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PHASE I ENVIRONMENTAL ASSESSMENT (DESK STUDY REPORT)

Site: Sharp Skips Limited, Unit 6 Albright Estate, Ferry Lane North, Rainham, Essex RM13 9BU



Prepared for: Sharp Skips Limited

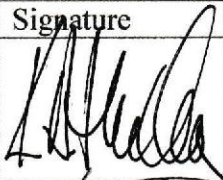
Date: 4th March 2019

CLIENT: Sharp Skips Limited

SITE: Sharp Skips Limited, Unit 6 Albright Estate, Ferry Lane North, Rainham,
Essex RM13 9BU

JOB NUMBER: 08443/25

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On behalf of Soiltec Laboratories Limited				

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Executive Summary

Soiltec Laboratories Limited was instructed by Sharp Skips Limited to carry out a Phase 1 Environmental Assessment (Desk Study) of the site at

**Sharp Skips Limited, Unit 6 Albright Estate, Ferry Lane North, Rainham,
Essex RM13 9BU**

A planning application has been submitted to The London Borough of Havering Council for a new maintenance building (reference P0178.18). A desk study report is required to address condition 3, 1(a) of the granted application and also various sections of the National Planning Policy Framework (Revised NPPF 2018).

This desk study report will also need to be submitted with the application for the new tipping shed when submitted.

The development site is currently part of the waste transfer/recycling operators Sharp Skips Limited site and is occupied by the site workshop, maintenance yard and storage yard area. It is proposed to demolish the building and construct a new tipping shed at the location of the site workshop and maintenance yard as well as a new maintenance building at the location of the yard storage area. There is an access road between the site workshop and storage yard area, which will remain.

From the investigations carried out for this desk study the site was undeveloped and within an area of farmland/marshland from at least the mid 1860's until at least the mid 1950's. By the early 1960's the site was developed with commercial buildings that were associated with works that covered the wider area. By the late 1970's the site was almost completely occupied by commercial buildings and tanks associated with the works, which was most likely a chemical works (Albright and Wilson). By the early 1990's most of the buildings and tanks were no longer on the site with the remaining buildings used in conjunction with the Sharp Skips waste recycling business, which has continued to date.

The immediate surrounding areas were also farmland/marshland at least the mid 1860's until at least the early 1950's. By the mid 1950's the area was being developed with commercial/industrial buildings. The area was gradually developed further with commercial/industrial buildings from this date to the early 1990's and has remained an industrial estate to date. The sewage works further to the west immediately beyond Rainham Creek dates from the late 1930's and has been gradually extended to the current layout. The nearby commercial/industrial businesses have included the chemical works.

The predominant underlying bedrock geology is The London Clay Formation (clay silt and sand) of very low to moderate permeability with alluvium drift deposits (clay silt sand and peat) and thus the site is overlying a non aquifer and is not within a groundwater source protection zone.

There are no current surface water abstractions for potable water but there are for other uses in the area (within 2km) although the nearest is almost 1.8km from the site.

There are no current groundwater abstractions for potable water or other uses in the area (within 2km).

The findings of this report indicate that the site represents a **very low to moderate environmental risk** and that a phase II intrusive investigation of the site is required.

1. Introduction

Soiltec Laboratories were instructed by Sharp Skips Limited to carry out a Desk Study of the site at; Sharp Skips Limited, Unit 6 Albright Estate, Ferry Lane North, Rainham, Essex RM13 9BU (grid reference at the site centre 551677 181956). The site is approximately 3 metres above ordnance datum on the Albright Industrial Estate, Rainham, Essex.

The desk study would mainly comprise of a walkover survey of the site, review historical land use, review historical maps, assess the environmental sensitivity of the site and surrounding areas, review geological maps, investigate pollution incident registers, abstraction and discharge consents and liaise with the relevant personnel at the local authority if necessary.

The main sources of the information are, but not limited to; The Environment Agency (EA), Ordnance Survey, The Coal Authority, British Geological Survey, English Nature and The Health Protection Agency.

The development site is currently part of the waste transfer/recycling operators Sharp Skips Limited site and is occupied by the site workshop, maintenance yard and storage yard area. It is proposed to demolish the building and construct a new tipping shed at the location of the site workshop and maintenance yard as well as a new maintenance building at the location of the yard storage area. There is an access road between the site workshop and storage yard area, which will remain.

Site plans showing the location, existing layout and proposed layout are shown in appendix 1, site plans (p1 and p2).

2. The Site and Surrounding Areas

2.1 Location and Setting

The development site covers an area of approximately 0.10ha (1000m²) and is on the west/northwest area of the Sharp Skips site on the Albright Estate that is off the northwest side of Ferry Lane North in Rainham, Essex.

It is located in an area of predominantly industrial use, although there is a nature reserve, Rainham Marshes in the further environs.

An aerial photograph of the site dated August 2014 is shown in appendix 2.

Immediately to the north of the site are commercial/industrial units that extend to approximately 100m from the site with Rainham Creek and areas of scrub beyond. Approximately 230m to the north are a few residential houses in Creekside with a main railway line beyond. The commercial/industrial units extend to at least 260m to the northeast with the railway line beyond.

Immediately to the west of the site are commercial/industrial units and open commercial yard areas. Approximately 100m from the site is Rainham Creek with areas of scrub and a large sewage works beyond. The sewage works extends to at least 500m from the site.

Immediately to the south of the site are commercial/industrial units and open commercial yard areas including a bus depot. An access road is approximately 30m to the southeast. The commercial/industrial units and open yard areas of the Albright Estate extend to approximately 400m from the site. Beyond the Albright Estate is the A13 trunk road with Rainham Marshes beyond.

Immediately to the east of the development site are commercial/industrial units that extend to approximately 300m from the site to Ferry Lane. Beyond Ferry Lane is Rainham Marshes. Immediately to the southeast of the site is the main waste processing area for Sharp Skips that extends to an access road approximately 70m from the site. Beyond the access road the commercial/industrial units of the Albright Estate extend to Ferry Lane, which is approximately 300m from the site.

2.1.1 Walkover Survey

The walkover survey was carried out on the 1st March 2019. At the time of the walkover survey the site was in full use as part of the Sharp Skips waste recycling plant.

The storage yard area was occupied by waste storage containers, skips and plant machinery. Stored in the area were a few old mattresses and timber railway sleepers.

The vehicle access to the site was concrete hard cover with empty waste skips and a plant vehicle parked in the area between the storage yard area and maintenance yard.

The workshop was being used for vehicle maintenance with vehicles and waste skips in the maintenance yard area awaiting repair. Also in the maintenance yard area was metal sheet, tyres and some lubricants. The yard and workshop were both completely concrete hard cover. In the workshop was a concrete inspection pit. Stored in the workshop were small quantities of lubricants and gas welding equipment. The south area of the site was also hard cover, which was the location of the former Sharp Skips portacabin offices. In this area was a parked vehicle and stored concrete reinforcing bar/mesh.

There was no vegetation on or adjacent to the site.

There were no above ground tanks on or adjacent to the site or inside the building and there was no evidence of any former above ground tanks. . There were no below ground tanks on or adjacent to the site.

A site plan showing the existing and proposed layout and the immediate surrounding areas is shown in appendix 1 (p3). Also shown on this site plan are the locations and view direction of the photographs of the site that were taken during the walkover survey. The site photographs are shown in appendix 3.

There are no current or former fuel stations within 250m.

There are no high voltage underground electricity transmission cables or high pressure gas pipelines within 500m of the site.

This is shown in appendix 5 (current land use map).

2.2 Hydrology

There are no surface water features on or adjacent to the site although there are near to the site. Rainham Creek is approximately 80m to the west at the nearest point and there are many surface water drainage ditches on Rainham Marshes. There are no underground watercourses in the area.

This is shown in appendix 5 (hydrology – watercourse network and river quality map).

3. Historical Site use

3.1 1866 to 1931

The study of the historical maps of the site, some of which can be found in appendix 4, Historical Maps, shows that the site was undeveloped in 1866 and was within an area of farmland or possibly marshland.

Most of the roads in the area were not constructed although Ferry Lane further to the east was constructed but called Manor Road at this date. Further to the north/northeast the main railway line was constructed with the town of Rainham beyond, which was much smaller in layout. Rainham Creek was just to the west and followed the same route that remains to date. An embankment was between Rainham Creek and the site approximately 50m from the site.

The area between Rainham Creek and the embankment is marked as saltings on the 1920 map.

The site and immediate surrounding areas remained unchanged until at least 1931.

3.2 1939 to 1951

By 1939 part of the sewage works had been built further to the northwest beyond Rainham Creek. The site and immediate surrounding areas generally remained unchanged although there was a sports ground just to the east.

The site and immediate surrounding areas remained unchanged until at least 1951 although the sewage works further to the west had been extended by this date.

3.3 1955 to Date

By 1955 the site remained undeveloped although commercial buildings had been built immediately to the east and south. Works buildings had also been built further to the southeast and southwest.

By 1963 the site had been developed with several outbuildings/commercial buildings and additional commercial buildings as well as a row of tanks had been built in the immediate area. A wharf is marked just to the north beyond the embankment and larger commercial buildings had also been built further to the south. The site and area are marked as a works.

By 1973 more commercial buildings had been built in the area as well as an electricity pylon just to the southeast that remains to date. The site remained unchanged.

By 1979 the site had been almost completely developed with various commercial buildings as well as a rectangular and circular tank. More commercial buildings and tanks had been constructed in the immediate area including just to the southeast and southwest.

By 1992 most of the buildings and tanks on the site are no longer marked with only the existing workshop building and building at the north boundary remaining. All of the tanks in the immediate area were not marked and most of the small commercial buildings in the immediate area were not marked. The site and area is marked as Albright Industrial Estate.

The site and immediate area have generally remained unchanged to date apart from an additional building being built on the main Sharp Skips recycling yard area approximately seven years ago. The A13 trunk road further to the south was constructed by 2002.

3.4 Planning & Uses

Following an assessment of The London Borough of Havering Council planning website there has been no historical planning applications for the site apart from the current application for the maintenance building, which has been submitted (reference P0178.18). The planning application for the tipping shed has not been submitted at this juncture. Council online records for the area date from at least 1990.

The current land use data indicates that there are many current or former 'industrial sites' within 250m of the site.

The nearest is located on the site which is a waste management facility. This site could impact the site. The others nearby that could impact the site are vehicle repairers and vehicle recyclers

The other 'industrial sites' in the area are unlikely to impact the site.

This is shown in appendix 5, Environmental Maps (current land use map).

4. Environmental Sensitivity

4.1 Site Sensitivity

The site is not within a site of special scientific interest, special protection area, a special area of conservation, RAMSAR (wetlands) site, a nature reserve, environmentally sensitive area, a world heritage site, ancient woodland, an area of outstanding natural beauty, greenbelt land or a national park.

The site is also not within a designated nitrate vulnerable zone.

Rainham Marshes further to the east and south is designated as a special scientific interest and local nature reserve.

This is all shown in appendix 5 (designated environmentally sensitive sites map).

The site is within an area that is at risk of flooding from rivers or sea without defences.

The site is designated as a zone 3 tidal fluvial floodplain (designated as an area that has an annual probability of flooding equal to or greater than 1% for rivers). However, the site is within an area that is benefiting from flood defences that are located west of the site along Rainham Creek.

The risk of flooding from rivers and sea (RoFRaS) map shows that the risk is 'very low'.

"The Environment Agency RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection. RoFRaS data for the study site indicates the property is in an area with a Very Low (less than 1 in 1000) chance of flooding in any given year". (Reference EA/Groundsure report)

This is shown in appendix 5 (Environment Agency flood maps).

The site is within an area where there is a potential for groundwater flooding – superficial flooding (with unproductive aquifers).

“Where potential for groundwater flooding to occur at surface is indicated, this means that given the geological conditions in the area groundwater flooding hazard should be considered in all land use planning decisions. It is recommended that other relevant information e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information be investigated in order to establish relative, but not absolute, risk of groundwater flooding.” (reference BGS)

4.2 Potentially Contaminative Use

The site is within an area of potentially contaminative use from industrial uses.

There are areas of potentially infilled land, industrial sites and/or major energy features within 250m of the site.

The site and surrounding areas are marked as ‘industrial use’ some of which could impact the site.

There are areas of potentially infilled land marked within 250m of the site, which are the former wharf and sewage works that are unlikely to impact the site.

There are no major energy features within 250m of the site although there are small electrical sub stations and pylons nearby, which are unlikely to impact the site.

This is all shown in appendix 5 (historical land use map).

There are historic surface ground workings, historic underground workings and/or current ground workings marked within 250m on the ground workings map in appendix 5.

There are historic surface ground workings to the north and west, which are the former wharf and existing sewage works that are both unlikely to affect the site as groundworkings.

There are no historic underground workings or current ground workings marked within 250m on the ground workings map in appendix 5.

The railways and tunnels map in appendix 5 shows that there are no existing railways, former railways, tunnels or proposed railways on the site or within 250m.

There are areas of reclaimed ground, made ground, infilled ground, disturbed ground, worked ground and/or landscaped ground on the site and within 500m of the site as shown on the artificial ground map in appendix 5.

Made ground (artificial deposit) is recorded on the site (area 1 on the map).

4.3 Landfill and Waste Transfer Sites

There are no current or former EA registered historical licensed landfill sites or local authority registered licensed landfill sites within 250m.

There are current or former registered waste treatments or other waste sites within 250m. The site is part of a waste transfer and recycling site and there are drum disposal facilities, vehicle dismantlers and wood waste recyclers all nearby, which could have impacted the site. There have also been historical planning applications in the area for waste processing facilities.

This is all shown in appendix 5 (landfill and other waste sites map).

4.4 Hydrogeology

The site is classified by the Environment Agency (EA) as overlying a secondary aquifer within the superficial geology.

These include a wide range of rock layers or drift deposits with an equally wide range of water permeability and storage. Secondary aquifers are subdivided into two types:

Secondary A - permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

Secondary B - predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.

The site is classified by the Environment Agency (EA) as overlying a secondary undifferentiated aquifer within the superficial geology.

Secondary Undifferentiated - has been assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non aquifer in different locations due to the variable characteristics of the rock type.

The site is classified as overlying unproductive strata within the bedrock geology.

These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

The site therefore could be classed as overlying a non aquifer.

The site is not within a groundwater source protection zone (SPZ).

This is all shown in appendix 5 (hydrogeology maps).

4.5 Geology

According to geological information, British Geological Survey sheet 257, Romford, the site is underlain by London Clay with alluvium drift deposits.

This is also shown on the superficial deposits and landslips map in appendix 5 which shows that there are superficial deposits on the site and in the area.

Area 1 on the map (on site) is alluvium deposits (clay silt sand and peat)
Area 2 on the map (40m NW) is alluvium deposits (clay silt sand and peat)
Area 3 on the map (70m NW) is river terrace deposits (clay and silt)
Area 4 on the map (100m NE) is alluvium deposits (clay silt sand and peat)
Area 5 on the map (320m NE) is alluvium deposits (clay silt sand and peat)
Area 6 on the map (330m NE) is the Taplow Gravel Member (sand and gravel)
Area 7 on the map (340m NE) is head deposits (clay silt sand and gravel)

There are no areas of landslide deposits within 500m.

The bedrock and faults map in appendix 5 shows that The London Clay Formation (clay silt and sand) is the bedrock geology on the site of very low to moderate permeability (area 1 on the map).

There are no fault lines marked within 500m.

There are thirty two previously drilled boreholes marked within 250m of the site.

The nearest was drilled 30m northwest of the site although the borehole details are classified. The next nearest was drilled 60m northwest of the site to a depth of 10.7m in 1969. The strata encountered were topsoil over London Clay to 6.2m, with gravel and sand below the London Clay. The rest water level was at 4.6m below ground level.

This is shown in appendix 5 (borehole records map).

5. Discharge Consents, Water Abstractions and Pollution Incidents

5.1 Discharge Consents

There are twenty seven current or former licensed discharge consent points within 250m of the site. All are located further to the west at the sewage works for the discharge of final treated effluent into Rainham Creek

This is shown in appendix 5 (environmental permits, incidents and registers map).

5.2 Abstraction Consents

There are no current or former groundwater abstraction consents within 2000m of the site.

There are no current or former surface water abstraction consents for potable water supplies but there are for other uses within 2000m of the site although the nearest is a former consent located 1570m east of the site. The nearest current consent is located 1730m east of the site for spray irrigation.

This is shown in appendix 5 (hydrogeology – abstraction licence, SPZ and potable water abstraction maps), which shows up to 500m only.

5.3 Pollution Incidents and Permits

There are thirty six recorded pollution incidents within 250m of the site.

There are current or former authorised activity enforcements within 250m of the site. The nearest are former permits for cement and foundry processes that were approximately 100m to the southeast that are unlikely to have impacted the site.

The site is within a COMAH (Control of Major Accidents Hazards) and NIHHS (Notification of Installations Handling Hazardous Substances) regulations area. There are also sites in the area that are dangerous substances inventory sites, the nearest is more than 140m from the site at the sewage works.

There are no sites determined as ‘contaminated land’ under Part 2A of the Environmental Protection Act 1990 within 500m of the site.

This is all shown in appendix 5 (environmental permits, incidents and registers map).

6. Mining Hazards, Subsidence and Radon

6.1 Mining

The site is not within an area that may be affected by historic coal mining hazards.

There are no natural cavities within 500m of the site.

There are no non coal mining cavities within 500m and the site is within an area where there are no details for non coal mining activities.

This is all shown in the mining, extraction and natural cavities map in appendix 5.

6.2 Subsidence

The clay swelling/shrinking subsidence hazard is classed as 'low hazard' (soils that are predominantly medium plasticity) although this would depend on the localised clay content.

The landslides ground stability hazard is classed as 'very low hazard'.

The ground dissolution subsidence hazard is classed as 'negligible hazard'.

The compressible subsidence hazard is classed as 'very low hazard'.

The collapsible ground stability hazard is classed as 'negligible hazard'.

The running sand stability hazard is classed as 'very low hazard'.

All the above are shown on the ground stability maps in appendix 5.

6.3 Radon

There are less than 1% of properties in the area that are above the action level for radon and therefore radon protection measures are not necessary in new buildings and/or extensions.

7. Recommendations

7.1 General

From the investigations carried out for this desk study the site was undeveloped and within an area of farmland/marshland from at least the mid 1860's until at least the mid 1950's. By the early 1960's the site was developed with commercial buildings that were associated with works that covered the wider area. By the late 1970's the site was almost completely occupied by commercial buildings and tanks associated with the works, which was most likely a chemical works (Albright and Wilson). By the early 1990's most of the buildings and tanks were no longer on the site with the remaining buildings used in conjunction with the Sharp Skips waste recycling business, which has continued to date.

The immediate surrounding areas were also farmland/marshland at least the mid 1860's until at least the early 1950's. By the mid 1950's the area was being developed with commercial/industrial buildings. The area was gradually developed further with commercial/industrial buildings from this date to the early 1990's and has remained an industrial estate to date. The sewage works further to the west immediately beyond Rainham Creek dates from the late 1930's and has been gradually extended to the current layout. The nearby commercial/industrial businesses have included the chemical works.

There are no surface water features on or adjacent to the site although there are near to the site. Rainham Creek is approximately 80m to the west at the nearest point and there are many surface water drainage ditches on Rainham Marshes. There are no underground watercourses in the area.

The site overlies a non aquifer and is not within a groundwater source protection zone.

The London Clay Formation (clay silt and sand) is the bedrock geology on the site of very low to moderate permeability with alluvium drift deposits (clay silt sand and peat).

There are no current groundwater abstractions for potable water or other uses in the area (within 2km).

There are no current surface water abstractions for potable water but there are for other uses in the area (within 2km) although the nearest is almost 1.8km from the site.

It is proposed that the surface water drainage for the new buildings will be discharged via an interceptor to the existing local mains system.

The foul drainage for the new buildings will be discharged via the existing local mains system.

The site is within a flood risk area although within an area benefiting from flood defences along Rainham Creek.

7.2 On-Site Contamination Impact

From the investigations carried out for this desk study it is possible that the site has been impacted from its former uses.

There are no recorded pollution incidents on the site that could have impacted the site.

It is unlikely that landfill gases are impacting the site from on site sources.

7.3 Off-Site Contamination Impact

The findings of this desk study indicate that contamination impact to the site from the immediate surrounding areas is also possible.

There are no recorded pollution incidents near the site that could have impacted the site.

It is unlikely that landfill gases are impacting the site from off site sources.

7.4 Conceptual Model

Using the Contaminated Land Exposure Assessment (CLEA) model and associated Contaminated Land Report (CLR11, Model Procedures for the Management of Land Contamination) framework to assess sites, a Source (contaminant) – Pathway – Receptor approach is used.

Source – (contaminant) “a substance that is in, on or under the land and has the potential to cause harm or to cause pollution of controlled waters”

Pathway – e.g. via air, soil or water “route or means by which a receptor can be exposed to, or affected by, a contaminant”

Receptor – e.g. humans, buildings and services, groundwater or surface waters “in general terms, something that could be adversely affected by a contaminant, such as people, an ecological system, property, or a water body”

If any of the above elements are missing i.e. there is no pollution linkage, then it is considered that there is no significant risk associated with contamination. If there is a pollution linkage the potential risks to the identified receptors need to be assessed.

7.4.1 Source(s)

The possible sources of contamination on this site from on site or off site former or current uses are:

Heavy metals, sulphur compounds, cyanides and acidic/alkaline soils (made ground, chemical storage/manufacture, wastes, used oils)

Polyaromatic hydrocarbons (made ground, used oils and lubricants)

Total petroleum hydrocarbons including BTEX compounds (made ground, chemical storage/manufacture, oils and lubricants)

Volatile and semi volatile compounds (chemical storage/manufacture)

Asbestos (former buildings, wastes)

7.4.2 Pathway(s)

It is proposed to construct two commercial buildings (tipping shed and maintenance building)

Using the CLEA model the potential pathways for a commercial site are:

Ingestion of soils/groundwater/surface water

Ingestion of dusts, gases and vapours (indoors and outdoors)

Dermal contact with soils/groundwater/surface water

Leachate via soakaways (if applicable)

Leachate via infiltration

The potential pathways for this site are:

Ingestion of soils (during construction only)

Ingestion of dusts and vapour indoors (during construction only)

Ingestion of dusts and vapours outdoors (during construction only)

Dermal contact with soils (during construction only)

7.4.3 Receptor(s)

The potential receptors and associated risks for this site are:

Construction staff – very low moderate risk

Staff on site – very low risk (no apparent current impact to existing staff)

Staff off site – very low risk (no apparent current impact to existing staff)

New buildings and below ground services – very low to moderate risk

Buildings off site – very low risk (no apparent current impact to existing off site buildings)

Groundwater (non aquifer not SPZ) – very low risk via infiltration (site will remain completely hard cover)

Groundwater – very low to moderate risk via direct contact and leaching if the groundwater is shallow

7.4.4 Assessment of Risk

The assessment of the associated risk is based on the CIRIA (Construction Industry Research and Information Association) C552 methodology, contaminated land risk assessment, a guide to good practice (2001), tabulated below and overleaf.

(SH = Significant Harm, SPOSH = Significant Possibility of Significant Harm).

Classification of Consequence

Classification	Definition
Severe	Concentration of contaminants is likely to (or is known from previous data to) exceed that indicative of unacceptable intake or contact. Highly elevated concentrations likely to result in ‘significant harm’ to human health as defined by the EPA 1990 Part 2A, if exposure occurs i.e. SH/SPOSH concentrations are high enough to cause acute (short term) effects. Equivalent to an EA category 1 pollution incident including persistent and/or extensive effects on water quality (controlled waters); leading to a closure of a potable abstraction point; major impact on amenity value or major damage to agriculture or commerce. Major damage to aquatic or other ecosystems, which is likely to result in a substantial adverse change in its functioning or harm to a species of special interest that endangers the long term maintenance of the population. Catastrophic damage to buildings or property.
Medium	Concentration of contaminants is likely to (or is known from previous data to) exceed that indicative of unacceptable intake or contact. Elevated concentrations which could result in ‘significant harm’ to human health as defined by the EPA 1990 Part 2A, if exposure occurs i.e. greater than SH/SPOSH Equivalent to an EA category 2 pollution incident including a significant effect on water quality (controlled waters); notification required to abstractors; reduction on amenity value or significant damage to agriculture or commerce. Significant damage to aquatic or other ecosystems, which may result in a substantial adverse change in its functioning or harm to a species of special interest that may endanger the long term maintenance of the population. Significant damage to buildings or property.

