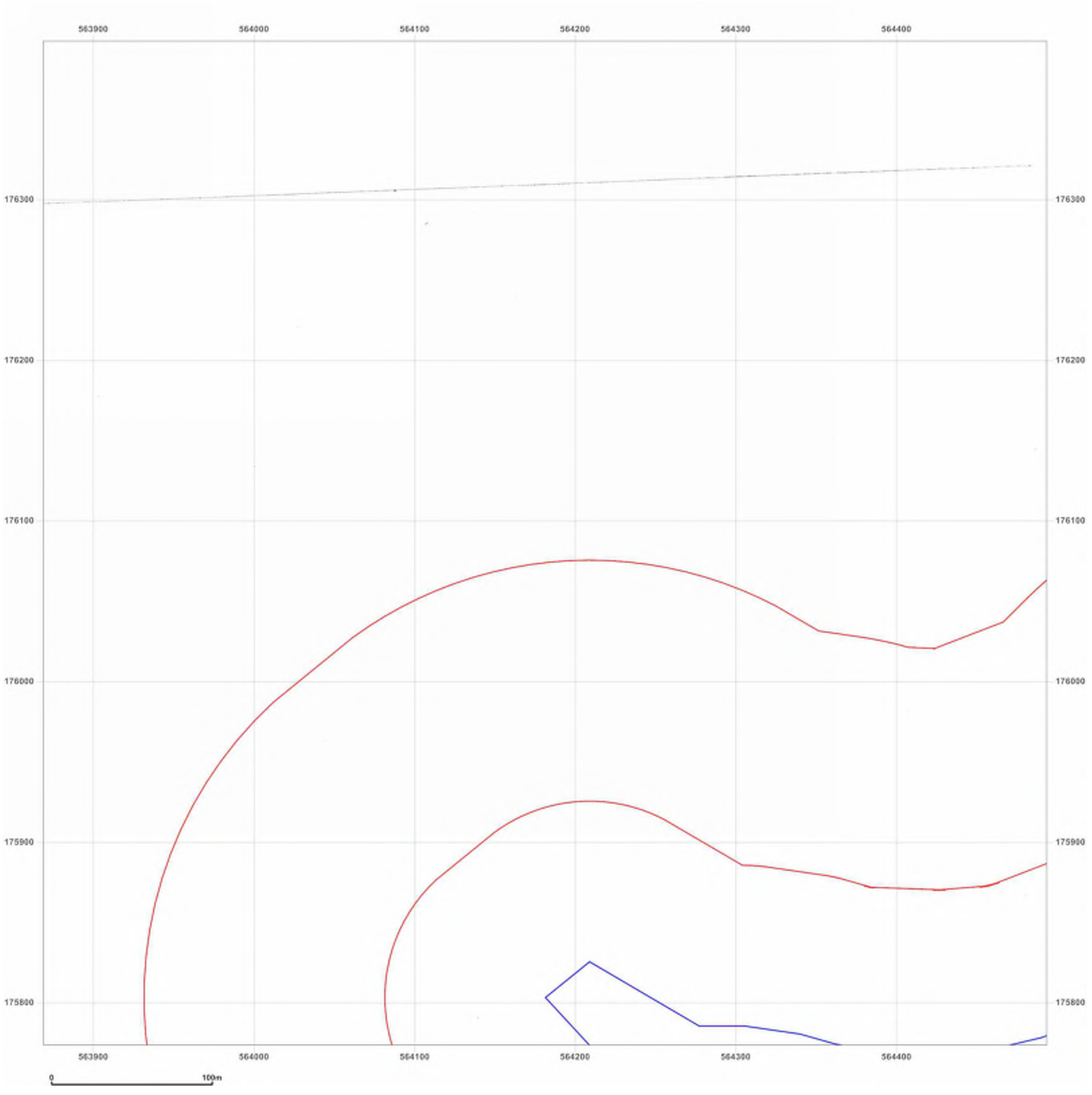
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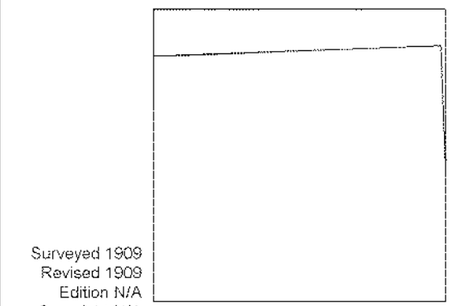
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_3
Grid Ref: 564181, 176086

Map Name: County Series
Map date: **1909**
Scale: 1:2,500
Printed at: 1:2,500

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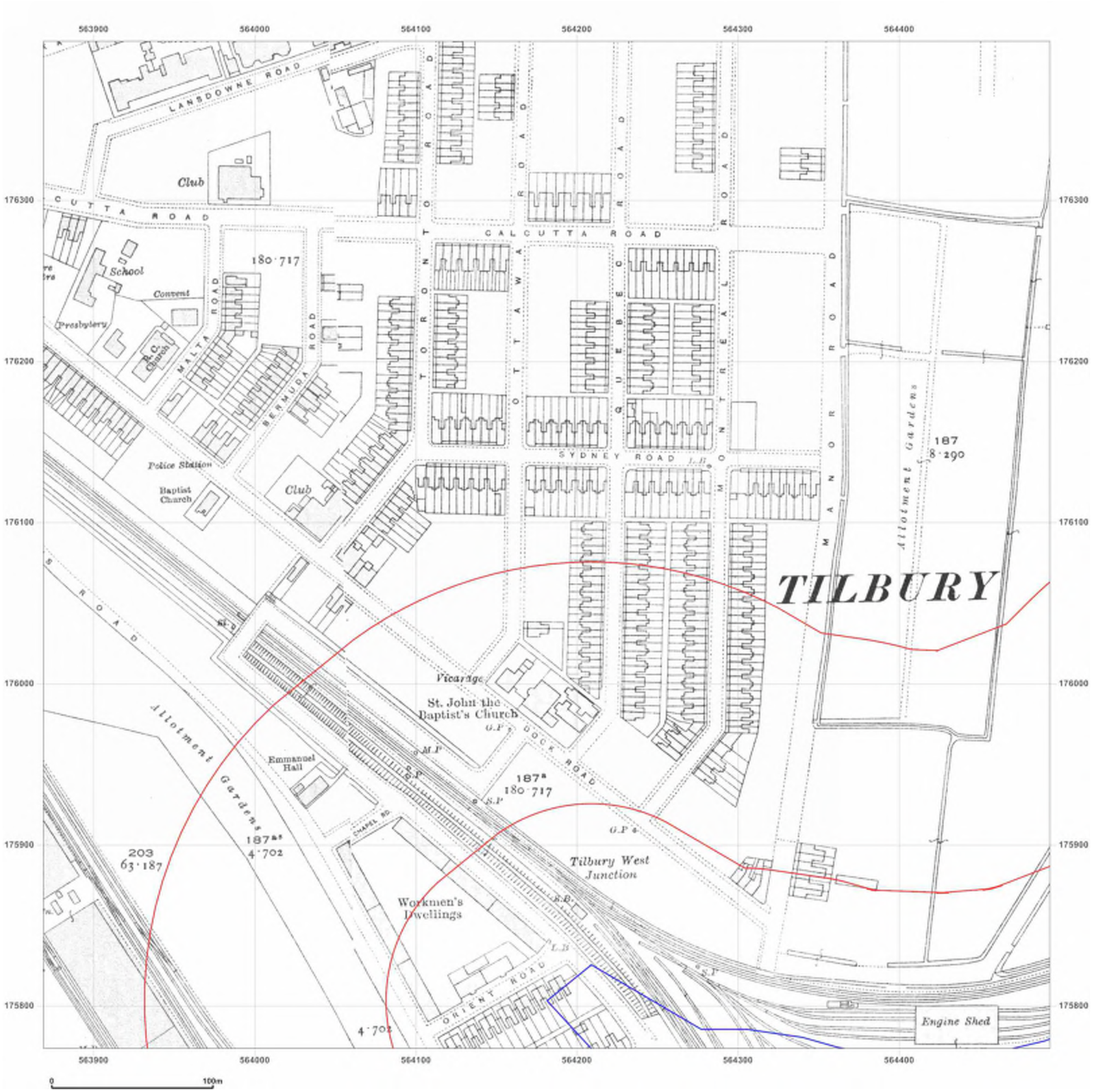
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_3
Grid Ref: 564181, 176086

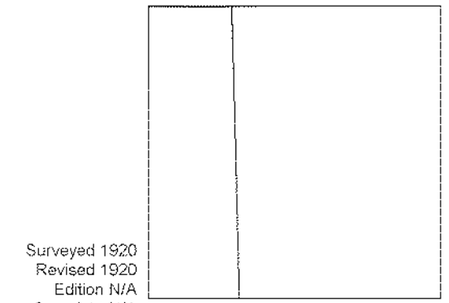
Map Name: County Series

Map date: **1920**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1920
Revised 1920
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1920
Revised 1920
Edition N/A
Copyright N/A
Levelled N/A

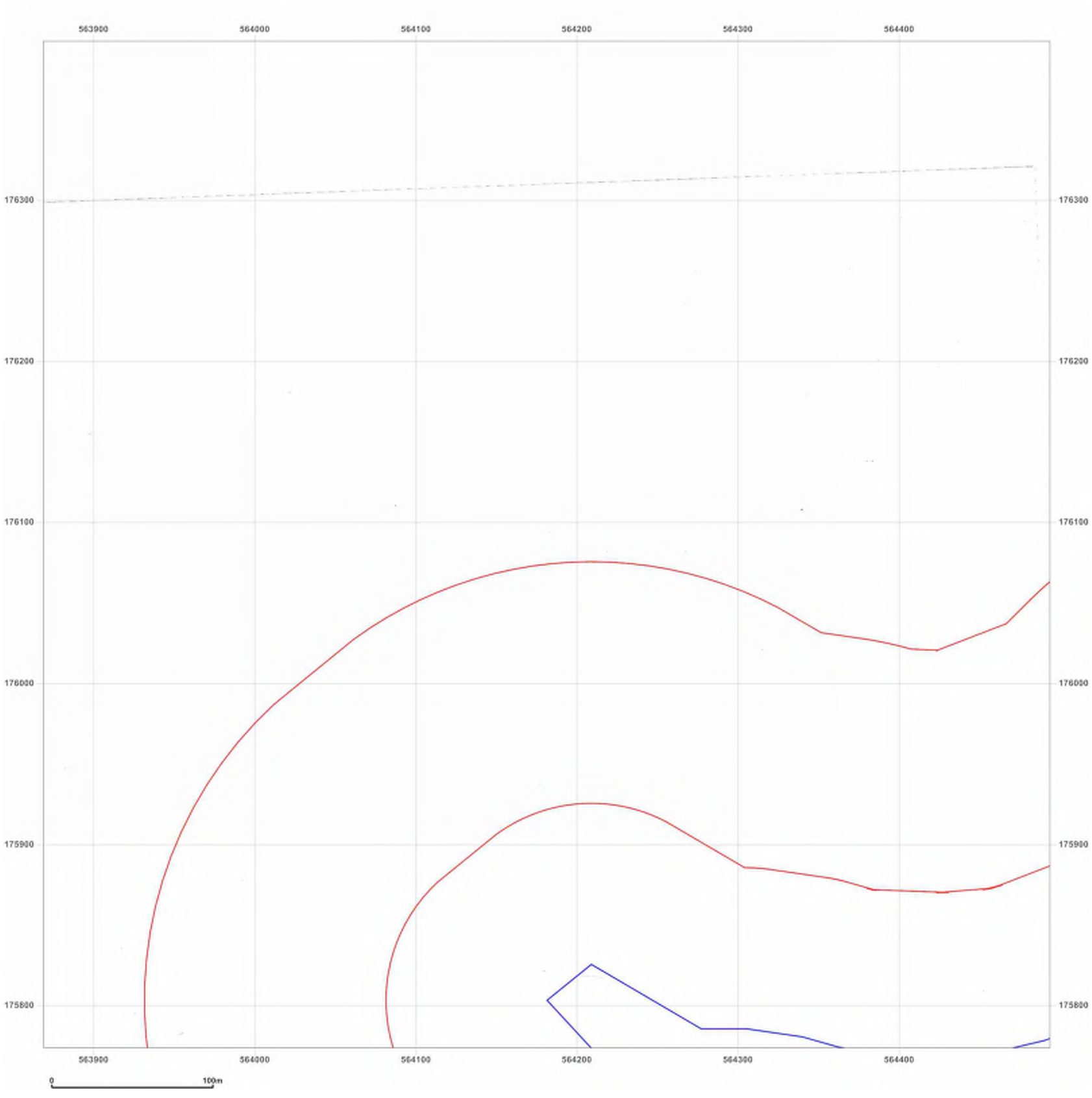
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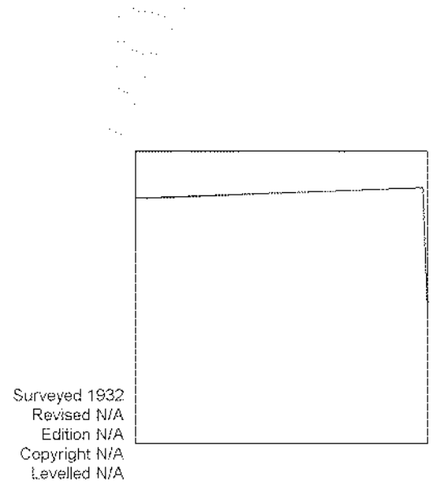
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_3
Grid Ref: 564181, 176086

Map Name: County Series
Map date: **1932**
Scale: 1:2,500
Printed at: 1:2,500

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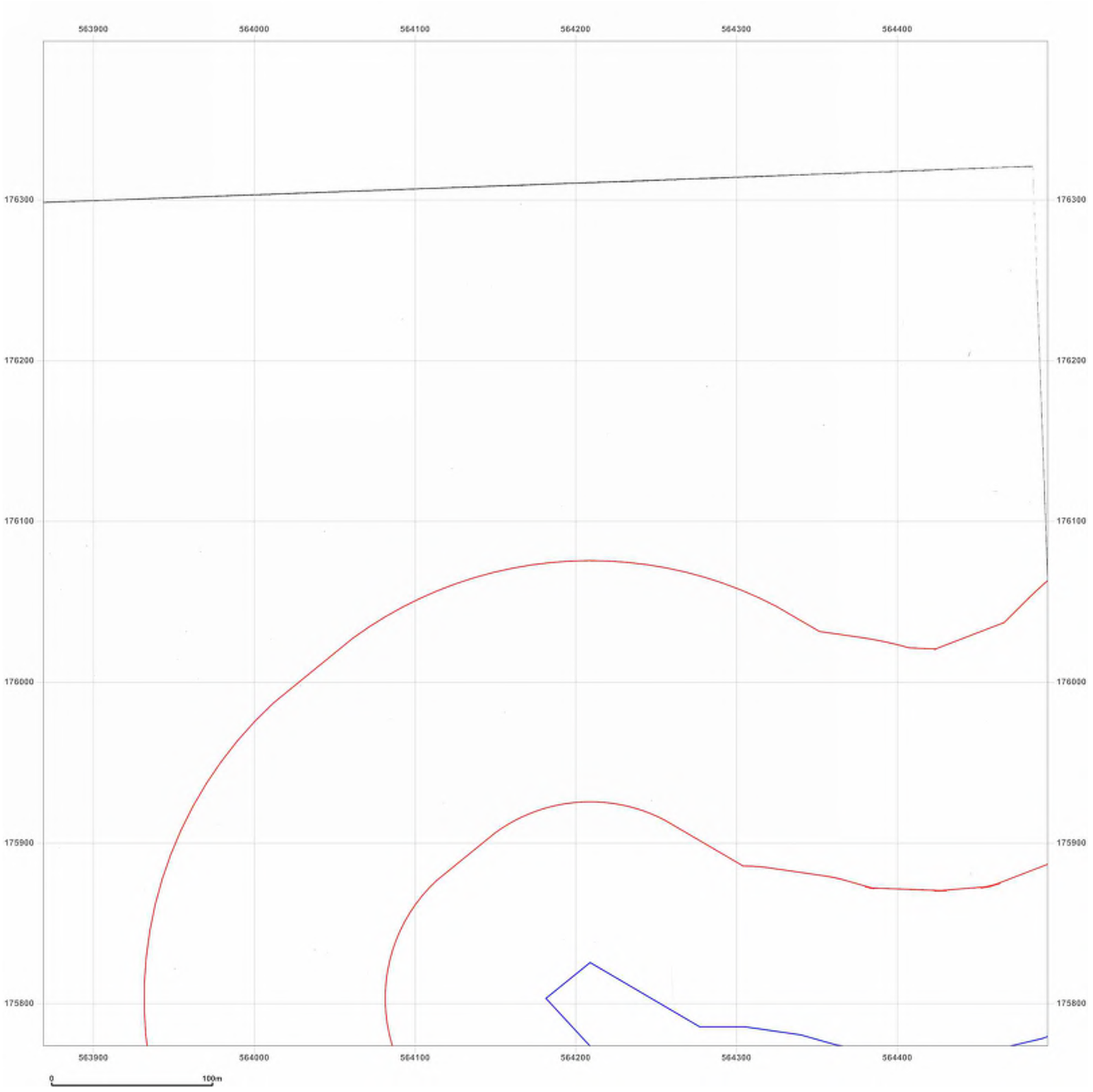
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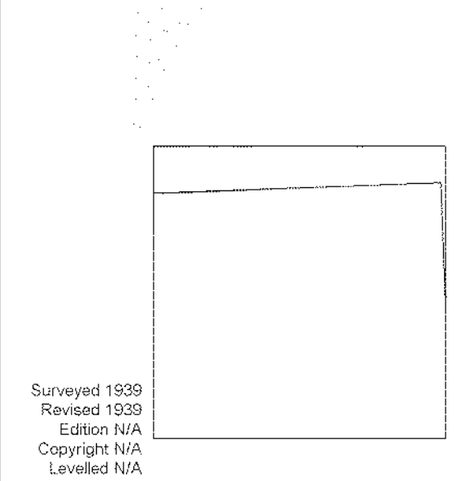
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_3
Grid Ref: 564181, 176086

Map Name: County Series
Map date: **1939**
Scale: 1:2,500
Printed at: 1:2,500

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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_3
Grid Ref: 564181, 176086

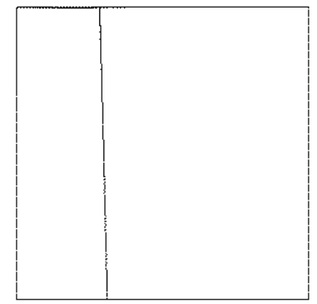
Map Name: County Series

Map date: **1940**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1940
Revised 1940
Edition N/A
Copyright N/A
Levelled N/A

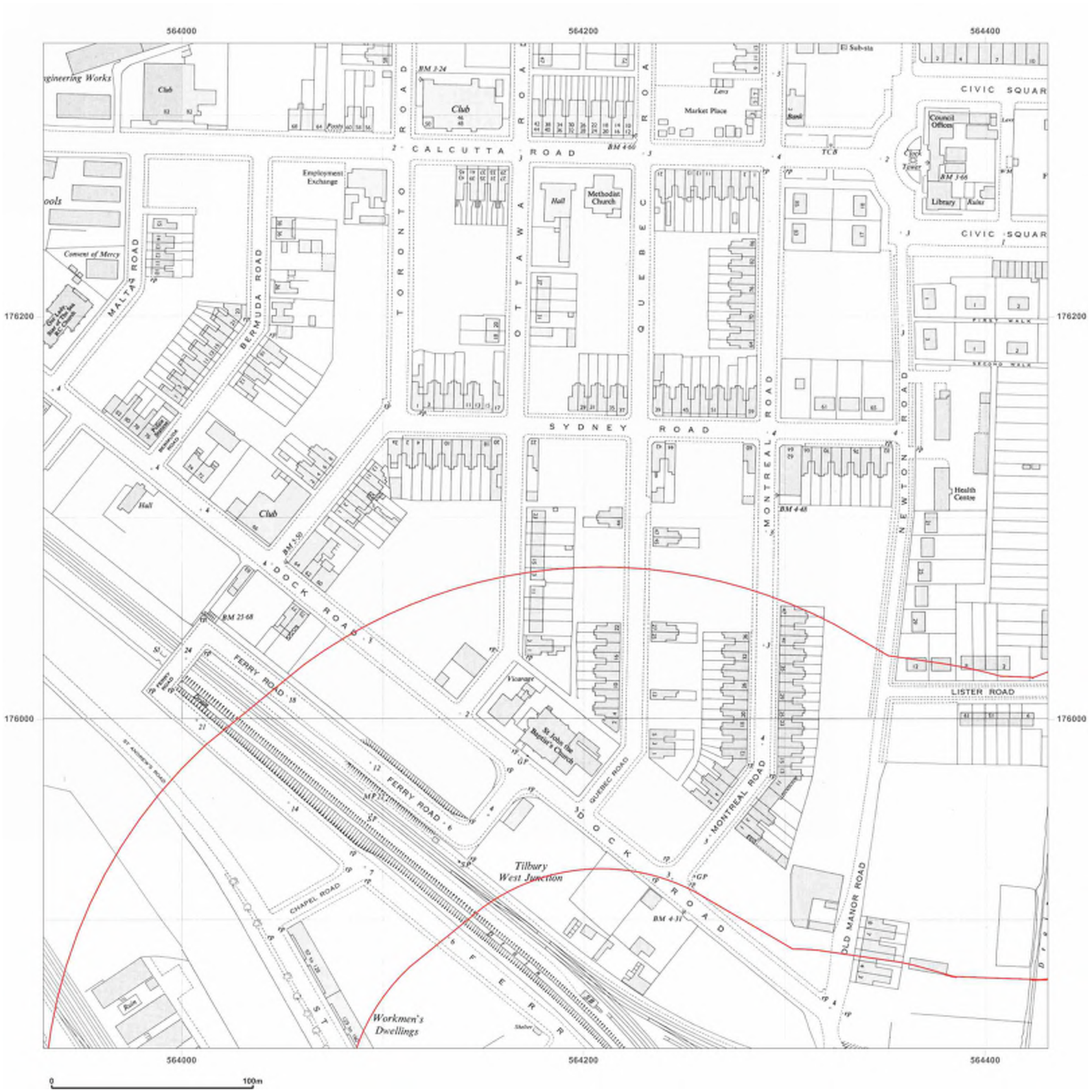
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_3
Grid Ref: 564181, 176086

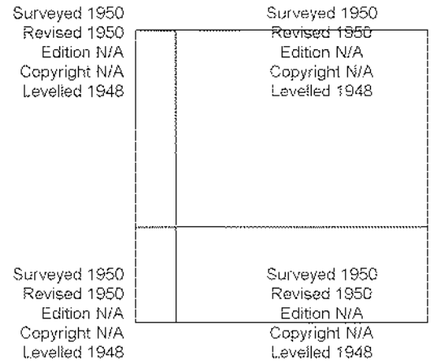
Map Name: National Grid

Map date: **1950**

Scale: 1:1,250

Printed at: 1:2,000

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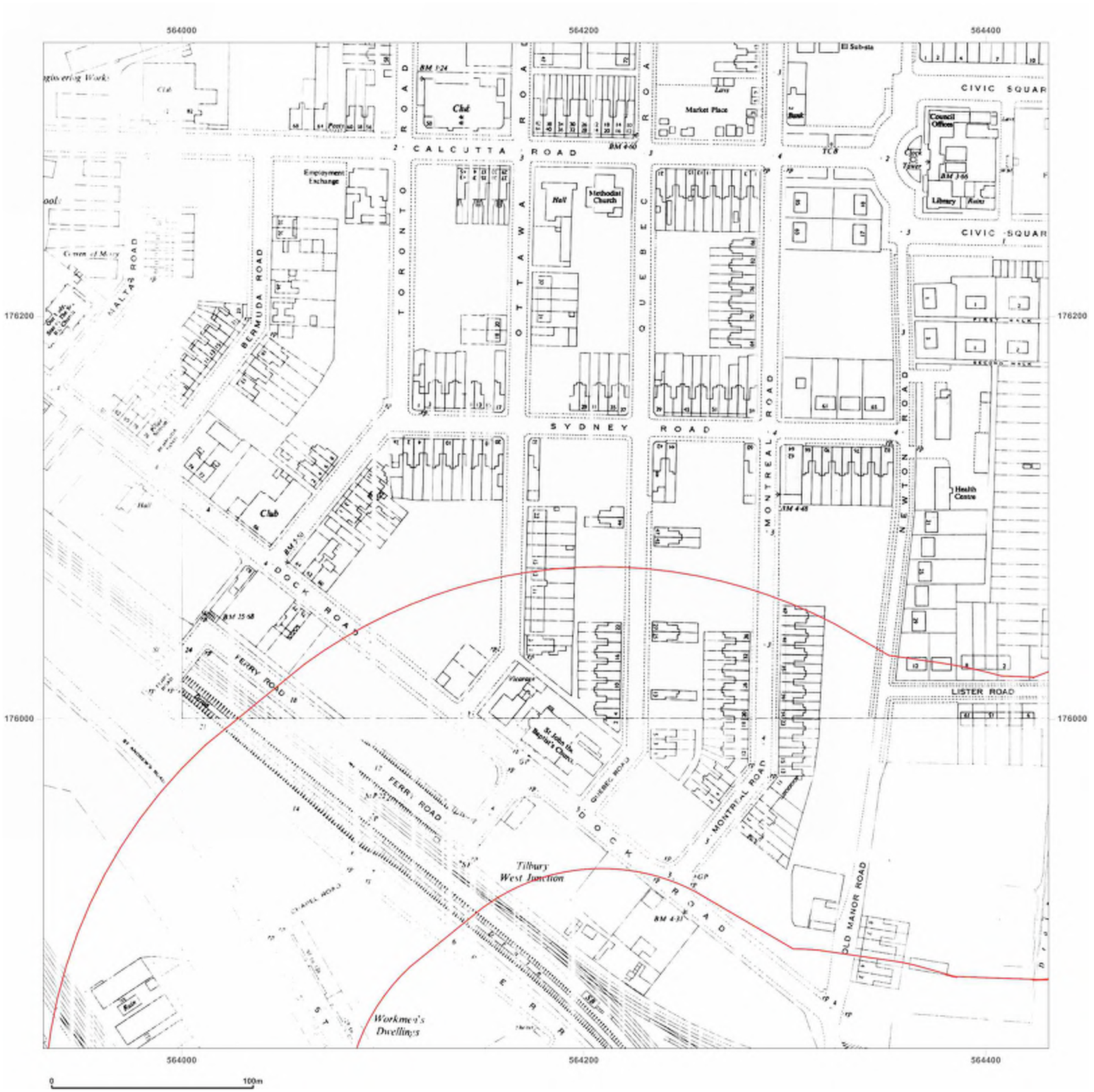
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_3
Grid Ref: 564181, 176086

Map Name: National Grid

Map date: **1951**

Scale: 1:1,250

Printed at: 1:2,000

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

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

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

Surveyed N/A
Revised N/A
Edition N/A
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_3
Grid Ref: 564181, 176086

Map Name: National Grid

Map date: **1950-1951**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1951
Revised 1951
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled 1948

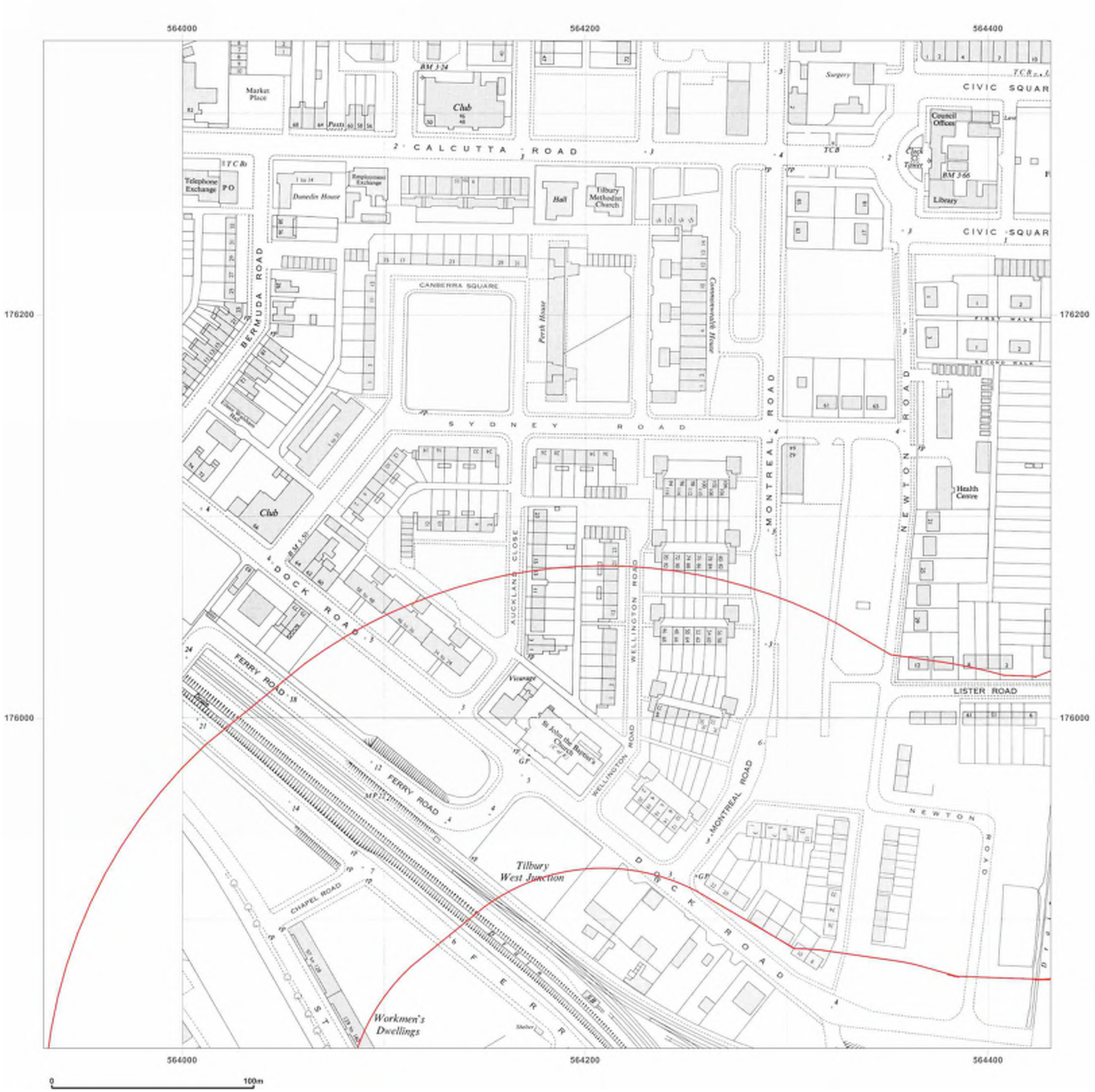
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_3
Grid Ref: 564181, 176086