Classification of Consequence (cont)

Classification	Definition
Mild	Concentration of contaminants is likely to (or is known from previous data to) exceed that indicative of no harm but not unacceptable intake or contact. Exposure to human health unlikely to lead to 'significant harm' i.e. concentrations are greater than SGV/GAC but less than SH/SPOSH. Equivalent to an EA category 3 pollution incident including minimal or short term effects on water quality (controlled waters); minor impact on amenity value, agriculture or commerce. Minor damage or short term damage to aquatic or other ecosystems, which is unlikely to result in a substantial adverse change in its functioning or harm to a species of special interest that endangers the long term maintenance of the population. Minor damage to buildings or property.
Minor	Concentration of contaminants is likely to (or is known from previous data to) be less than that indicative of no harm. No measurable effect on humans i.e. less than SGV/GAC. Equivalent to an unsubstantial pollution incident with no observed effect on water quality (controlled waters); no reduction on amenity value or damage to agriculture or commerce. No observed effect to aquatic or other ecosystems. Repairable effects of damage to buildings or property.

Classification of Probability

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

Matrix of Consequence against Probability to determine Risk Classification

	Consequence			
Probability	Severe	Medium	Mild	Minor
High Likelihood	Very High Risk	High Risk	Moderate Risk	Low Risk
Likely	High Risk	Moderate Risk	Low Risk	Very Low Risk
Low Likelihood	Moderate Risk	Low Risk	Low Risk	Very Low Risk
Unlikely	Low Risk	Very Low Risk	Very Low Risk	Very Low Risk

A schematic diagram of the conceptual model for the site dated 01/03/19 is shown in appendix 6, conceptual model.

7.5 Investigation Work Recommended

7.5.1 General

As outlined above it is likely that there are sources of contamination on this site that could have impacted the site soils from the on site past activities. The current activities are unlikely to impact the site due to the procedures in place and the hardcover, which covers the site.

It is also possible that the site has been impacted by the uses and/or past activities from the immediate surrounding areas.

The risk to human health could be classed as very low to moderate during construction only.

The risk to the new buildings and below ground services could also be classed as very low to moderate.

The site overlies a non aquifer and is not within a source protection zone (SPZ). It is proposed that the surface water drainage for the new buildings will be discharged to the existing local mains system via an interceptor.

The foul drainage for the new buildings will also be discharged via the existing local mains system.

The risk to controlled waters now and on completion of the development could be classed as very low.

It is therefore necessary to carry out a phase II intrusive investigation of the site.

7.5.2 Sampling Locations and Analysis

Soils should be taken from various locations on the site including the proposed location of the new buildings and analysed for a general suite of determinands that must include heavy metals, cyanides, sulphur compounds, polycyclic aromatic hydrocarbons, total petroleum hydrocarbons and BTEX compounds as a minimum.

Soils must also be analysed for volatile and semi volatile compounds.

Soil samples from immediately above the saturated zone (groundwater), if encountered, should also be analysed for leachable contaminants. The suite of tests carried out on the prepared soil leachate should be those outlined above as a minimum.

Soils must also be screened for the presence of asbestos fibres.

7.5.3 Timescale

The intrusive investigation work can be carried out immediately, subject to approval of this report by the local authority.

7.6 Excavated Soils

Any excavated soils that are produced as part of the construction work that are to be removed from the site to landfill, chemical analysis will be required to classify the 'waste' in conjunction with the EU Landfill Directive that came into effect in 2005, which defines the criteria for the chemical analysis and classification of materials that are to be disposed to landfill.

Should soils need to be removed from the site to landfill, a European Landfill Directive Waste Acceptance Criteria analysis will be required on the material to be disposed to be submitted to the proposed receiving tip before the soil is removed from the site.

The different strata excavated (if applicable) should be segregated and analysed separately prior to disposal off site although it is unlikely that soils will need to be removed from the site.

7.7 Additional Notes

Should any contaminants be encountered during the site investigation or development works that were not expected analysis must be carried out to identify the type and extent of the contamination. It would be prudent to have a watching brief in place should any unexpected contaminants be encountered during the development works. Should contamination be encountered the development works should cease and the watching brief (suitably qualified environmental consultant) contacted immediately.

During the construction work, exposed soils should be protected from any accidental leakage or spillages from stored oils/fuels or chemicals used in the construction work, if any, to prevent any potential impact to the site or controlled waters.

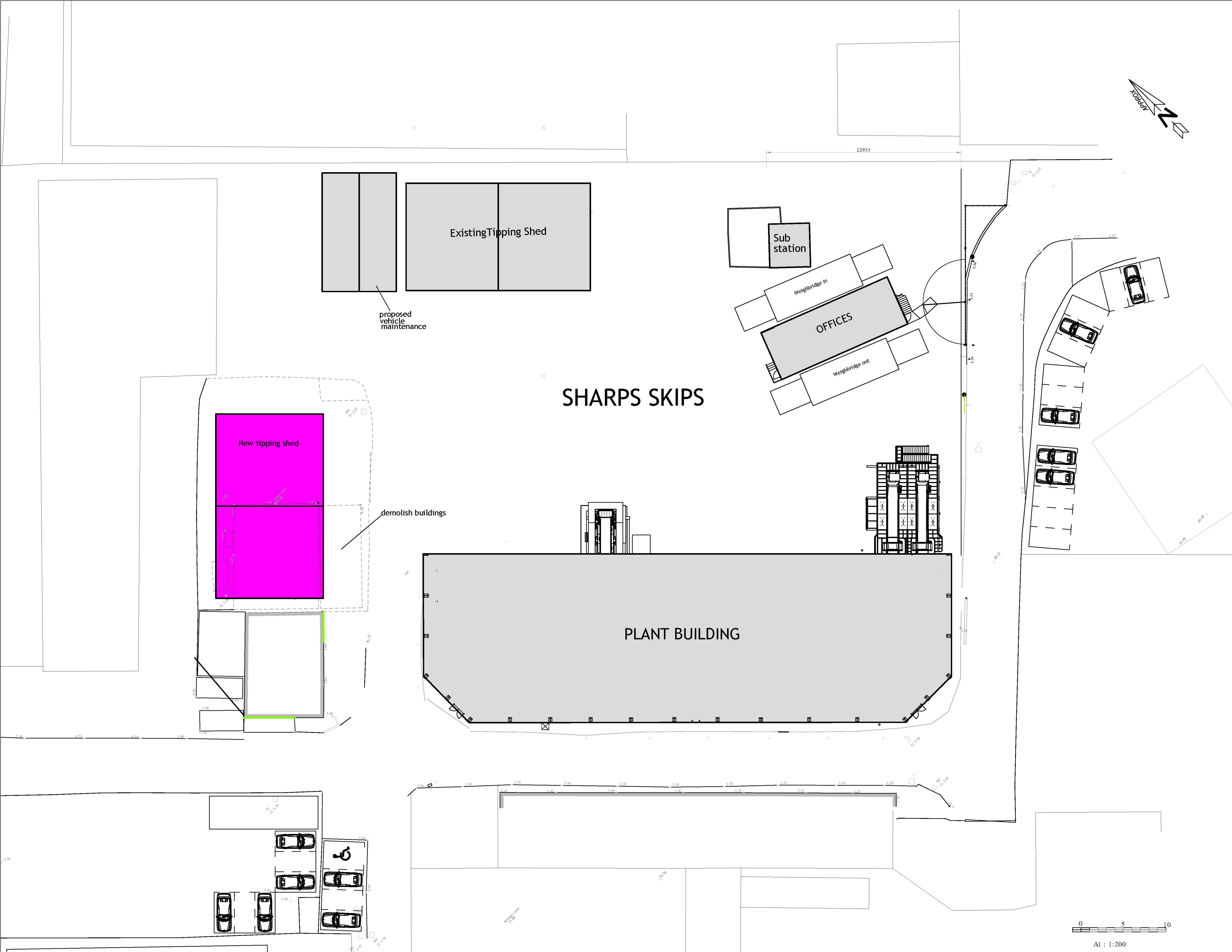
The ground stability hazards in section 6.2 and associated comments where applicable are the opinion of the BGS based on the expected geology.

A copy of this report should be forwarded to London Borough of Havering Council or other regulators/insurers if applicable for their consideration and approval prior to the commencement of any works on the site.

K.D.Huxley CSci CChem MRSC MEnvSc RSoBRA
Date: 04/03/19

APPENDIX 1

SITE PLANS

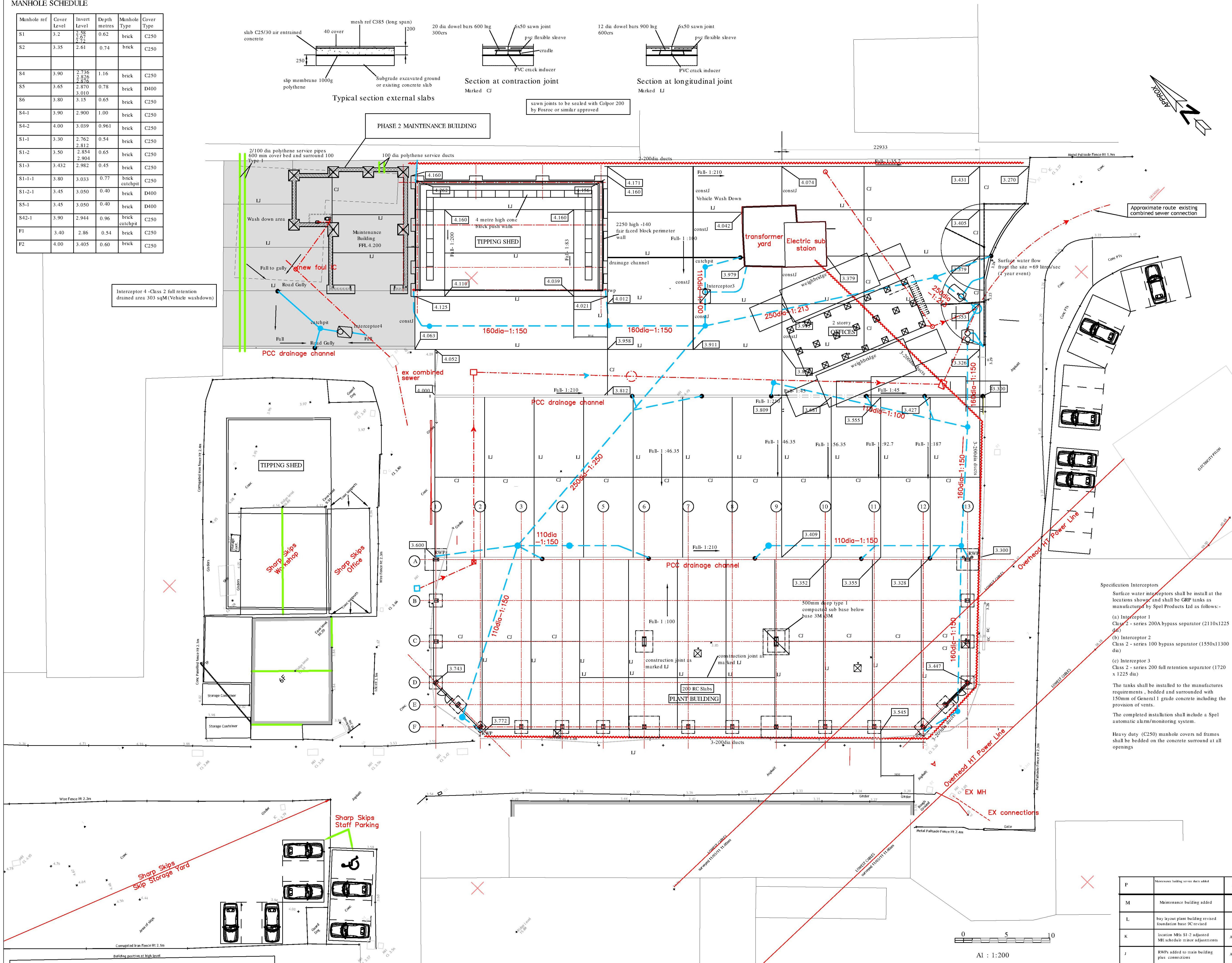
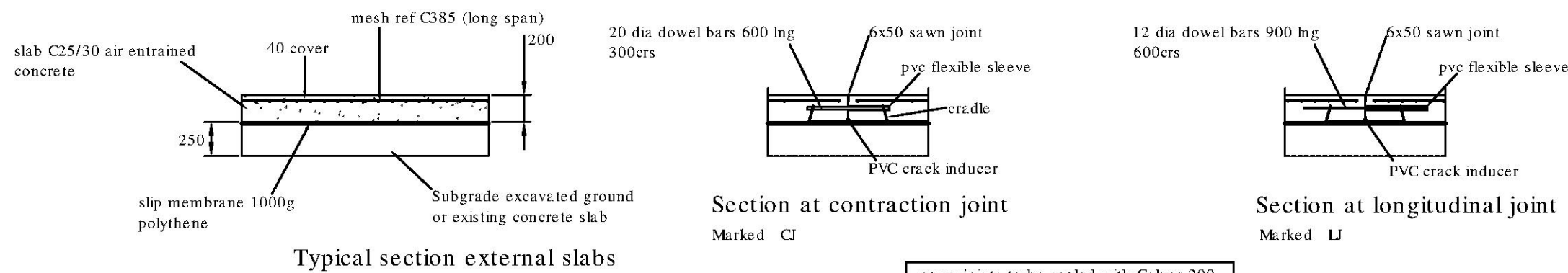


NOTES		
Revisions		Date
Client		
SHARPES SKIPS FERRY LANE RAINHAM ESSEX RECYCLING DEPOT RM13- 9BU		
PROPOSED TIPPING SHED SITE PLAN PRELIMINARY		
V.F.Shore and Associates Consulting Engineers 5a Heath Park Road Romford Essex RM25UB Tel No 01708 473 424 Fax No 01708 437 422 E mail v.shore @ btopenworld.com		
Scale	AI : 1:200	Date Jan 019
	Planning	
DRG No.	TS-SK-O1	Rev

MANHOLE SCHEDULE

Manhole ref	Cover Level	Invert Level	Depth metres	Manhole Type	Cover Type
S1	3.2	2.58	0.62	brick	C250
S2	3.35	2.61	0.74	brick	C250
S4	3.90	2.736	1.16	brick	C250
S5	3.65	2.870	0.78	brick	D400
S6	3.80	3.010	0.65	brick	C250
S4-1	3.90	2.900	1.00	brick	C250
S4-2	4.00	3.039	0.961	brick	C250
S1-1	3.30	2.762	0.54	brick	C250
S1-2	3.50	2.812	0.65	brick	C250
S1-3	3.432	2.982	0.45	brick	C250
S1-1-1	3.80	3.033	0.77	brick	C250
S1-2-1	3.45	3.050	0.40	brick	D400
S5-1	3.45	3.050	0.40	brick	D400
S42-1	3.90	2.944	0.96	brick	C250
F1	3.40	2.86	0.54	brick	C250
F2	4.00	3.405	0.60	brick	C250

Interceptor 4 - Class 2 full retention
drained area 303 sqM (Vehicle washdown)



NOTES

EXISTING COMBINED DRAINS SHOWN
THUS :-

PROPOSED SURFACE WATER SEWER
SHOWN THUS :-

4,000 Finished slab levels .

External paving and drainage works
PHASE 1A

PROPOSED DUCTS
200 dia. PVC Electrical ducts

JOINTS EXTERNAL CONCRETE SLABS

Contraction joints (sawn) marked : CI

Construction joints marked : constJ

Longitudinal joints marked : LJ

CONCRETE FOR EXTERNAL SLABS

shall be concrete class C40/50 to BS-EN-206 and
BS 8500 with a minimum cement content of 340
kg/m³ (OPC), and a maximum water cement
ratio = 0.45

An approved air entraining admixture shall be
included in the concrete mix.

REINFORCEMENT EXTERNAL SLABS

shall be long span mesh type C385 place at the
top of the slab with a cover of 40mm

BELOW GROUND DRAINAGE

Pipes
shall be 110,160 and 250 diameter flexibly jointed
plastic to BS EN1401 bedded and surrounded with
150 GEN1 grade concrete. The concrete surround
shall have movement joints coinciding with the
pipe joints.

Inspection chambers (marked MH)
shall be constructed in 215 class B engineering
brick , internal dimensions 600mm x 900mm with
a concrete slab and heavy duty cover class C250
to BS EN 124

Gullies
shall be trapped precast concrete to BS 5911 ,
450dia x 1050 deep with a heavy duty grating
Grade A to BS EN 124.

Oil interceptors/separators (BS EN 858 -1 and 2)

Interceptor 1 - Class 2 bypass type
drained area 3130 sqM
flow (1 year storm event) = 49 l/sec

Interceptor 2 - Class 2 bypass type
drained area 1250 sqM
flow (1 year storm event) = 20 l/sec
Interceptor 3 - Class 2 full retention
drained area 82 sqM (Vehicle washdown)

Revisions

Date

Client

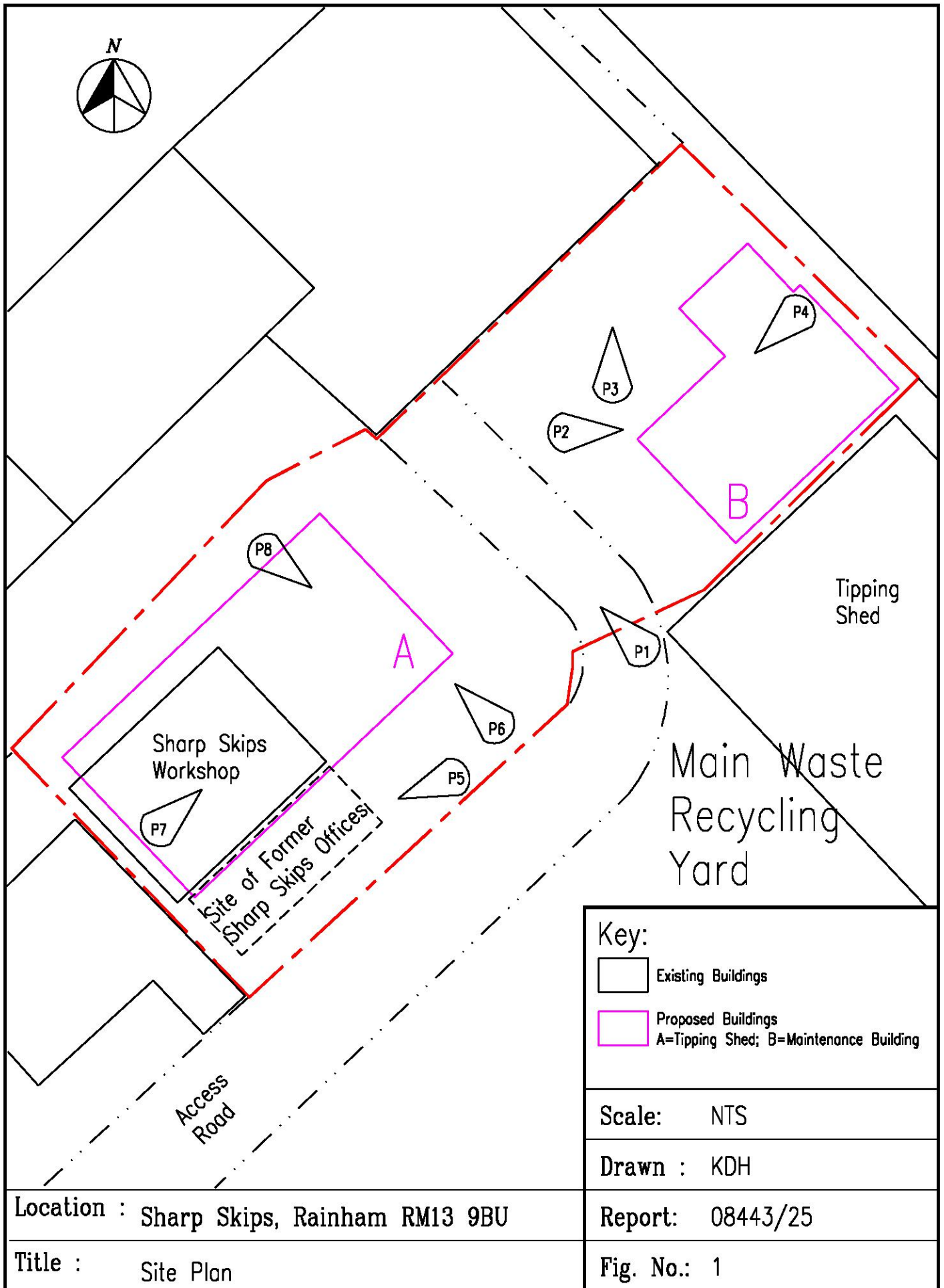
SHARPES SKIPS
FERRY LANE RAINHAM
ESSEX
RECYCLING DEPOT
RM13 9BU

SITE PLAN
EXTERNAL SLAB LAYOUT
AND DRAINAGE
PHASE 2 MAINTENANCE
BUILDING

V.F.Shore and Associates
Consulting Engineers
5a Heath Park Road
Romford Essex RM25UB
Tel No 01708 473 424
Fax No 01708 437 422
E mail v.shore @ btopenworld.com

P	Maintenance building service ducts added	Aug 018
M	Maintenance building added	May 018
L	bay layout plant building revised foundation base 9C revised	
K	location MBs S1-2 adjusted MB schedule minor adjustments	April 017
J	RWPs added to main building plus connections	April 017

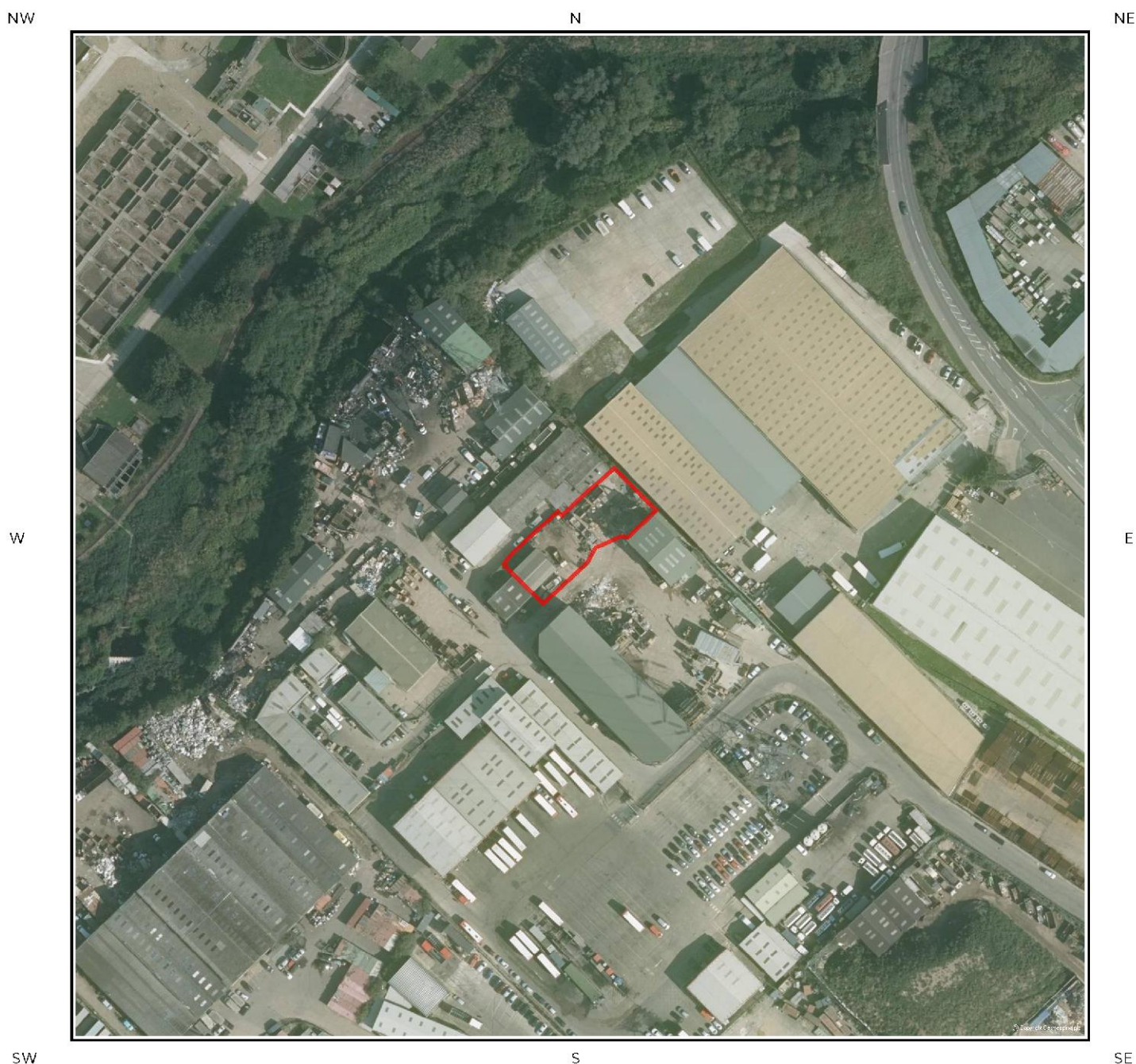
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Drawing Issue	Approval		
DRG No.	1150-PD-04	Rev	A



APPENDIX 2

AERIAL PHOTOGRAPH

Address: Sharp Skips, Albright Industrial Estate, Ferry Lane, Rainham, RM13 9BU
Date: 11 Feb 2019
Reference: CMAPS-CM-776659-5500-110219EDR
Client: CENTREMAPS



Aerial Photograph Capture date: 24-Aug-2014
Grid Reference: 551678,181955
Site Size: 0.10ha

Report Reference: CMAPS-CM-776659-5500-110219EDR
Client Reference: 5500

APPENDIX 3

SITE PHOTOGRAPHS

PHOTOGRAPH 1



Looking northwest along the communal access road, which will remain that is between the two proposed development areas.

PHOTOGRAPH 2



Looking west across the north area of the site used as yard storage, which will be the location of the new maintenance building.

PHOTOGRAPH 3



Looking north across the northwest area of the site used as yard storage, which will remain as yard storage.

PHOTOGRAPH 4



Looking southwest across the north area of the site used as yard storage, which will be the location of the new maintenance building. The existing workshop building is in the background and the adjacent existing main recycling building is in the background on the left.

PHOTOGRAPH 5



Looking southwest across the south area of the site at the former location of the Sharp Skips portacabin offices, which will remain as yard storage/parking. The existing workshop is on the right.

PHOTOGRAPH 6



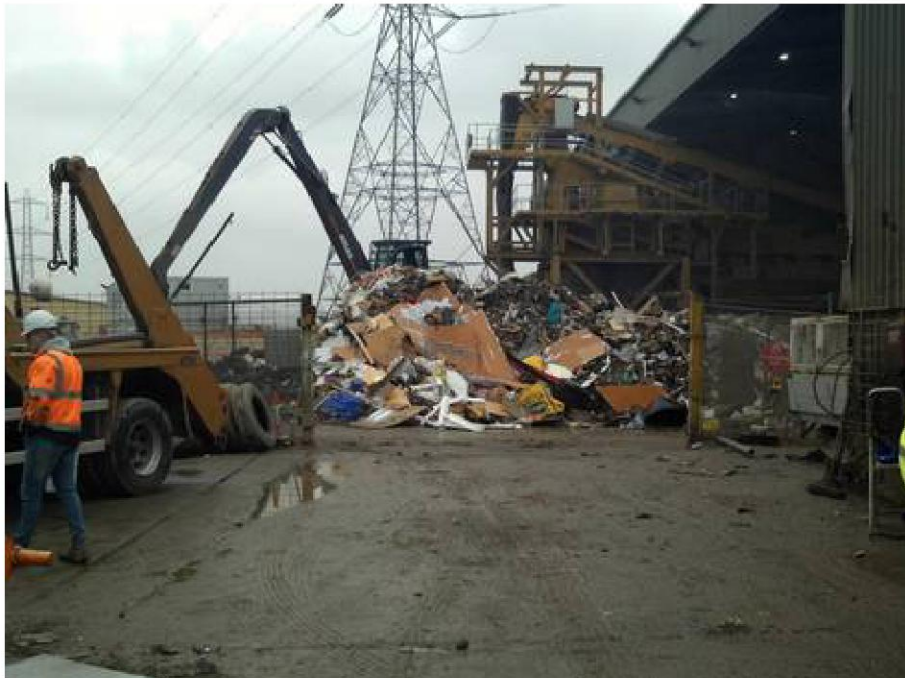
Looking northwest across the maintenance yard in the south area of the site. Most of this area will be occupied by the new tipping shed. The existing workshop is on the left.

PHOTOGRAPH 7



Looking southwest inside the existing workshop, which will be the location of the new tipping shed.

PHOTOGRAPH 8



Looking southeast across the maintenance yard in the south area of the site. Most of this area will be occupied by the new tipping shed. The adjacent existing main recycling yard and building is in the background.

APPENDIX 4

HISTORICAL MAPS



Site Details:

Sharp Skips, Albright Industrial Estate, Ferry Lane, Rainham, RM13 9BU

Client Ref: 5500
Report Ref: CMAPS-CM-776659-5500-110219HIS
Grid Ref: 551678, 181955

Map Name: County Series

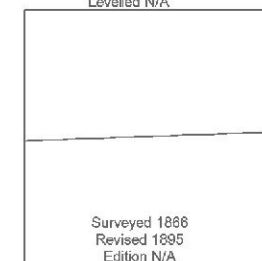
Map date: 1895

Scale: 1:10,560

Printed at: 1:10,560



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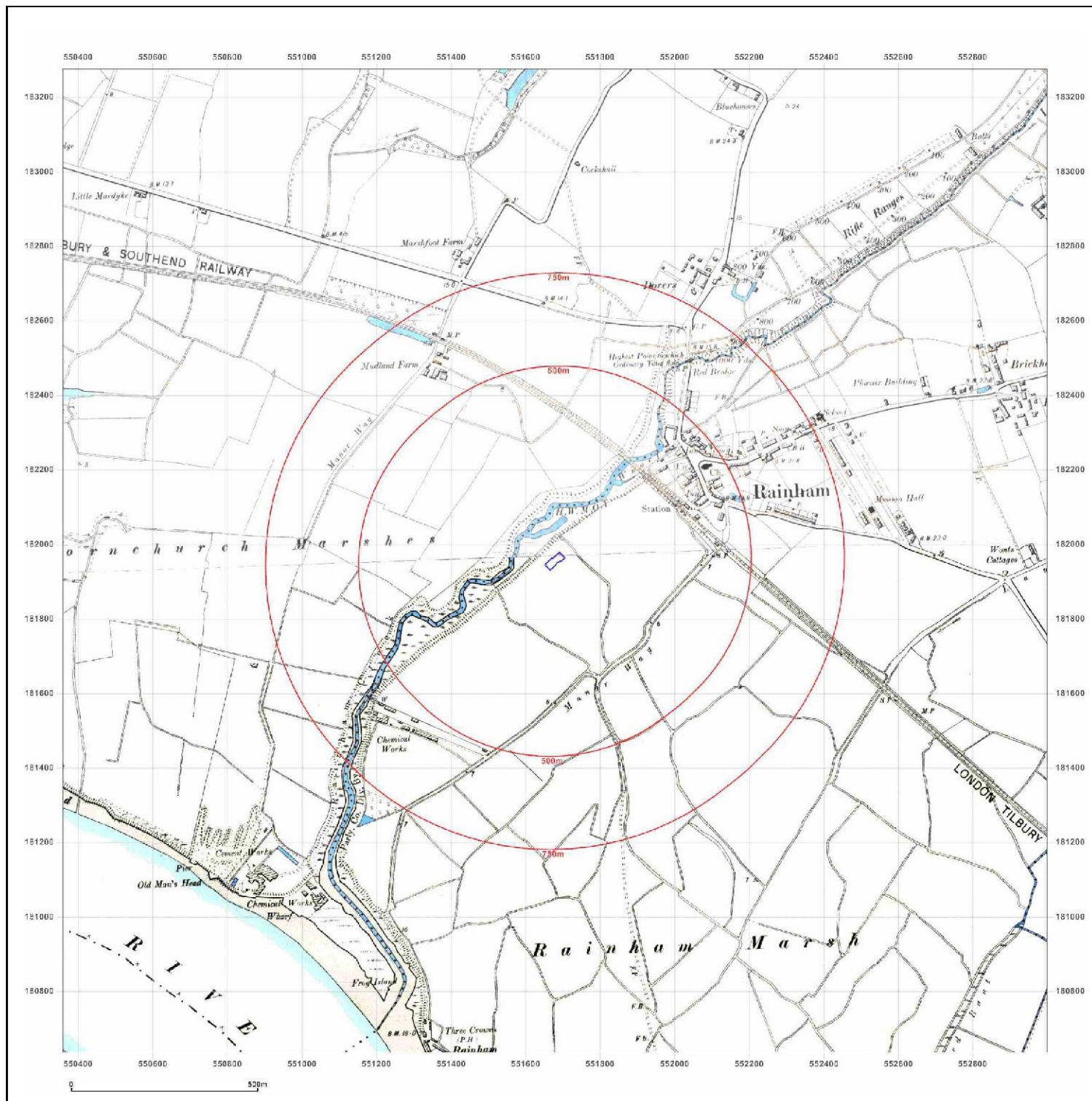


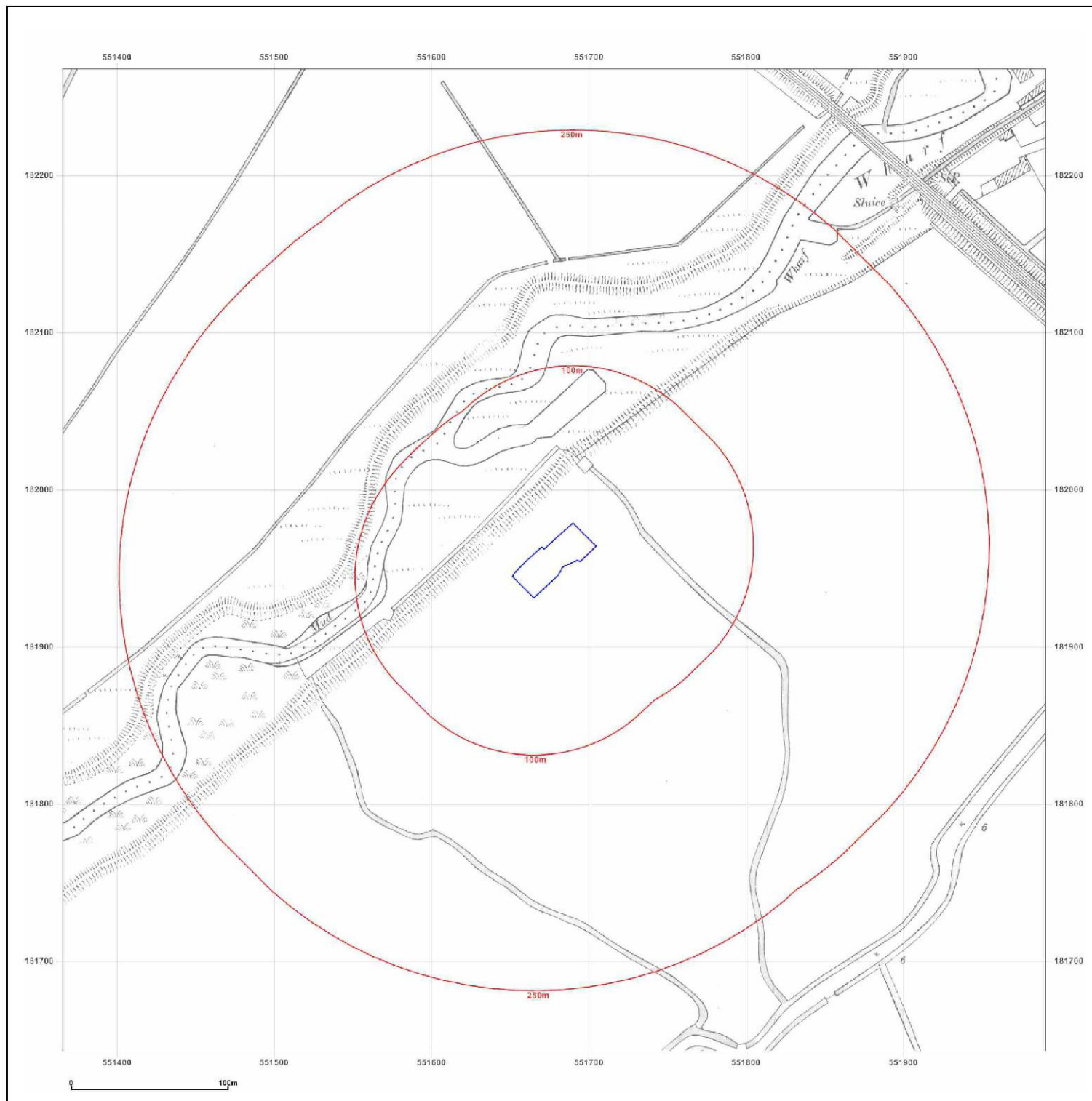
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Production date: 11 February 2019

Map legend available at:
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Site Details:

Sharp Skips, Albright Industrial Estate, Ferry Lane, Rainham, RM13 9BU

Client Ref: 5500
Report Ref: CMAPS-CM-776659-5500-110219HIS
Grid Ref: 551678, 181955

Map Name: County Series

Map date: 1897

Scale: 1:2,500

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Site Details:

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Estate, Ferry Lane, Rainham,
RM13 9BU

Client Ref: 5500

Report Ref: CMAPS-CM-776659-5500-110219HIS

Grid Ref: 551678, 181955

Map Name: County Series

Map date: 1920

Scale: 1:2,500

Printed at: 1:2,500



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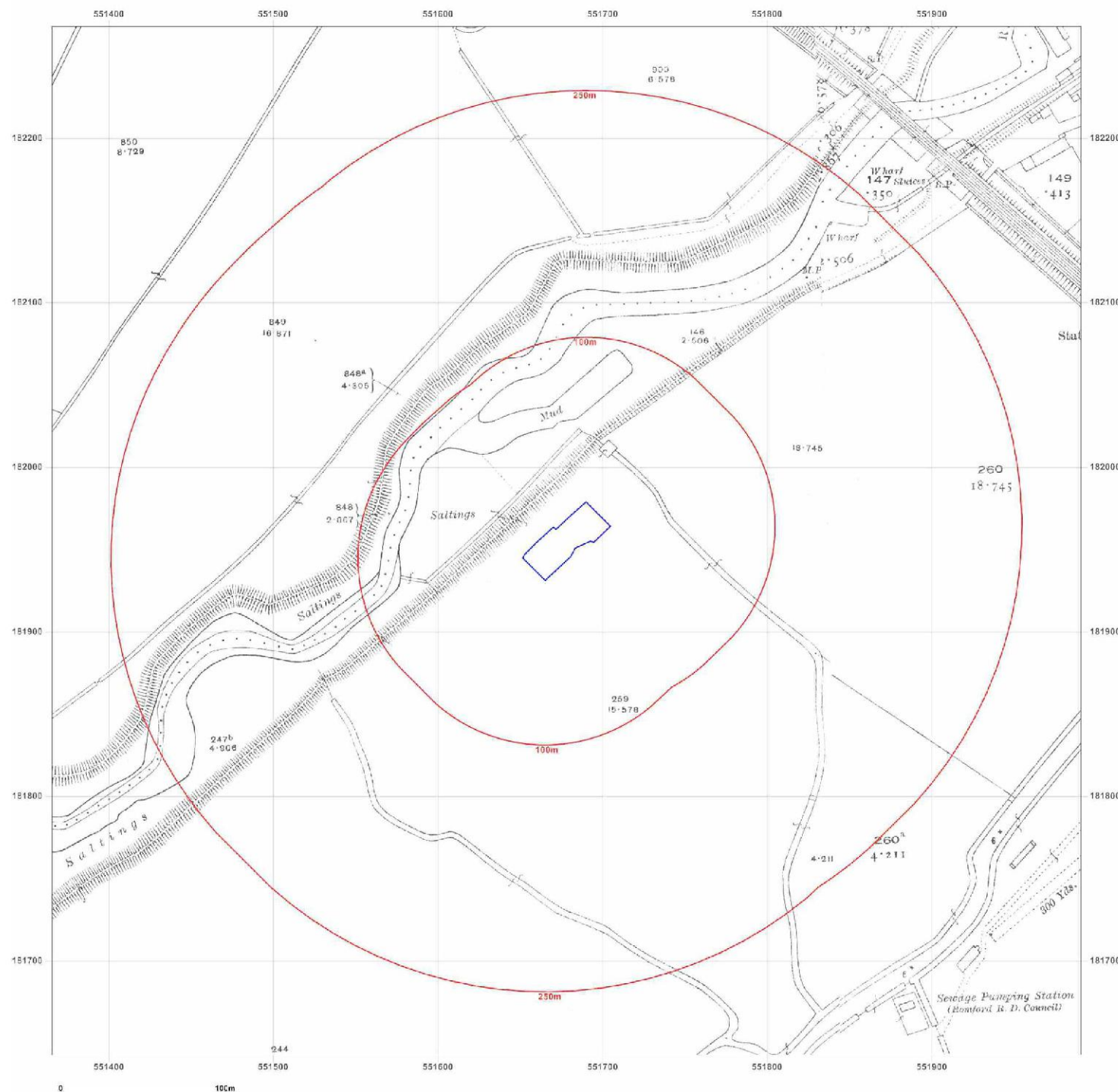


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Client Ref: 5500
Report Ref: CMAPS-CM-776659-5500-110219HIS
Grid Ref: 551678, 181955

Map Name: County Series

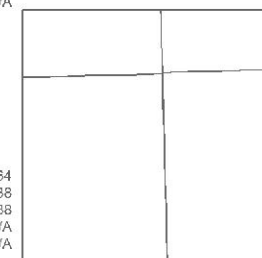
Map date: 1938

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Printed at: 1:10,560



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Edition N/A
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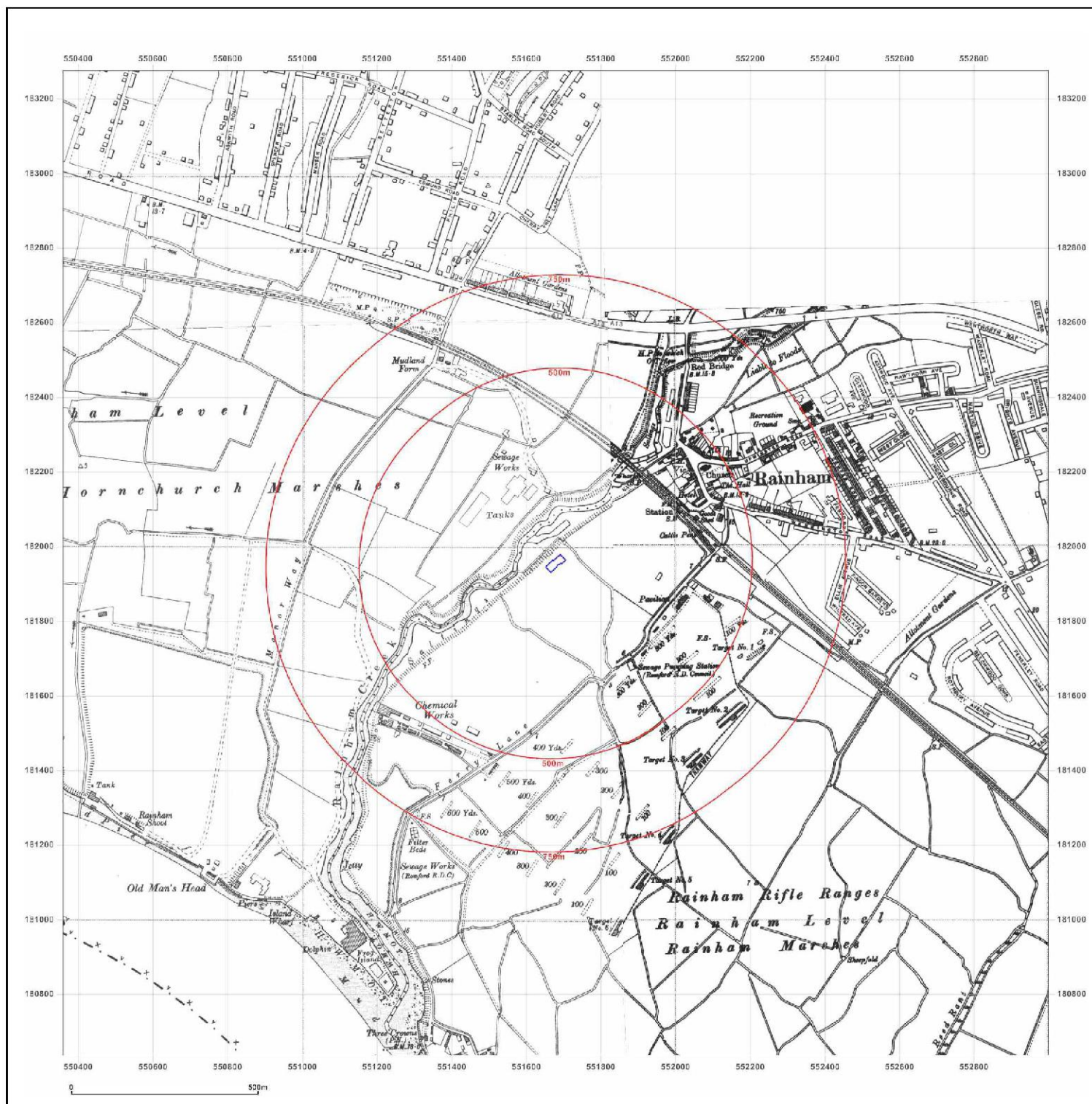


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Site Details:

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RM13 9BU

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Map Name: County Series

Map date: 1939

Scale: 1:2,500

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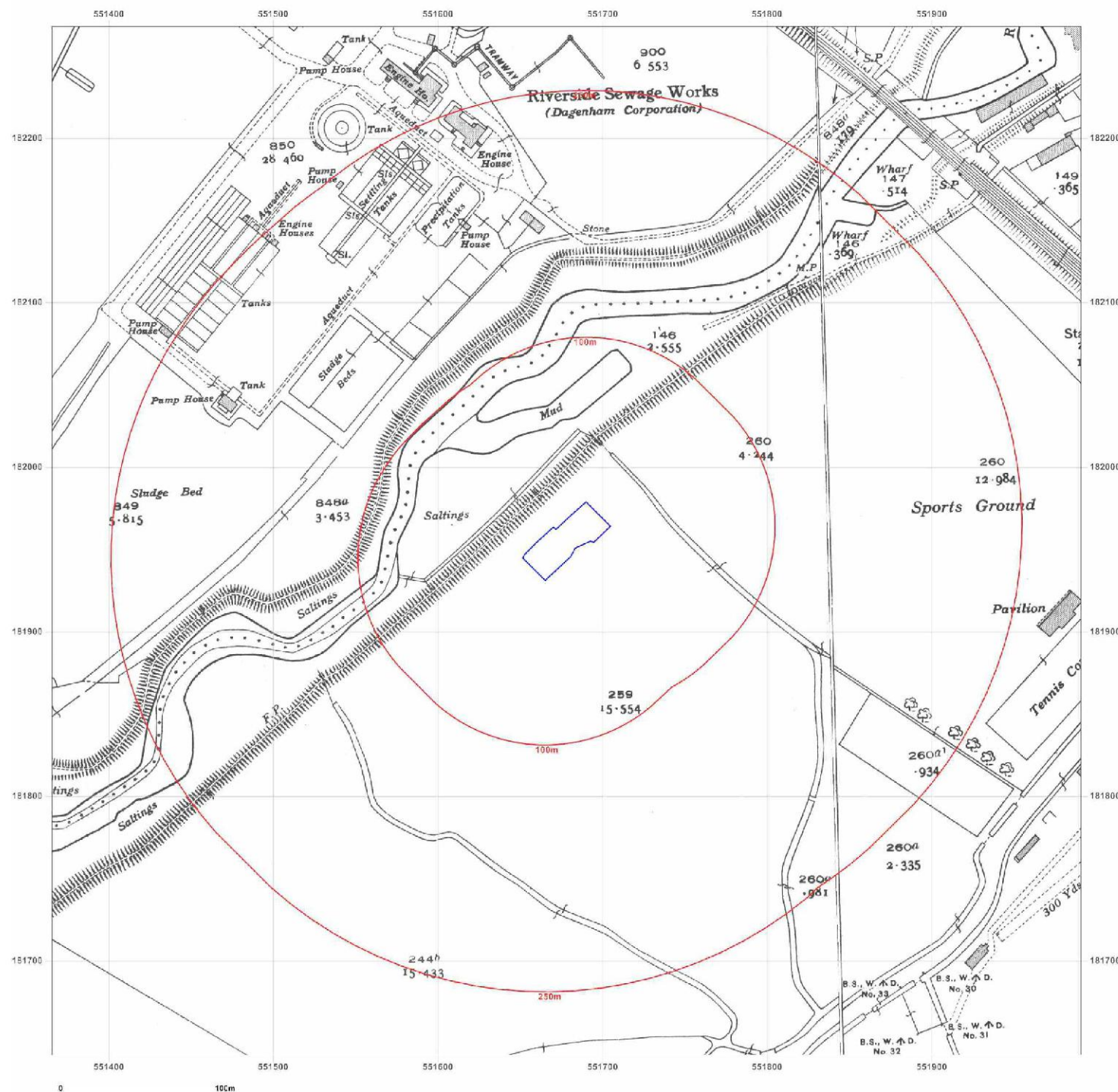


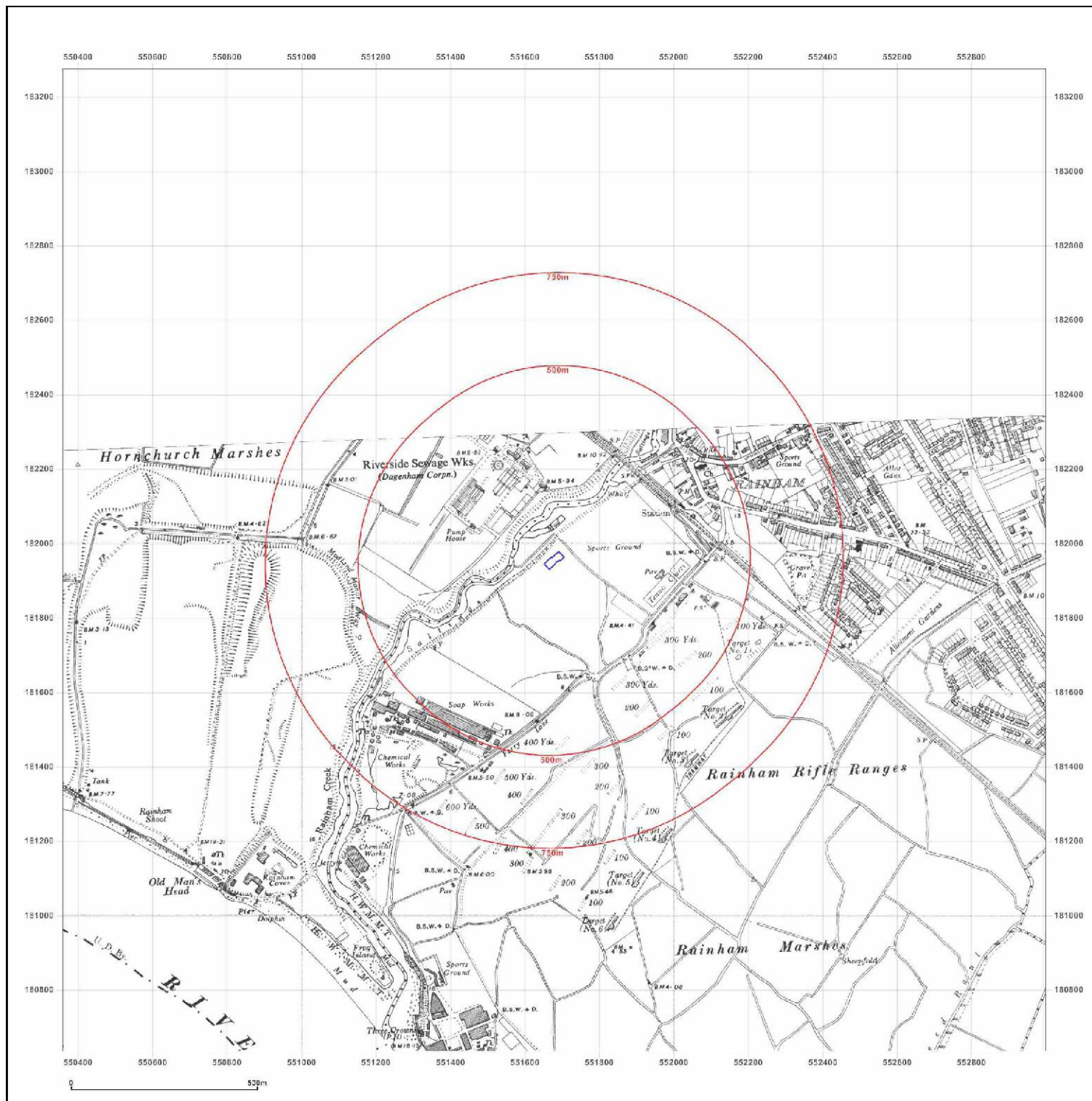
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Site Details:

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Client Ref: 5500
Report Ref: CMAPS-CM-776659-5500-110219HIS
Grid Ref: 551678, 181955

Map Name: County Series

Map date: 1951

Scale: 1:10,560

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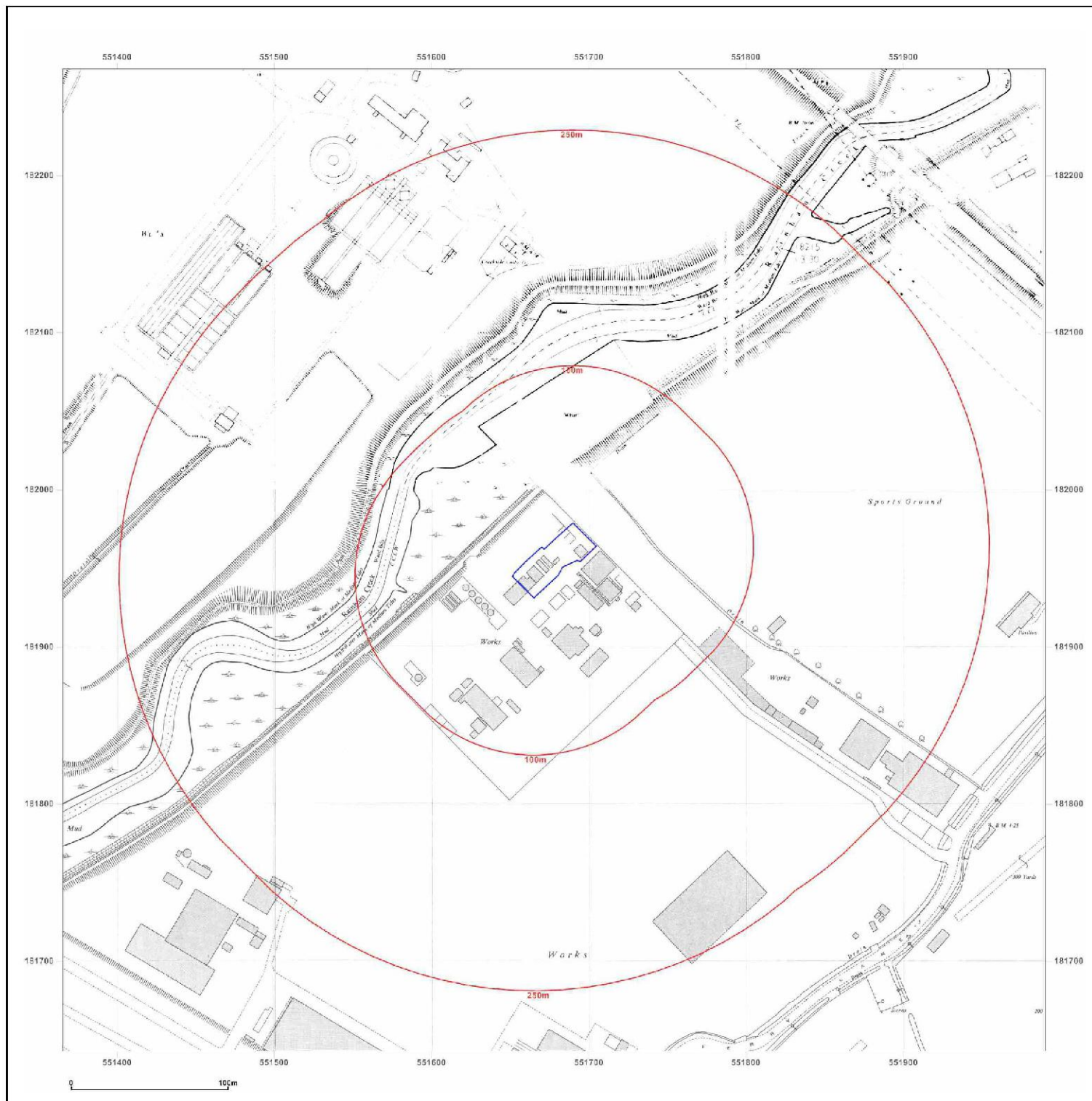


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Client Ref: 5500
Report Ref: CMAPS-CM-776659-5500-110219HIS
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Map Name: National Grid

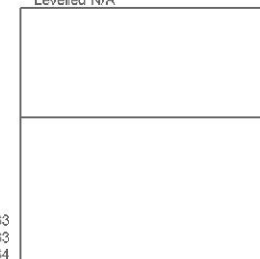
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Scale: 1:2,500

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 Edition 1964
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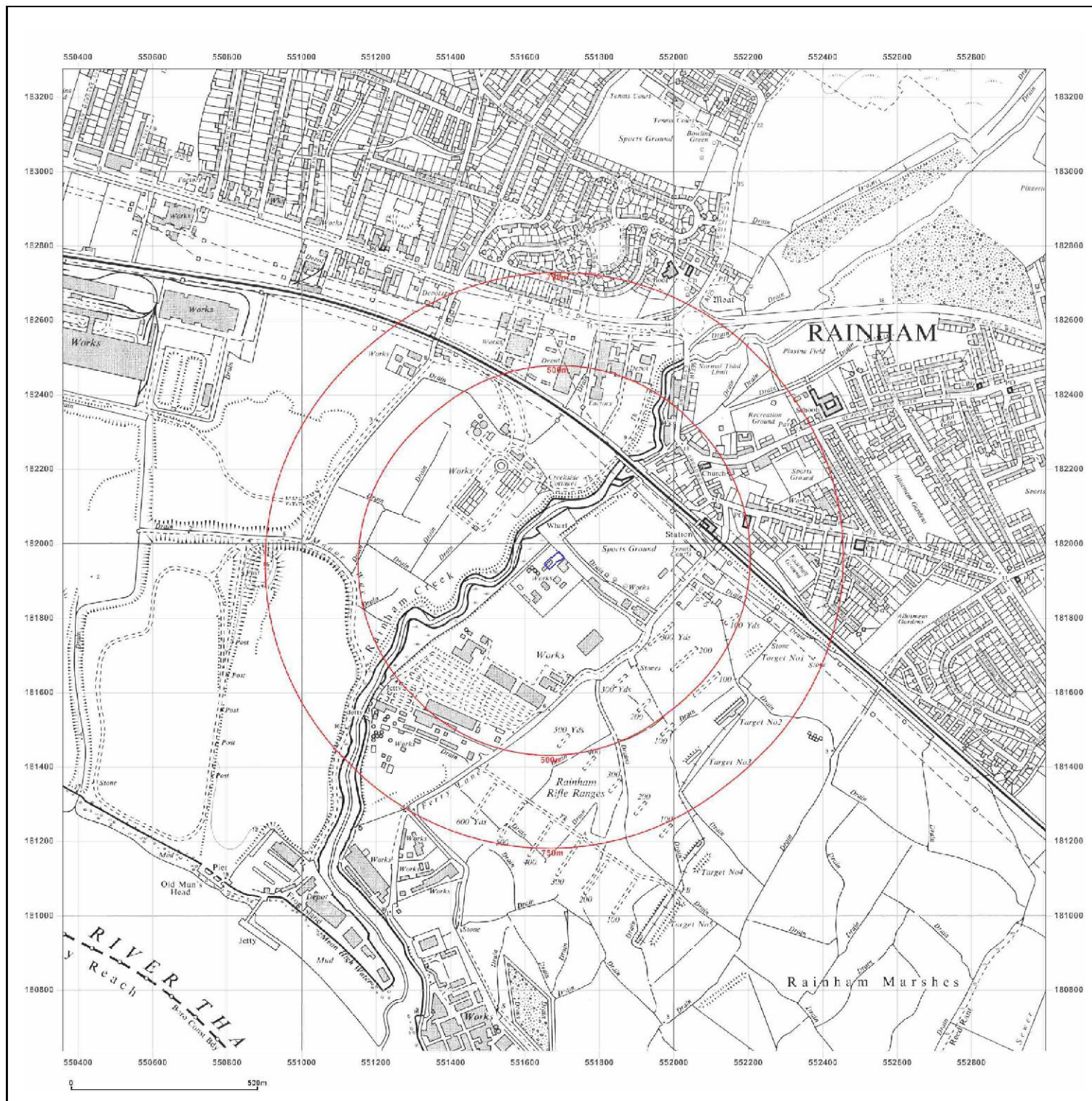


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Site Details:

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Client Ref: 5500
Report Ref: CMAPS-CM-776659-5500-110219HIS
Grid Ref: 551678, 181955

Map Name: Provisional

Map date: 1967

Scale: 1:10,560

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Client Ref: 5500

Report Ref: CMAPS-CM-776659-5500-110219HIS

Grid Ref: 551678, 181955

Map Name: National Grid

Map date: 1973

Scale: 1:10,000

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Site Details:

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Client Ref: 5500
Report Ref: CMAPS-CM-776659-5500-110219HIS
Grid Ref: 551678, 181955

Map Name: National Grid

Map date: 1980-1983

Scale: 1:1,250

Printed at: 1:2,000



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Site Details:

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Client Ref: 5500
Report Ref: CMAPS-CM-776659-5500-110219HIS
Grid Ref: 551678, 181955

Map Name: National Grid

Map date: 1990-1993

Scale: 1:1,250

Printed at: 1:2,000



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Edition N/A
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Revised N/A
Edition N/A
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Levelled N/A

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Edition N/A
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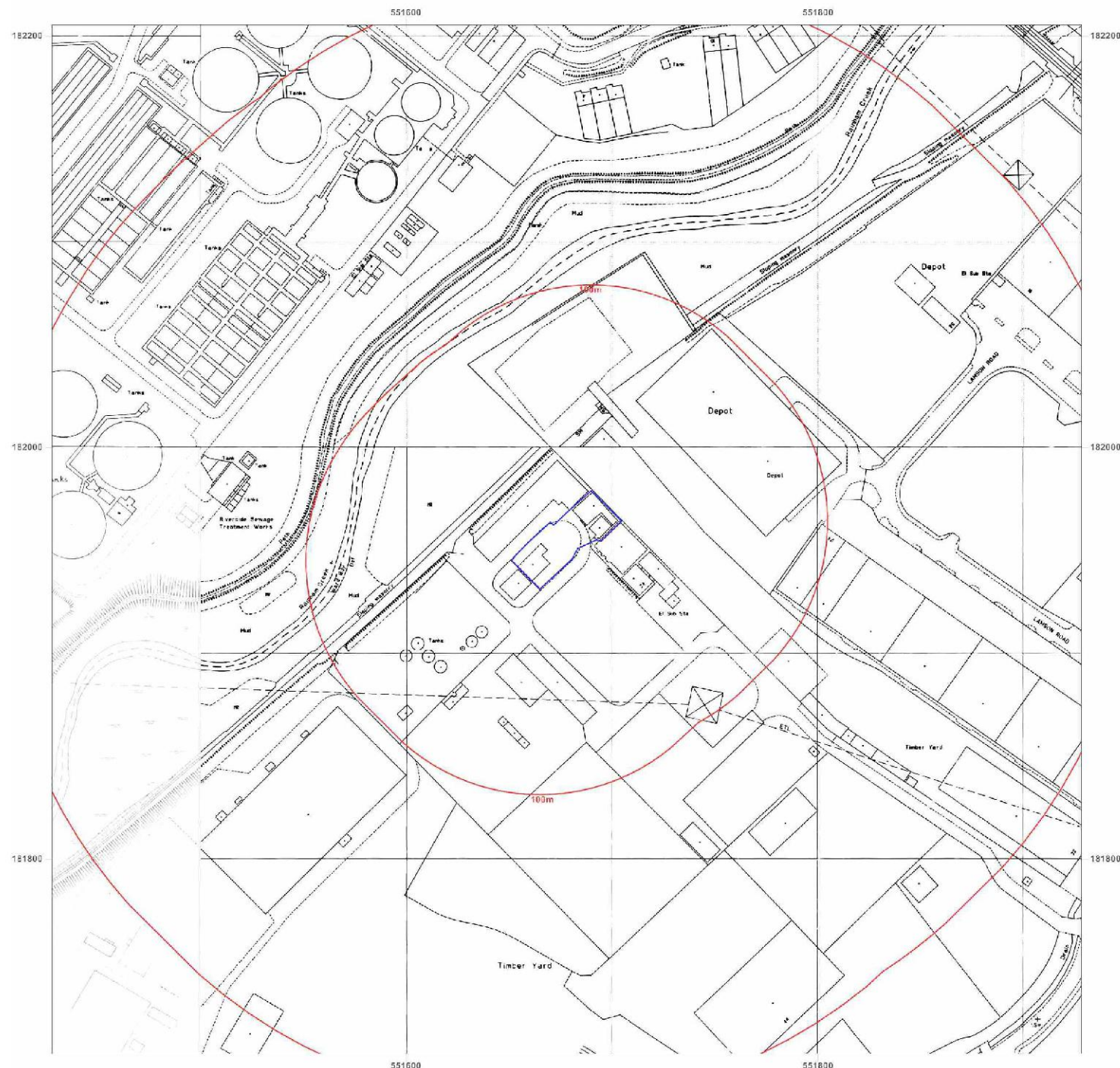


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0 100m



Site Details:

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Client Ref: 5500
Report Ref: CMAPS-CM-776659-5500-110219HIS
Grid Ref: 551678, 181955

Map Name: National Grid

Map date: 1992

Scale: 1:10,000

Printed at: 1:10,000



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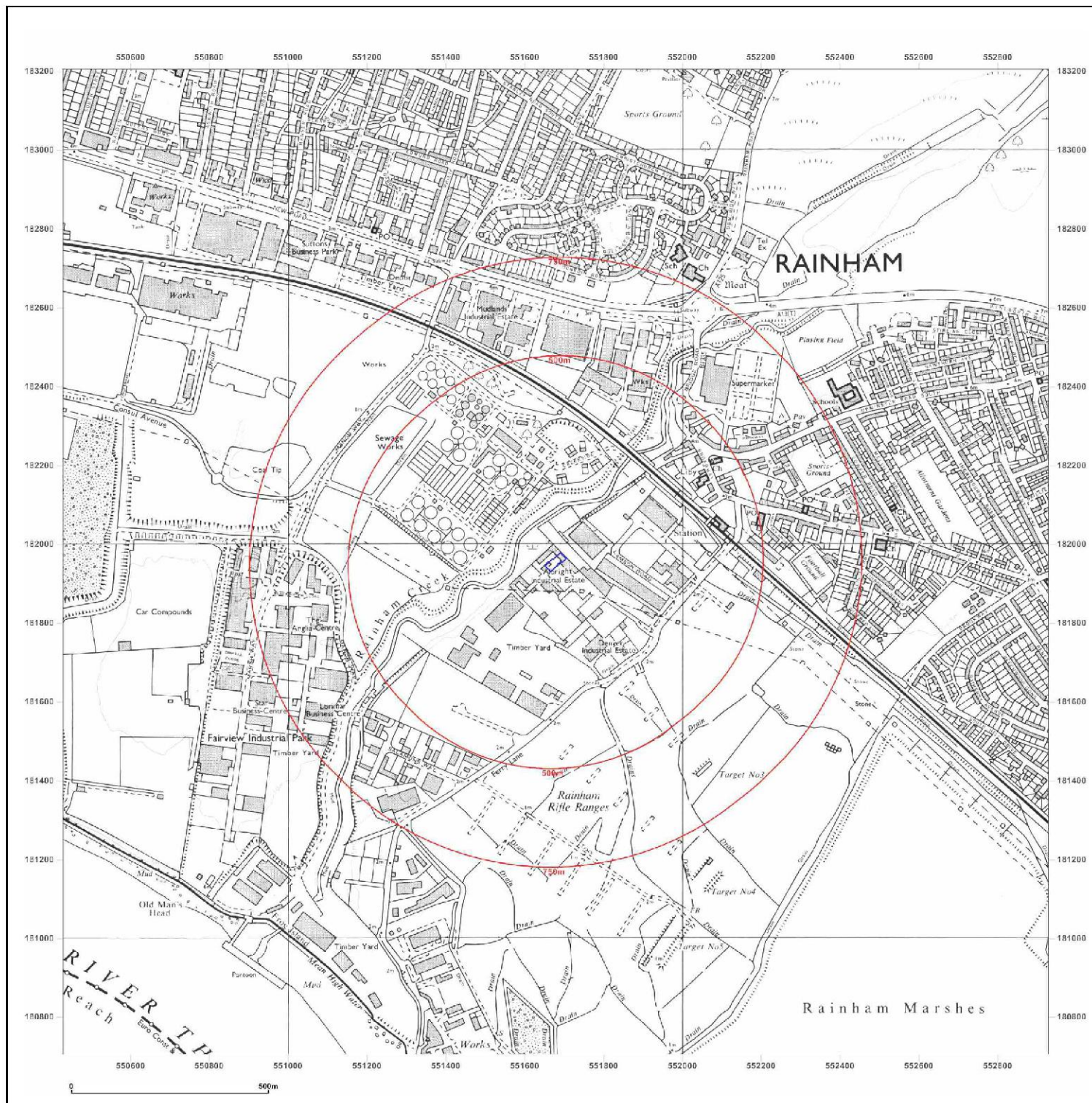


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Site Details:

Sharp Skips, Albright Industrial
Estate, Ferry Lane, Rainham,
RM13 9BU

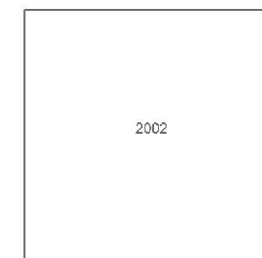
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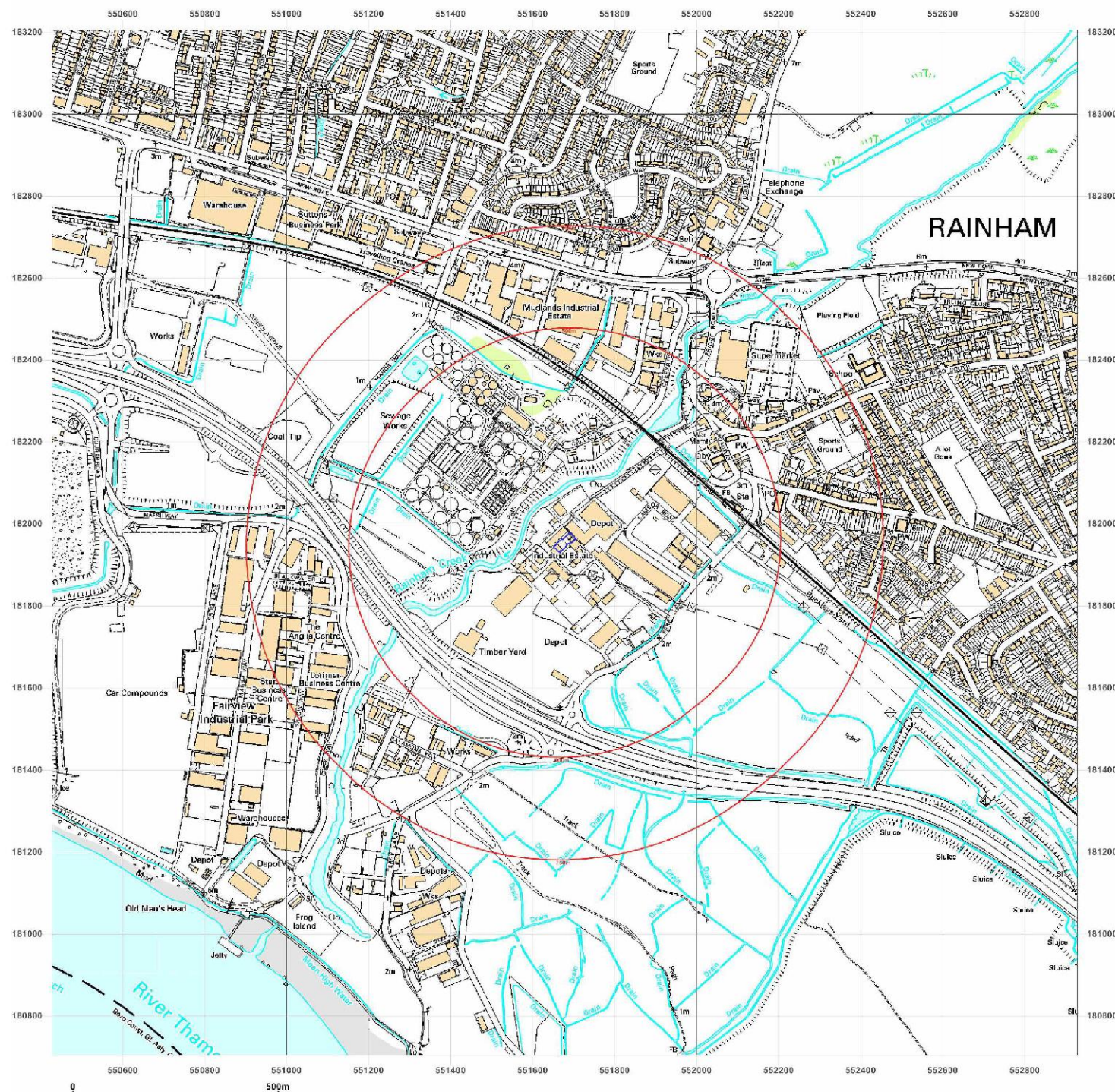
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Production date: 11 February 2019

Map legend available at:
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RAINHAM



Site Details:

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Estate, Ferry Lane, Rainham,
RM13 9BU

Client Ref: 5500

Report Ref: CMAPS-CM-776659-5500-110219HIS

Grid Ref: 551678, 181955

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000



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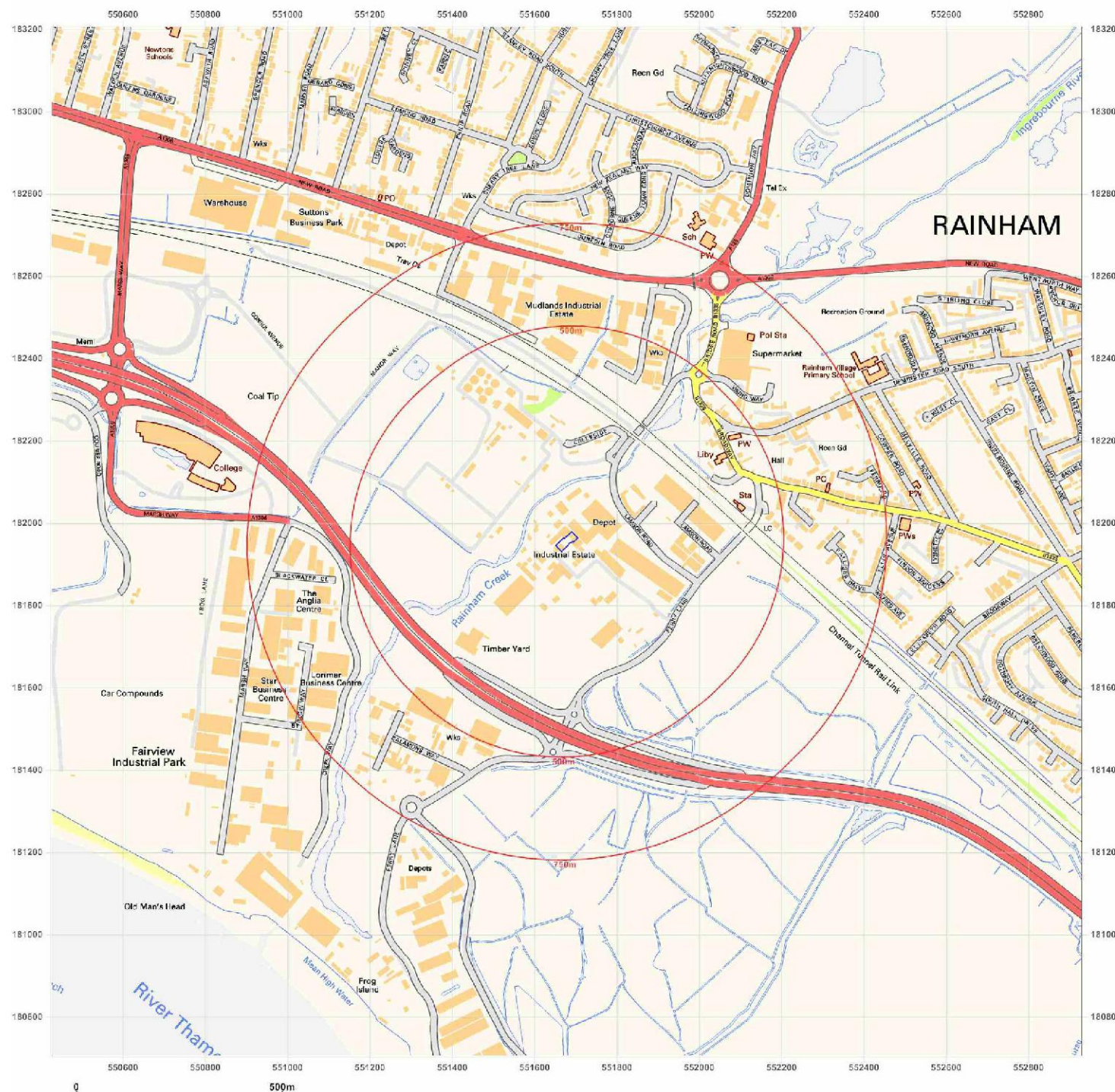


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Production date: 11 February 2019

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Site Details:

Sharp Skips, Albright Industrial
Estate, Ferry Lane, Rainham,
RM13 9BU

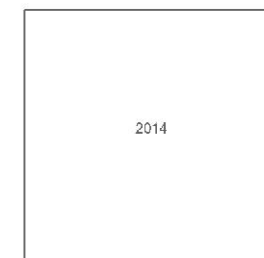
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Grid Ref: 551678, 181955

Map Name: National Grid

Map date: 2014

Scale: 1:10,000

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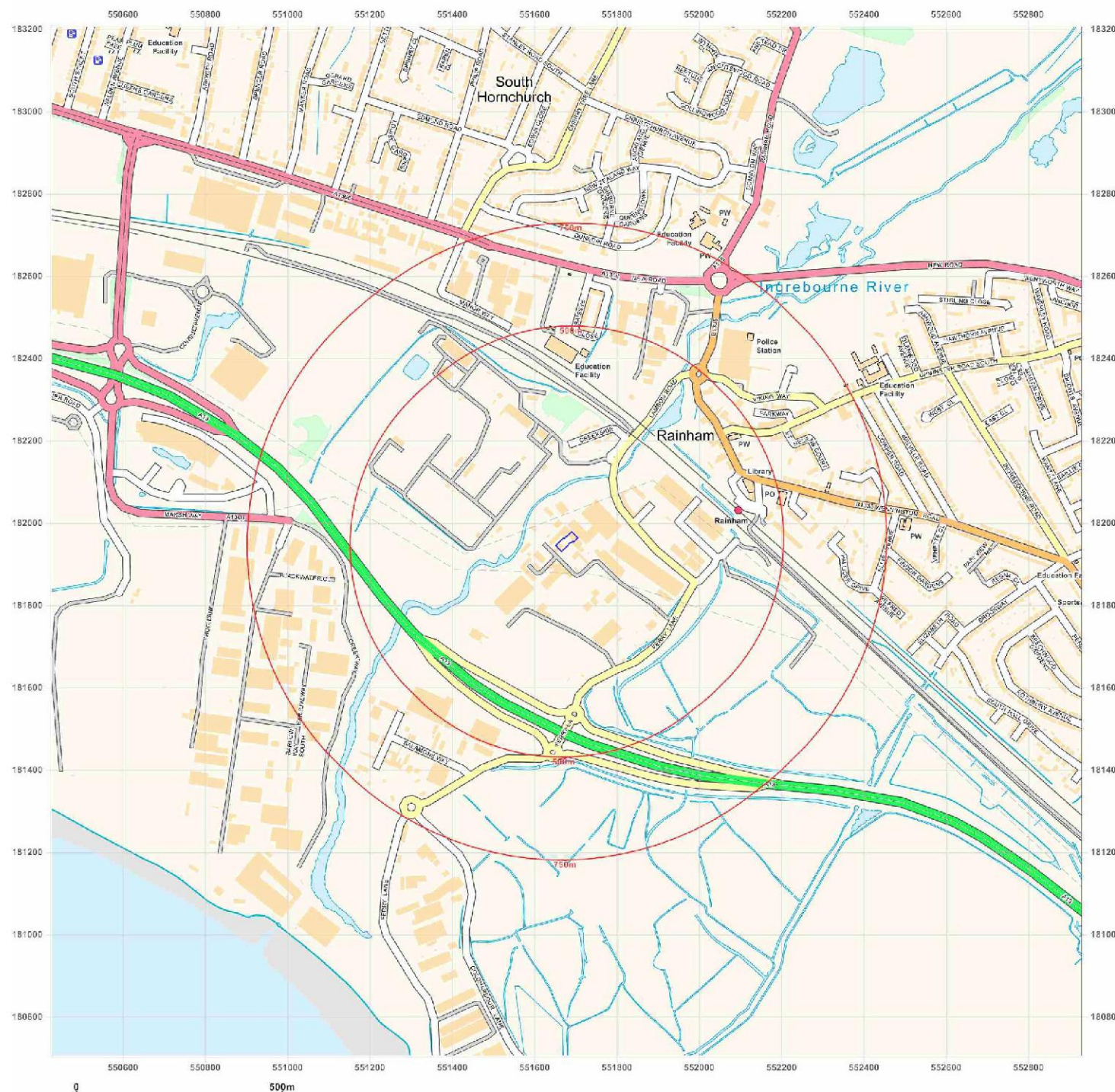


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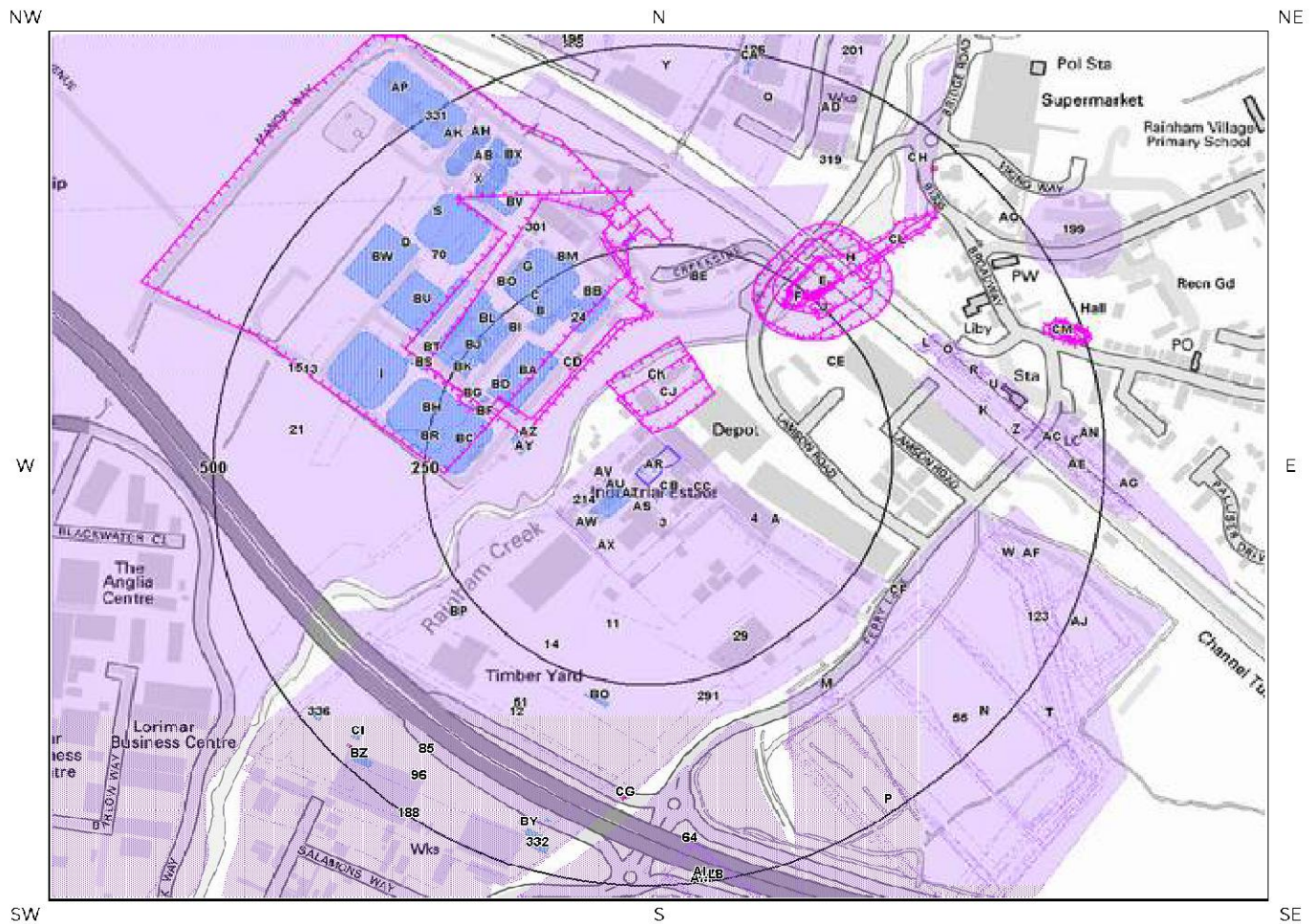
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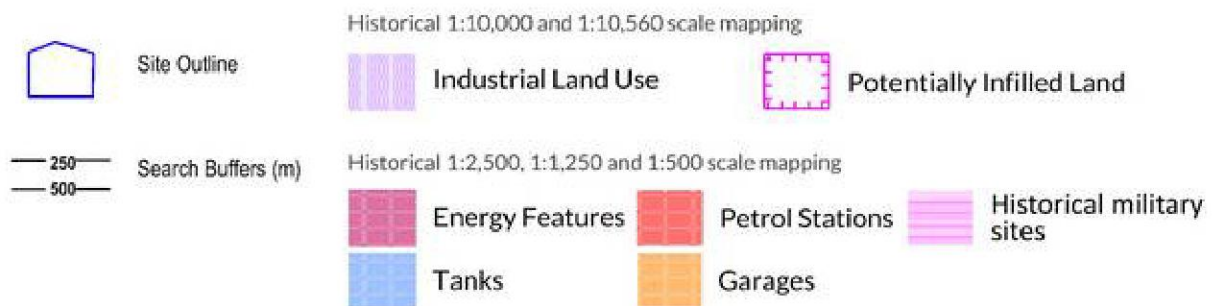
APPENDIX 5

ENVIRONMENTAL MAPS

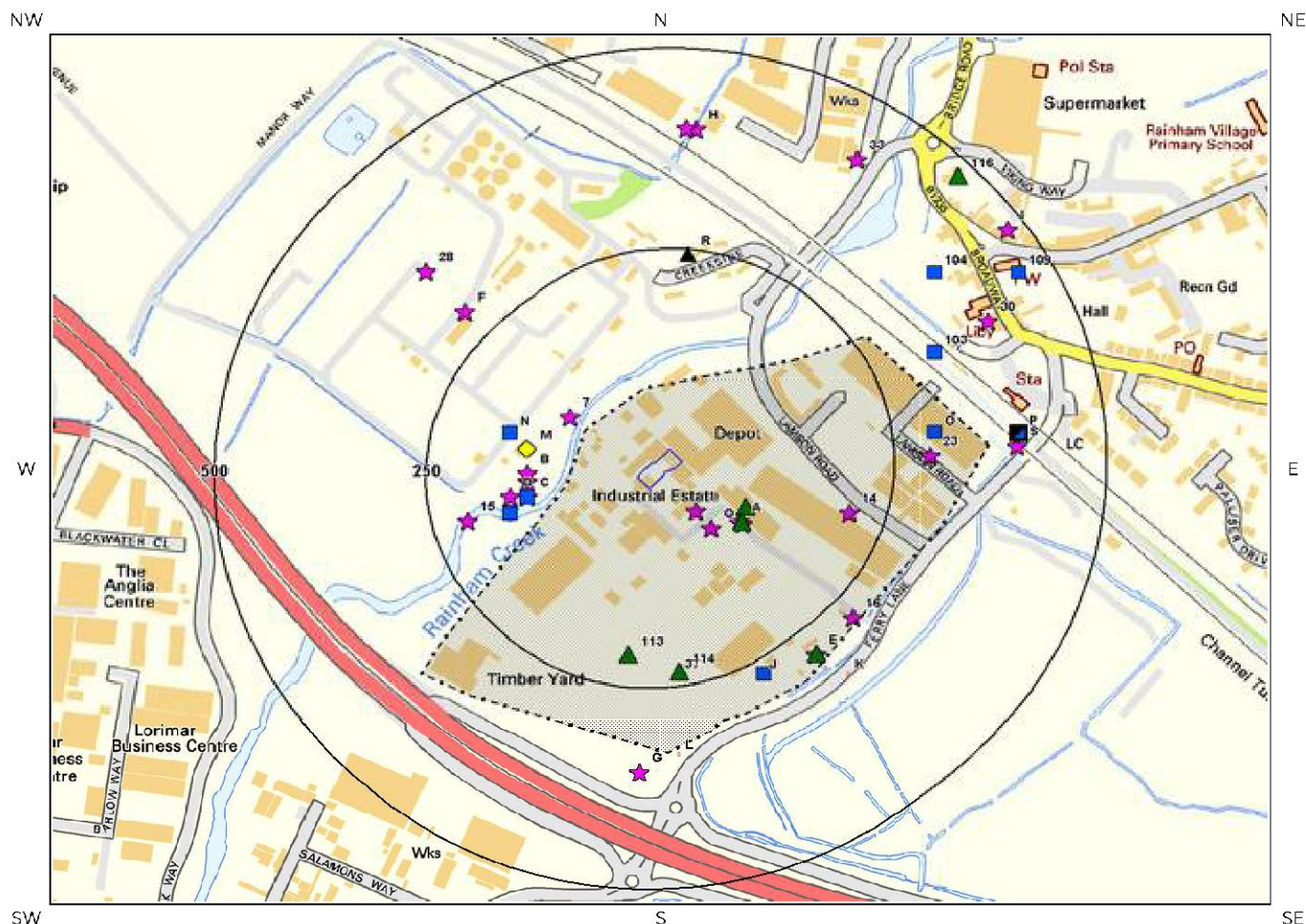
1. Historical Land Use



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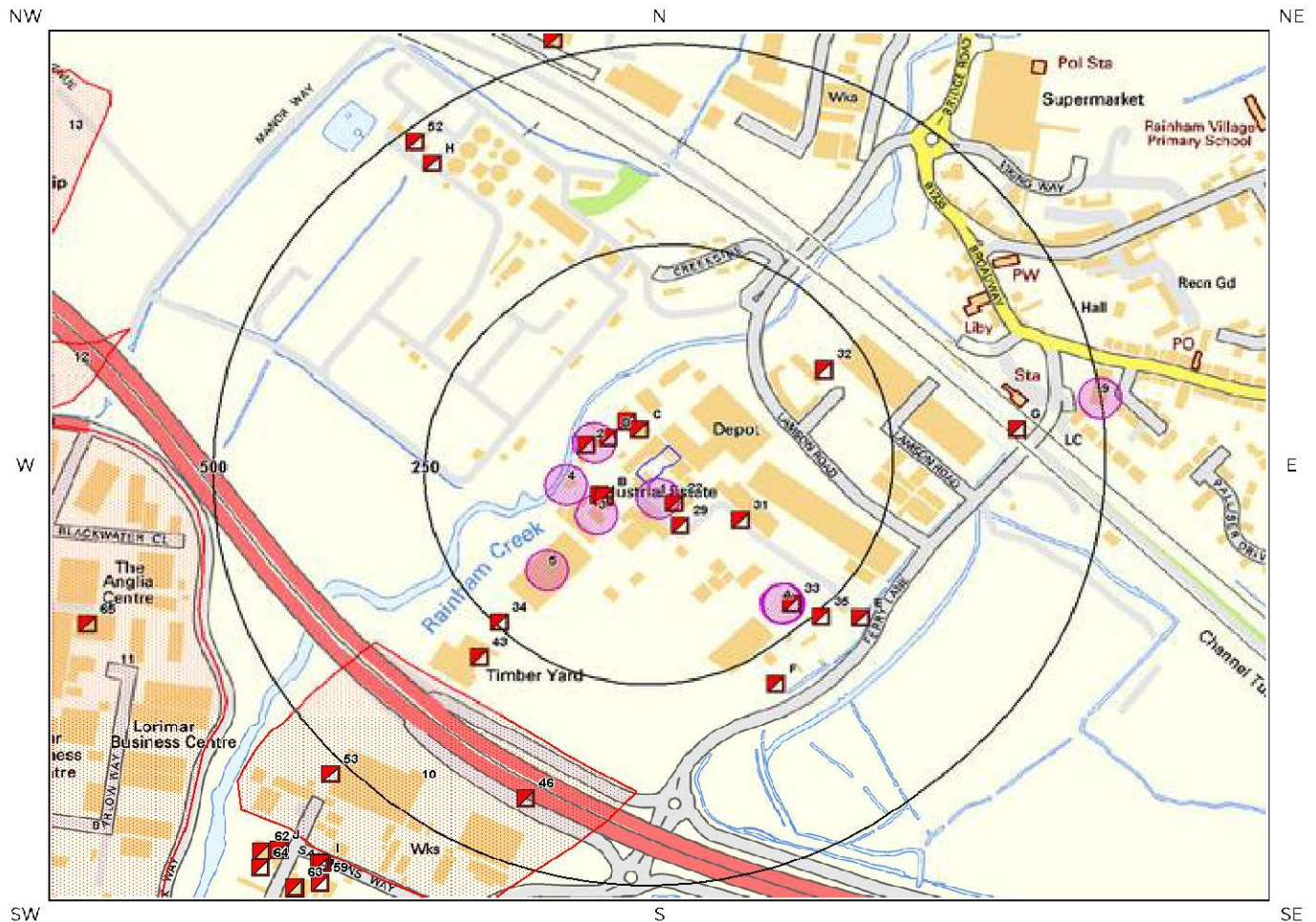
2. Environmental Permits, Incidents and Registers Map