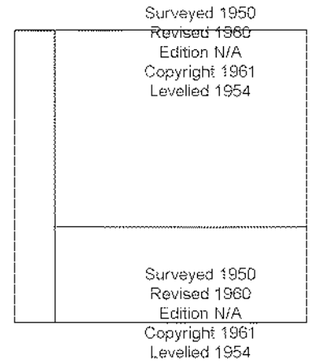
Map Name: National Grid

Map date: **1961**

Scale: 1:1,250

Printed at: 1:2,000

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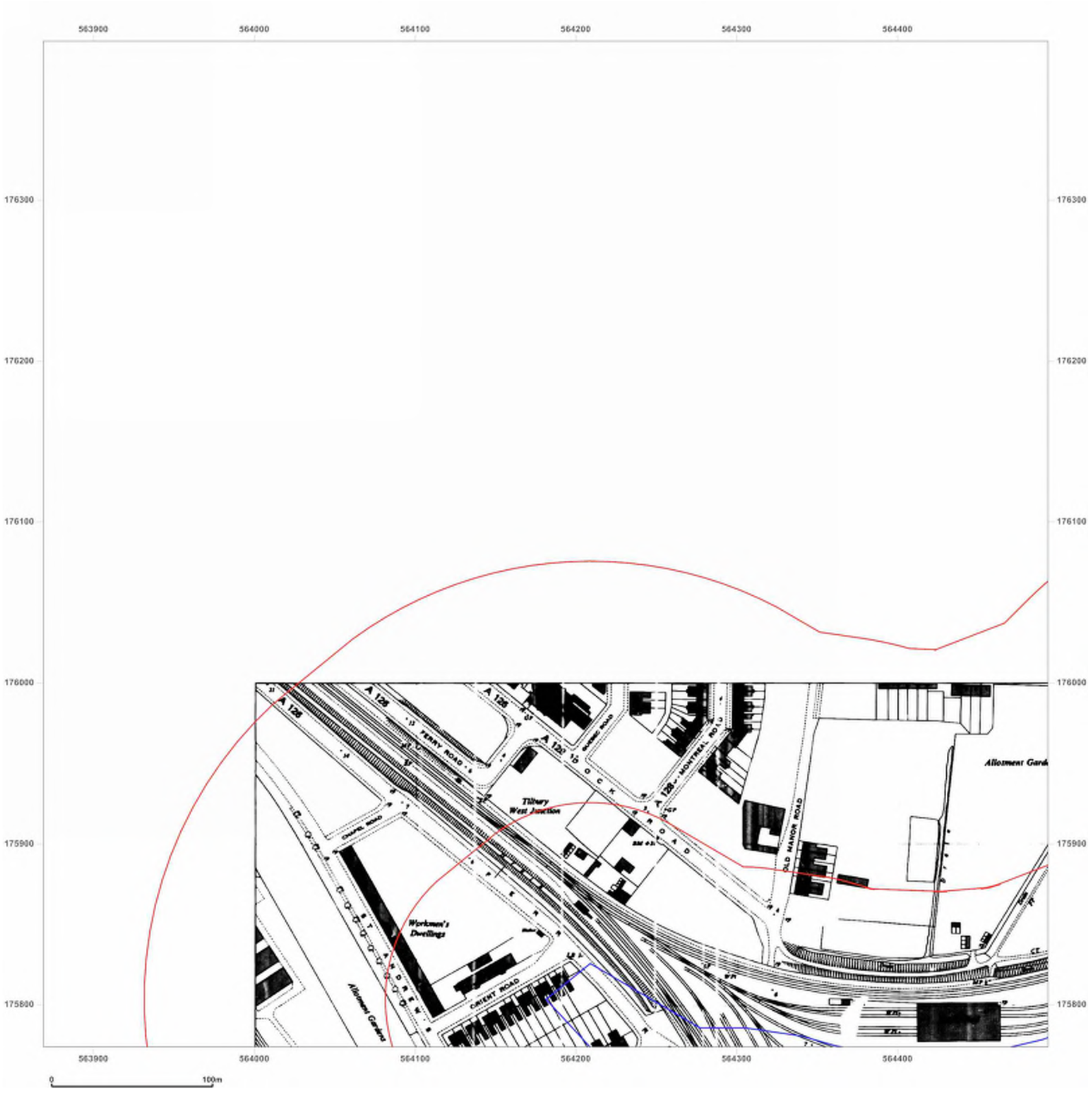
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_3
Grid Ref: 564181, 176086

Map Name: National Grid

Map date: **1961**

Scale: 1:2,500

Printed at: 1:2,500

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

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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_3
Grid Ref: 564181, 176086

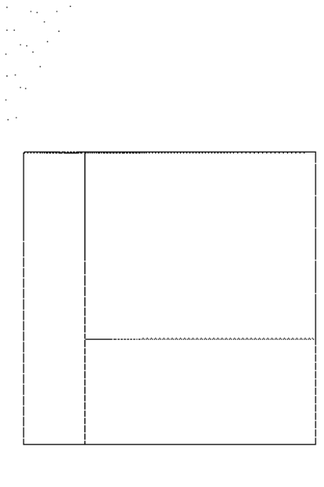
Map Name: National Grid

Map date: **1959-1962**

Scale: 1:2,500

Printed at: 1:2,500

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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_3
Grid Ref: 564181, 176086

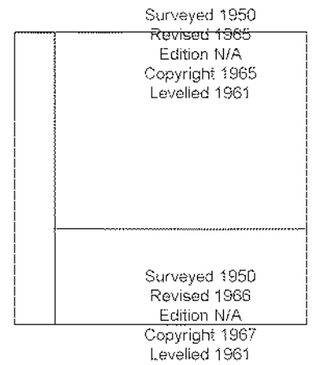
Map Name: National Grid

Map date: **1965-1967**

Scale: 1:1,250

Printed at: 1:2,000

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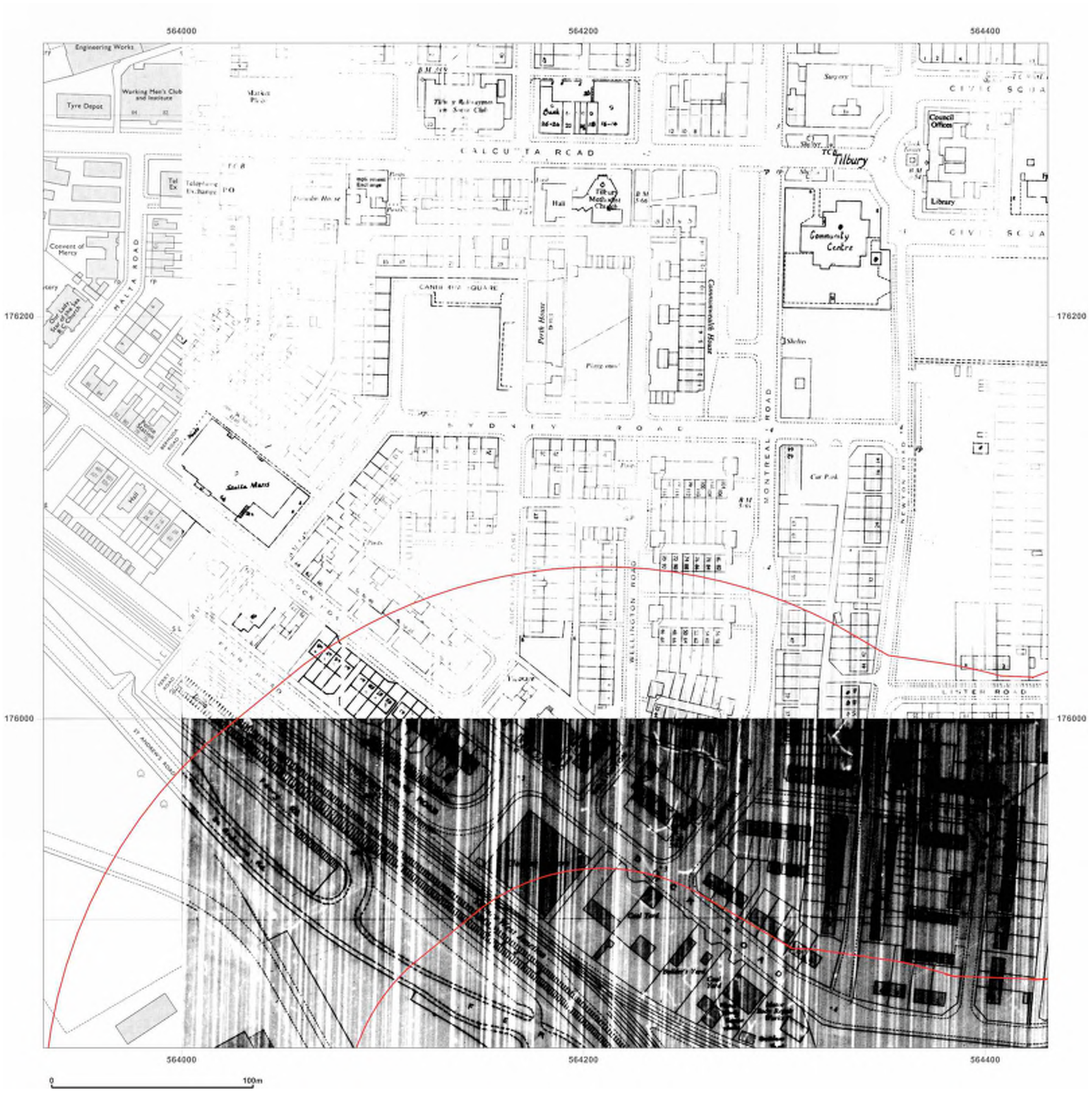
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_3
Grid Ref: 564181, 176086

Map Name: National Grid

Map date: **1971-1974**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed 1950 Revised 1970 Edition N/A Copyright 1971 Levelled 1961	Surveyed N/A Revised N/A Edition N/A Copyright 1973 Levelled N/A
Surveyed 1950 Revised 1972 Edition N/A Copyright 1973 Levelled 1961	Surveyed N/A Revised N/A Edition N/A Copyright N/A Levelled N/A

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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_3
Grid Ref: 564181, 176086

Map Name: National Grid

Map date: **1974-1977**

Scale: 1:1,250

Printed at: 1:2,000

N
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Surveyed N/A
Revised N/A
Edition N/A
Copyright 1974
Levelled N/A

Surveyed 1950
~~Revised 1976~~
Edition N/A
Copyright 1977
Levelled 1969

Surveyed 1950
Revised 1975
Edition N/A
Copyright 1976
Levelled 1969

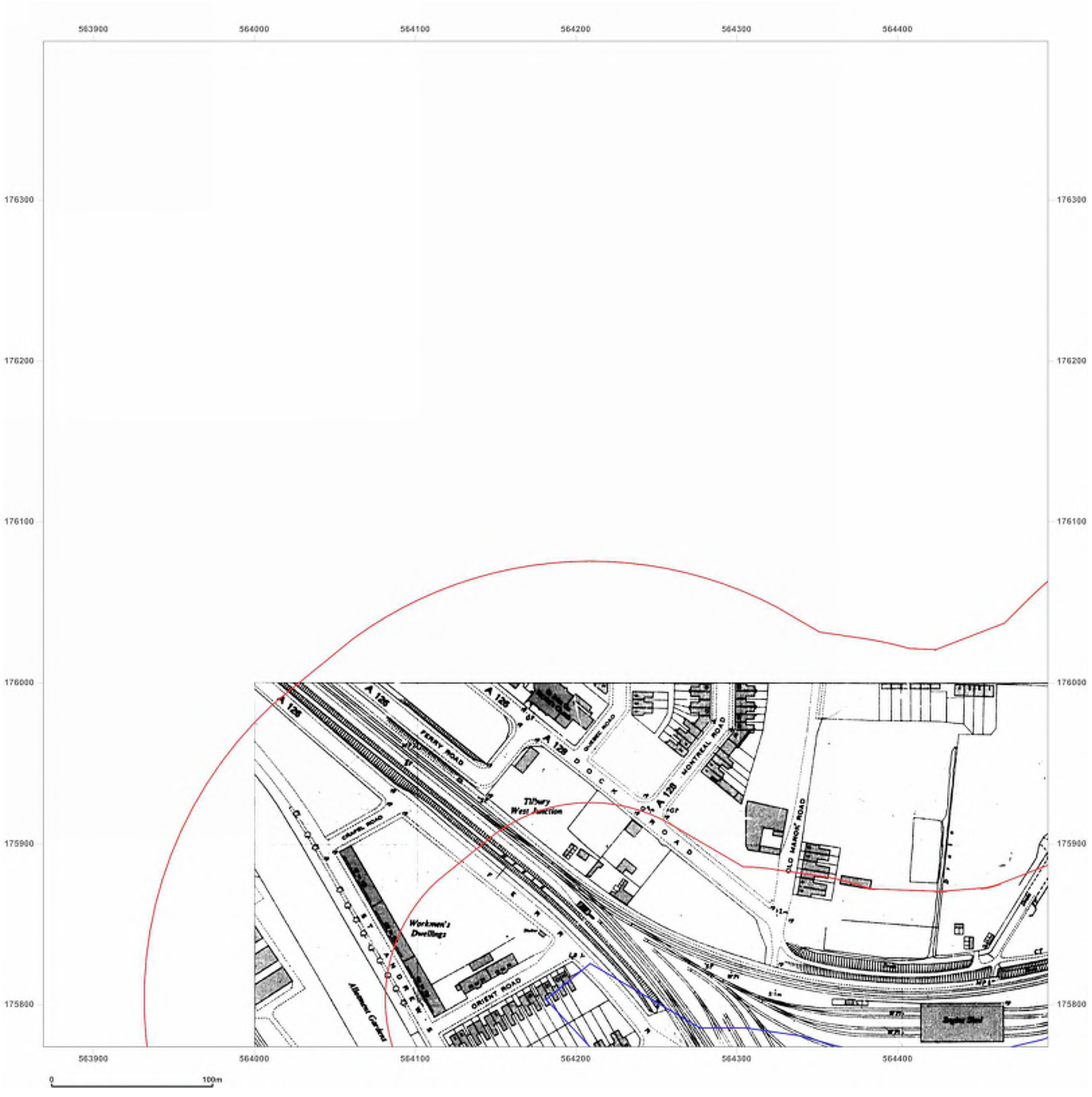
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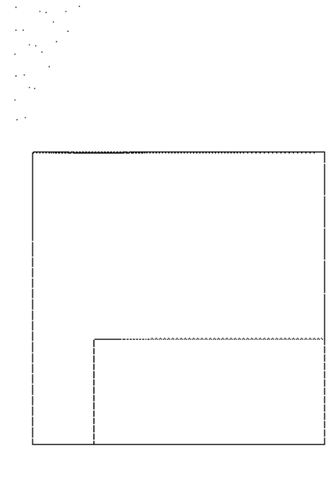
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_3
Grid Ref: 564181, 176086

Map Name: National Grid
Map date: **1978**
Scale: 1:2,500
Printed at: 1:2,500

N
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Surveyed 1978
Revised 1978
Edition N/A
Copyright 1978
Levelled N/A

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564000
564200
564400
176200
176000
Depot
Club
Convent of Mercy
MALTA ROAD
Hall
FERRY ROAD
ST ANDREW'S ROAD
St John The Baptist's Church
WELLINGTON ROAD
MONTREAL ROAD
Shelter
Pond
Pond
Pond



Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_1_3
Grid Ref: 564181, 176086

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

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2003

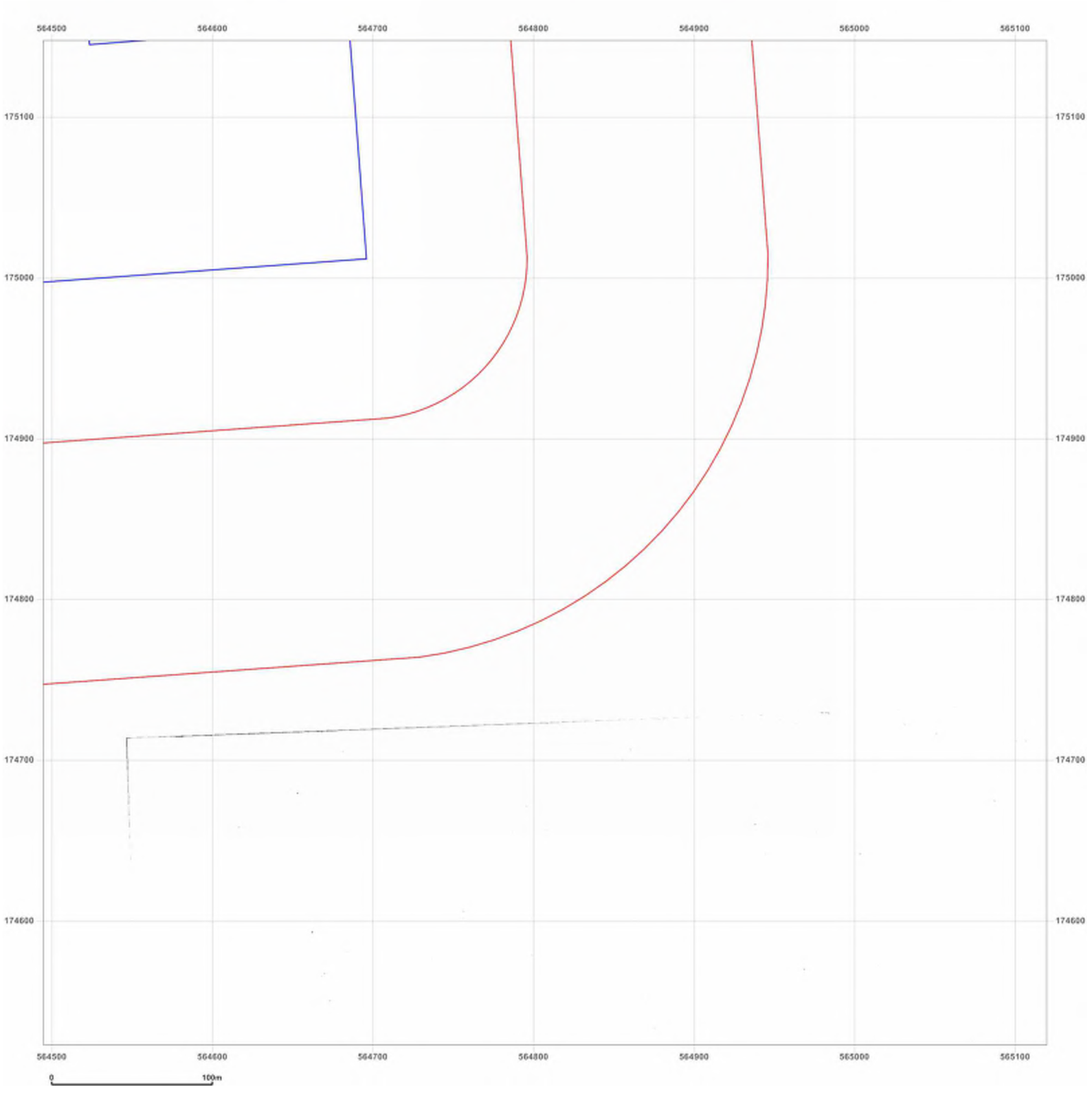
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_1
Grid Ref: 564807, 174835

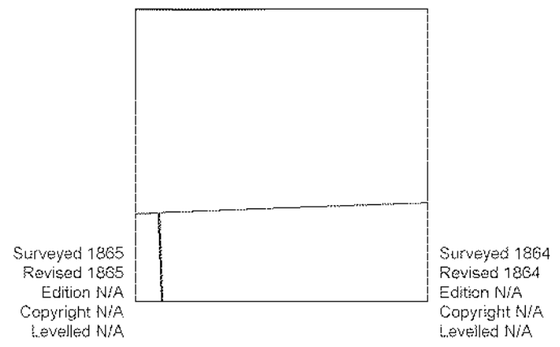
Map Name: County Series

Map date: **1864-1865**

Scale: 1:2,500

Printed at: 1:2,500

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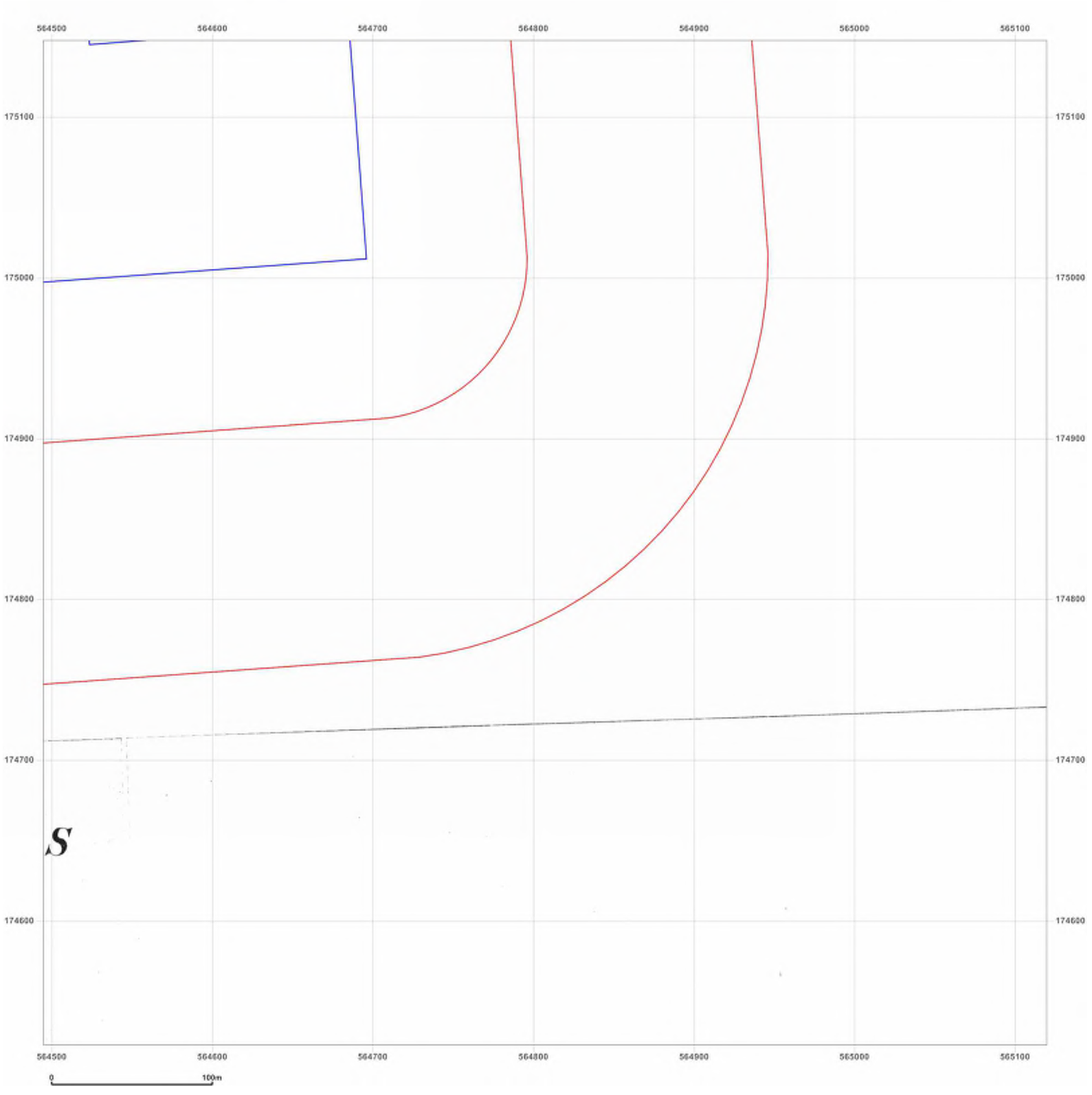
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Production date: 15 June 2020

Map legend available at:
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_1
Grid Ref: 564807, 174835

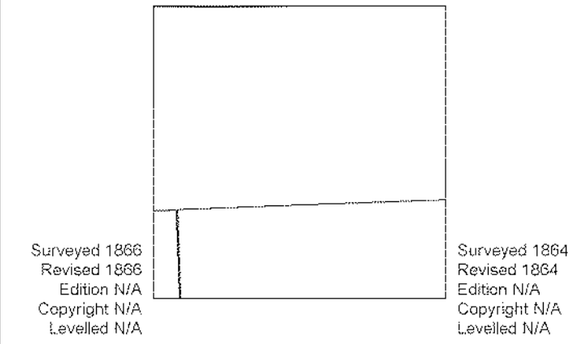
Map Name: County Series

Map date: **1864-1866**

Scale: 1:2,500

Printed at: 1:2,500

N
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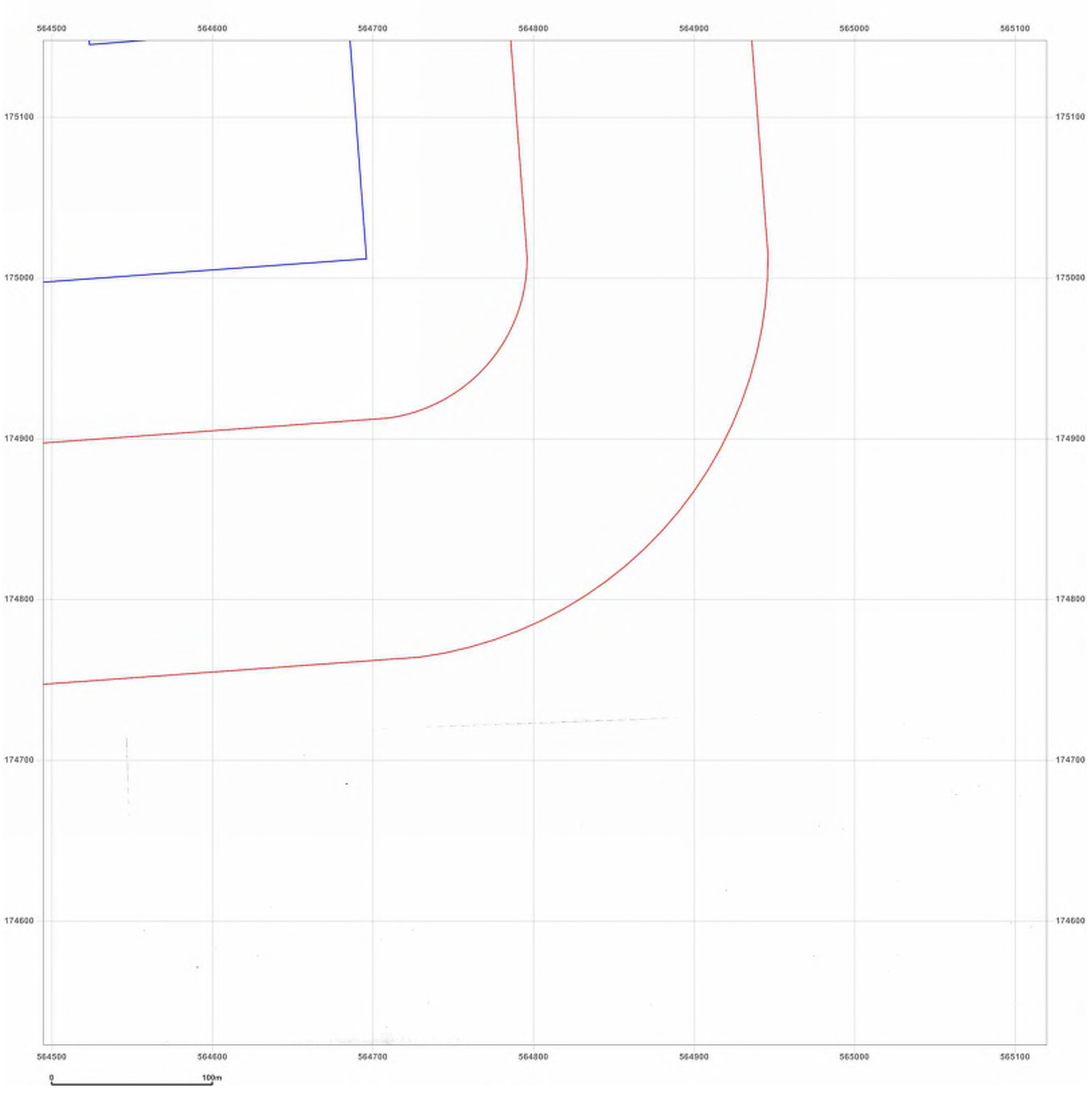


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Production date: 15 June 2020

Map legend available at:
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_1
Grid Ref: 564807, 174835