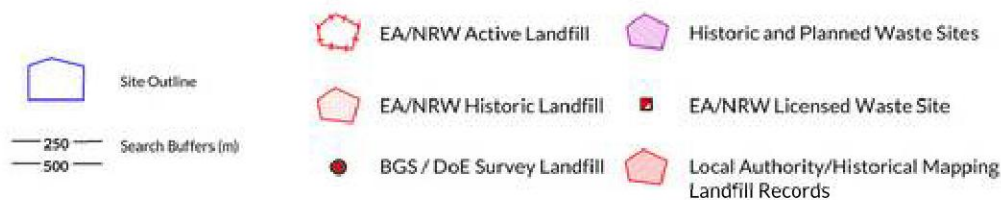
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- | | | | | | |
|--|--------------------|--|-------------------------------|--|--|
| | Site Outline | | Recorded Pollution Incident | | RAS 3 & 4 Authorisations |
| | Search Buffers (m) | | Dangerous Substances (List 1) | | Part A(1) Authorised Processes and Historic IPC Authorisations |
| | | | Dangerous Substances (List 2) | | Part A(2) and Part B Authorised Processes |
| | | | Water Industry Referrals | | COMAH / NIHHS Sites |
| | | | Licensed Discharge Consents | | Sites Determined as Contaminated Land |
| | | | Red List Discharge Consents | | Hazardous Substance Consents and Enforcements |

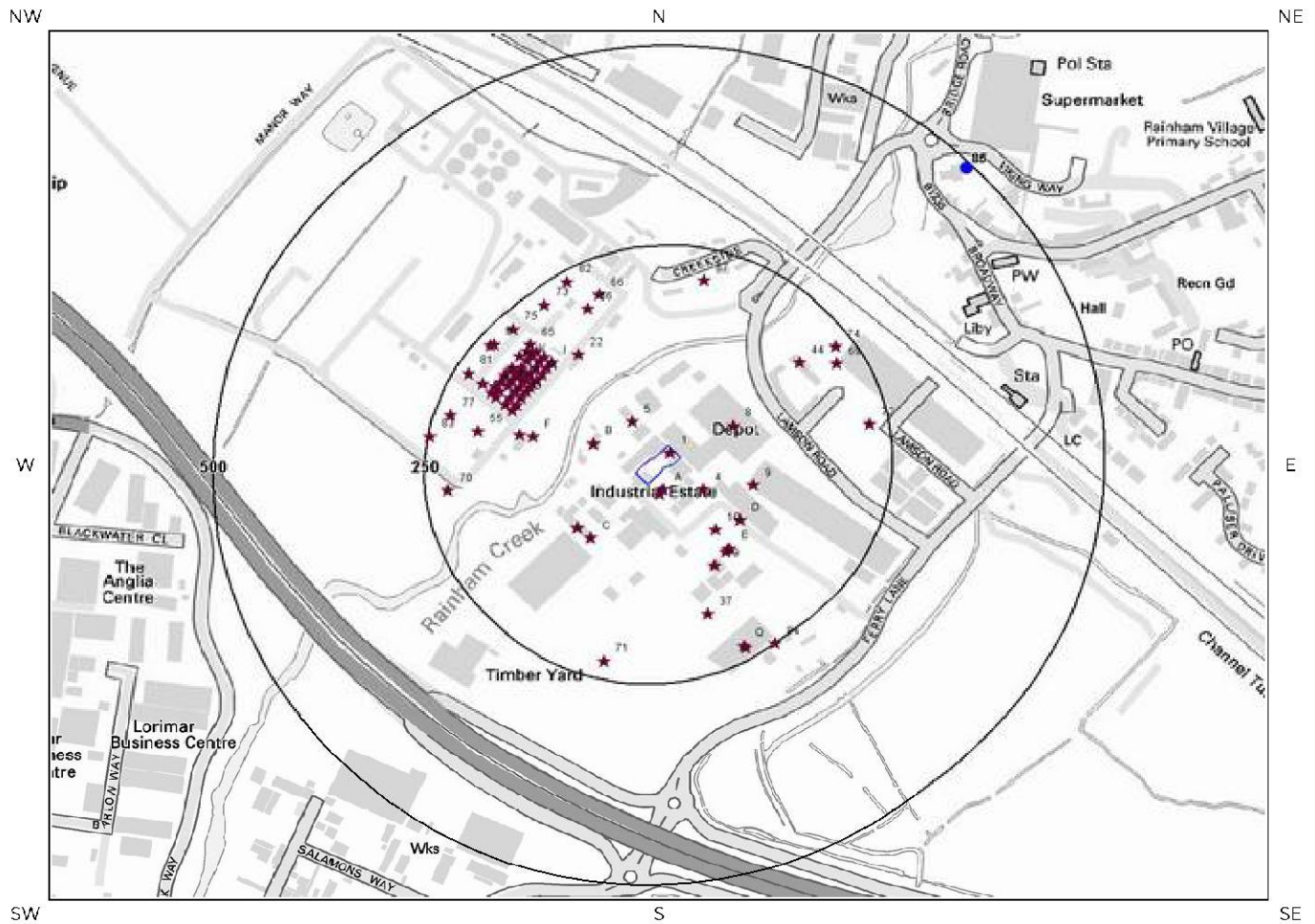
3. Landfill and Other Waste Sites Map



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4. Current Land Use Map



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Site Outline

★ Current Industrial Sites

— Electricity Transmission Cables

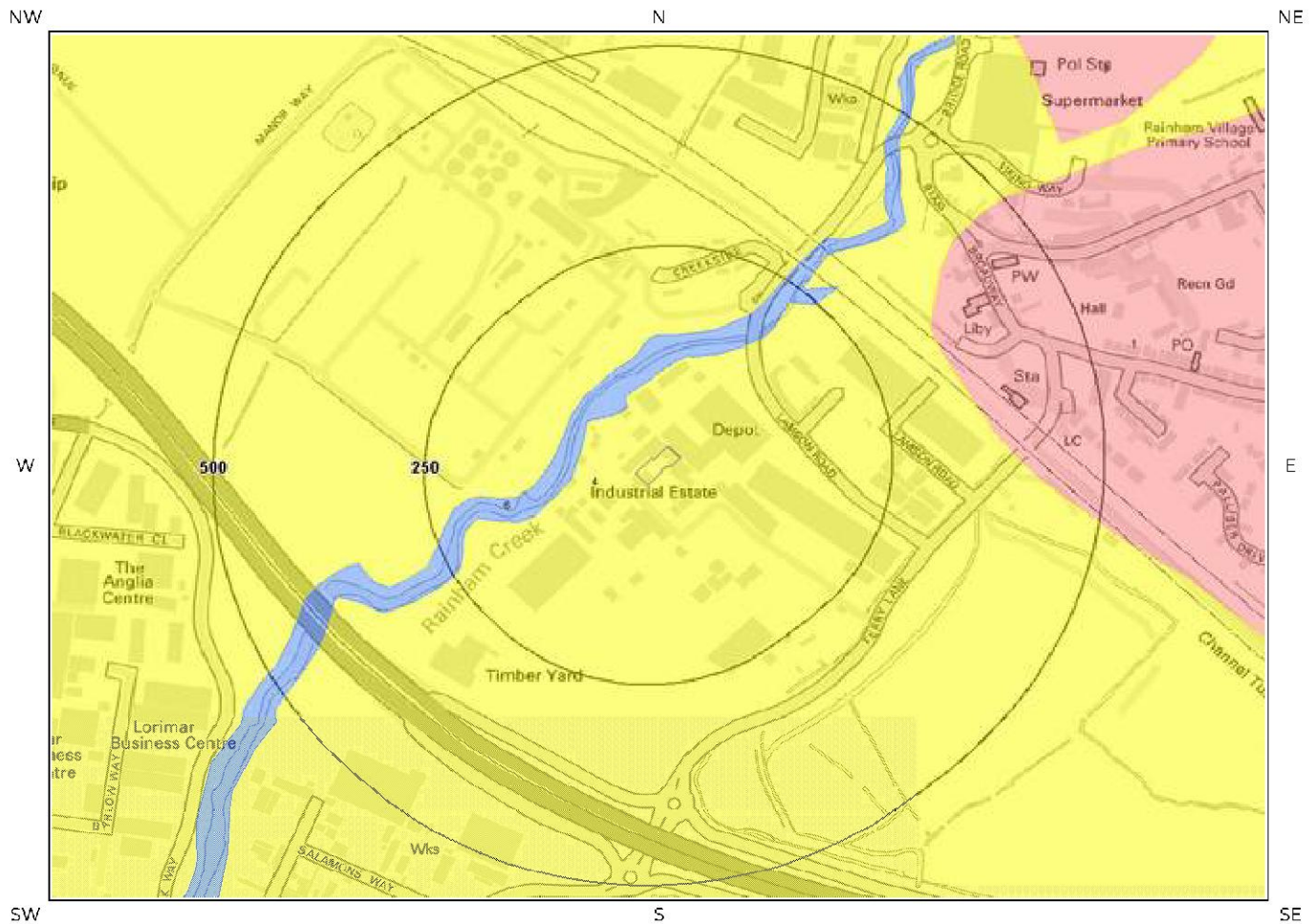
— 250 — Search Buffers (m)
— 500 —

● Petrol & Fuel Sites

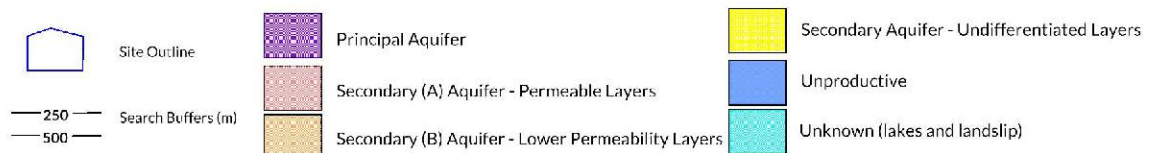
— Gas Transmission Pipelines

6 Hydrogeology and Hydrology

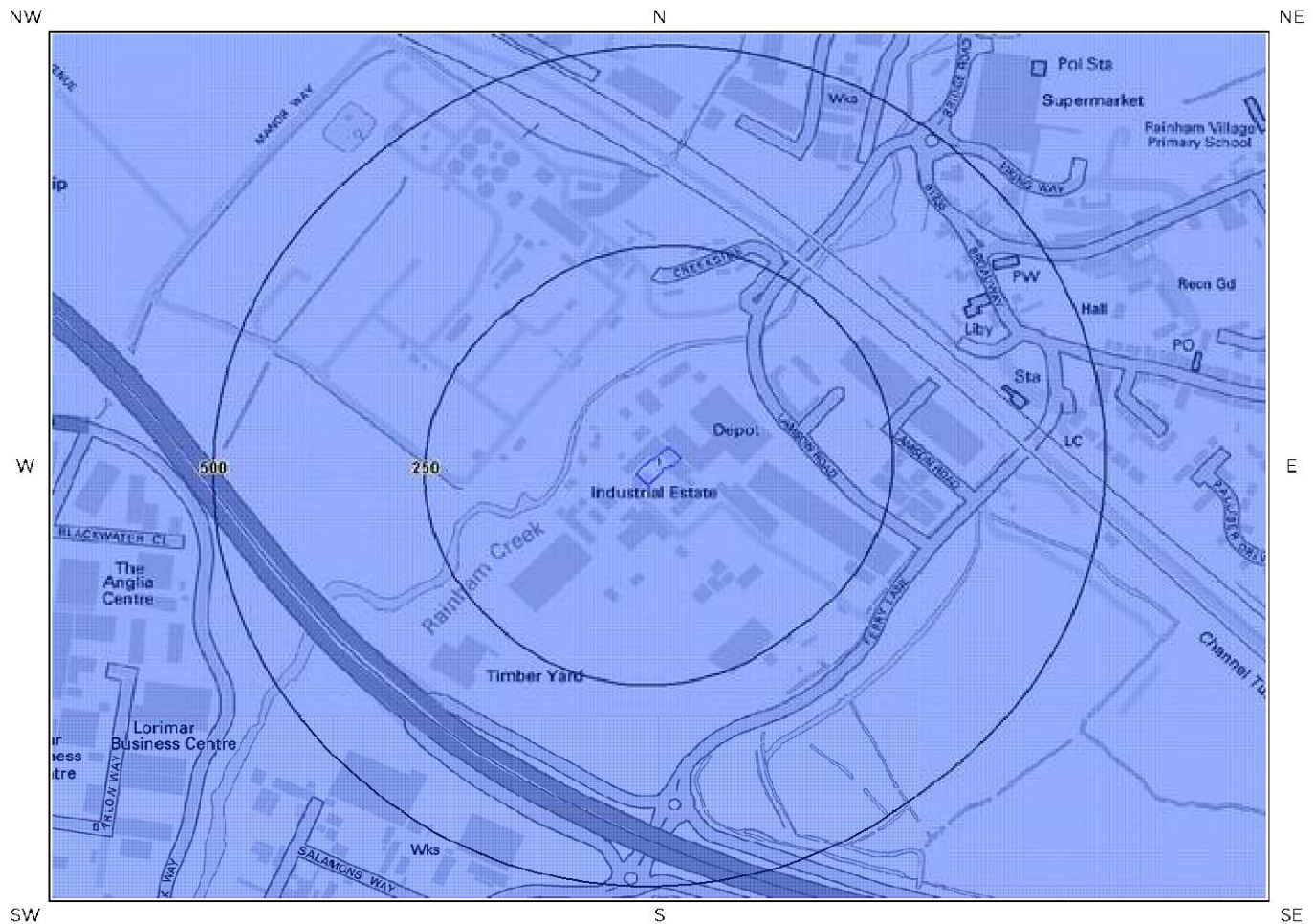
6a. Aquifer Within Superficial Geology



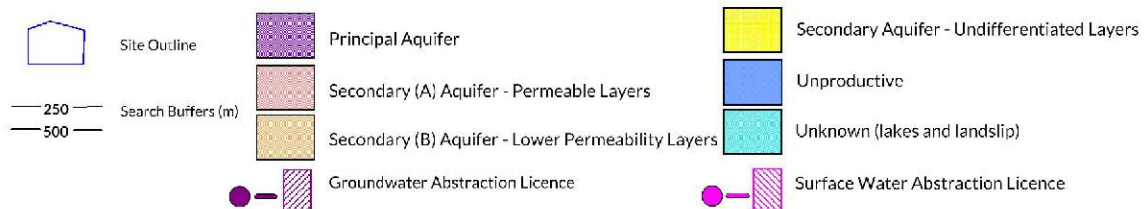
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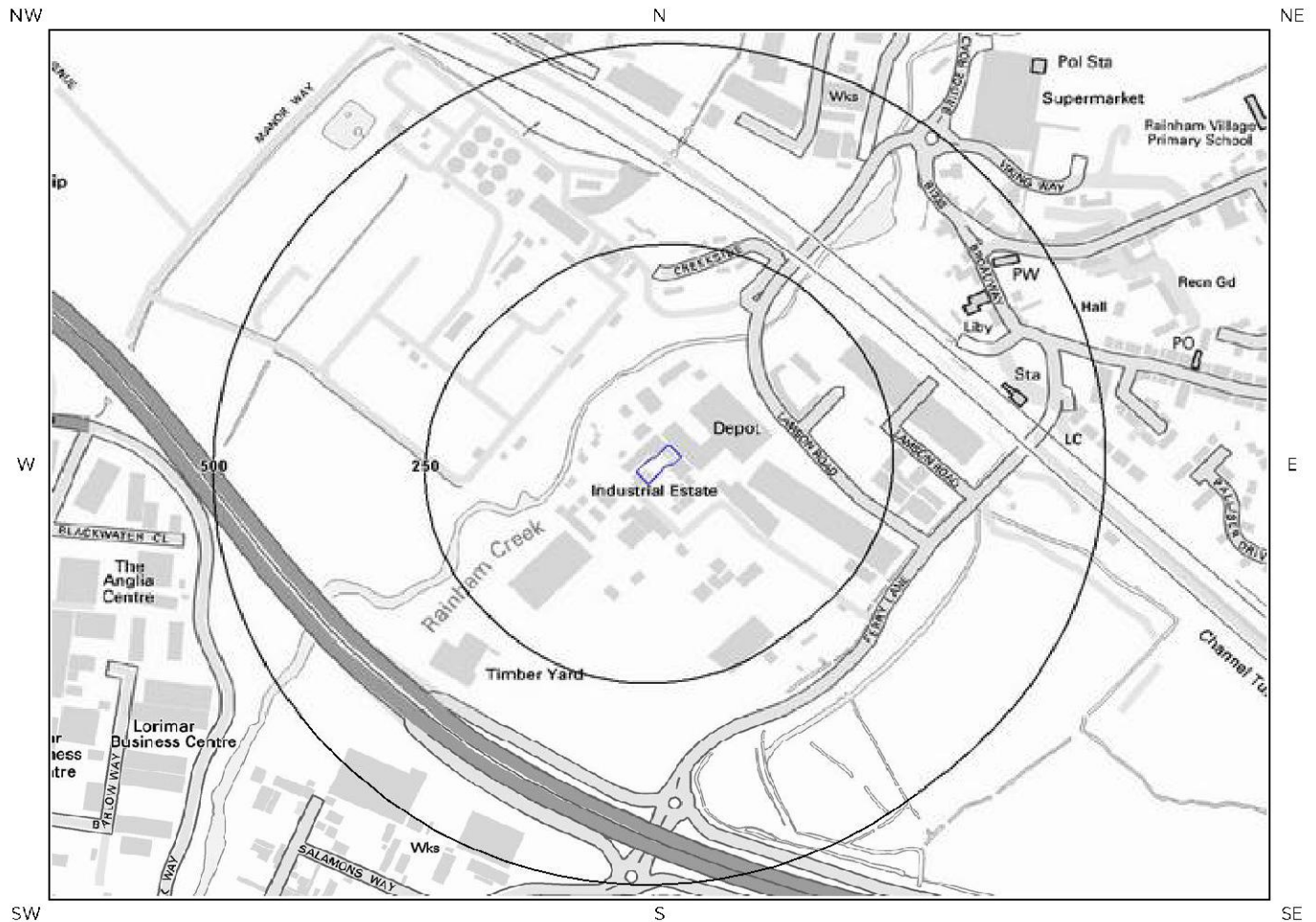
6b. Aquifer Within Bedrock Geology and Abstraction Licences



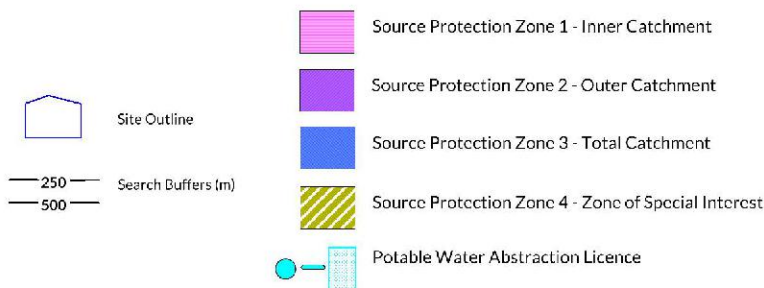
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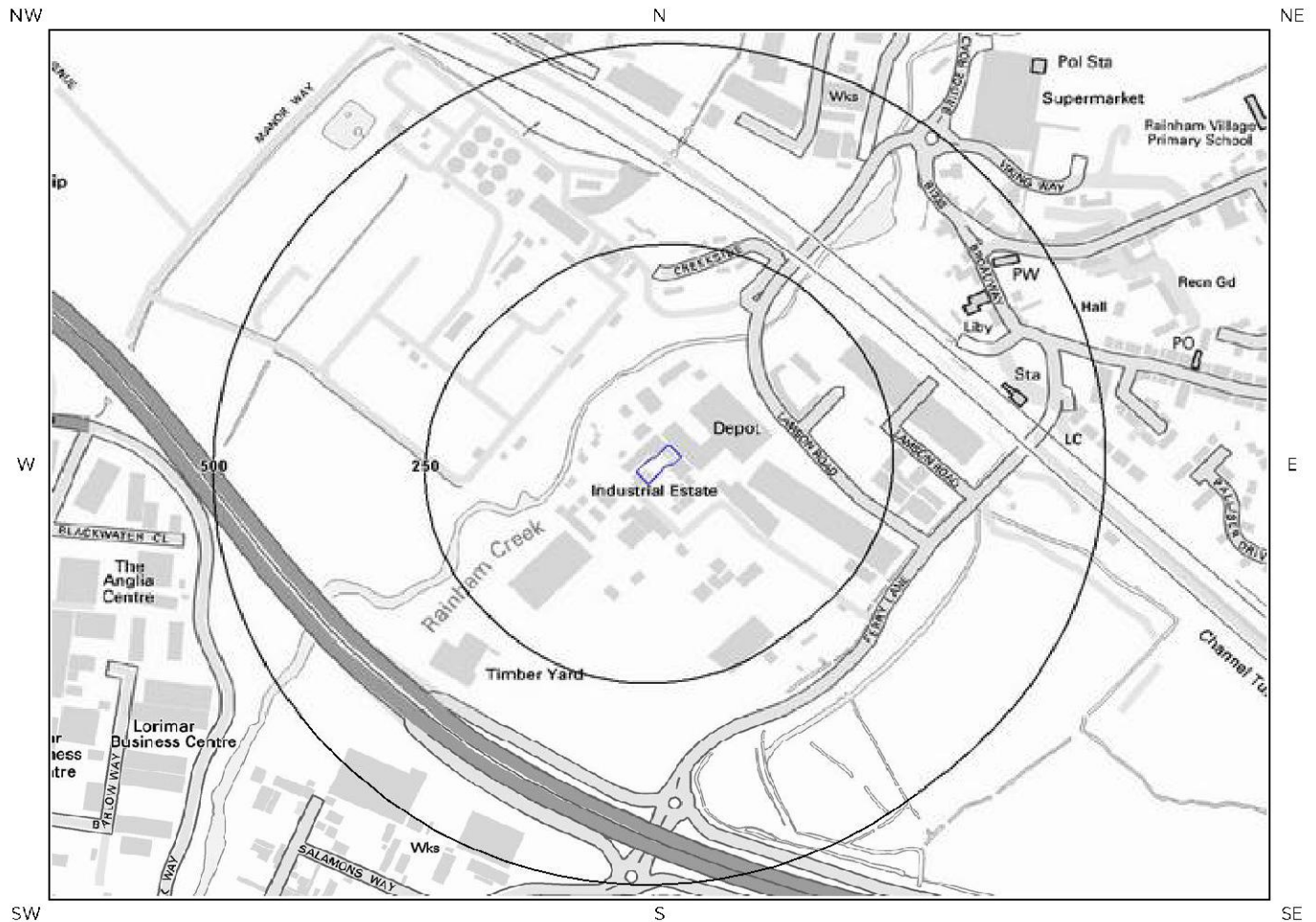
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