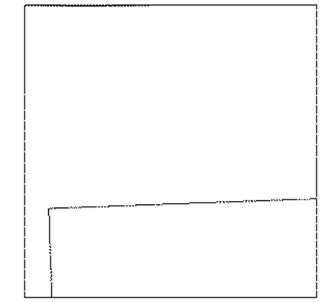
Map Name: County Series

Map date: **1866**

Scale: 1:2,500

Printed at: 1:2,500

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

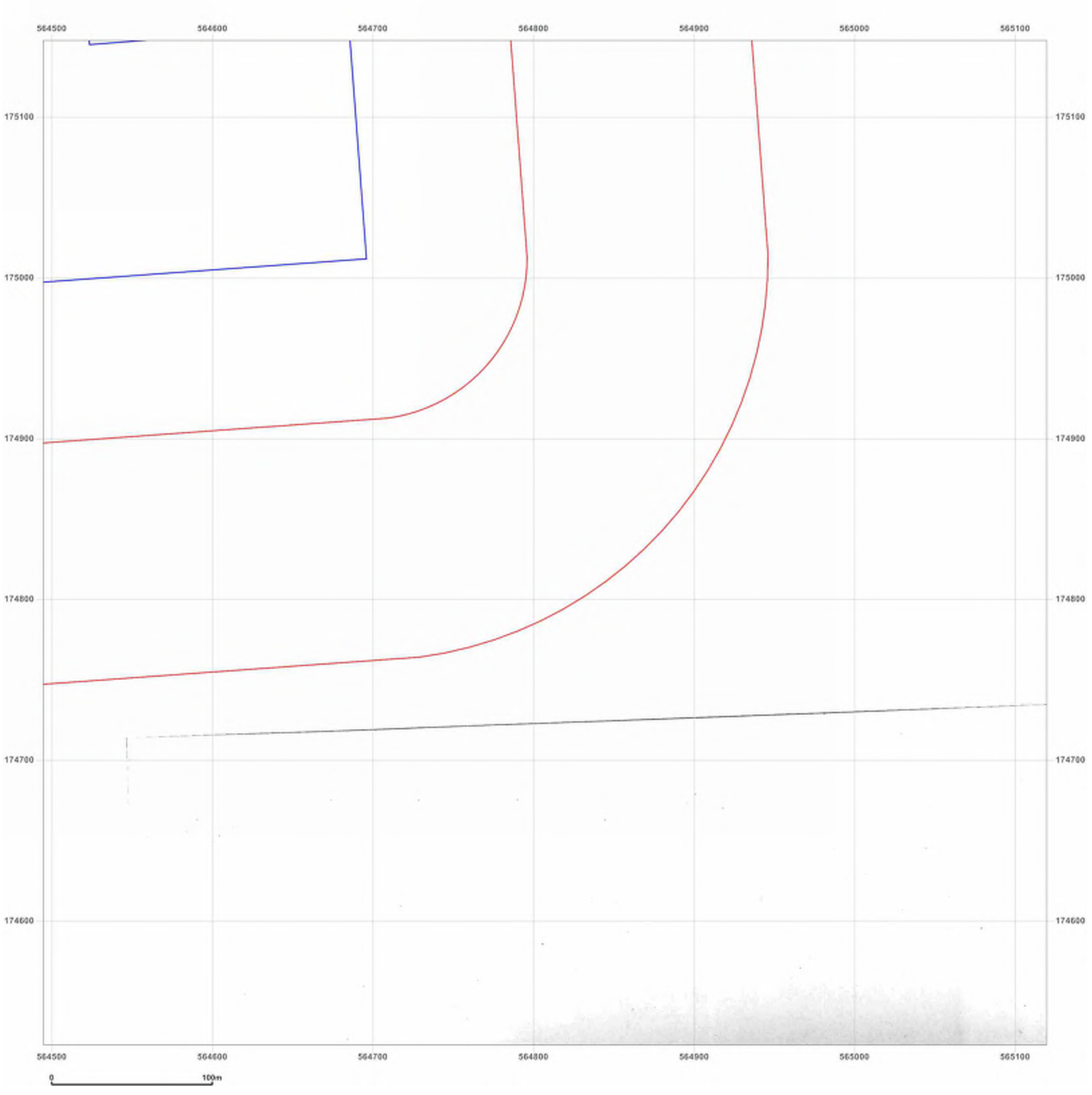
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_1
Grid Ref: 564807, 174835

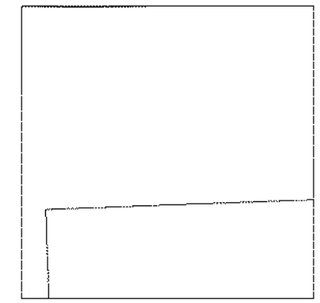
Map Name: County Series

Map date: **1866**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S



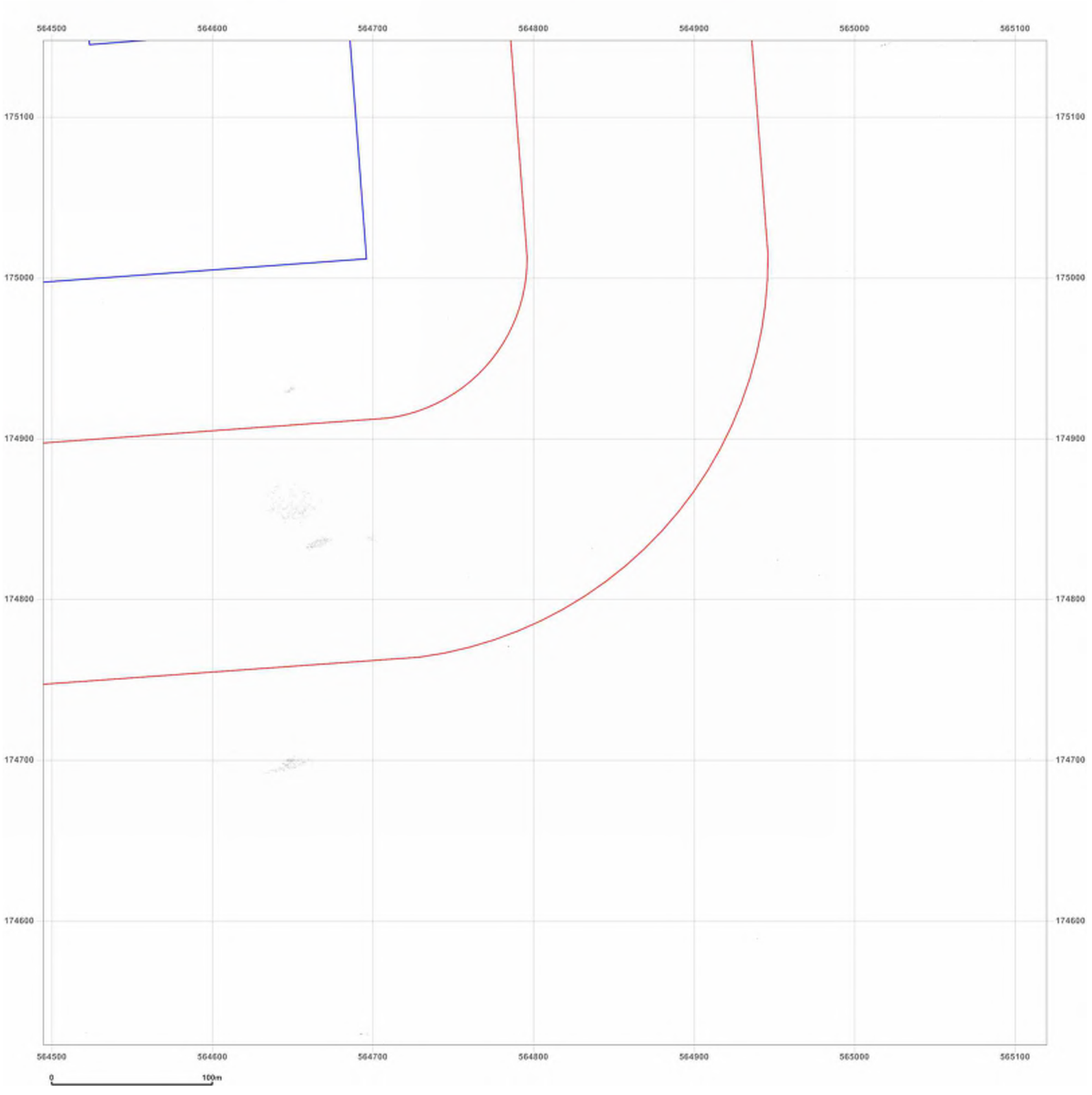
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_1
Grid Ref: 564807, 174835

Map Name: County Series

Map date: **1870**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1870
Revised 1870
Edition N/A
Copyright N/A
Levelled N/A

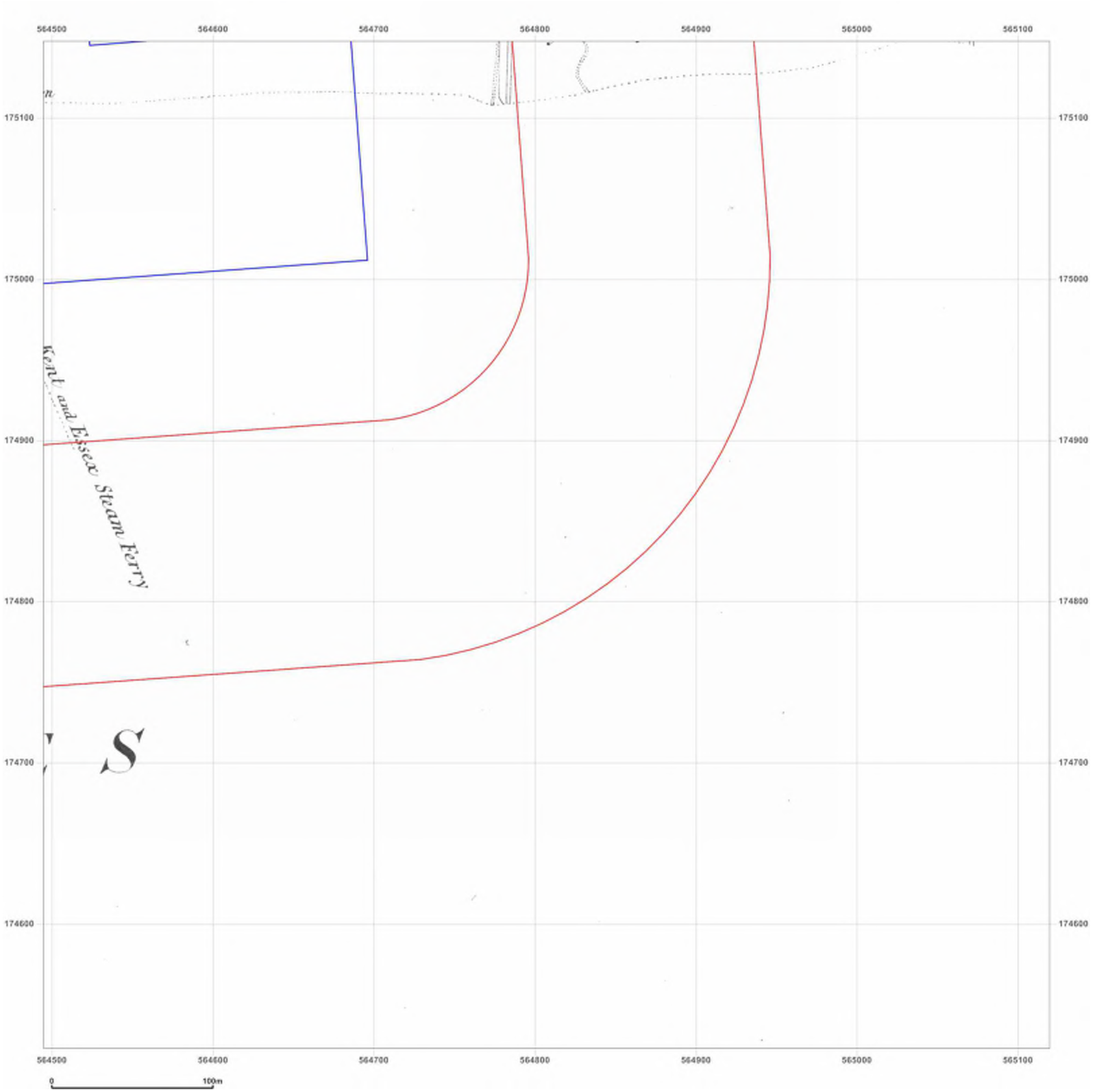
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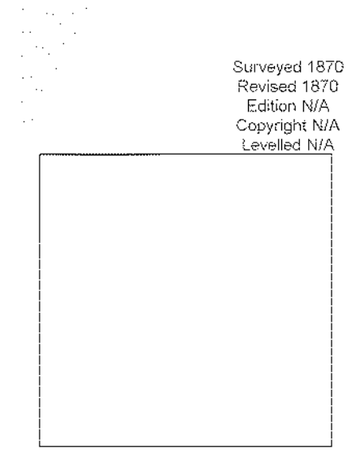
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_1
Grid Ref: 564807, 174835

Map Name: County Series
Map date: **1870**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S



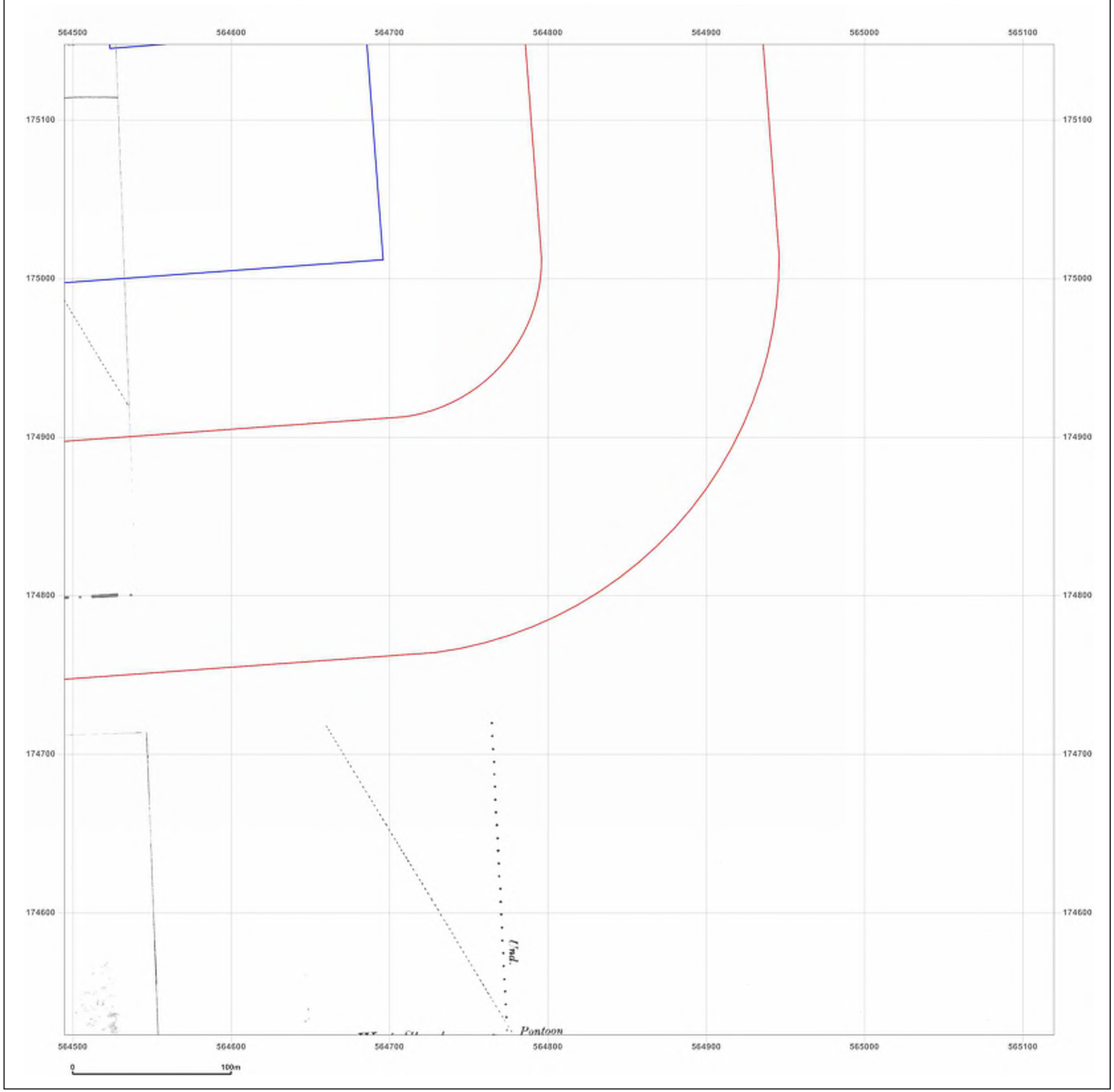
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_1
Grid Ref: 564807, 174835

Map Name: County Series

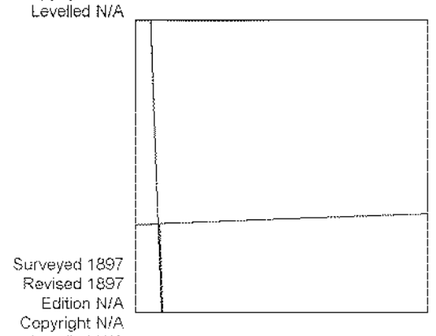
Map date: **1897-1898**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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



Surveyed 1897
Revised 1897
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1897
Revised 1897
Edition N/A
Copyright N/A
Levelled N/A

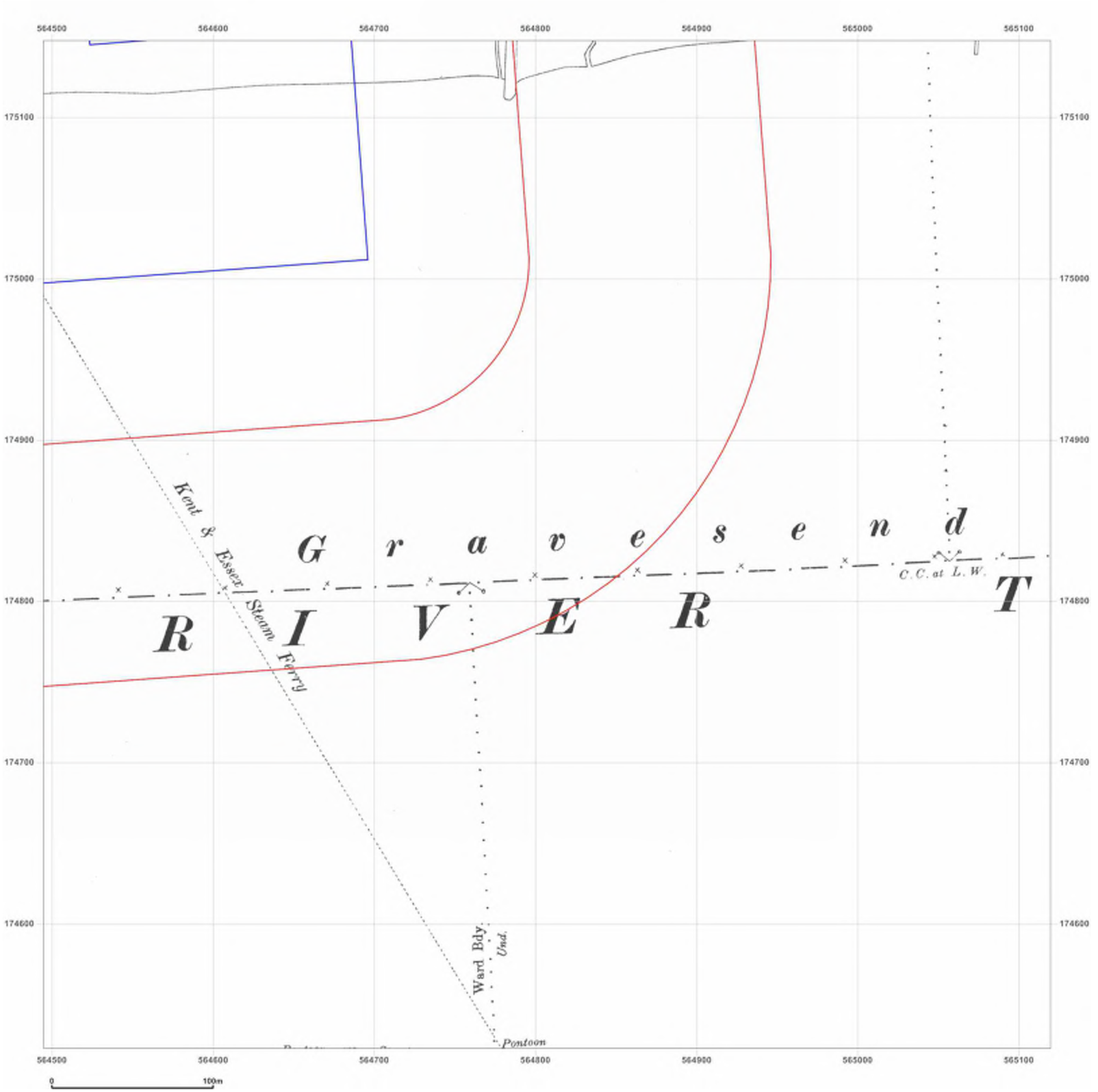
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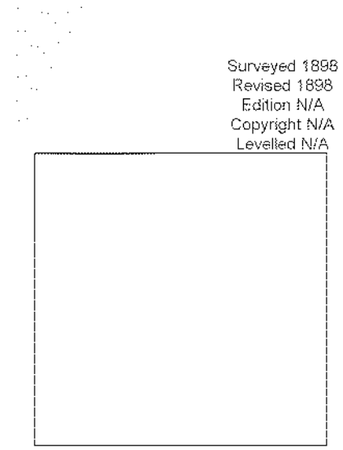
Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_1
Grid Ref: 564807, 174835

Map Name: County Series
Map date: **1898**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S



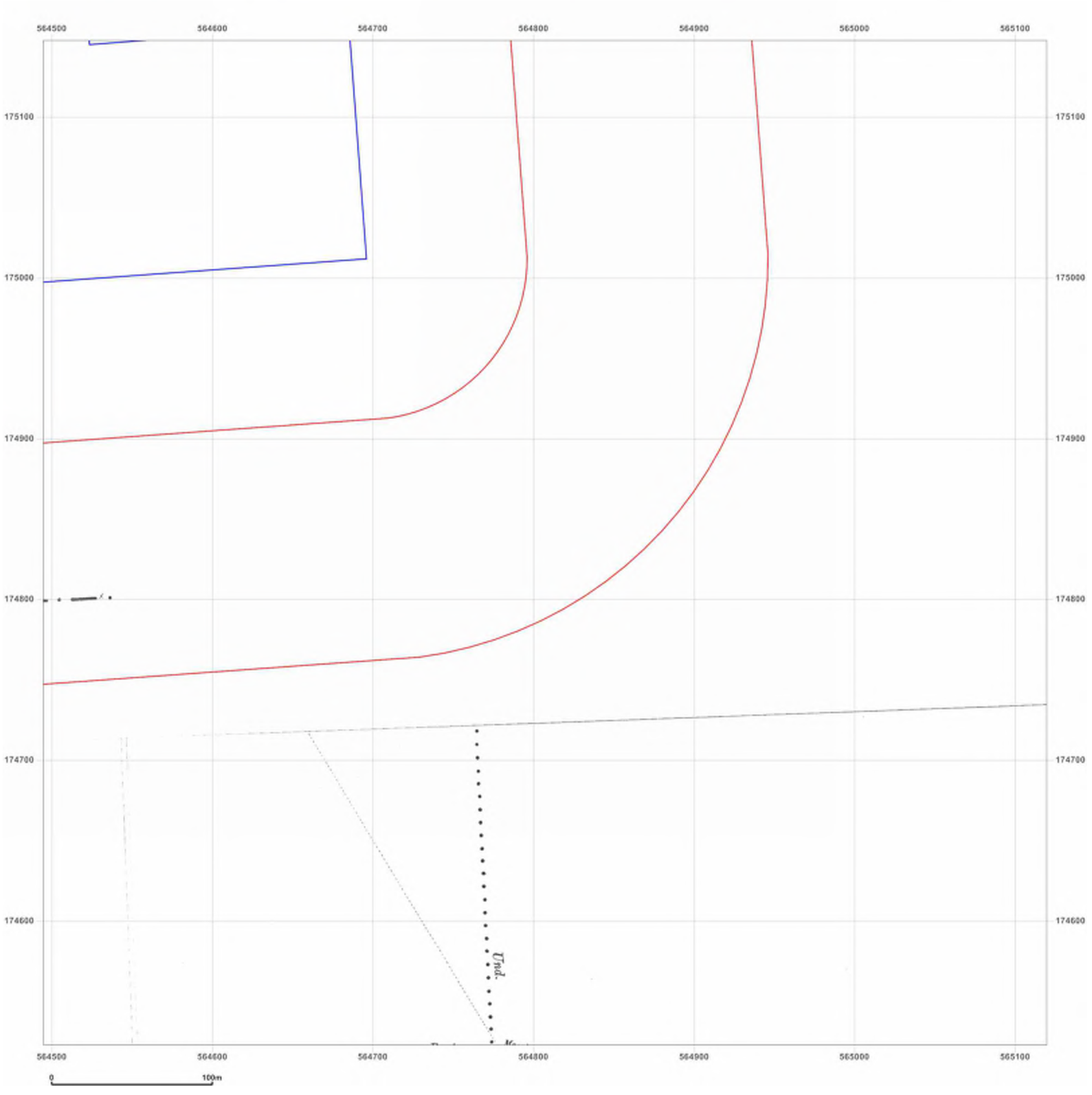
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_1
Grid Ref: 564807, 174835

Map Name: County Series

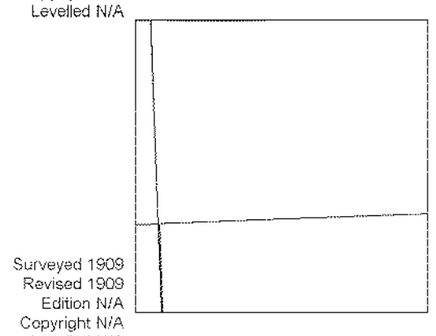
Map date: **1909**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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



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

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

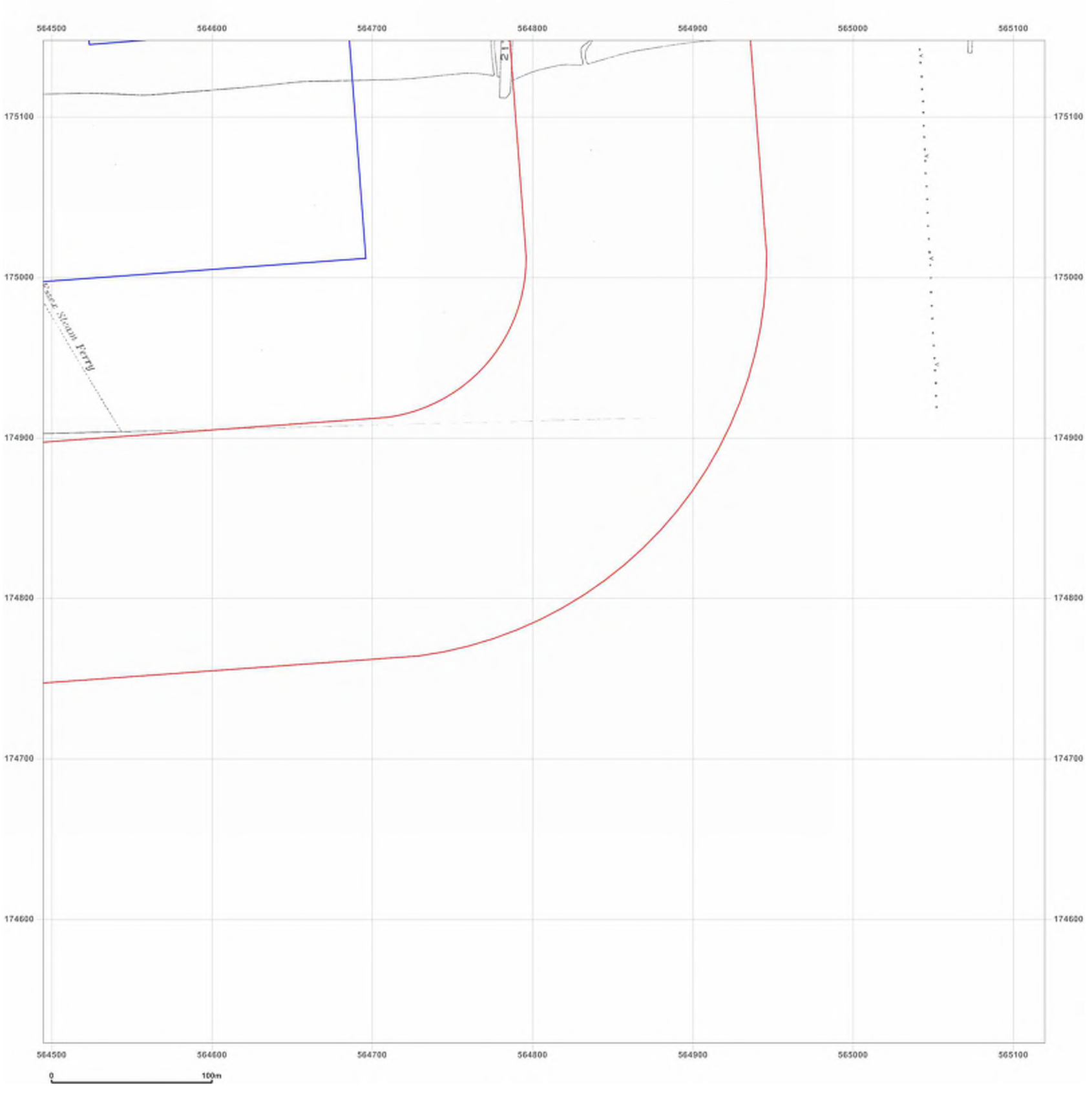
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_1
Grid Ref: 564807, 174835