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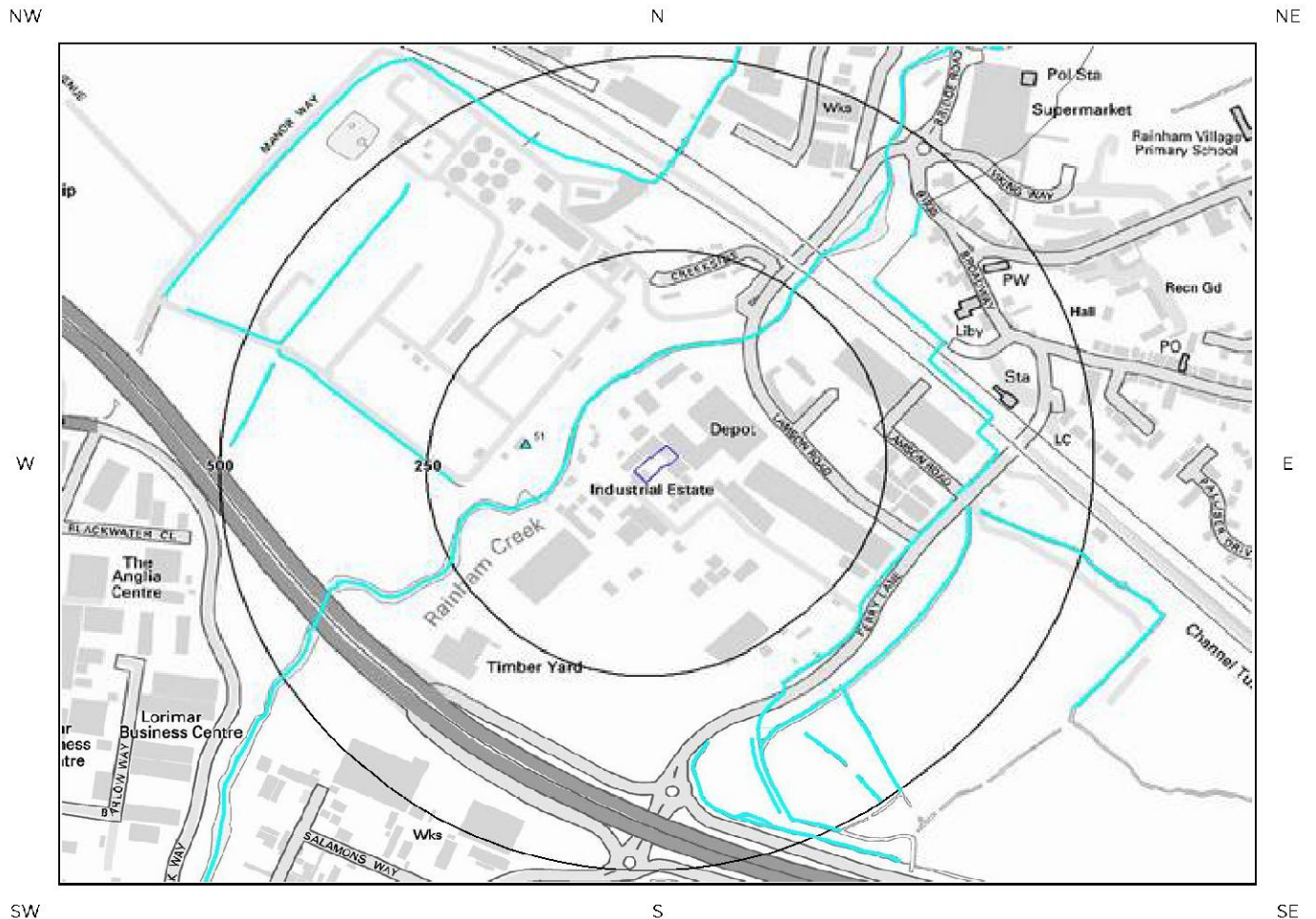


6d. Hydrogeology – Source Protection Zones within confined aquifer

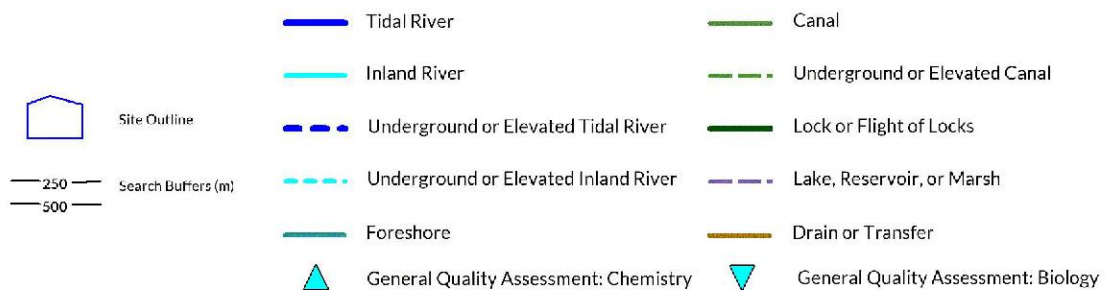


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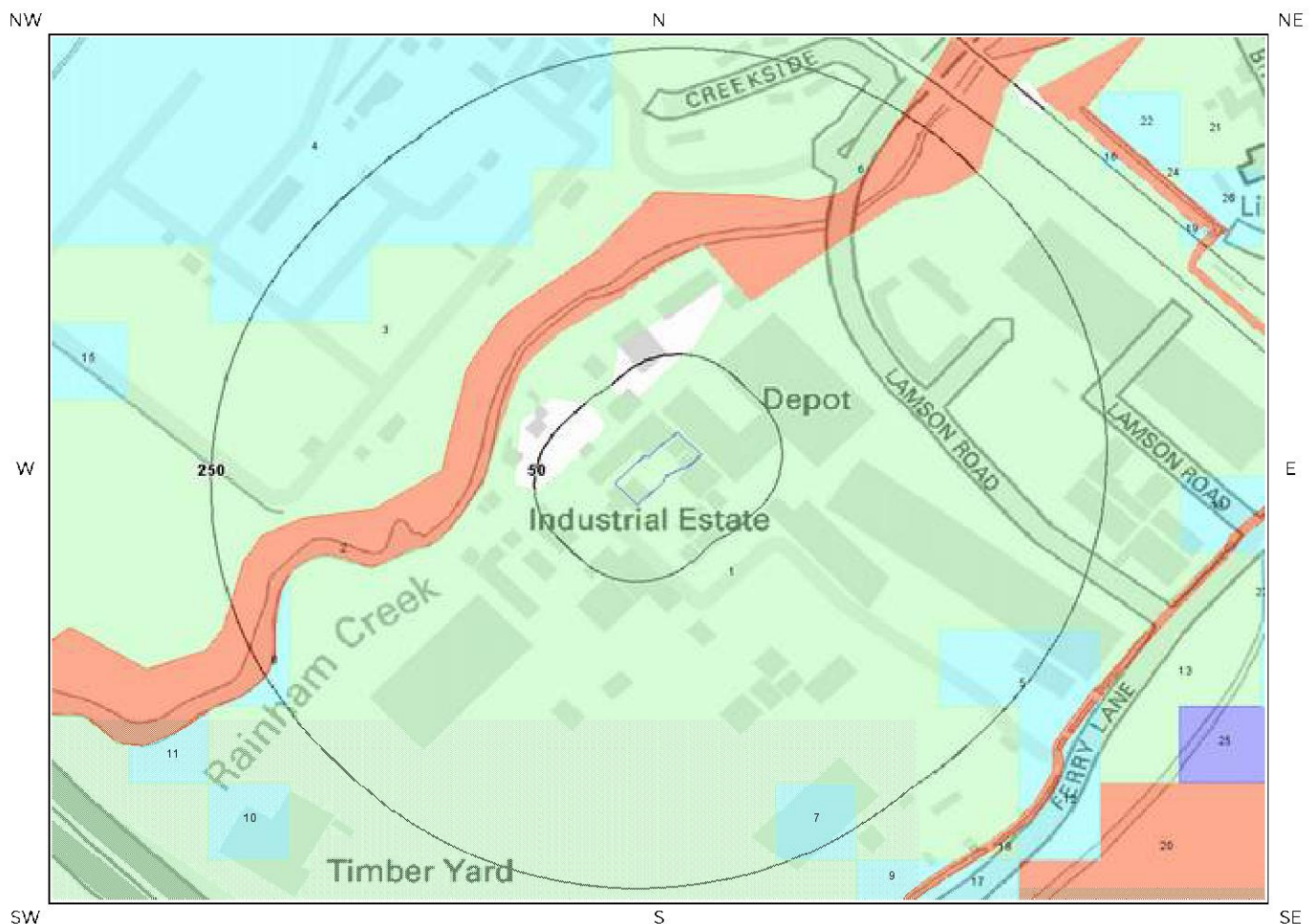
6e. Hydrology – Watercourse Network and River Quality



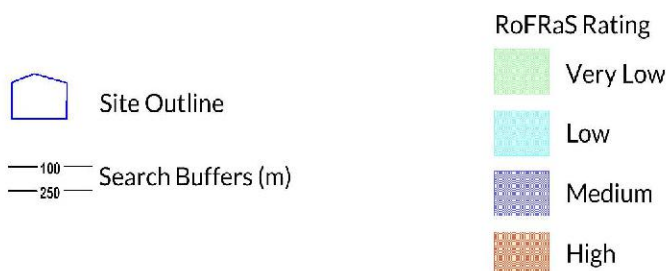
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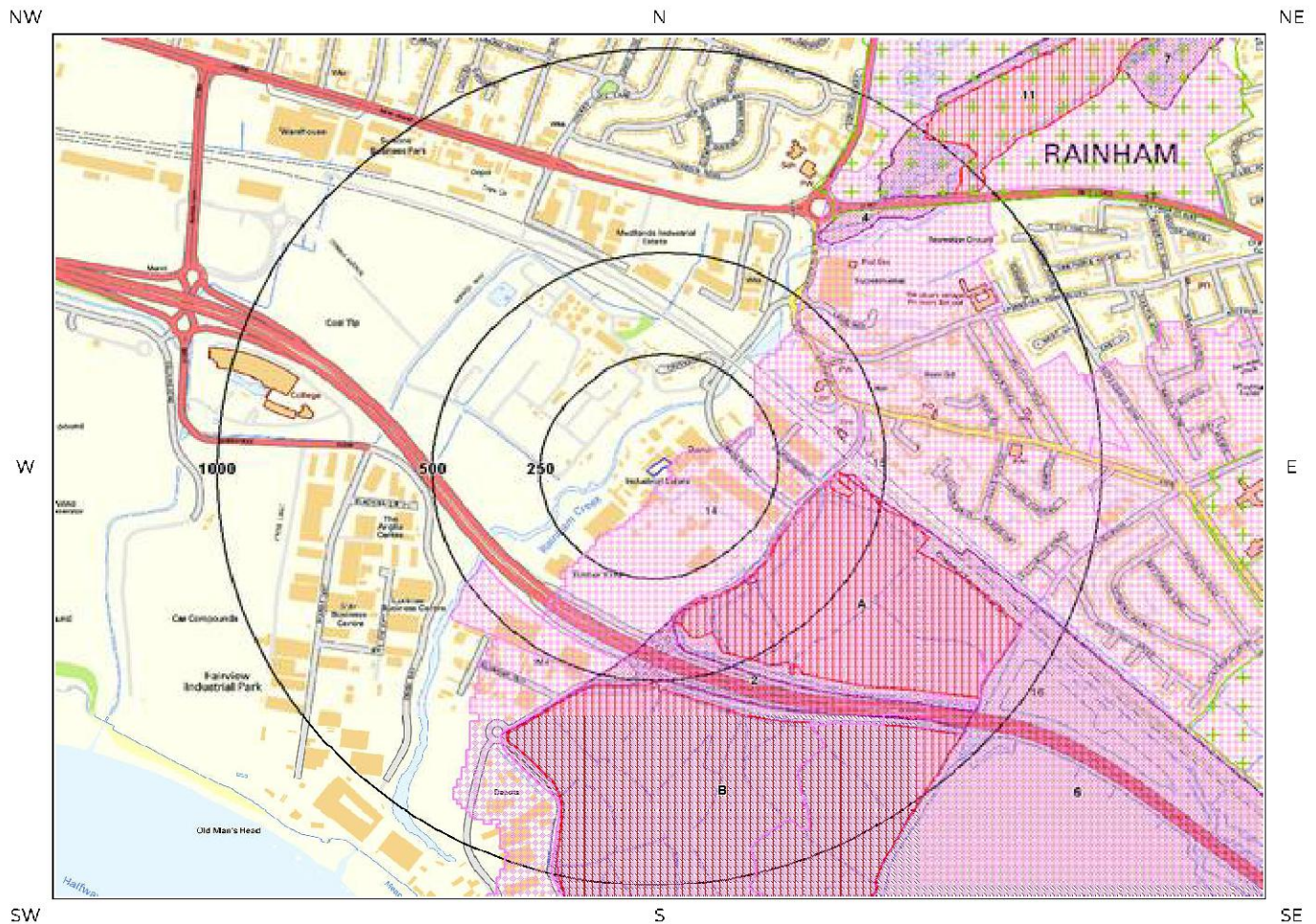
7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



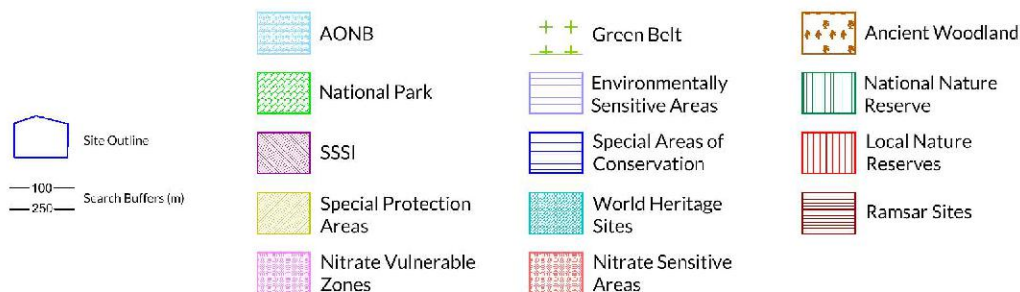
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8. Designated Environmentally Sensitive Sites Map

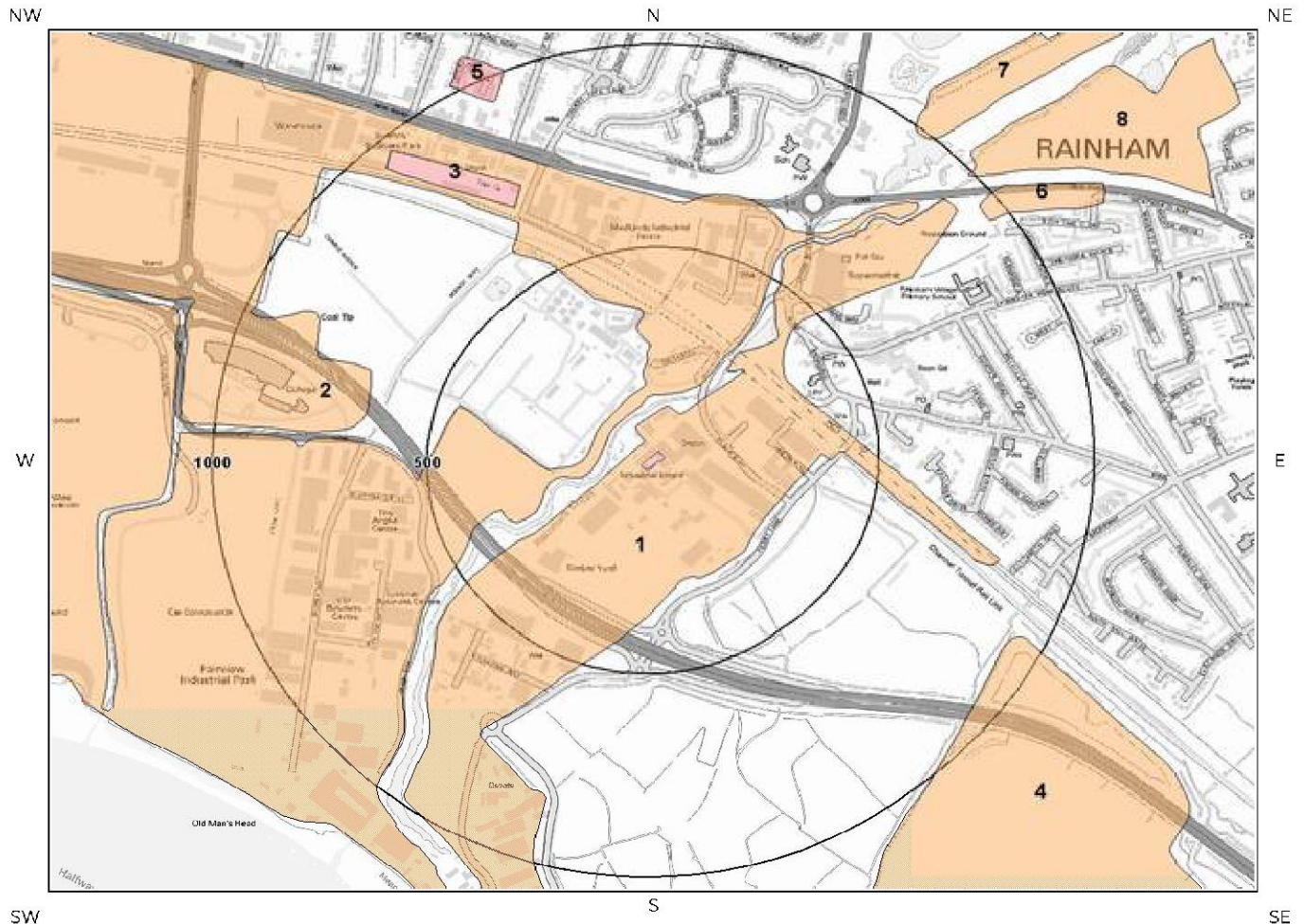


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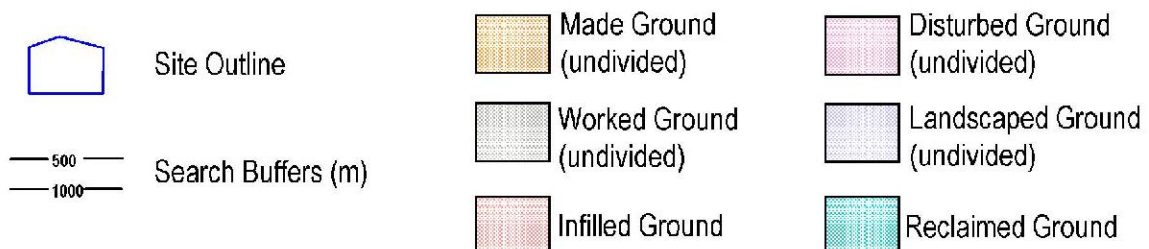


2 Geology 1:50,000 Scale

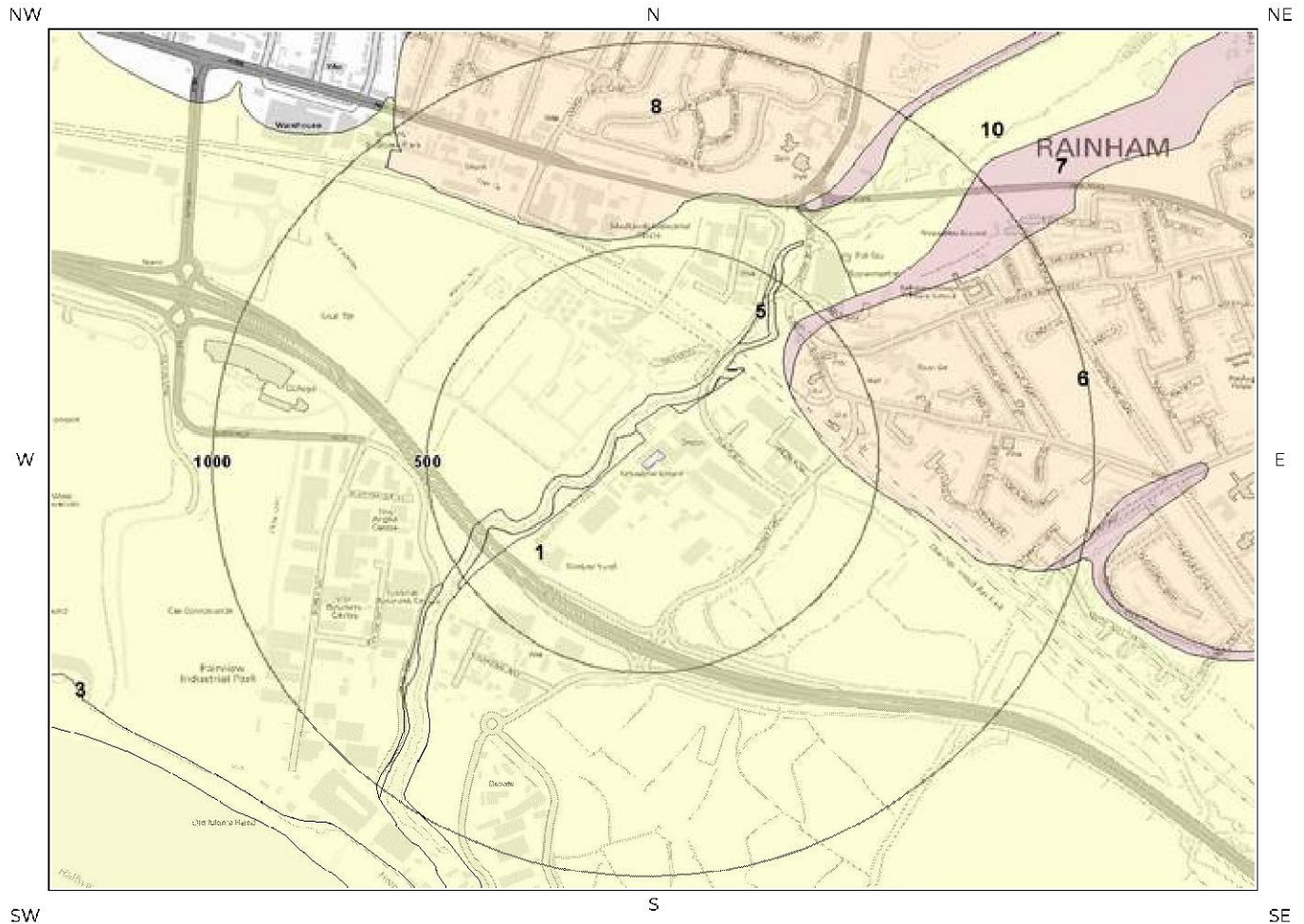
2.1 Artificial Ground map



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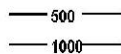
2.2 Superficial Deposits and Landslips map (1:50,000 scale)