Map Name: County Series

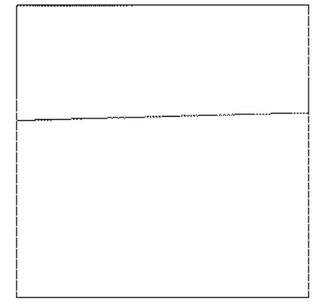
Map date: **1920**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1920
Revised 1920
Edition N/A
Copyright N/A
Levelled N/A



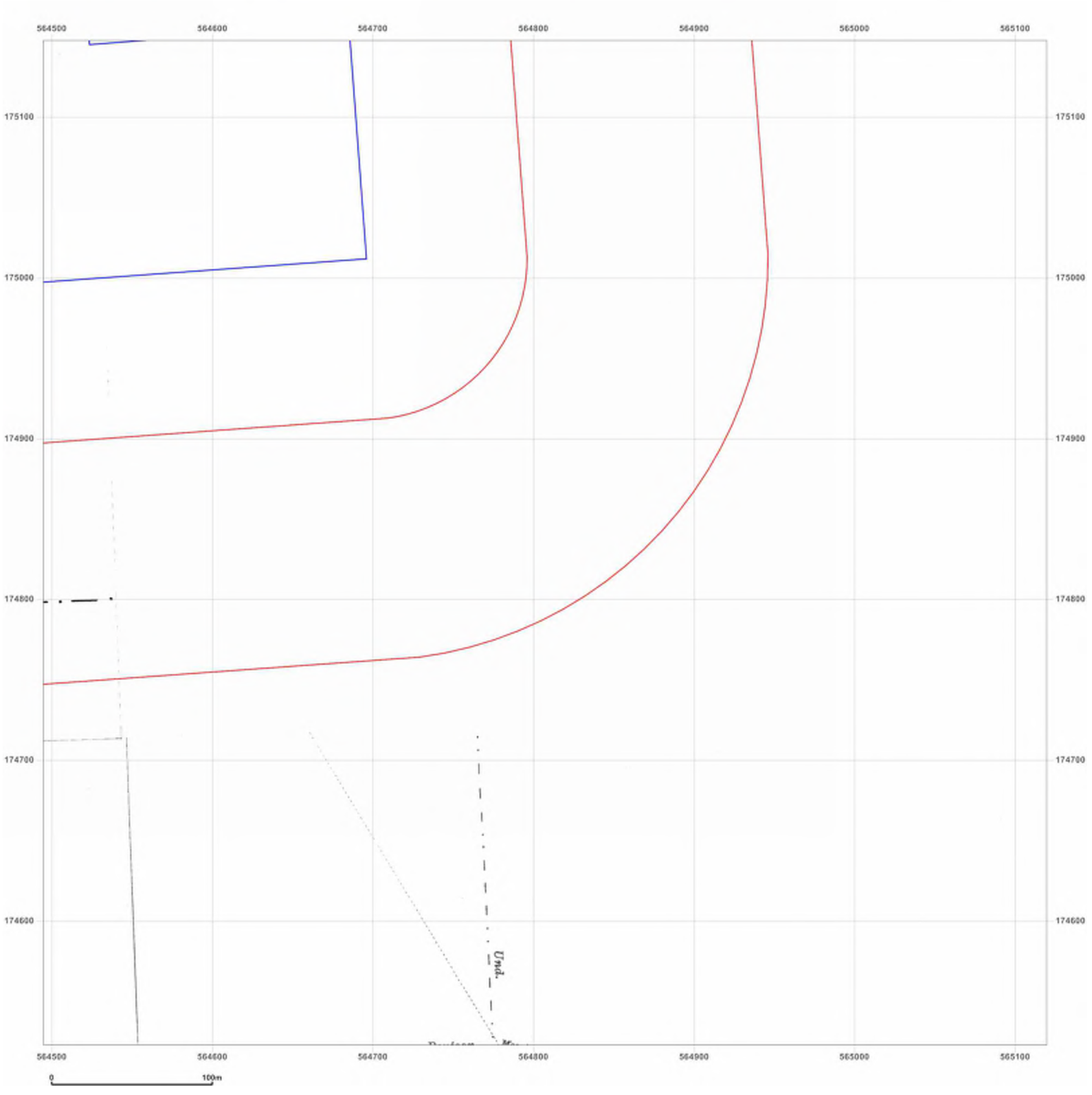
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_1
Grid Ref: 564807, 174835

Map Name: County Series

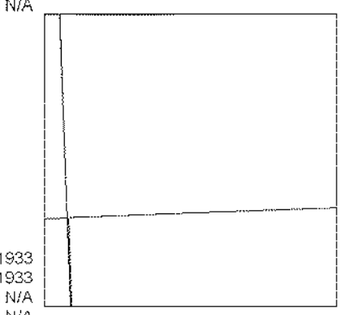
Map date: **1932-1933**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1932
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1933
Revised 1933
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1932
Revised 1932
Edition N/A
Copyright N/A
Levelled N/A

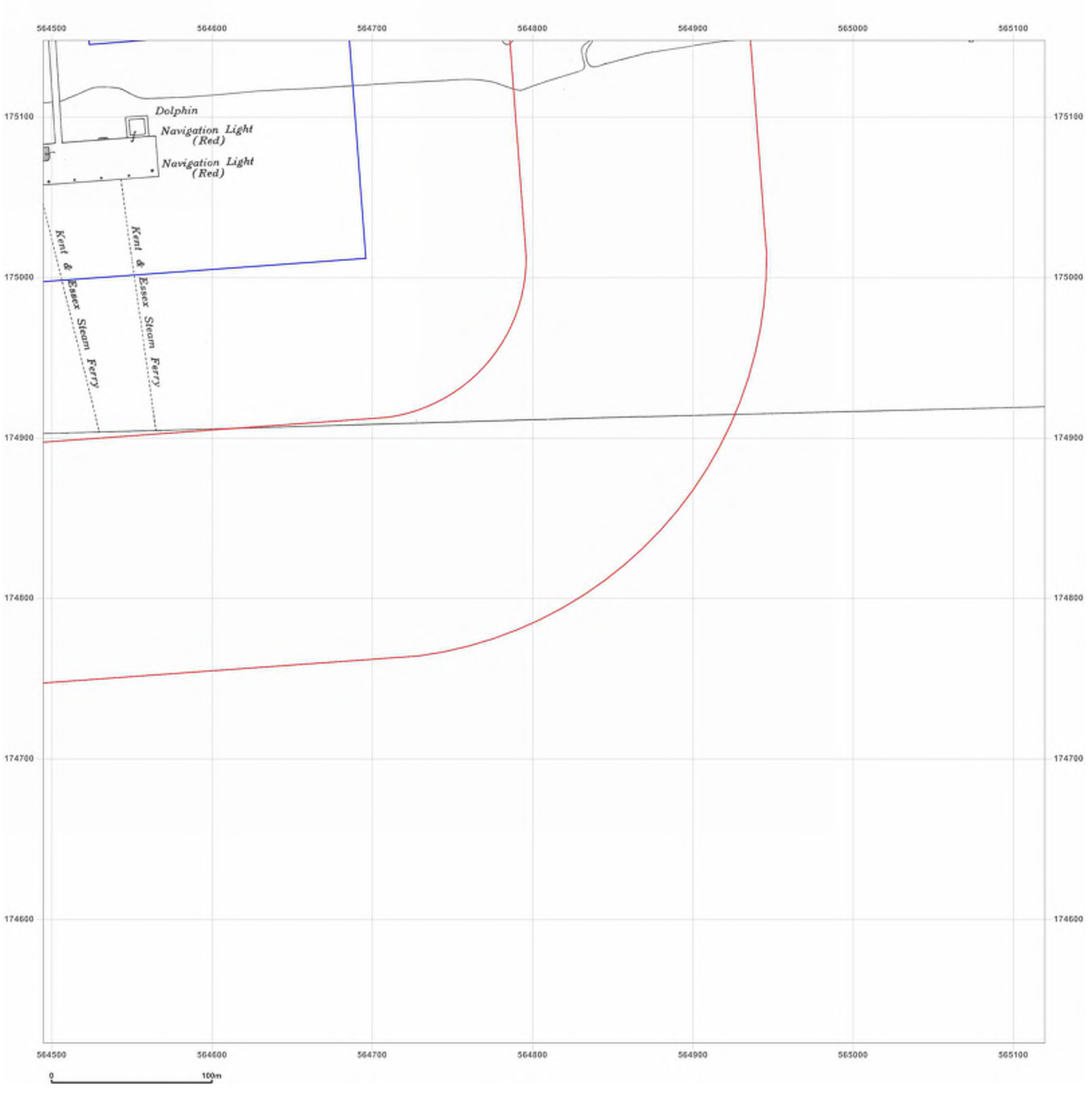
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_1
Grid Ref: 564807, 174835

Map Name: County Series

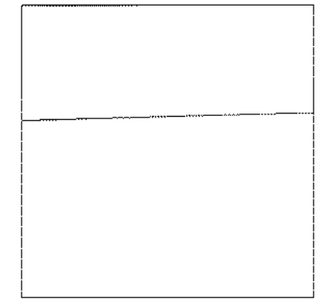
Map date: **1940**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1940
Revised 1940
Edition N/A
Copyright N/A
Levelled N/A



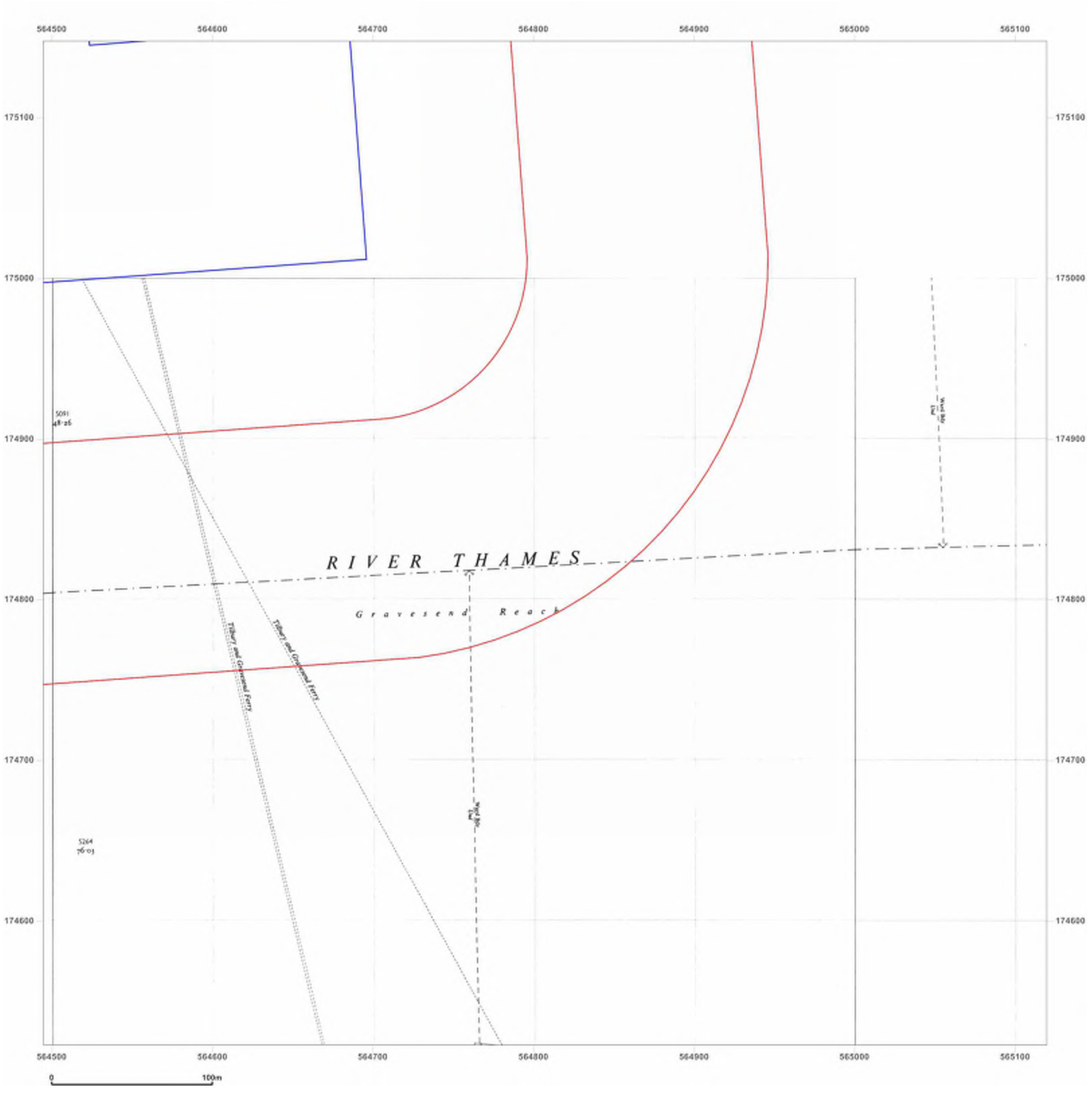
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_1
Grid Ref: 564807, 174835

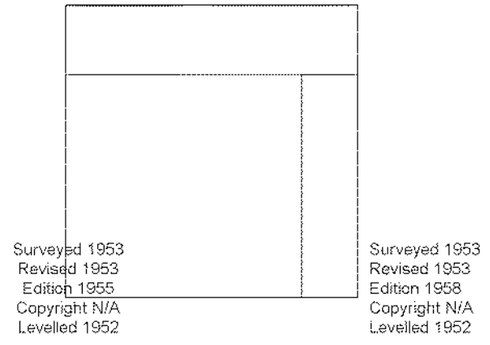
Map Name: National Grid

Map date: **1953**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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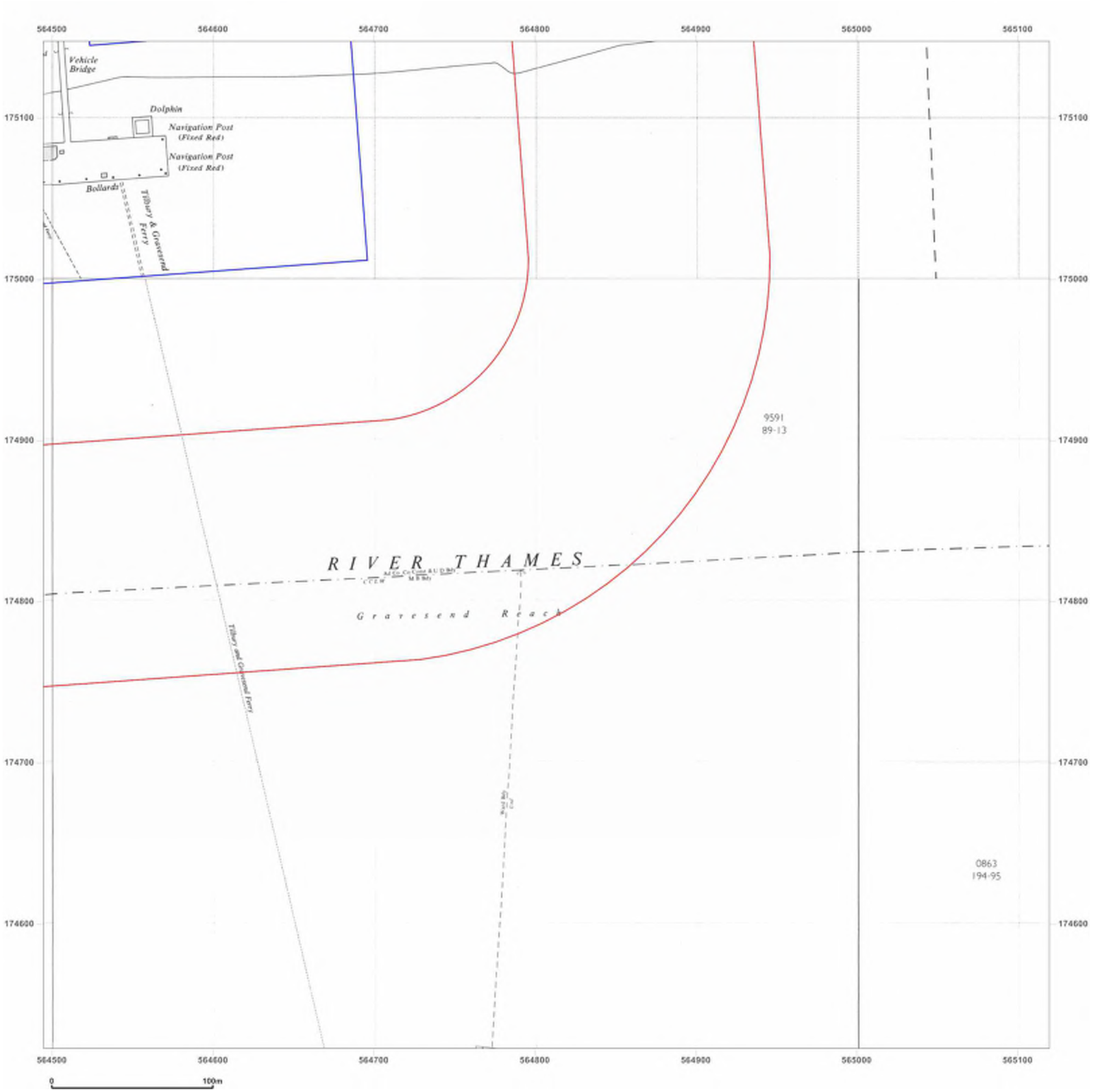
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_1
Grid Ref: 564807, 174835

Map Name: National Grid

Map date: **1959-1964**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1959
Revised 1959
Edition 1960
Copyright 1960
Levelled 1950

Surveyed 1964
Revised 1964
Edition N/A
Copyright 1969
Levelled 1956

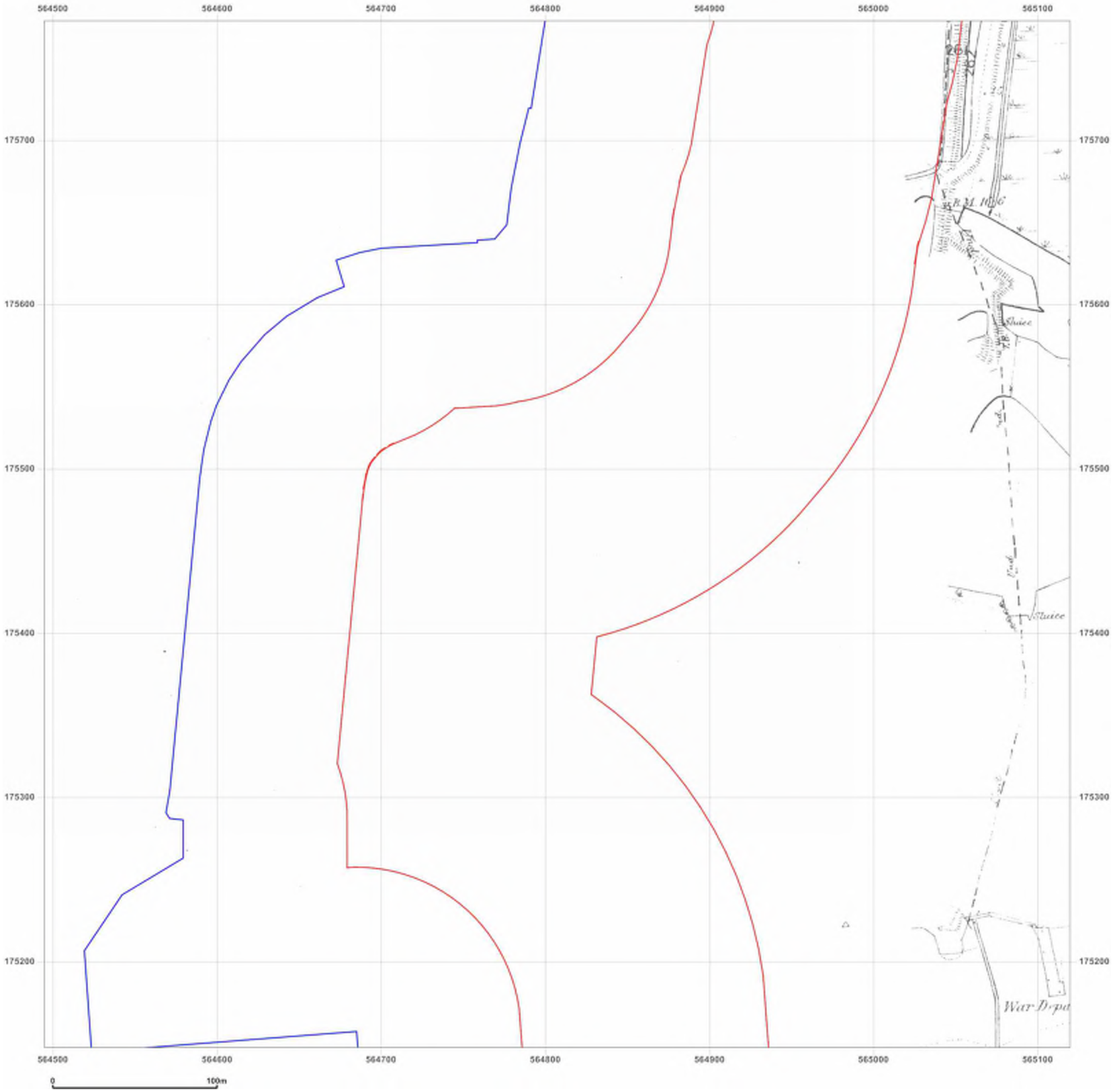
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_2
Grid Ref: 564807, 175460

Map Name: County Series
Map date: **1870**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1870
Revised 1870
Edition N/A
Copyright N/A
Levelled N/A

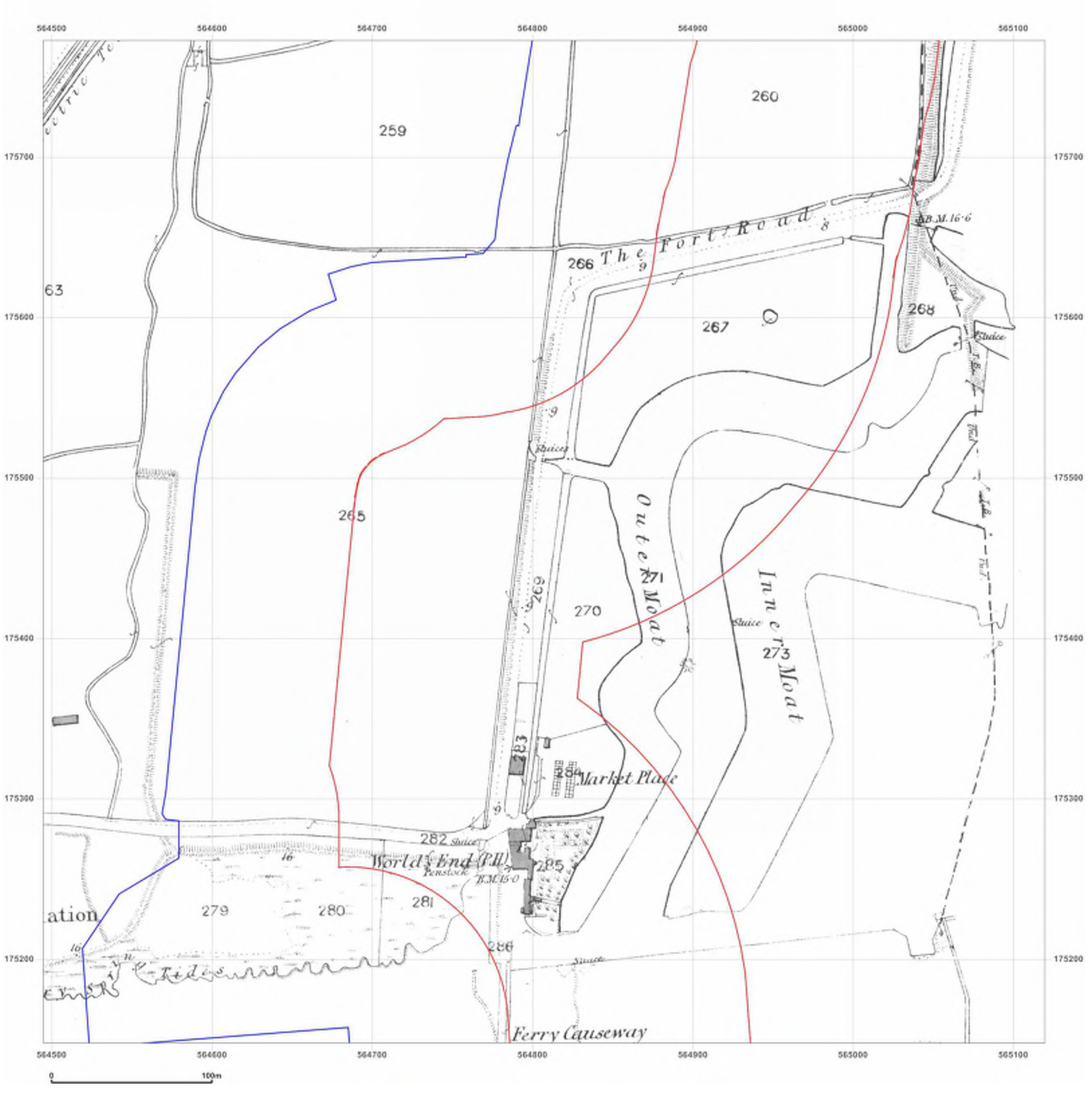
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_2
Grid Ref: 564807, 175460

Map Name: County Series

Map date: **1870**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1870
Revised 1870
Edition N/A
Copyright N/A
Levelled N/A

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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_2
Grid Ref: 564807, 175460

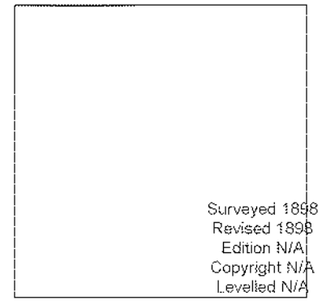
Map Name: County Series

Map date: **1898**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
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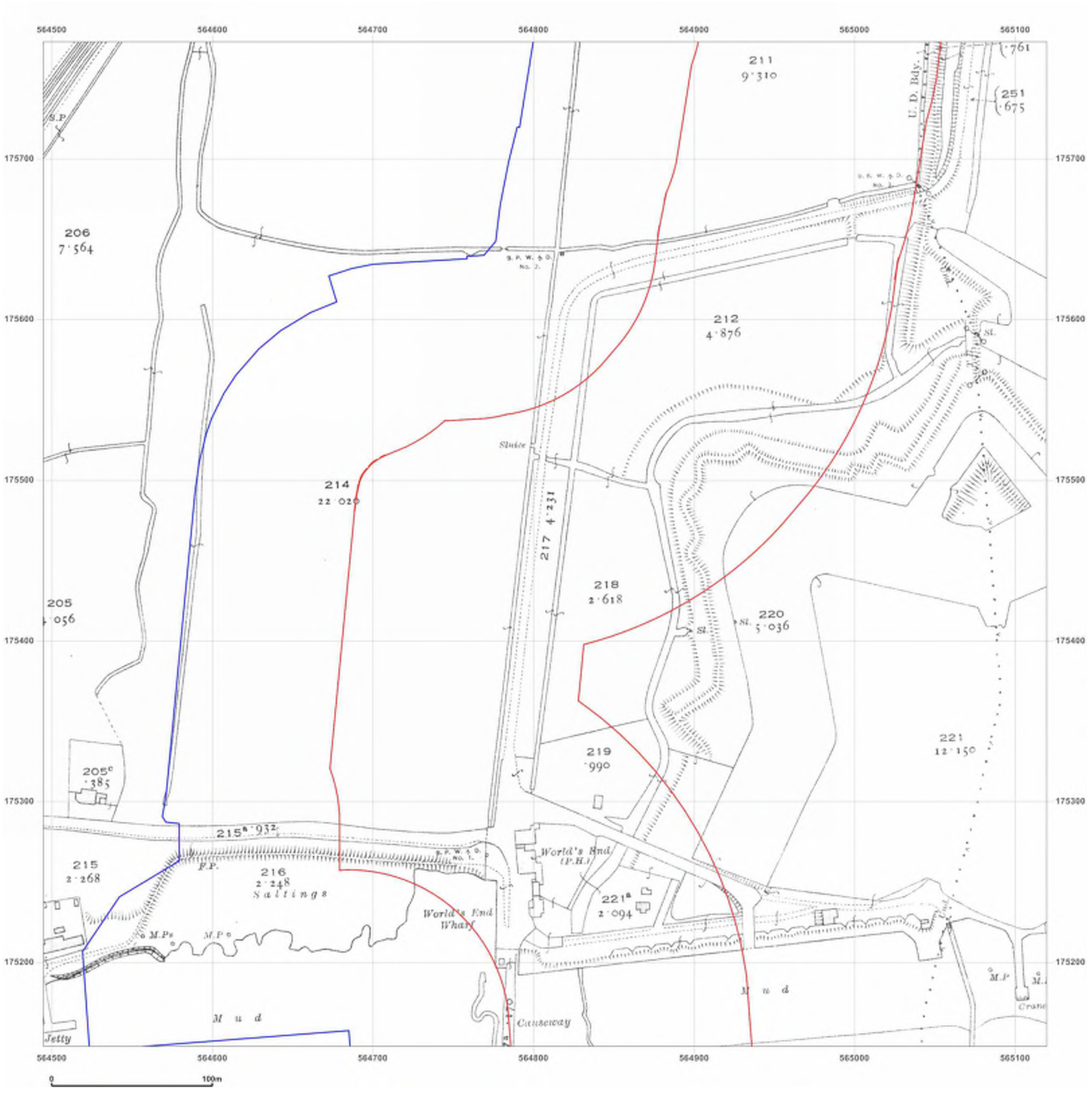
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_2
Grid Ref: 564807, 175460

Map Name: County Series

Map date: **1920**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1920
Revised 1920
Edition N/A
Copyright N/A
Levelled N/A

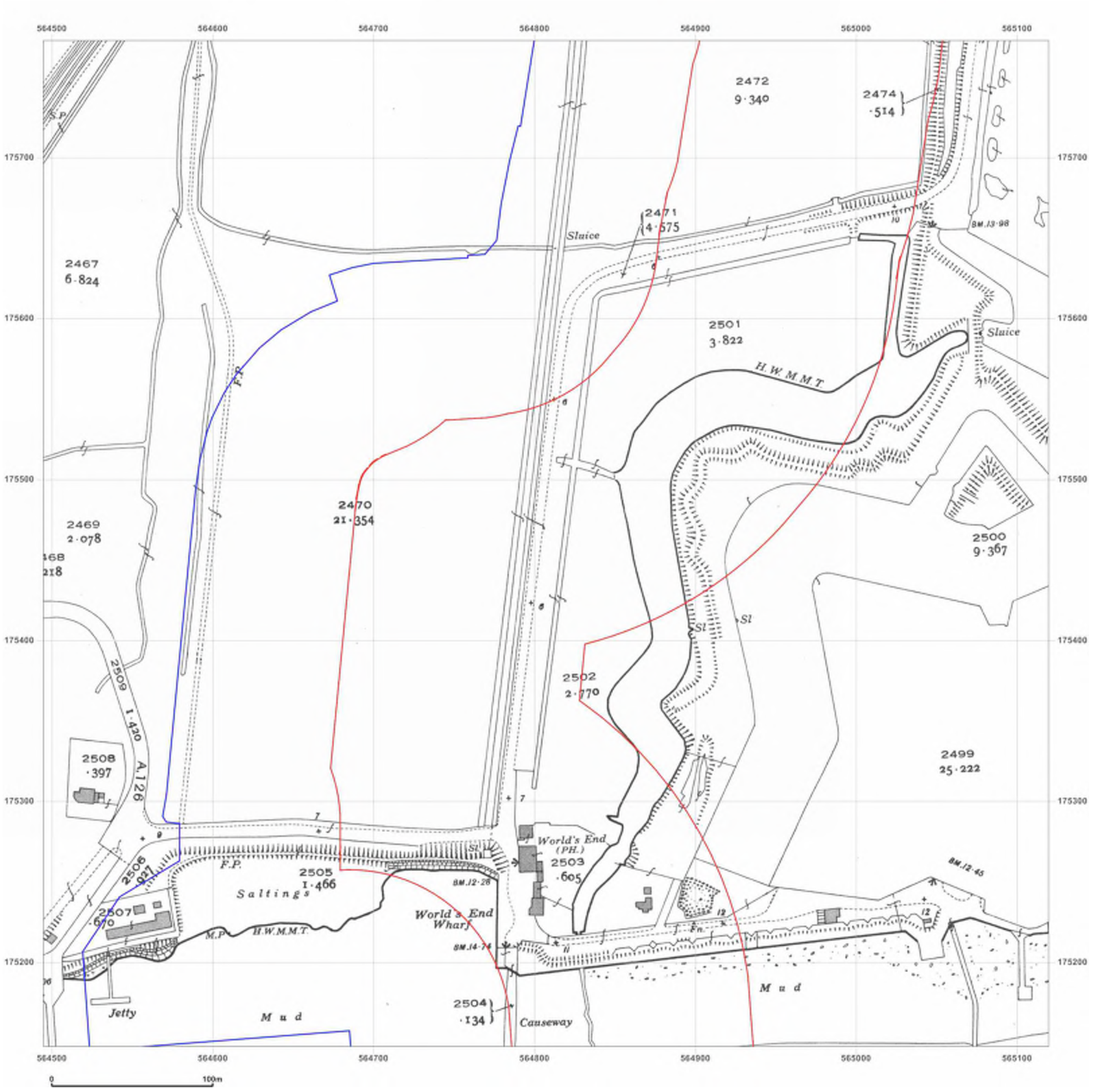
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_2
Grid Ref: 564807, 175460

Map Name: County Series

Map date: **1940**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1940
Revised 1940
Edition N/A
Copyright N/A
Levelled N/A

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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_2
Grid Ref: 564807, 175460

Map Name: National Grid

Map date: **1959**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1959
Revised 1959
Edition 1960
Copyright 1960
Levelled 1950

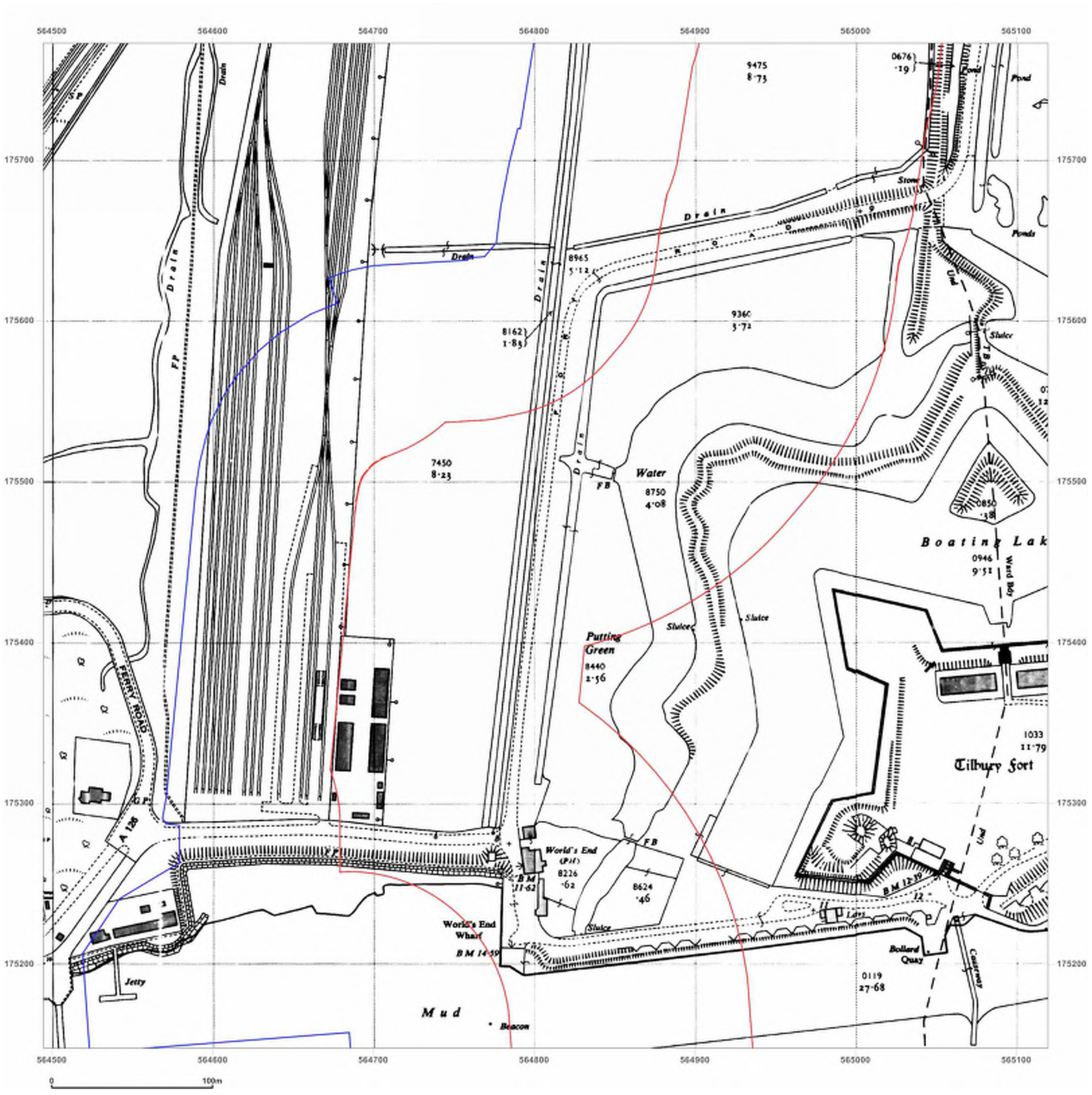
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_2
Grid Ref: 564807, 175460

Map Name: National Grid

Map date: **1961**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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

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

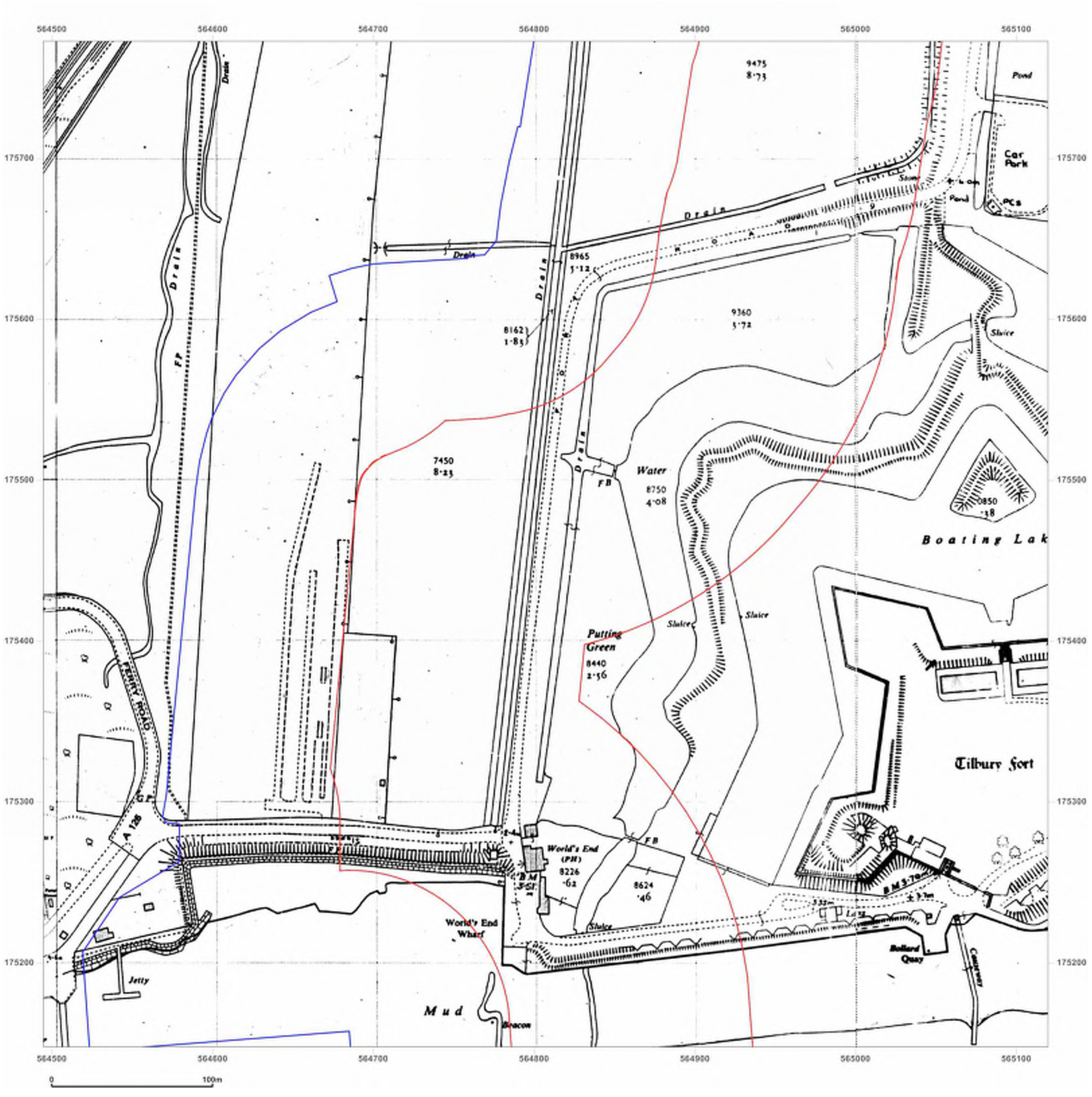
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_2
Grid Ref: 564807, 175460

Map Name: National Grid

Map date: **1978-1981**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1978
Revised 1978
Edition N/A
Copyright 1978
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1981
Levelled N/A

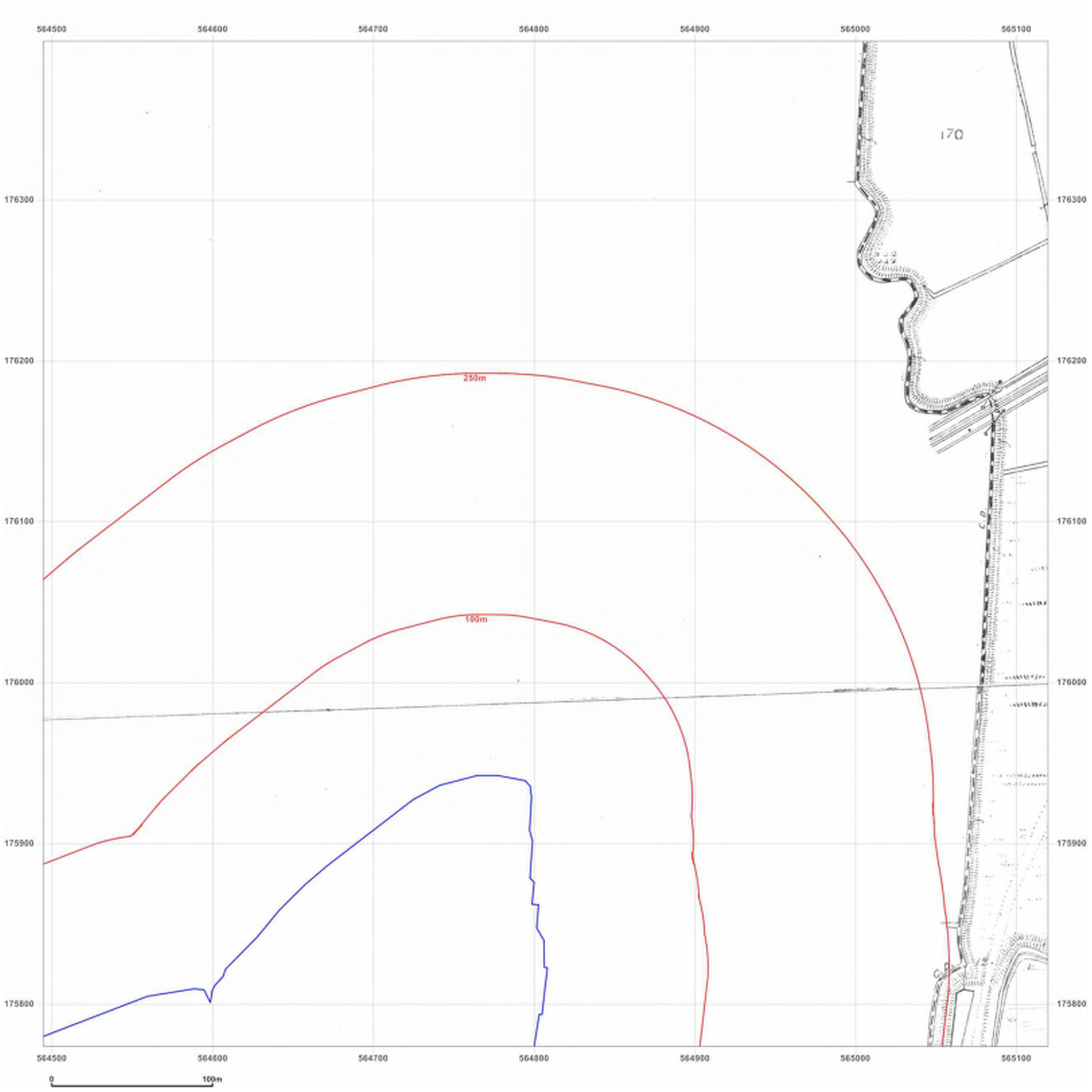
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_3
Grid Ref: 564807, 176086

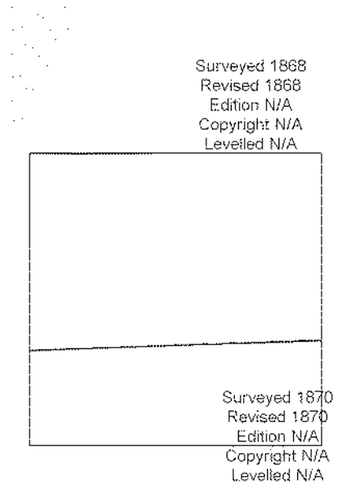
Map Name: County Series

Map date: **1868-1870**

Scale: 1:2,500

Printed at: 1:2,500

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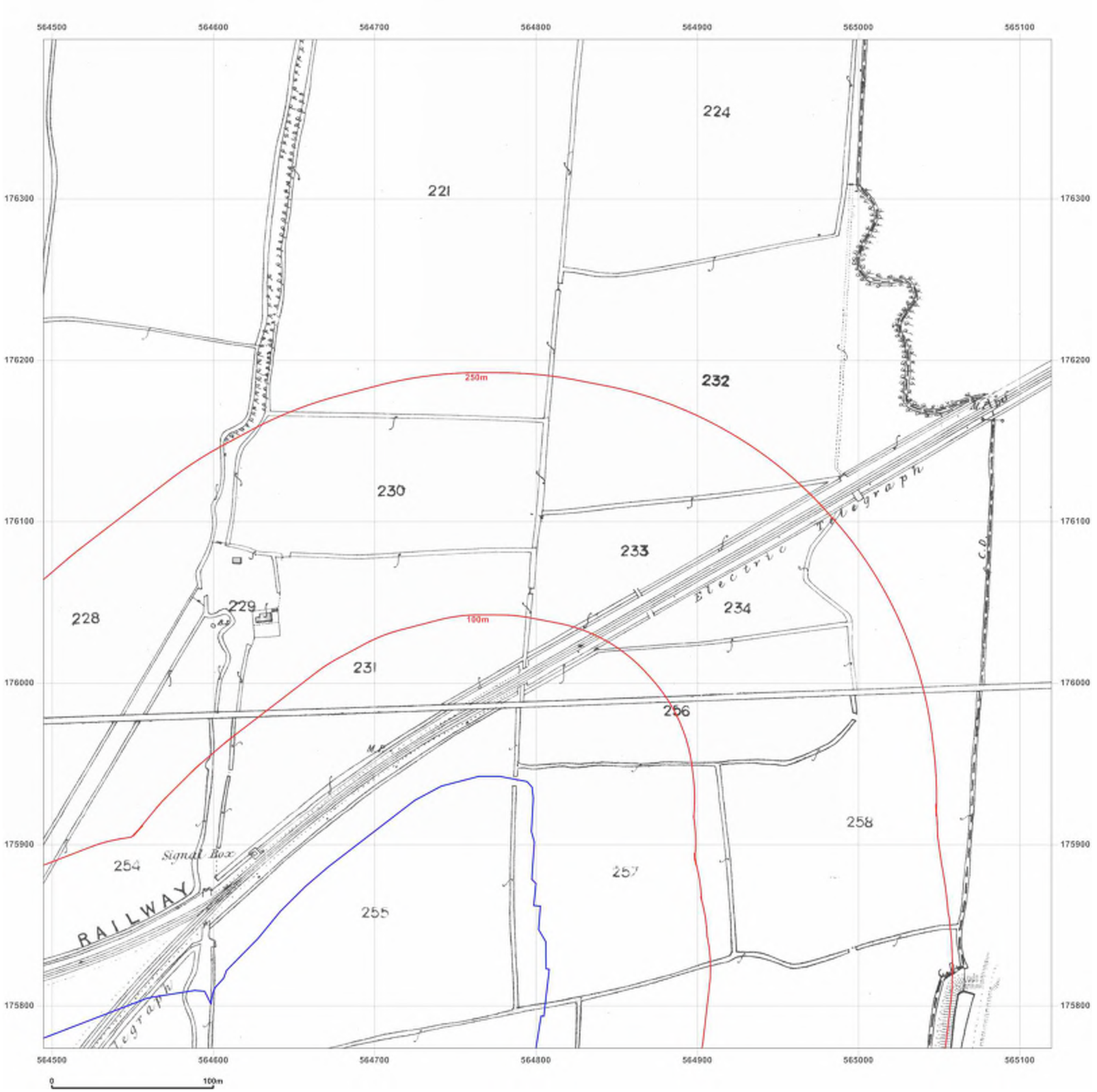
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_3
Grid Ref: 564807, 176086

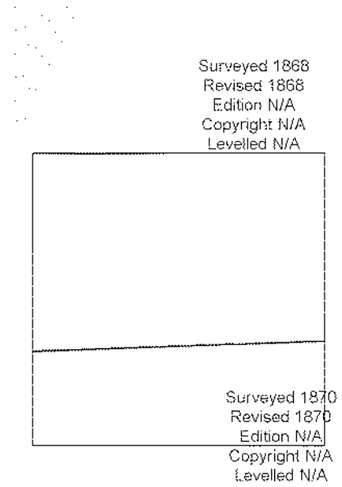
Map Name: County Series

Map date: **1868-1870**

Scale: 1:2,500

Printed at: 1:2,500

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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_3
Grid Ref: 564807, 176086

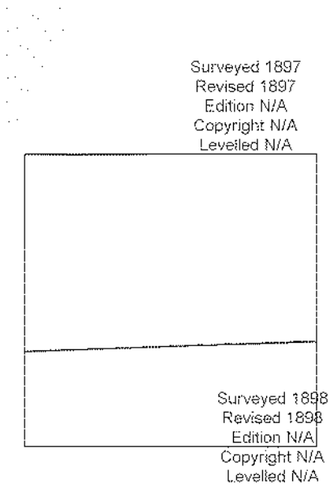
Map Name: County Series

Map date: **1897-1898**

Scale: 1:2,500

Printed at: 1:2,500

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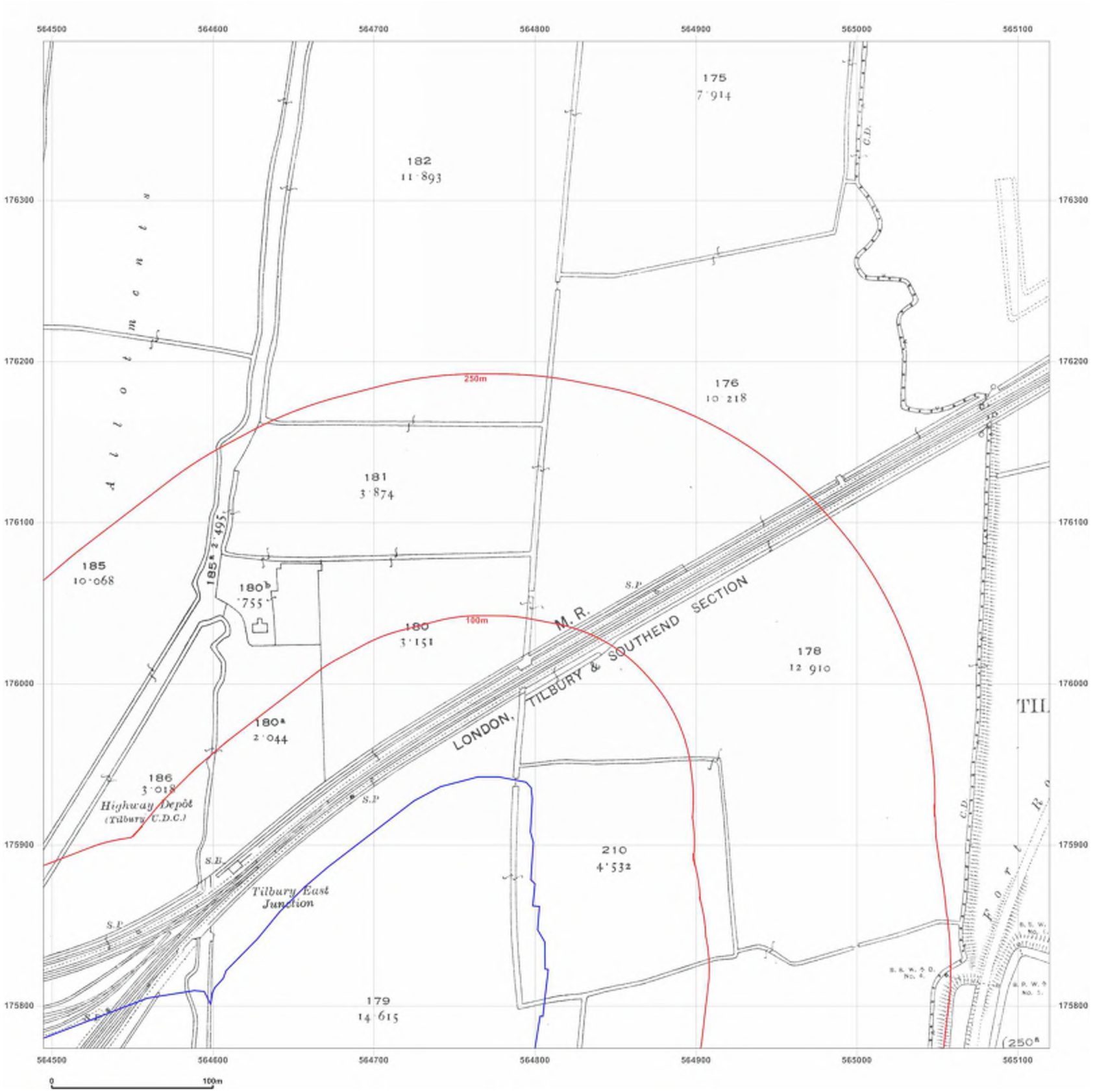
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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_3
Grid Ref: 564807, 176086

Map Name: County Series

Map date: **1920**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1920
Revised 1920
Edition N/A
Copyright N/A
Levelled N/A

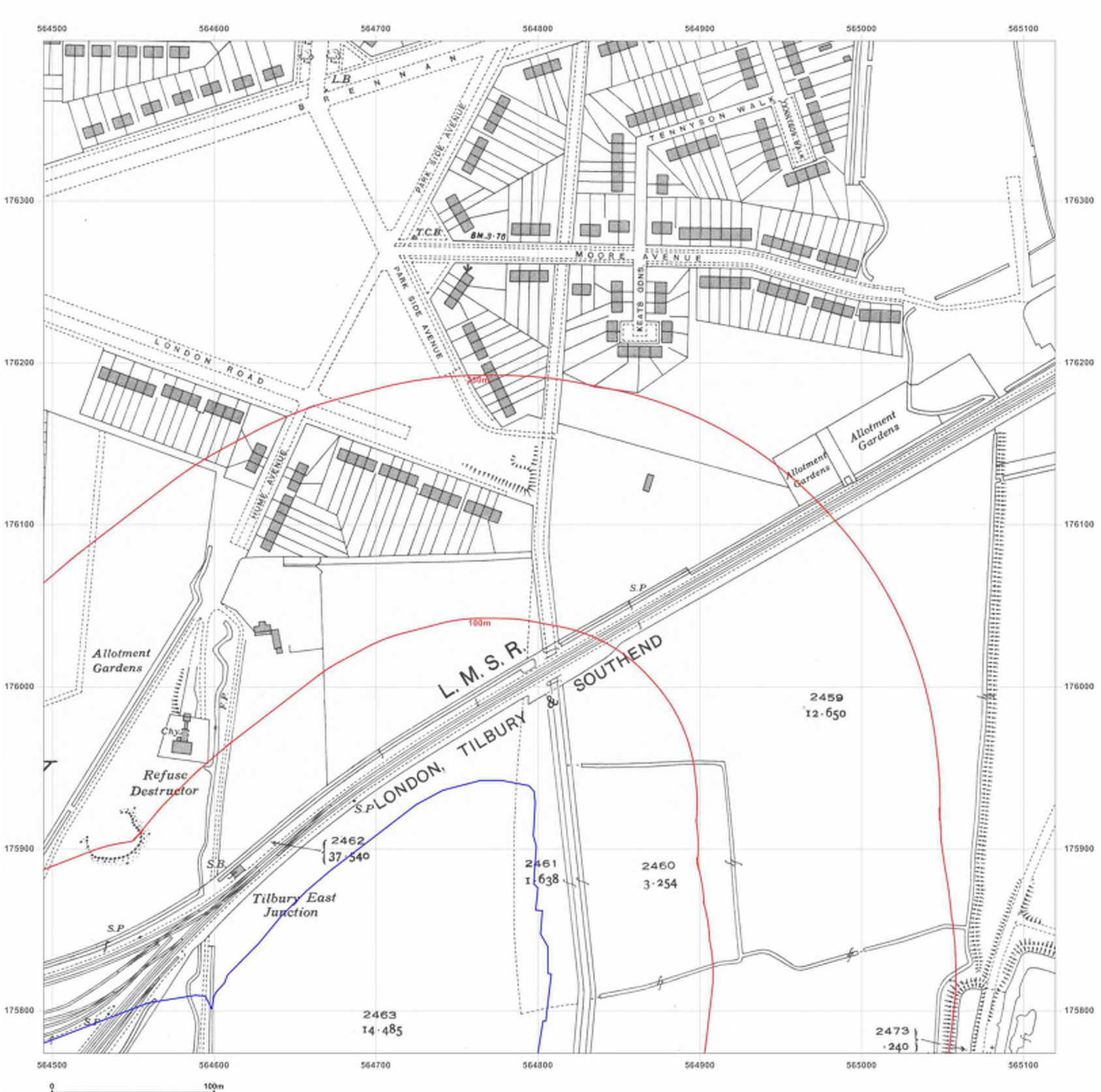
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_3
Grid Ref: 564807, 176086

Map Name: County Series

Map date: **1940**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1940
Revised 1940
Edition N/A
Copyright N/A
Levelled N/A

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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_3
Grid Ref: 564807, 176086

Map Name: National Grid

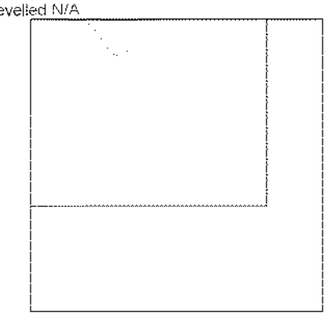
Map date: **1950**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled N/A



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Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_3
Grid Ref: 564807, 176086

Map Name: National Grid

Map date: **1959-1962**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1950
Revised 1959
Edition 1962
Copyright 1962
Levelled 1954

Surveyed 1959
Revised 1959
Edition 1960
Copyright 1960
Levelled 1950

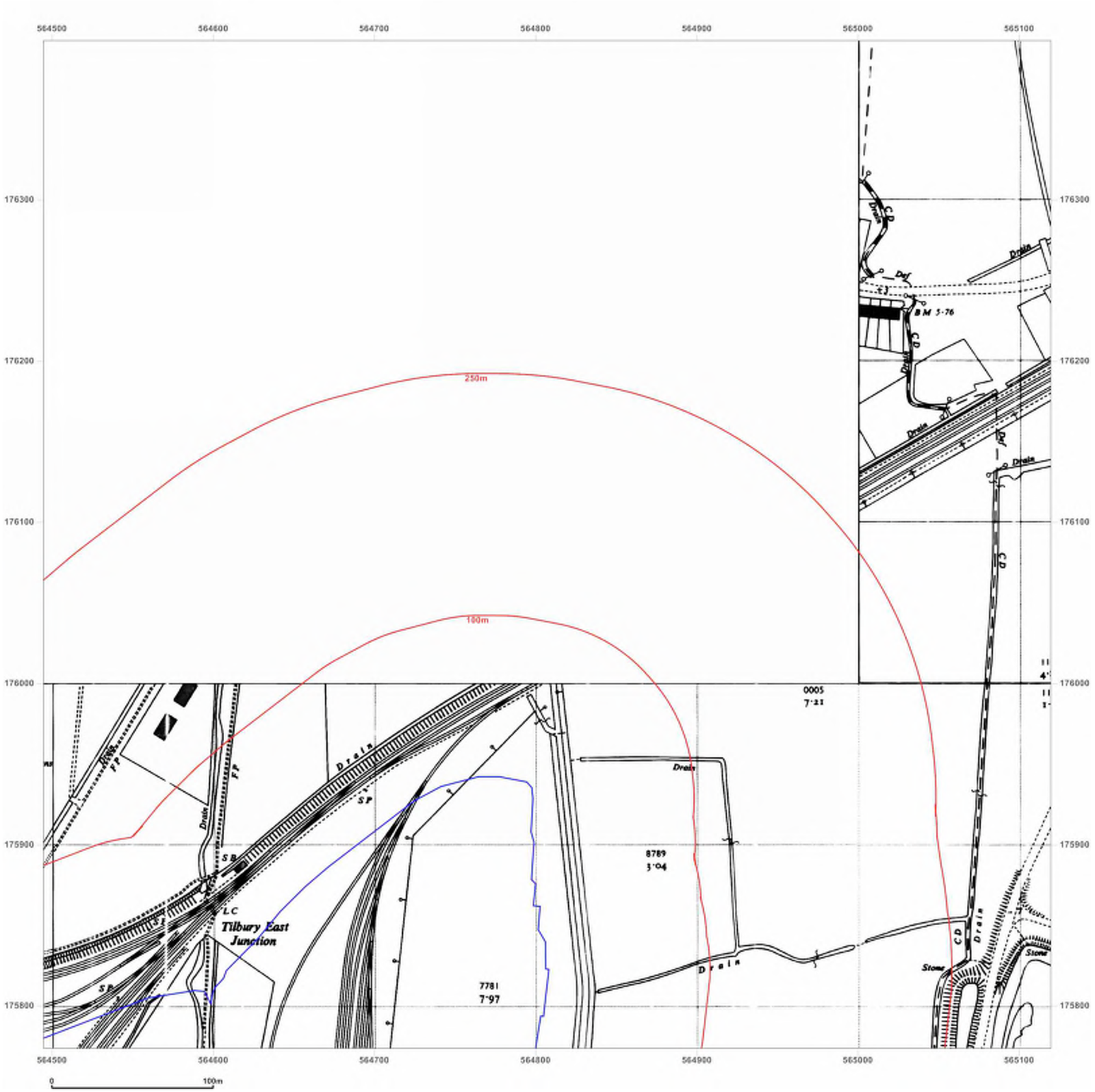
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Site Details:

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Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_3
Grid Ref: 564807, 176086

Map Name: National Grid

Map date: **1961-1962**

Scale: 1:2,500

Printed at: 1:2,500

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

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

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

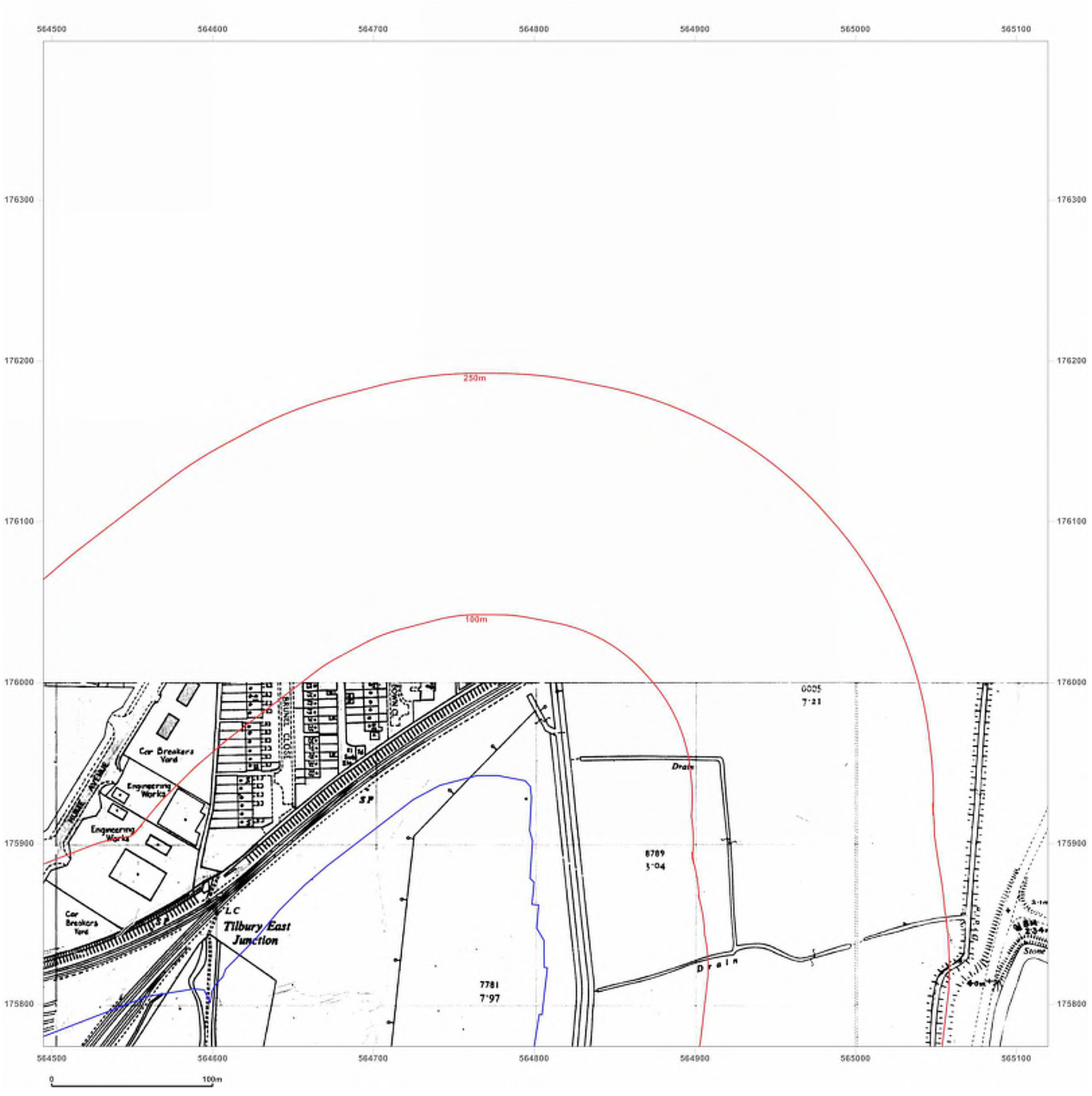
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Groundsure INSIGHTS

Site Details:

564487,175529

Client Ref: Tilbury
Report Ref: GSIP-2020-10242-896_LS_2_3
Grid Ref: 564807, 176086

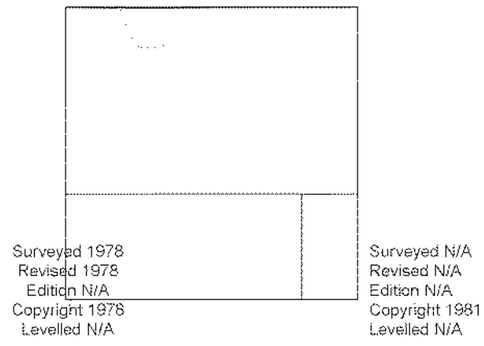
Map Name: National Grid

Map date: **1978-1981**

Scale: 1:2,500

Printed at: 1:2,500

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Appendix C BGS borehole logs

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SECTION OF boring AT Tilbury Landing Stage TQ 67 NW/204

One inch Map (NS) 27/ Six-inch Map 6454 75/5

Made by LeGrand & Sulcliff Date 1914

Communicated by P. L. A.

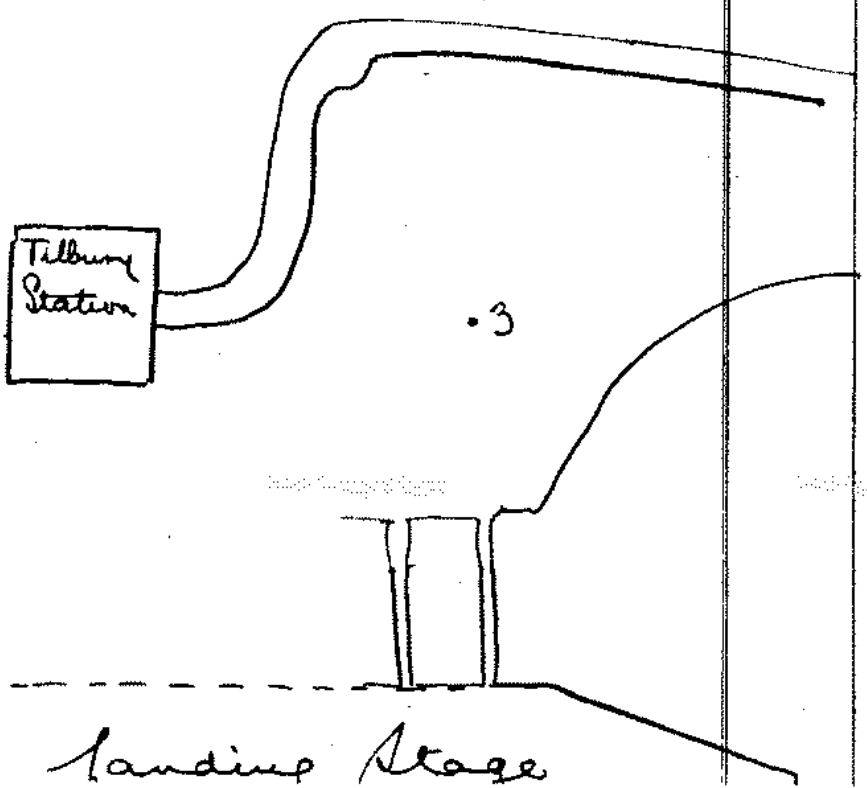
HEIGHT ABOVE O.D. 14'6" +4.42 m WATER LEVEL 12 feet down.

YIELD

Borehole N° 3

	THICKNESS. Feet.	THICKNESS. Inches.	DEPTH. Feet.	DEPTH. Inches.
Made ground	1	—	1	—
Yellow clay	2	—	3	—
Clay	24	—	24	—
Peat	1	—	28	-
Clay.	6	—	34	—
Peat	4	—	38	-
Clay	7	—	45	-
Peat	3	—	48	-
Clay & Wood	7	—	55	-
Sand	6	—	61	-
Ballast.	10	—	71	—

Diam. of bore - 10".



TQ 67 NW/ 202

SECTION OF boring AT Tilbury Docks Lairage Stage

One inch Map (NS) 271 Six-inch Map

Made by LeGrand + Sutcliff Date 1914 6435 7518

Communicated by P.L.A.

HEIGHT ABOVE O.D. 15'6" + 4.72 m WATER LEVEL 13'6" down

YIELD

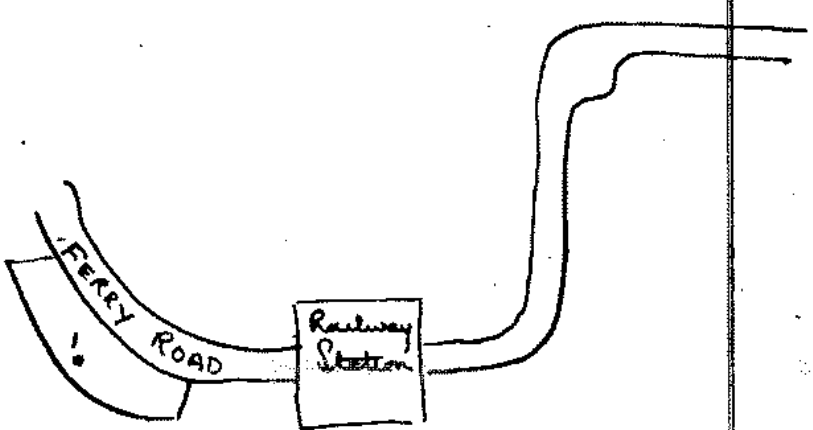
Sheet 271

Borehole No 1

	THICKNESS. Feet.	THICKNESS. Inches.	DEPTH. Feet.	DEPTH. Inches.
Made ground	8	6	8	6
Clay	12	—	20	6
Peat	1	—	21	6
Clay	9	—	30	6
Peat	4	6	35	—
Clay	8	—	43	—
Peat + Clay	2	—	45	—
Sand	12	—	57	—
Ballast	4	—	61	—

Diam of bore 10"

Site



Confidential

TQ67 NW/203

SECTION OF boring AT Yelling Dock Landing Stage

One inch Map (NS) 271 Six-inch Map 6452 7521

Made by LeGrand & Cutcliff Date 1914

Communicated by P. P. A

HEIGHT ABOVE O.D. 9'4" (+2.84 m) WATER LEVEL 15 feet down

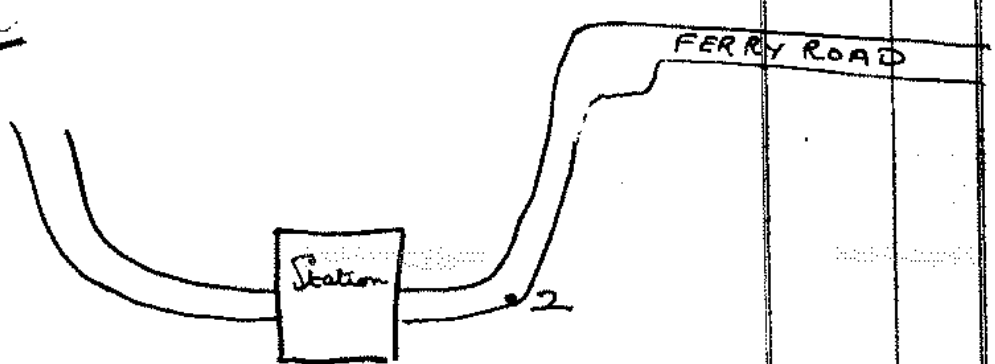
YIELD

Borehole N° 2

	THICKNESS. Feet.	THICKNESS. Inches.	DEPTH. Feet.	DEPTH. Inches.
Made ground	1	3	1	3
Sleepers	—	9	2	—
Clay	4	—	6	—
Muddy Clay.	8	9	14	9
Sandy Clay.	5	—	19	9
Peaty Clay	1	—	20	9
Clay	6	—	26	9
Peat	4	—	30	9
Clay	10	—	40	9
Peat	2	—	42	9
Clay	3	3	46	—
Sand	14	—	60	—
Chalky gravel	4	—	64	—
Chalk				

Diam. of bore — 10"

Site



Confidential

TQ67NW 359

GEOTECHNICAL DEVELOPMENTS

GEOTECHNICAL INVESTIGATION SERVICES
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6423
7521

BOREHOLE LOG

Borehole D

Sheet 1 of 3

Method	Date	Site
Cable Percussion	09/09/96 - 10/09/96	London International Cruise Terminal, Port of Tilbury, Essex

Dia mm	Coord	Ground Level m.OD	Client
150	TQ 644 753		Port of Tilbury, London

Soil Samples/Tests Type/Test	Depth m.	Field Records	OD Level m.	Depth m.	Description of Strata	Inst	Legend
B1	0.20				Firm occasionally stiff brown and dark brown silty slightly sandy gravelly clay with occasional brick fragments and glass and rare small timber fragments. Gravels comprising mainly subrounded fine to coarse flint. (MADE GROUND) (1.70)		
D1	0.50						
D2	1.00						
C1 N=3	1.50 - 1.95	,1/1,1,1,0					
B2	1.50 - 1.95			1.70			
D3	2.00				Very soft to soft blueish grey and grey brown slightly silty CLAY with some ancient plant remains and occasional layers of medium dense grey brown and brown clayey slightly fine gravelly silt. (ESTUARINE ALLUVIUM) (8.30)		
U1 (9)	2.50 - 2.95						
D4	3.00						
U2 (15)	3.50 - 3.95						
D5	4.00						
U3 (11)	4.50 - 4.95						
D6	5.00						
D7	5.25						
U4 (15)	6.00 - 6.45						
D8	6.50						
D9	6.75						
U5	7.50 - 7.95				At 8.00m bgl becoming soft to firm and faintly thinly laminated.		
D10	8.00						
D11	8.25						
U6 (22)	9.00 - 9.45						
D12	9.50						
D13	9.75			10.00			

Remarks

*C2 54 blows for 170mm (test).
*C3 50 blows for 155mm (test).
*C4 25 blows for 115mm (seating). 50 blows for 105mm (test).
*S5 25 blows for 120mm (seating). 50 blows for 125mm (test).
*S6 50 blows for 200mm (test).

Logged by	Scale	End Casing Depth m.	Job No.
OM	1:50	24.70	E107296

Sample/Test key:
U () U100 sample (blows)
D Disturbed sample
B Bulk sample
W Water sample
- Progress & Day

Penetration Tests
S () Standard (N value)
C () Cone (N value)
* Blows and penetration when 300mm not achieved

TQ67NW 359

GEOTECHNICAL DEVELOPMENTS

GEOTECHNICAL INVESTIGATION SERVICES

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BOREHOLE LOG

Borehole D

Method	Date	Site
Cable Percussion	09/09/96 - 10/09/96	London International Cruise Terminal, Port of Tilbury, Essex

Dia mm	Coord	Ground Level m OD	Client
150	TQ 644 753		Port of Tilbury, London

Soil Samples/Tests Type/Test	Depth m.	Field Records	OD Level m.	Depth m.	Description of Strata	Inst	Legend
					Stiff thinly laminated dark brown fibrous PEAT. (ESTUARINE PEAT) (1.25)		
U7 (40)	10.50 - 10.95						
D14	11.00						
D15	11.25			11.25	Firm greenish grey silty CLAY with some to many ancient plant remains. (ESTUARINE ALLUVIUM) (1.50)		
U8 (42)	12.00 - 12.45						
D16	12.50						
D17	12.75			12.75	Soft occasionally very soft greenish grey, blueish grey and dark brown silty very peaty CLAY with some to many fibrous ancient plant remains. (ESTUARINE ALLUVIUM) (2.75)		
U9 (43)	13.50 - 13.95						
D18	14.00						
D19	14.25						
U10 (42)	15.00 - 15.45						
D20	15.50			15.50	Soft becoming firm light blueish grey and grey brown silty fine sandy CLAY with some to many ancient plant remains. (ESTUARINE ALLUVIUM) (1.20)		
D21	15.75						
U11 (50)	16.50 - 16.80						
B3	16.50 - 16.95	STRIKE at 16.70m rose to 8.50m		16.70	Medium dense to dense grey brown orange brown dark grey white and red well graded angular to rounded flint SAND & GRAVEL with occasional flint cobbles. (THAMES RIVER GRAVEL) (5.05)		
D22	17.25						
C2 *	18.00 - 18.32	,22/17,27,10,					
B4	18.00 - 18.45						
D23	18.75						
C3 *	19.50 - 19.81	,25/22,24,4,					
B5	19.50 - 19.95						

Remarks

*C2 54 blows for 170mm (test).
*C3 50 blows for 155mm (test).
*C4 25 blows for 115mm (seating). 50 blows for 105mm (test).
*S5 25 blows for 120mm (seating). 50 blows for 125mm (test).
*S6 50 blows for 200mm (test).

Logged by	Scale	End Casing Depth m.	Job No.
OM	1:50	24.70	E107296

Sample/Test key:
U () U100 sample (blows)
D Disturbed sample
B Bulk sample
W Water sample
- Progress & Day

Penetration Tests
S () Standard (N value)
C () Cone (N value)
* Blows and penetration when 300mm not achieved

TQ 67 NW 359

GEOTECHNICAL DEVELOPMENTS

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BOREHOLE LOG

Borehole D

Method	Date	Site
Cable Percussion	09/09/96 - 10/09/96	London International Cruise Terminal, Port of Tilbury, Essex

Dia mm	Coord	Ground Level m.OD	Client
160	TQ 644 753		Port of Tilbury, London

Soil Samples/Tests		Field Records	OD Level m.	Depth m	Description of Strata	Inst	Legend
Type/Test	Depth m.						
D24	20.25						
C4 * B6	21.00 - 21.22 21.00 - 21.45	,25/27,23,,					
D25	21.75			21.75	Creamish white blocky possibly thinly bedded and closely fissured CHALK, moderately strong with some creamish white silty clay sized comminuted chalk. (UPPER CHALK) (3.25)		
S5 *	22.50 - 22.75	,25/29,21,,					
D26	23.25						
S6 *	24.00 - 24.35	,26/14,21,15,					
D27	24.70						
				25.00			

Remarks

*C2 54 blows for 170mm (test).
*C3 50 blows for 155mm (test).
*C4 25 blows for 115mm (seating), 50 blows for 105mm (test).
*S5 25 blows for 120mm (seating), 50 blows for 125mm (test).
*S6 50 blows for 200mm (test).

Logged by	Scale	End Casing Depth m.	Job No.
OM	1:50	24.70	E107296

Sample/Test key:
U () UI00 sample (blows)
D Disturbed sample
B Bulk sample
W Water sample
Progress & Day

Penetration Tests
S () Standard (N value)
C () Cone (N value)
* Blows and penetration when 300mm not achieved

TQ67NW 356

GEOTECHNICAL DEVELOPMENTS

GEOTECHNICAL INVESTIGATION SERVICES

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6450 7528

BOREHOLE LOG

Borehole A

Sheet 1 of 3

Method	Date	Site
Cable Percussion	04/09/96 - 06/09/96	London International Cruise Terminal, Port of Tilbury, Essex

Dia mm	Coord	Ground Level m.OD	Client
150	TQ 644 753		Port of Tilbury, London

Soil Samples/Tests Type/Test	Depth m.	Field Records	OD Level m.	Depth m.	Description of Strata	Legend
D1	0.25				Loose occasionally medium dense black sandy gravelly ash with occasional small pockets of silty clay, some recent plant remains and occasional cobbles of concrete and fragments of timber and brick. Gravels comprising mainly rounded to subrounded flint. (MADE GROUND) (1.25)	
C1 N=14	0.50 - 0.95	,3/2,3,4,5				
B1	0.50 - 0.95					
C2 N=7	1.00 - 1.45	,4/2,1,2,2				
B2	1.00 - 1.45					
D2	1.25			1.25		
					Soft to firm occasionally stiff brown, grey and orange brown silty fine sandy clay with some grey to black ash and occasional brick and flint fragments. (MADE GROUND) (0.95)	
C3 N=3	2.00 - 2.45	,3/1,0,1,1				
D3	2.00					
B3	2.00 - 2.45			2.20		
U1 (12)	2.50 - 2.95				Soft occasionally very soft grey brown and blueish grey very silty fine sandy CLAY with some ancient plant remains and occasional shell fragments. (ESTUARINE ALLUVIUM) (4.30)	
D4	3.00					
D5	3.50					
U2 (10)	3.50 - 3.95					
D6	4.00					
D7	4.50					
U3 (12)	4.50 - 4.95					
D8	5.00					
D9	5.25					
U4 (17)	6.00 - 6.45					
D10	6.50			6.50		
D11	6.75			6.75	Firm faintly thickly laminated dark brown fibrous PEAT. (ESTUARINE PEAT) (0.25)	
					Very soft to soft faintly thickly laminated greenish grey silty CLAY with some to many ancient plant remains. (ESTUARINE ALLUVIUM) (1.45)	
U5 (18)	7.50 - 7.95					
D12	8.00					
D13	8.25			8.20		
					Soft to firm faintly thickly laminated dark brown slightly fibrous PEAT. (ESTUARINE PEAT) (1.20)	
U6 (51)	9.00 - 9.45					
D14	9.50			9.40		
D15	9.75				Soft to very soft thinly to thickly laminated light greenish grey very silty CLAY with some to many ancient plant remains. (ESTUARINE ALLUVIUM) (6.10)	

Remarks

Logged by	Scale	End Casing Depth m.	Job No.
OM	1:50	25.50	E107296

Sample/Test key:
- U () U100 sample (blows)
- D Disturbed sample
- B Bulk sample
- W Water sample
- Progress & Day

Penetration Tests:
- S () Standard (N value)
- C () Cone (N value)
- * Blows and penetration when 300mm not achieved

TQ67NW 356

GEOTECHNICAL DEVELOPMENTS

GEOTECHNICAL INVESTIGATION SERVICES
Telephone (01926) 813747. Fax (01926) 813302.

BOREHOLE LOG

Borehole A

Method	Date	Site
Cable Percussion	04/09/96 - 06/09/96	London International Cruise Terminal, Port of Tilbury, Essex

Dia mm	Coord	Ground Level m OD	Client
150	TQ 644 753		Port of Tilbury, London

Soil Samples/Tests		Field Records	OD Level m.	Depth m	Description of Strata	Legend
Type/Test	Depth m.					
U7 (33)	10.50 - 10.95					
D16	11.00					
D17	11.25					
U8 (45)	12.00 - 12.45					
D18	12.50					
D19	12.75					
U9 (30)	13.50 - 13.95					
D20	14.00					
D21	14.25					
U10 (43)	15.00 - 15.45					
D22	15.50			15.50	Soft to firm dark greenish grey silty fine sandy CLAY. (ESTUARINE ALLUVIUM) (1.15)	
D23	15.75					
W1	16.60	STRIKE at 16.60m rose to 16.50m		16.65	Loose greenish brown medium to coarse SAND. (THAMES RIVER GRAVELS/ESTUARINE ALLUVIUM) (2.35)	
U11 (50)	16.50 - 16.95					
B4	16.50 - 16.95					
D24	17.50					
S4 N=8	18.00 - 18.45	,3/2,1,2,3				
B5 (44)	18.00 - 18.45					
D25	18.75			19.00	Medium dense to dense greenish brown angular to subrounded fine to coarse flint SAND & GRAVEL. (THAMES RIVER GRAVELS) (2.20)	
C5 N=37	19.50 - 19.95	,7/8,11,10,11				
B6	19.50 - 19.95					

Remarks

Logged by	Scale	End Casing Depth m.	Job No.
OM	1:50	25.50	E107296

Sample/Test key:
- U () U100 sample (blows)
- D Disturbed sample
- B Bulk sample
- W Water sample
- - Progress & Day

Penetration Tests
- S () Standard (N value)
- C () Cone (N value)
- * Blows and penetration when 300mm not achieved

TQ67NW 356

GEOTECHNICAL DEVELOPMENTS

GEOTECHNICAL INVESTIGATION SERVICES

Telephone (01926) 813747. Fax (01926) 813302.

BOREHOLE LOG

Borehole A

Method	Date	Site
Cable Percussion	04/09/96 - 06/09/96	London International Cruise Terminal, Port of Tilbury, Essex

Dia mm	Coord	Ground Level m OD	Client
150	TQ 644 753		Port of Tilbury, London

Soil Samples/Tests		Field Records	OD Level m	Depth m	Description of Strata	Legend
Type/Test	Depth m.					
D26	20.25					
C6 N=17	21.00 - 21.45	,9/5,4,4,4				
B7	21.00 - 21.45			21.20		
					Creamish white blocky CHALK, moderately weak to weak with very many gravel and cobble sized subangular flint and occasional bands of silty clay sized comminuted chalk. (UPPER CHALK)	
D27	21.75					
S7 N=17	22.50 - 22.95	9,5/4,4,4,5				
D28	23.25					
S8 N=15	24.00 - 24.45	,5/4,4,4,3				
D29	24.75					
S9 N=20	25.50 - 25.95	,6/4,6,4,6				
D30	26.00			26.00		

-4.80!

Remarks

Logged by	Scale	End Casing Depth m	Job No.
OM	1:50	25.50	E107296

Sample/Test key:
- U () U100 sample (blows)
- D Disturbed sample
- B Bulk sample
- W Water sample
- Progress & Day

Penetration Tests
- S () Standard (N value)
- C () Cone (N value)
- * Blows and penetration when 300mm not achieved

6476.7530
TQ/67 N.W./1

28nd. March 1924.

BOREHOLE SECTION.

1" 27'

TILBURY - GRAVESEND TUNNEL

BORED & COMMUNICATED BY. Le Grand, Sutcliff & Gell Ltd. Southall Midx.

BORED FOR: Sir Maurice Fitzmaurice, 9 Victoria Street, London S.W.

POSITION OF BORING. On the Tilbury side of the River, Gravesend Tunnel site.

MAPS. 6" Ord. Essex. New 95. 1"-71 O.D. OF SITE: 5.80. +1.7m
1" Geo. Old Ser. 1-S.E. LEVEL OF PEG: 6.80.

WATER LEVEL BELOW SURFACE: 10'0" (3·1m) Taken on 4th March 1924.

BOREHOLE NO. 1.

STRATA.	THICKNESS Ft.	Ins.	DEPTH below ground surface Ft.	Ins.
			(1.22m)	
Brown Mottled clay. Pit.....	4	0	4	0
			(2·58m)	
Blue Clay	4	6	8	6
			(3·20m)	
Peat	2	0	10	6
			(6·86m)	
Clay and Peat	12	0	22	6
			(8·08m)	
Peat	4	0	26	6
			(16·46m)	
Clay and Peat	27	6	54	0
			(17·98m)	
Blue Clay	5	0	59	0
			(18·29m)	
Peat	1	0	60	0
			(20·12m)	
Ballast	6	0	66	0
			(37·64m)	
Chalk and Flints	57	6	123	6
	123	6	123 (37·64m)	6

(35·86m)

Bottom of borehole 117.70 below O.D.

Le Grand, Sutcliff & Gell Ltd.,

Signature .....

6476 7530

SECTION OF Comp AT Tilbury TQ 67 NW/1

One inch Map (NS) 271 Six-inch Map

Made by Coode Fitzmaurice Wilson & Mitchell Date 1925

Communicated by P.L.A.

HEIGHT ABOVE O.D. 5'10" WATER LEVEL

YIELD

Sheet 271

	THICKNESS.		DEPTH.	
	Feet.	Inches.	Feet.	Inches.
Brown clay	4	—	4	—
Blue clay	4	6	8	6
Peat	2	—	10	6
Clay & peat	12	—	22	6
Peat	4	—	26	6
Clay & peat	27	6	54	—
Blue clay	5	—	59	—
Peat	1	—	60	—
Ballast	6	—	66	—
Chalk & flints	54	6	120	6

Site

Close to World's End Public House, Fort Rd, Tilbury

Confidential

SECTION OF boring AT Tilbury

One inch Map (NS) 271 Six-inch Map TQ67NW11

Made by Coode, Stigmatice, Wilson & Mitchell Date 1925

Communicated by P.L.A.

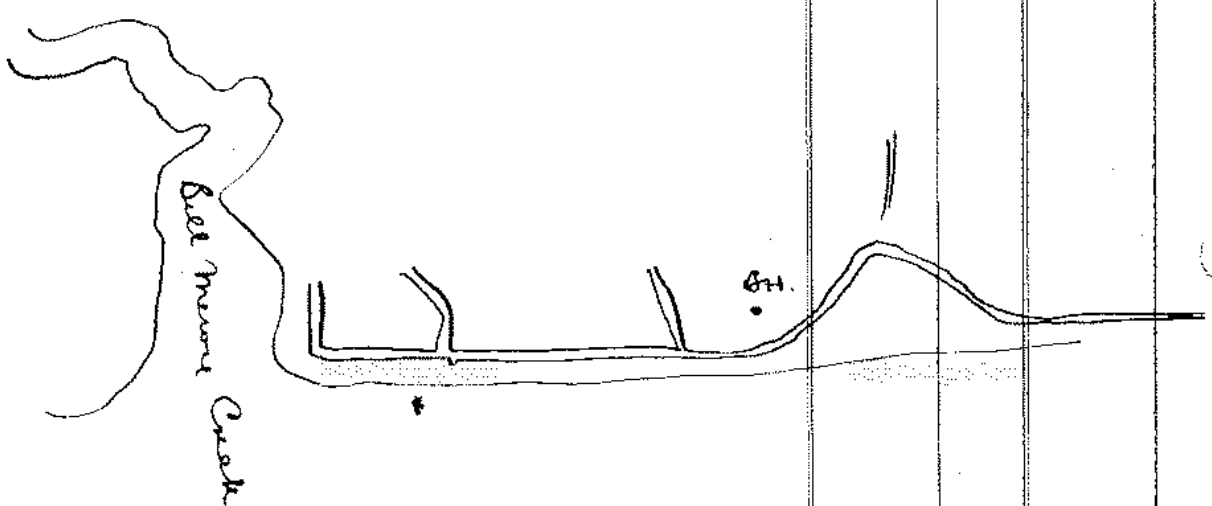
HEIGHT ABOVE O.D. 8'6" WATER LEVEL —

YIELD Sheet 271

	THICKNESS.		DEPTH.	
	Feet.	Inches.	Feet.	Inches.
Brown Clay	6	—	6	—
Blue clay	15	—	21	—
Blue clay & peat	4	—	25	—
Peat	6	—	31	—
Blue clay & peat	21	—	52	—
Thames gravel	20	—	72	—
Chalk & flints	42	6	114	6

Site

Tilbury side of river, behind sea wall.



Copied

TQ67NW 358

GEOTECHNICAL DEVELOPMENTS

GEOTECHNICAL INVESTIGATION SERVICES

Telephone (01926) 813747. Fax (01926) 813302.

6429 7540

BOREHOLE LOG

Borehole C

Sheet 1 of 3

Method	Date	Site
Cable Percussion	07/09/96 - 09/09/96	London International Cruise Terminal, Port of Tilbury, Essex

Dia mm	Coord	Ground Level m.OD	Client
150	TQ 644 753		Port of Tilbury, London

Soil Samples/Tests Type/Test	Depth m.	Field Records	OD Level m	Depth m.	Description of Strata	Legend
B1	0.00 - 0.50			0.10	Loose coarse rounded flint gravel. (MADE GROUND) (0.10)	
					Loose dark brown slightly silty gravelly ashy sand with occasional to rare brick fragments and recent plant remains. Gravels comprising mainly rounded to subangular flint. (MADE GROUND) (1.60)	
D1	1.00					
C1 N=3	1.50 - 1.95	,1/1,0,1,1				
B2	1.50 - 1.95			1.70		
					Soft orange brown and blueish grey silty ashy slightly gravelly clay with some brick fragments. (MADE GROUND) (1.50)	
D2	2.00					
C2 N=3	2.50 - 2.95	,2/1,0,1,1				
B3	2.50 - 2.95					
D3	3.00			3.20		
					Very soft to soft becoming firm light to mid grey silty CLAY with some to many ancient plant remains. (ESTUARINE ALLUVIUM) (5.00)	
U1 (9)	3.50 - 3.95					
D4	4.00					
U2 (11)	4.50 - 4.95					
D5	5.00					
D6	5.25					
U3 (12)	6.00 - 6.45					
D7	6.50					
D8	6.75					
U4 (21)	7.50 - 7.95					
D9	8.00					
D10	8.25			8.20		
					Soft to firm moist faintly thickly laminated dark brown slightly fibrous PEAT. (ESTUARINE PEAT) (1.40)	
U5 (30)	9.00 - 9.45					
D11	9.50			9.60		
D12	9.75				Very soft to soft greenish grey silty CLAY with some to many ancient plant remains and occasional thin beds of firm to stiff dark	

Remarks

Logged by	Scale	End Casing Depth m.	Job No.
OM	1:50	26.00	E107296

Sample/Test key:
U () U100 sample (blows)
D Disturbed sample
B Bulk sample
W Water sample
- Progress & Day

Penetration Tests:
S () Standard (N value)
C () Cone (N value)
* Blows and penetration when 300mm not achieved

TQ67NW 358

GEOTECHNICAL DEVELOPMENTS

GEOTECHNICAL INVESTIGATION SERVICES
Telephone (01926) 813747. Fax (01926) 813302.

BOREHOLE LOG

Borehole C

Sheet 2 of 3

Method	Date	Site
Cable Percussion	07/09/96 - 09/09/96	London International Cruise Terminal, Port of Tilbury, Essex

Dia mm	Coord	Ground Level m OD	Client
150	TQ 644 753		Port of Tilbury, London

Soil Samples/Tests Type/Test	Depth m.	Field Records	OD Level m.	Depth m.	Description of Strata	Legend
					brown very fibrous peat. (ESTUARINE ALLUVIUM) (6.80)	
U6 (33)	10.50 - 10.95					
D13	11.00					
D14	11.25					
U7 (29)	12.00 - 12.45					
D15	12.50				At 12.50m bgl, becoming faintly thickly laminated.	
D16	12.75					
U8 (22)	13.50 - 13.95					
D17	14.00					
D18	14.25					
U9 (50)	15.00 - 15.45					
D19	15.50					
D20	15.75					
S3 N=7	16.50 - 16.95	,1/1,2,2,2		16.40	Soft to firm grey and orange brown silty sandy gravelly CLAY. Gravels comprising subangular flint. (ESTUARINE ALLUVIUM) (0.80)	
		STRIKE at 17.00m rose to 9.50m				
D21	17.25			17.20	Loose to medium dense light grey brown very clayey fine sandy SILT. (ESTUARINE ALLUVIUM) (0.80)	
W1	17.30					
C4 N=19	18.00 - 18.45	,2/3,5,5,6		18.00	Medium dense becoming dense grey brown, dark grey and orange brown rounded to angular, fine to coarse flint SAND & GRAVEL with occasional subrounded flint cobbles. (THAMES RIVER GRAVELS) (2.50)	
B4	18.00 - 18.45					
D22	18.75					
C5 N=35	19.50 - 19.95	,9/7,8,10,10				
B5	19.50 - 19.95					

Remarks

Logged by	Scale	End Casing Depth m.	Job No.
OM	1:50	26.00	E107296

Sample/Test key
- U () U100 sample (blows)
- D Disturbed sample
- B Bulk sample
- W Water sample
- - Progress & Day

Penetration Tests
- S () Standard (N value)
- C () Cone (N value)
- * Blows and penetration when 300mm not achieved

TQ67NW 358

GEOTECHNICAL DEVELOPMENTS

GEOTECHNICAL INVESTIGATION SERVICES

Telephone (01926) 813747. Fax (01926) 813302.

BOREHOLE LOG

Borehole C

Sheet 3 of 3

Method	Date	Site
Cable Percussion	07/09/96 - 09/09/96	London International Cruise Terminal, Port of Tilbury, Essex

Dia mm	Coord	Ground Level m OD	Client
150	TQ 644 753		Port of Tilbury, London

Soil Samples/Tests Type/Test	Depth m.	Field Records	OD Level m	Depth m.	Description of Strata	Legend
D23	20.25			20.50		
S6 N=7	21.00 - 21.45	,3/2,1,2,2			Creamish white blocky, faintly thickly laminated to thinly bedded CHALK, moderately strong to moderately weak, with some silty clay sized comminuted chalk and occasional fine to medium rounded to angular flint gravel and occasional pockets of greenish grey silty sand. (UPPER CHALK) (5.50)	
D24	21.75					
S7 N=10	22.50 - 22.95	,7/2,2,2,4				
D25	23.25					
S8 N=16	24.00 - 24.45	,6/4,4,4,4				
D26	24.75					
S9 N=20	25.50 - 25.95	,7/4,5,5,6				
D27	26.00			26.00		

Remarks

Logged by	Scale	End Casing Depth m.	Job No.
DM	1:50	26.00	E107296

Sample/Test key:
- U () U100 sample (blows)
- D Disturbed sample
- B Bulk sample
- W Water sample
- - Progress & Day

Penetration Tests
- S () Standard (N value)
- C () Cone (N value)
- * Blows and penetration when 300mm not achieved

TQ67NW 400

GEOTECHNICAL DEVELOPMENTS

GEOTECHNICAL INVESTIGATION SERVICES
Telephone (01926) 813747. Fax (01926) 813302.

6407
7547

TRIAL PIT LOG

Trial Pit 202

Sheet 1 of 1

Method	Date	Site
Ford NH75	28/10/97	Finnish Project, Port of Tilbury, Essex
Dia mm	**Coord**	**Ground Level m.OD**
	TQ 640 756	3.91

Client: Port of Tilbury London Ltd

Soil Samples/Tests Type/Test	Depth m.	Field Records	OD Level m	Depth m.	Description of Strata	Legend
D1	0.20				Loose to dense black, grey and dark brown slightly clayey silty sand with a little fine to medium gravel. Occasional wood, brick, ash and pottery. (MADE GROUND) (0.35)	
B1	0.20 - 0.30		3.56	0.35		
D2	0.50				Loose to dense (soft to firm and firm), grey, light grey and yellow-brown clayey silty fine to medium sand and slightly sandy silty organic clay, with lenses of firm fissured grey silty clay. (PROBABLE MADE GROUND) (0.85)	
HV1	0.70	30, 45, 55, 60				
		STRIKE at 1.30m slight seepage				
			2.71	1.20		
HV2	1.30	18, 20, 21, 22			Very soft to soft dark grey and grey, slightly sandy silty organic CLAY with sand laminae and occasional layers (10-20mm thick) of peat. (ESTUARINE ALLUVIUM) (2.50)	
D3	1.40					
		STRIKE at 1.50m slight seepage				
HV3	2.50	14, 16, 16			At 2.50m bgl, becoming very soft, with slight increase in frequency of peaty layers and lenses.	
HV4	3.00	12, 14, 14, 15, 18				
HV5	3.50					
			0.21	3.70	Base of trial pit at 3.70m bgl.	

Remarks

Spalling of Made Ground. Trial pit backfilled immediately.

Logged by	Scale	End Casing Depth m.	Job No.
GRD	1:25		E125897

Sample/Test key:

D	Disturbed sample	Hv	Hand Vane (KPa)
B	Bulk sample	P	Penetrometer (kg/cm²)
W	Water sample		
-	Progress & Day		

TQ16NW 401

GEOTECHNICAL DEVELOPMENTS

GEOTECHNICAL INVESTIGATION SERVICES
Telephone (01926) 813747. Fax (01926) 813302.

6403
7544

TRIAL PIT LOG

Trial Pit 203

Sheet 1 of 1

Method: Ford NH75	Date: 28/10/97	Site: Finnish Project, Port of Tilbury, Essex	
Dia mm	Coord: TQ 640 756	Ground Level m OD 3.72	Client: Port of Tilbury London Ltd

Soil Samples/Tests Type/Test	Depth m.	Field Records	OD Level m.	Depth m.	Description of Strata	Legend
			3.62	0.10	Dark brown silty sand and fine, occasionally medium, gravel. (MADE GROUND) (0.10)	
			3.52	0.20	Asphalt. (MADE GROUND) (0.10)	
B1	0.30 - 0.50				Loose to dense black, dark grey and dark brown slightly clayey silty fine to medium sand with some fine to medium gravel. Occasional wood/ rope. (MADE GROUND) (0.45)	
D1	0.40					
			3.07	0.65	Firm, becoming soft to firm with depth, grey slightly sandy silty clay with a little fine to coarse chalk gravel and occasional cobbles. (MADE GROUND) (0.95)	
HV1	0.70	40, 50, 55, 75				
D2	0.80					
HV2	0.85	40, 45, 50				
HV3	1.05	25, 30, 35, 40				
HV4	1.25	40, 50, 55				
HV5	1.40	25, 35, 35				
		STRIKE at 1.60m slight seepage	2.12	1.60	Soft to firm, becoming soft and then very soft to soft with depth, dark grey and grey, slightly sandy silty organic CLAY with occasional layers (10-20mm thick) of peat. (ESTUARINE ALLUVIUM) (0.90)	
			1.22	2.50	Base of trial pit at 2.50m bgl.	

Remarks

Spalling of Made Ground. Trial pit backfilled immediately.

Logged by	Scale	End Casing Depth m.	Job No.
GRD	1:25		E125897

Sample/Test key:

D	Disturbed sample	Hv	Hand Vane (KPa)
B	Bulk sample	P	Penetrometer (kg/cm²)
W	Water sample		
-	Progress & Day		

TQ67NW/210

SECTION OF Tooting AT Tilbury

One inch Map (NS) 24 *Six-inch Map* 6413 7509

Made by LeGrand Antcliff & Gell Date 1923.

Communicated by P.L.A.

HEIGHT ABOVE O.D. 4·45 + 1.45m *WATER LEVEL* 9'3" down.

YIELD

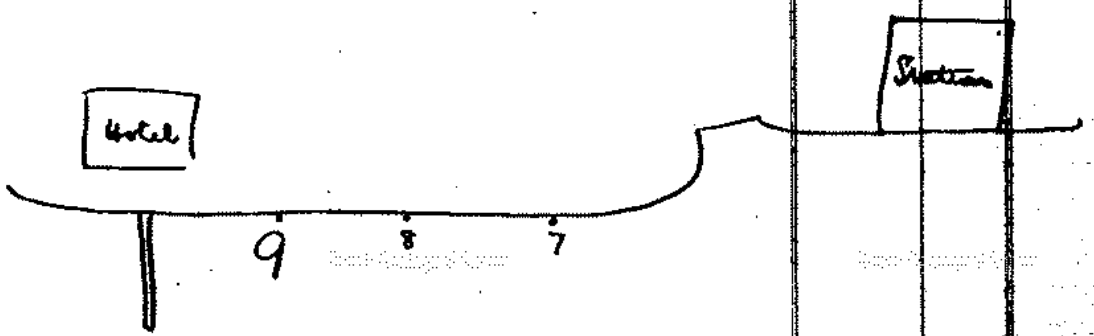
Borehole N° 9.

	THICKNESS. Feet.	Inches.	DEPTH. Feet.	Inches.
Pitching	5	—	5	—
Clay & Peat	6	—	11	—
Clay	6	—	17	—
Peat	3	6	20	6
Clay	24	9	45	3
Ballast	17	—	62	3
Chalk	10	—	72	3

Diam. of bore 4¼"

Site

On foreshore between Tilbury Station and Tilbury Hotel



Confidential

140+NW/209

SECTION OF boring AT Tilbury 6419 7510

One inch Map (NS) 21i Six-inch Map

Made by LaGrand Lutcuff & Gell Date 1923

Communicated by P.L.A

HEIGHT ABOVE O.D. 11·984ft. WATER LEVEL Surface

+3·65 m

YIELD

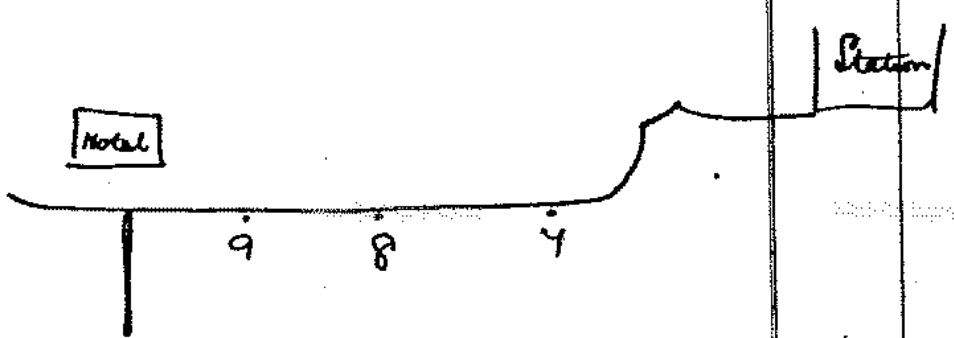
Borehole N° 8

	THICKNESS. Feet.	THICKNESS. Inches.	DEPTH. Feet.	DEPTH. Inches.
Pitching	6	–	6	–
Clay	8	6	14	6
Peat	3	6	18	–
Clay	7	–	25	–
Peat	8	–	33	–
Clay	6	–	39	–
Clay & Peat	4	3	43	3
Sand	4	9	48	–
Ballast	19	–	67	–
Chalk.	10	–	77	–

Diam of bore 7¼"

Site

On foreshore between Tilbury Station and Tilbury Hotel.



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TQ 67 NW/208

SECTION OF boring AT Tilbury

One inch Map (NS) 271 Six-inch Map 6427 7511

Made by Lefrand, Entcliff & Gell Date 1923.

Communicated by P.L.A.

HEIGHT ABOVE O.D. 12 feet. + 3 ft. WATER LEVEL 11 feet down.

YIELD

Borehole No 4

	THICKNESS. Feet.	THICKNESS. Inches.	DEPTH. Feet.	DEPTH. Inches.
Pitching	4	9	4	9
Blay	12	–	16	9
Clay+peat	1	6	18	3
Clay	8	–	26	3
Peat	4	–	30	3
Clay	11	–	41	3
Peat	1	6	42	9
Clay	8	3	51	–
Ballast.	15	–	66	—
Chalk.	10	–	76	—

Diam. of bore 4¼".

Site

On foreshore between Tilbury Station and Tilbury Hotel



N.

Confidential

SECTION OF Boring AT Tilbury Docks TQ67NW/141

One inch Map (NS) 271 Six-inch Map 6405 7562

Made by Le Grand, Sutcliffe & Gaze Date 1925

Communicated by P.L.A.

HEIGHT ABOVE O.D. 15·39 +4·66 WATER LEVEL 18 feet.

YIELD

No 6

	THICKNESS.		DEPTH.	
	Feet.	Inches.	Feet.	Inches.
Made up ground	4	6	4	6
Mud & peat	11	—	15	6
Brown Clay	4	6	20	
Thames mud	6	—	26	—
" " & peat	12	—	38	—
Peat.	3	6	41	6
Clay & peat	11	6	53	—
Peat.	1	—	54	—
Clay & a little peat.	7	-	61	—
Sandy clay	6	6	67	6
Peat	1	—	68	6
Ballast	6	6	75	-
Chalk & flints	1	6	76	6

Diam. of bore 6"

Water struck at 15 ft and 68'6".

Site

See attached sketch

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TQ 67 NW 1205

SECTION OF boring AT Tilbury Landing Stage

One inch Map (NS) 271 Six-inch Map 6433 7511

Made by LeGrand + Sutcliff Date 1914

Communicated by P.L.A.

HEIGHT above O.D. 3'9" + 1.14 m WATER LEVEL —

YIELD

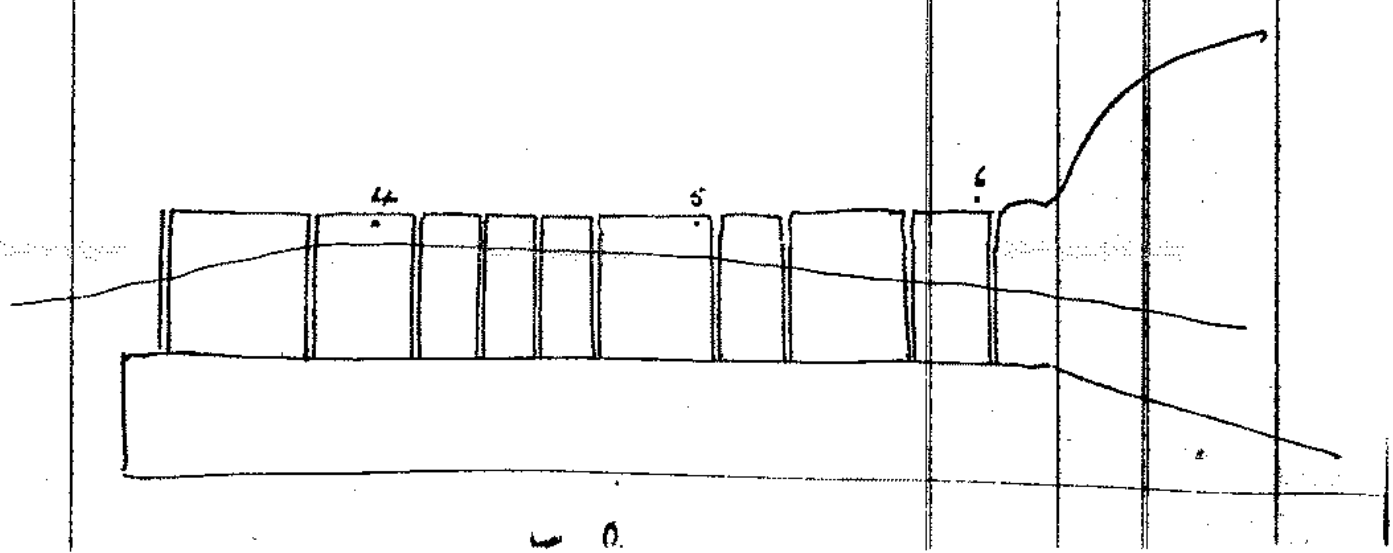
Borehole N°4

	THICKNESS. Feet.	THICKNESS. Inches.	DEPTH. Feet.	DEPTH. Inches.
Mud	3	—	3	—
Clay	3	6	6	6
Peat	5	—	11	6
Clay	15	—	26	6
Peat	8	—	34	6
Ballast	10	—	44	6

Diam. of bore — 10".

Site

North of Landing Stage on shore of River Thames



0

TQ67NW/206

SECTION OF boring AT Tilbury Landing Stage

One inch Map (NS) 271 Six-inch Map 6440 7511

Made by LeGrand + Sutcliff Date 1914

Communicated by P.L.A.

HEIGHT ~~ABOVE~~ Below O.D. 4'6" (+1·37 m) WATER LEVEL ——

YIELD

Borehole N°5

	THICKNESS. Feet.	THICKNESS. Inches.	DEPTH. Feet.	DEPTH. Inches.
Mud	2	—	2	—
Clay	2	—	4	—
Peat	5	—	9	—
Clay	9	—	18	—
Sandy Clay	8	—	26	—
Sand	9	—	35	—
Ballast.	10	—	45	—

Diam. of bore – 10"

Site

See section of borehole N°4

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TQ 67 NW/207

SECTION OF boring AT Tilbury Landing Stage 6447 7513

One inch Map (NS) 271 Six-inch Map

Made by Le Grand & Sutcliff Date 1914

Communicated by P. L. A.

HEIGHT ABOVE O.D. − 2 = − 0·61m WATER LEVEL —

YIELD

Borehole N° 6

	THICKNESS. Feet.	THICKNESS. Inches.	DEPTH. Feet.	DEPTH. Inches.
Mud	1	9	1	9
Clay	8	6	10	3
Peat	1	—	11	3
Clay	3	6	14	9
Peat	4	—	18	9
Clay	10	—	28	9
Peat	3	—	31	9
Sandy clay	11	—	42	9
Sand	4	—	46	9
Ballast	10	—	56	9

Diam. of bore 10"

Site

See Section of borehole N° 4

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TQ67NW 399

GEOTECHNICAL DEVELOPMENTS

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6413
7550

TRIAL PIT LOG

Trial Pit 201

Sheet 1 of 1

Method	Date	Site
Ford NH75	28/10/97	Finnish Project, Port of Tilbury, Essex

Dia mm	Coord	Ground Level m.OD	Client
	TQ 640 756	4.10	Port of Tilbury London Ltd

Soil Samples/Tests		Field Records	OD Level m.	Depth m.	Description of Strata	Legend
Type/Test	Depth m.					
			4.00	0.10	Loose yellow-brown silty sand and fine to medium flint gravel. (MADE GROUND) (0.10)	
D1	0.30				Loose to dense dark grey slightly clayey silty fine to medium ashy sand with a little fine to medium gravel. (MADE GROUND) (0.40)	
			3.60	0.50		
HV1	0.70	16, 18, 18, 28			Loose to dense grey clayey silty fine to medium sand with lenses of firm to stiff fissured dark grey silty clay and lenses of fine ash sand. (MADE GROUND) (0.70)	
		STRIKE at 1.20m slight seepage	2.90	1.20		
HV2	1.50	21, 24, 25			Very soft to soft dark grey silty very sandy organic CLAY and layers of orange-brown silty SAND. Occasional peat layers (10-20mm thick). (ESTUARINE ALLUVIUM) (1.30)	
D2	1.60					
			1.60	2.50	Very soft to soft grey and dark grey slightly sandy silty organic CLAY with occasional layers of peat (10-50mm thick) and lenses of peat (up to 100mm in size. Increasing amount of peat layers and lenses with depth. (ESTUARINE ALLUVIUM) (1.60)	
			0.00	4.10	Base of trial pit at 4.10m bgl.	

Remarks

Spalling of Made Ground. Trial pit backfilled immediately.
Concrete footing observed from 0.50 to 1.20m bgl.

Logged by	Scale	End Casing Depth m.	Job No.
GRD	1:25		E125897

Sample/Test key:

D	Disturbed sample	Hv	Hand Vane (KPa)
B	Bulk sample	P	Penetrometer (kg/cm2)
W	Water sample		
-	Progress & Day		

TQ 67 NW/146

SECTION OF Ironing AT Yelbury Docks

One inch Map (NS) 27 Six-inch Map 6413 7554.

Made by LeGrand, Sutcliff & Gell Date 1905

Communicated by P.L.G.

HEIGHT ABOVE O.D. 14·16 +4·32m WATER LEVEL ~~vary~~ with tide

YIELD

Nº 11

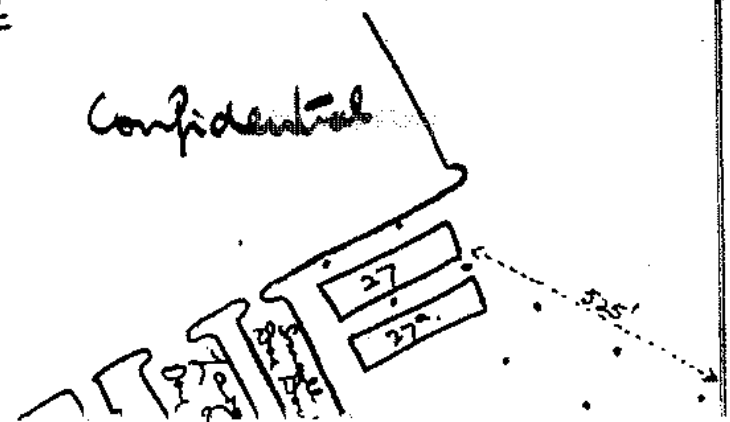
	THICKNESS. Feet.	THICKNESS. Inches.	DEPTH. Feet.	DEPTH. Inches.
Made ground	3	—	3	—
Clay with a little peat	9	10	12	10
Loam	1	—	13	10
Brown clay	3	2	14	—
Peat	1	—	18	—
Mud	13	3	31	3
Peat	5	9	37	—
Mud & peat	9	4	46	7
Peat	1	5	48	-
Clay & peat	8	—	56	—
Loamy peat	—	6	56	6
Sandy clay.	—	6	54	—
Sand, mud & ballast	—	6	54	6
Ballast	16	—	73	6
Chalk	1	8	75	2

Diam. of bore 7¼"

Water struck at 4 ft, 16 ft and 54 ft.

Site

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TQ67NW 4-11

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6417
7555

TRIAL PIT LOG

Trial Pit 213

Sheet 1 of 1

Method	Date	Site
Komatsu Backhoe	28/10/97	Finnish Project, Port of Tilbury, Essex

Dia mm	Coord	Ground Level m.OD	Client
	TQ 640 756	3.87	Port of Tilbury

Soil Samples/Tests		Field Records	OD Level m.	Depth m.	Description of Strata	Legend
Type/Test	Depth m.					
			3.57	0.30	Loose, dark brown, clayey sandy silt with a little gravel. (MADE GROUND) (0.30)	
			3.32	0.55	Loose to dense, grey, clayey silty fine to medium SAND. (ALLUVIUM) (0.25)	
HV1	0.70	10, 18, 20			Soft to firm, locally very soft to soft, black and grey slightly sandy silty organic CLAY with large lenses of peat. (1.65)	
HV2	0.90	22, 26, 26				
HV3	1.10	24, 26, >30 STRIKE at 1.00m moderate inflow				
			1.67	2.20	Brown fibrous PEAT. (ESTUARINE ALLUVIUM) (0.40)	
			1.27	2.60		
			1.07	2.80	Soft to firm, locally very soft to soft, black and grey slightly sandy silty organic CLAY with large lenses of peat. (ESTUARINE ALLUVIUM) (0.20)	
					Base of trial pit at 2.80m bgl.	

Remarks

Spalling of Made Ground. Trial pit backfilled immediately.

Logged by	Scale	End Casing Depth m.	Job No.
GRD	1:50		E125897

Sample/Test key:

D	Disturbed sample	Hv	Hand Vane (KPa)
B	Bulk sample	P	Penetrometer (kg/cm²)
W	Water sample		
-	Progress & Day		

SECTION OF boring AT Tilbury Dock TQ 67 NW/144

One inch Map (NS) 27 Six-inch Map 6408 7555

Made by LaGrand, Sutcliffe & Gell Date 1905.

Communicated by P.L.A.

HEIGHT ABOVE O.D. 14·28 +4·35 WATER LEVEL ?

YIELD

No 9

	THICKNESS. Feet.	THICKNESS. Inches.	DEPTH. Feet.	DEPTH. Inches.
Made ground	1	—	1	—
Mud & peat	5	—	6	—
Mud & blue clay mixed	3	—	9	—
Brown clay with thin bands of peat.	3	6	12	6
Loam.	1	6	14	—
Brown clay	3	6	14	6
Mud & peat.	16	—	33	6
Peat	3	6	37	—
Clay, mud & peat	10	3	47	3
Peat & driftwood	2	4	49	10
Mud & driftwood	1	2	51	—
Mud & clay.	3	2	54	2
Loamy sand	1	10	56	—
Sandy clay	1	6	57	6
Sand & loam.	2	—	59	6
Ballast	13	6	73	—
Chalk.	3	6	76	6

Diam. of bore 6"

Water struck at 16 ft and 56½ ft.

Lido

See attached sketch

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TQ67 NW/147

SECTION OF boring AT Tilbury Dock. 6416 7556

One inch Map (NS) 27 Six-inch Map

Made by Lefgrand Sutcliffe & Gaul Date 1925.

Communicated by P.L.A.

HEIGHT ABOVE O.D. 14·22 + 4·33 m WATER LEVEL 9'6"

YIELD

No 12.

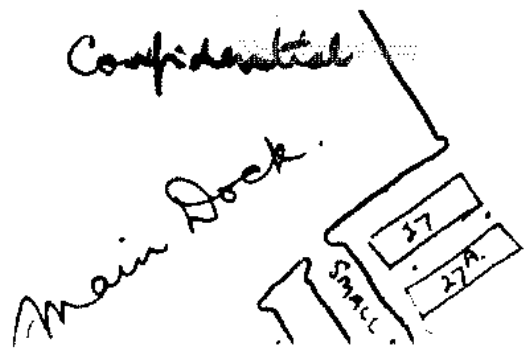
	THICKNESS. Feet.	THICKNESS. Inches.	DEPTH. Feet.	DEPTH. Inches.
Made ground	2	—	2	—
Thames mud	4	—	6	—
" " & peat	4	—	10	—
Peat	5	—	15	—
Thames mud & clay	6	—	21	—
Peat	2	—	23	—
Thames mud & clay	8	—	31	—
Peat.	6	—	37	—
Thames mud & peat	11	—	48	—
Peat	1	—	49	—
Soft grey clay	8	—	54	—
Grey sandy clay	3	—	60	—
Coarse grey sand.	—	6	60	6
Ballast	13	6	74	—
Chalk.	1	—	75	—

Diam. of bore 4¼"

Water struck at 4ft and 54ft.

Site About 900 feet from quay side

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12

SECTION OF boring AT Tilbury Dock TQ67 NW/142

One inch Map (NS) 271 Six-inch Map 6403 7558

Made by LeGrand, Sutcliff & Gell Date 1925

Communicated by P.L.A.

HEIGHT ABOVE O.D. 14·67 +4.17 WATER LEVEL 15'8"

YIELD

No 4

	THICKNESS. Feet.	Inches.	DEPTH. Feet.	Inches.
Earth	4	—	4	—
Mud and a little peat	10	—	14	—
Loam	1	—	15	—
Blue clay	1	—	16	—
Brown clay.	4	6	20	6
Peat	1	—	21	6
Thames mud	6	6	28	—
" " + peat	6	6	34	6
Peat	3	.	37	6
Clay + peat	11	6	49	—
Peat	3	—	52	—
Clay + peat	5	6	57	6
Peat	—	6	58	—
Sandy clay	2	6	60	6
Sand (blowing)	3	6	64	—
Ballast	14	—	78	—
Chalk	1	—	79	—

Diam. of bore 6"

Water struck at 12 ft and 60½ ft.

Site

See attached sketch

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TQ 67 NW/145

SECTION OF Boring AT Tilbury Dock

One inch Map (NS) 24 Six-inch Map 6414 7559

Made by Le Grand, Sutcliff & Gell Date 1925

Communicated by P.L.A

HEIGHT ABOVE O.D. 14·77 (+4·50 m) WATER LEVEL 9'6"

YIELD

Borehole N°10

	THICKNESS. Feet.	THICKNESS. Inches.	DEPTH. Feet.	DEPTH. Inches.
Made ground	4	—	4	—
Thames mud & clay	6	—	10	—
" " peat	3	—	13	—
" " clay & peat	21	—	34	—
Peat.	4	6	38	6
Thames mud & clay	13	6	52	—
Peat.	2	—	54	—
Grey clay & peat.	4	6	58	6
Peat	1	—	59	6
Grey clay	1	6	61	—
Thames mud, clay & sand	1	—	62	—
Grey clay, & small clay stones	2	—	64	—
Grey sandy clay.	2	6	66	6
Loamy grey sand	—	6	67	—
Ballast	6	—	73	
Chalk.	1	—	74	—

Diam. of bore 4¼"

Water struck at 5' and 65'.

Site

See attached sketch

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TQ67NW 412

GEOTECHNICAL DEVELOPMENTS

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64416
75600

TRIAL PIT LOG

Trial Pit 214

Sheet 1 of 1

Method: Komatsu Backhoe	Date: 28/10/97	Site: Finnish Project, Port of Tilbury, Essex	
Dia mm	Coord: TQ 640 756	Ground Level m OD: 4.07	Client: Port of Tilbury London Ltd

Soil Samples/Tests Type/Test	Depth m.	Field Records	OD Level m.	Depth m.	Description of Strata	Legend
			3.97	0.10	Loose, yellow-brown fine, occasionally medium, gravel in a silty sand matrix. (MADE GROUND) (0.10)	
B1	0.40 - 0.60		3.67	0.40	Loose to dense, brick/concrete rubble in a brown silty sandy gravel matrix. (MADE GROUND) (0.30)	
			3.27	0.80	Loose to dense, black silty ash sand and fine, occasionally coarse, gravel. Occasional brick fragments. (MADE GROUND) (0.40)	
HV1	0.90	60, 60, 65			Firm, becoming soft to firm with depth, grey and dark grey, slightly sandy silty organic CLAY. (ESTUARINE ALLUVIUM) (0.90)	
HV2	1.10	50, 50, 60				
HV3	1.30	50, 45, 45				
			2.37	1.70	Brown fibrous PEAT. (ESTUARINE ALLUVIUM) (0.70)	
		STRIKE at 2.10m heavy inflow				
			1.67	2.40	Very soft to soft, grey and light grey, slightly sandy silty organic CLAY. (ESTUARINE ALLUVIUM) (0.90)	
			0.77	3.30	Brown fibrous PEAT. (ESTUARINE ALLUVIUM) (0.30)	
			0.47	3.60	Very soft to soft, grey and light grey, slightly sandy silty organic CLAY. (ESTUARINE ALLUVIUM) (0.40)	
			0.07	4.00	Base of trial pit at 4.00m bgl.	

Remarks

Trial pit backfilled immediately.

Logged by	Scale	End Casing Depth m.	Job No.
GRD	1:25		E125897

Sample/Test key:

D	Disturbed sample	Hv	Hand Vane (KPa)
B	Bulk sample	P	Penetrometer (kg/cm2)
W	Water sample		
-	Progress & Day		

SECTION OF boring AT Tilbury Dock TQ67 NW/149

One inch Map (NS) 2H Six-inch Map 6410 7560

Made by LeGrand Sutcliff & Gell Date 1925

Communicated by P.L.A

HEIGHT ABOVE O.D. 15 40 (+4.79m) WATER LEVEL 14'6"

YIELD

No 8

	THICKNESS. Feet.	THICKNESS. Inches.	DEPTH. Feet.	DEPTH. Inches.
Made ground	4	6	4	6
Thames mud	11	—	15	6
Blue Clay.	2	—	17	6
Brown clay	2	6	20	—
Thames mud	12	—	32	—
" " & peat	5	—	37	—
Peat	4	6	41	6
Mud & peat	8	6	50	—
Peat	2	—	52	—
Mud & a little peat	11	—	63	—
" & clay	1	—	64	—
Loamy peat	1	6	65	6
" sand, dry.	1	—	66	6
" " , wet.	1	—	67	6
Ballast	5	—	72	6
Chalk & flints	2	6	75	—

Diam. of bore 4¼"

Water struck at 15ft and 64 ft.

Site

See attached sketch

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Appendix D Preliminary UXO Risk Assessment

This Preliminary UXO Risk Assessment has been carried out by Buro Happold in accordance with CIRIA C681. The purpose of the preliminary risk assessment is a qualitative screening exercise to assess the likelihood of finding UXO at the site. This can then be used to make an informed decision if further UXO specific risk management is required.

The assessment is based on data obtained from a desktop review of information, including site location, bombing records, historical uses, historical development and proposed development.

Item	Comments	Score
Site Setting	The site is centred at TQ 66438 75459 and covers approximately 29.9 hectares. It is located to the immediate east of the Port of Tilbury in the unitary borough of Thurrock. It is bounded to the north by the London, Tilbury and Southend Railway Line (outside boundary), to the east by in part by Fort Road (within boundary) and a drain (outside boundary), to the south by the River Thames, and to the west by Ferry Road (within boundary). A roughly rectangular parcel of land is enclosed within the site but excluded from it.	4
Site description and historical land usage	The site has been built up with a mixture of industrial, commercial and residential use and located in a wider commercial / industrial setting since the late 1800s. By 1872, the site was partially developed with rail sidings, a small gas works, Tilbury Station and associated development (engine sheds, carriage sheds, worker properties). A pontoon was also shown on the River Thames, for ferry crossing across the Thames. Tilbury Fort has been located adjacent to the east of the site since the Tudor times. The adjacent Tilbury Docks had been constructed by 1895, with ancillary development associated with this present on site (western boundary) since this time, including a mortuary, hospital, club, smithy etc. The extent of rail sidings and other infrastructure on site generally increased until the mid-1960s. By the 1970s, rail sidings were being scaled back. The majority of site infrastructure was removed by the early 2000s, with redevelopment to current use by 2010.	8
Record of bombing	No online bomb map records available to view. However, some written information available: • Thurrock.gov.uk – 'The [London, Tilbury and Southend] railway suffered badly during the Second World War, but it was a flying bomb which did most damage to the railway in 1944, when a V-2 scored a direct hit on to sidings near to Tilbury Riverside Station, destroying over 140 Passenger Carriages, damaged two Gravesend ferries'.	8
Level of post war development	Significant post war development (>80% of the site).	-5
Level of proposed intrusive works	Details of proposed intrusive works unconfirmed at this stage, therefore no mitigation factor applied.	0

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Item	Comments	Score
Assessed Risk	Moderate	20 – 5 =15
Recommendations	The assessment found risk associated with UXO to be moderate, therefore a detailed UXO risk assessment is required.	
Attachments	**Table 8-1 -** Potential aerial delivered UXO hazards Error! Reference source not found. **-** Mitigation factors Error! Reference source not found. **-** Final score summary Error! Reference source not found. **–** Pre-WWII historical map Error! Reference source not found. **–** Post-WWII historical maps **Attachment 3** – Post-WWII historical maps	

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Table 8-1 Scoring process for indicators of potential aerial delivered UXO hazards

Data Item	**Increasing Potential for aerial delivered UXO Hazards** →			
	1	**2**	**4**	**8**
A - Site Setting	Rural	Small towns	Cities Large Towns	
B - Site description and historical land usage	Greenfield site only Agricultural land only	Residential only Within 10 mile radius of site of previous military use Within 5 mile radius of wartime[1] for following: Railway marshalling yard Power station Gas works Port Industrial centre	Within 5 mile radius of site of previous military use Within 1 mile radius of wartime[1] for following: Railway marshalling yard Power station Gas works Port Industrial centre On wartime[1] flight paths	Within 1 mile radius of site of previous military use Former wartime[1]: Railway marshalling yard Power station Gas works Port Industrial centre
C – Record of bombing	No history of WWII bombing	Within 10 mile radius of area of known WWII bombing	Within 5 mile radius of area of known WWII bombing	Area of known WWII bombing

[1]Wartime refers to the site being in use at the time of WWI and WWII when its significance may have caused it to be the target of an enemy attack.

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Table 8-2 Scoring process for considering mitigation factors

Data Item	Decreasing Potential for aerial delivered UXO Hazards				
	-6	**-5**	**-3**	**-1**	**0**
D - Level of post war development	Whole site redevelopment (100% of the site)	Significant post war development (>80% of the site)	Moderate level of post war development (<80% and ≥45% of the site)	Some post war development (<45% and ≥10% of the site)	Minimal post war development (<10% of the site)
E - Level of proposed intrusive works in areas not subject to post war development[1]	Very Small (<5%)	Small (<10%)	Some (<45% and ≥10%)	Moderate (<80% and ≥45%)	Significant (>80%)

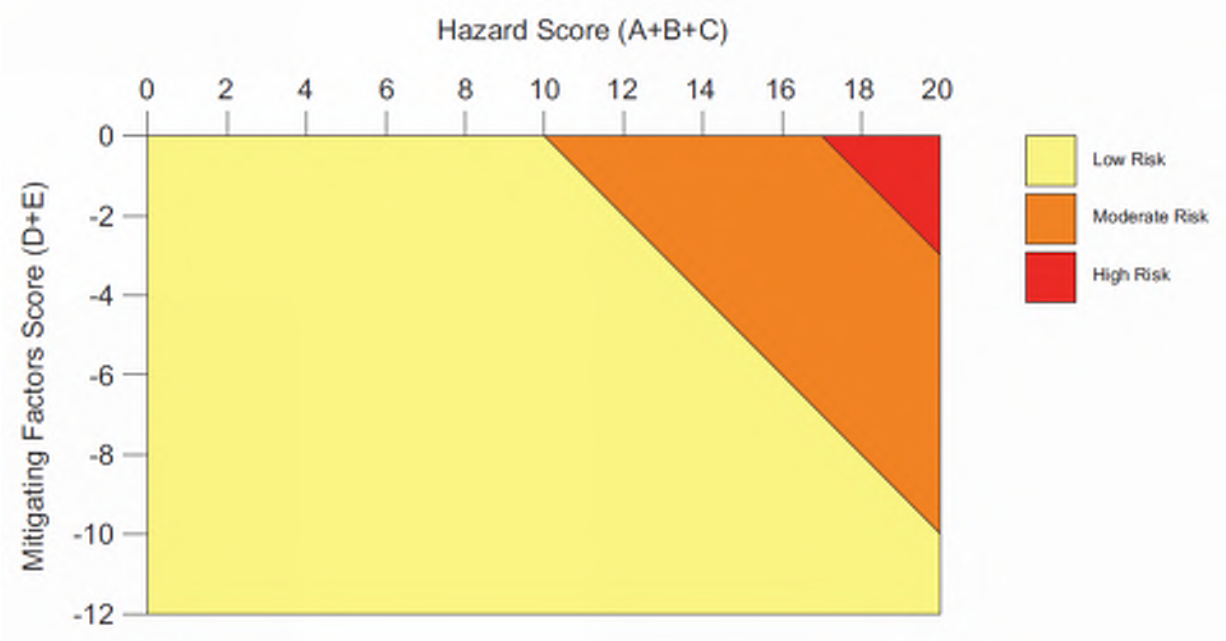
[1]Only if the level of post-war development is known and can be quantified in terms of site area and an approximation of depth should a mitigation factor be applied.

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Table 8-3 Final score is based on the sum of rows A, B, C, D and E in Table 8 1and Table 8 2

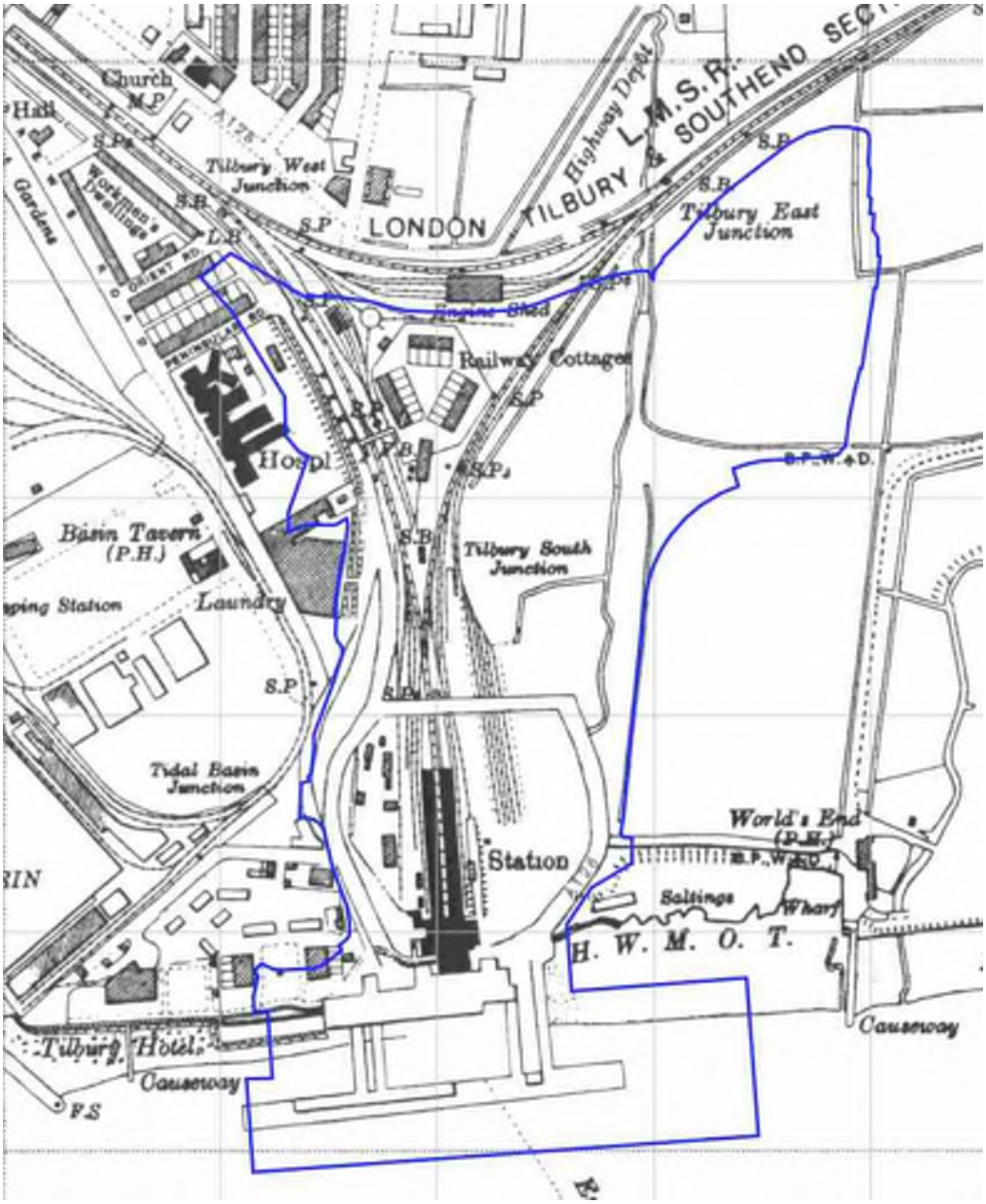
Final Hazard Score	Risk of encountering an Aerial dropped UXO	Implication
-9 - 9	Low Risk	No further UXO risk assessment likely to be required
10 - 17	Moderate Risk	Detailed UXO Risk Assessment required
17 - 20	High Risk	Detailed UXO Risk Assessment required.

This risk assessment methodology is intended as a generic tool. A small number of sites with unusual site-specific conditions may require additional consideration of the hazard scoring



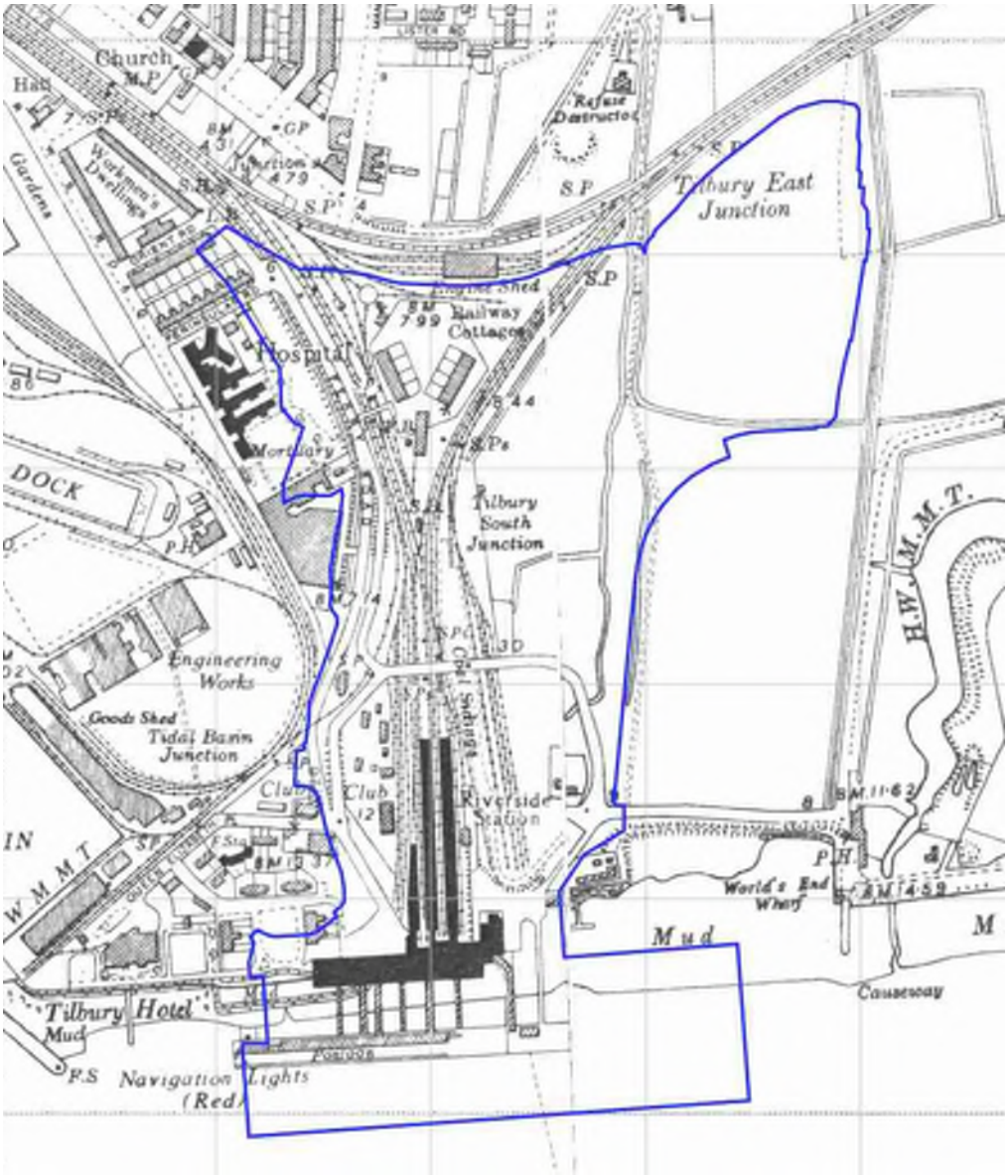
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Attachment 1. Pre-WWII historical map, 1938



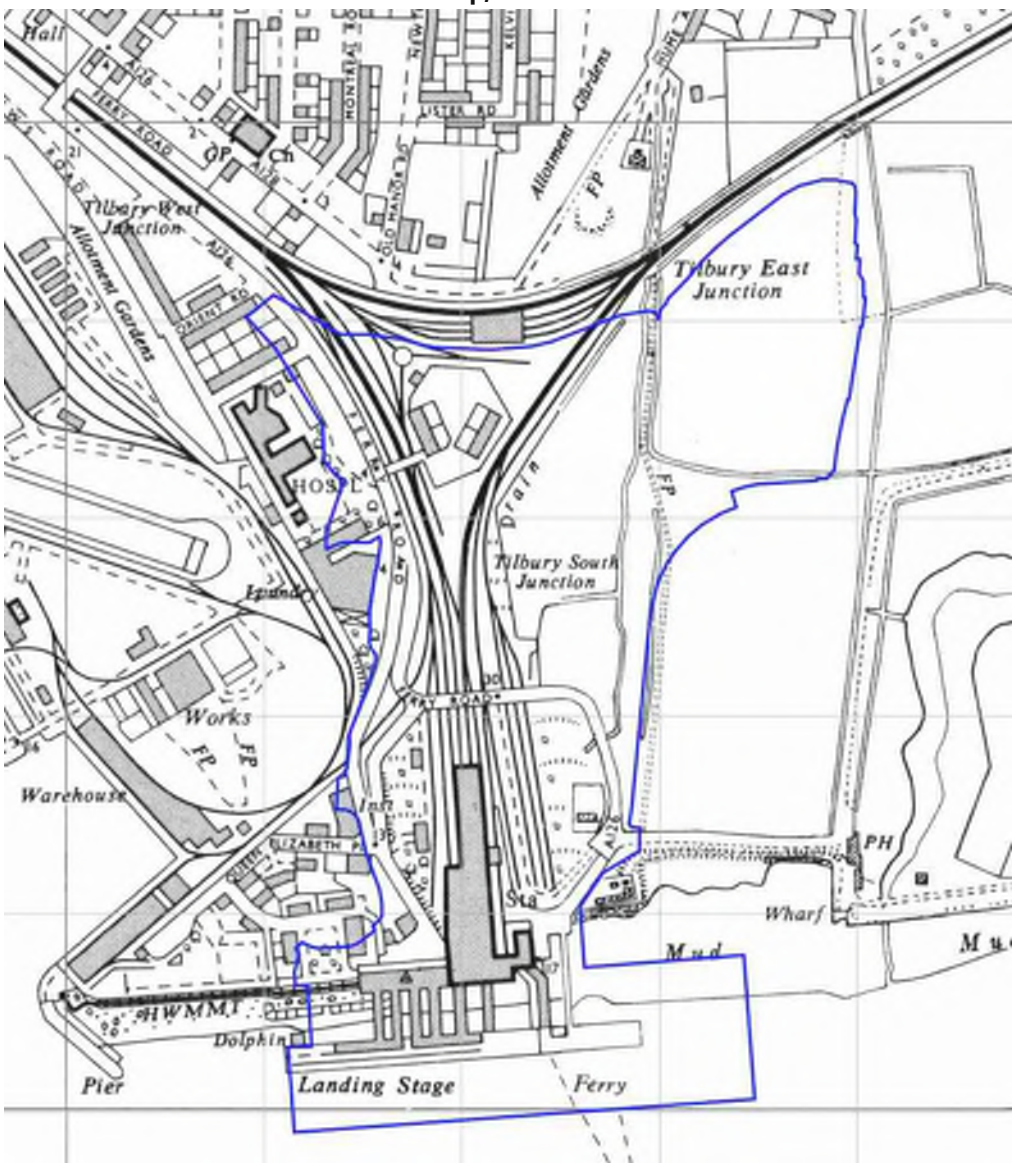
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Attachment 2. Pre-WWII historical map, 1938



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Attachment 3. Post WWII historical map, 1955



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