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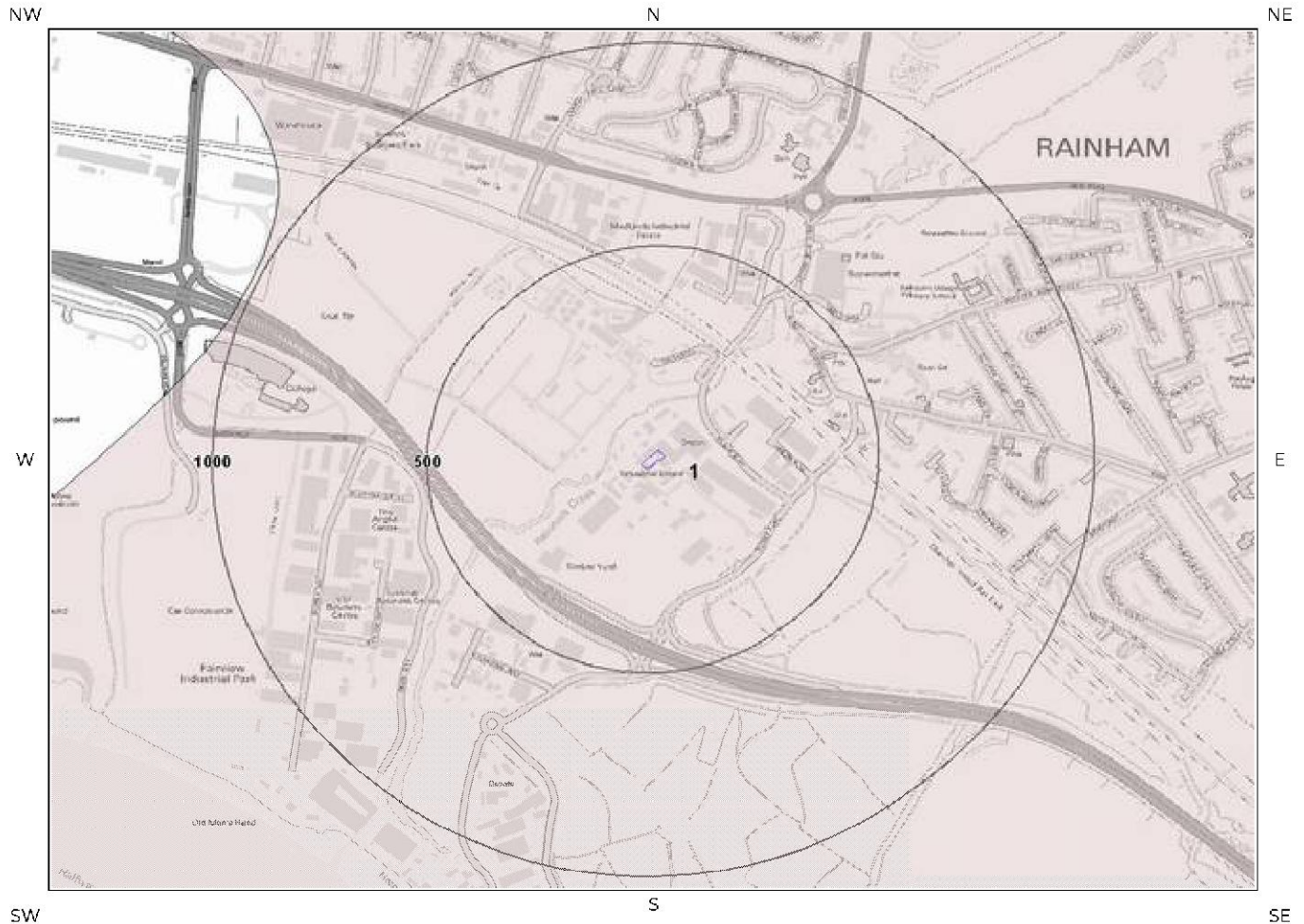


Site Outline



Search Buffers (m)

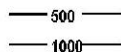
2.3 Bedrock and linear features map (1:50,000 scale)



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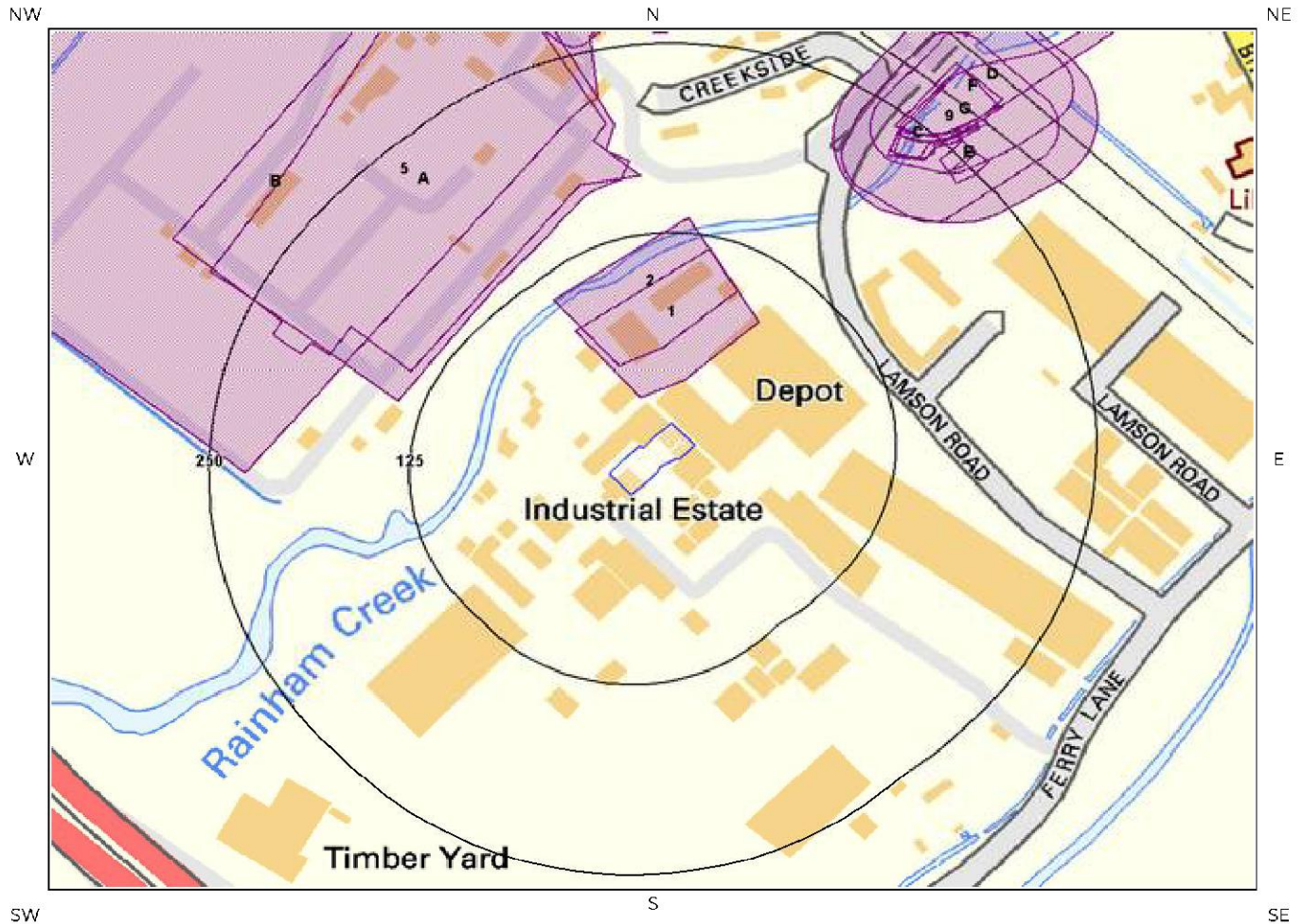


Site Outline



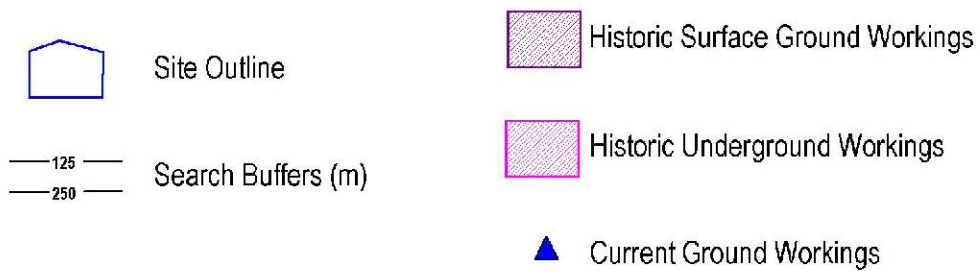
Search Buffers (m)

4 Ground Workings map

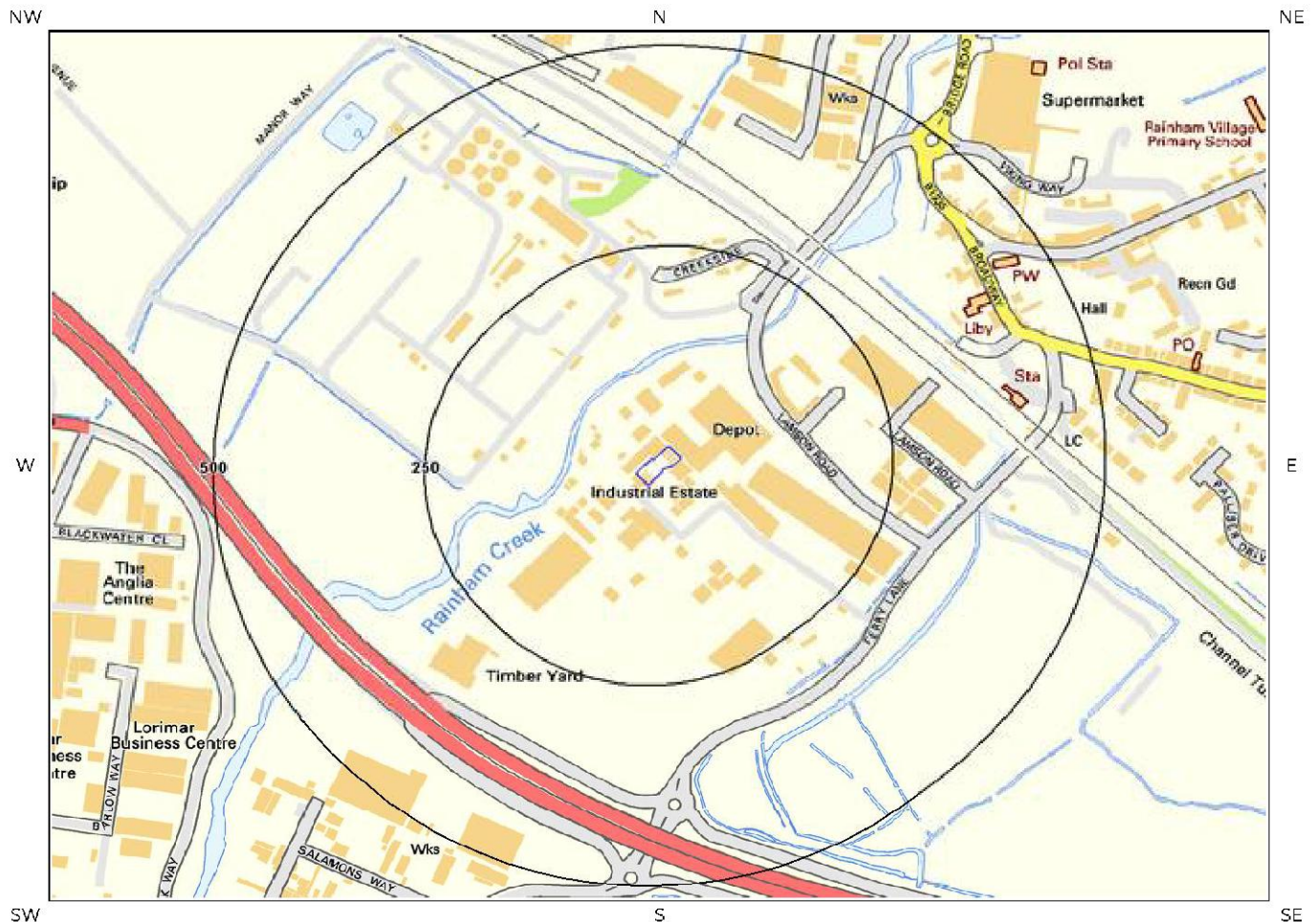


Ground Workings Legend

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5 Mining, Extraction & Natural Cavities map



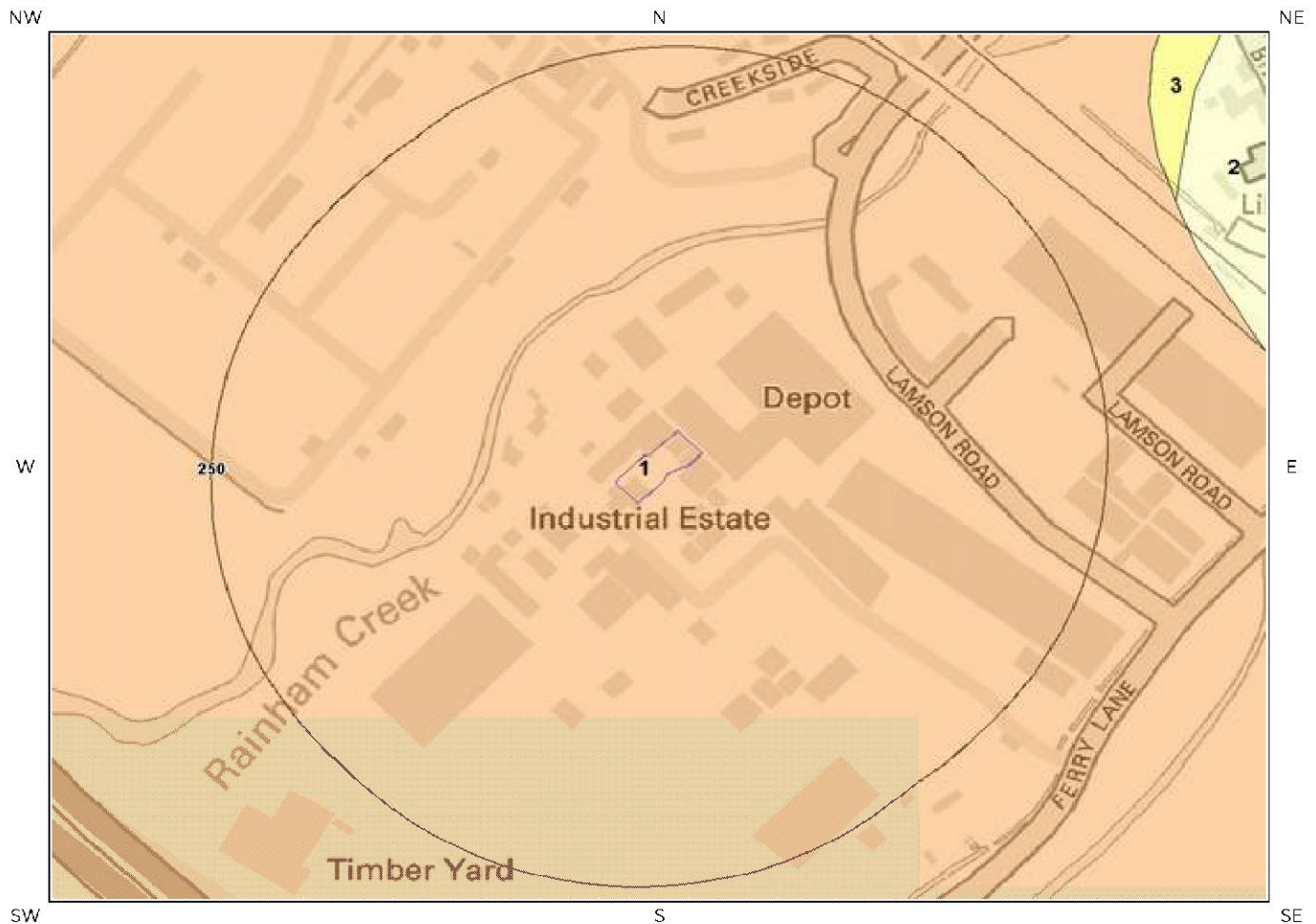
**Mining, Extraction and
Natural Cavities Legend**

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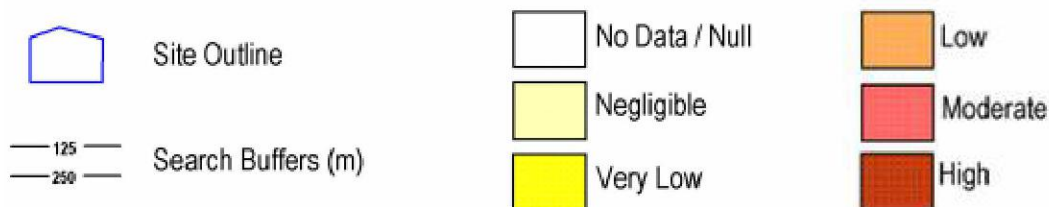
6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map

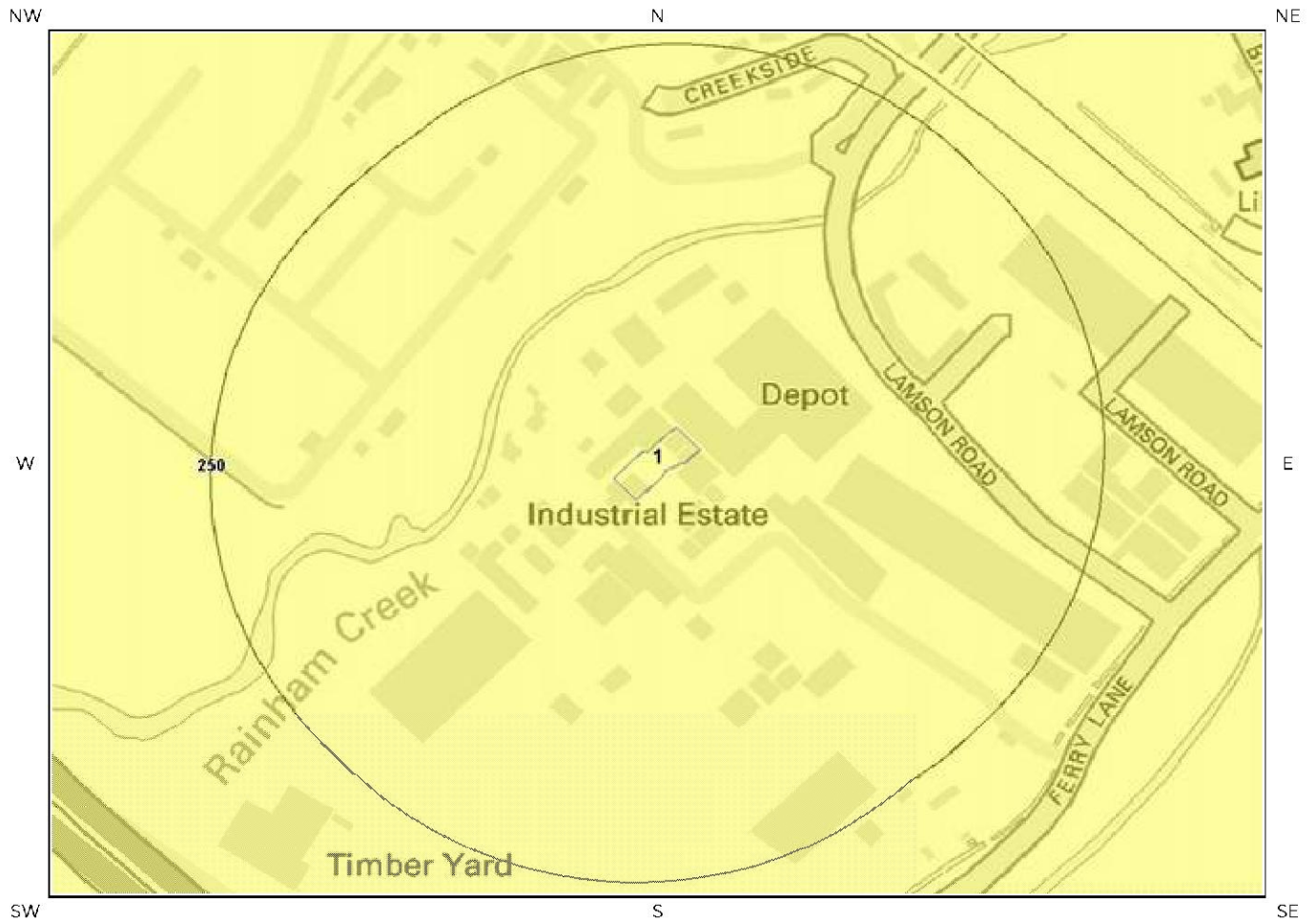


Shrink Swell Clay Legend

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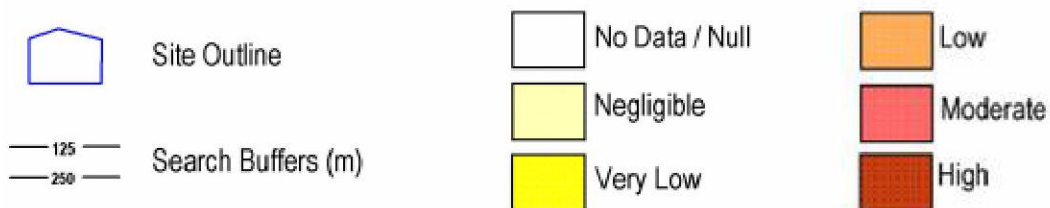


6.2 Landslides map

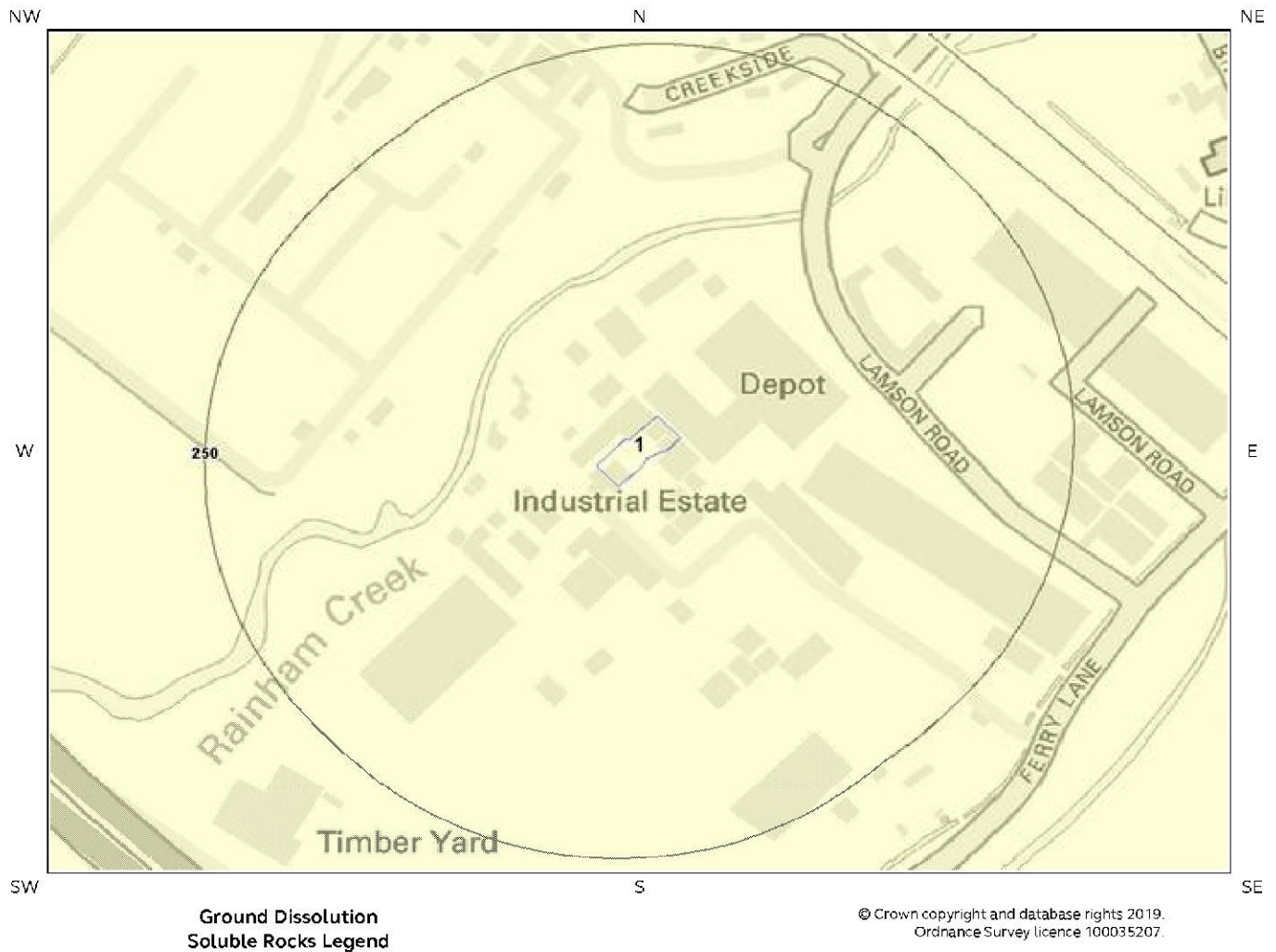


Landslides Legend

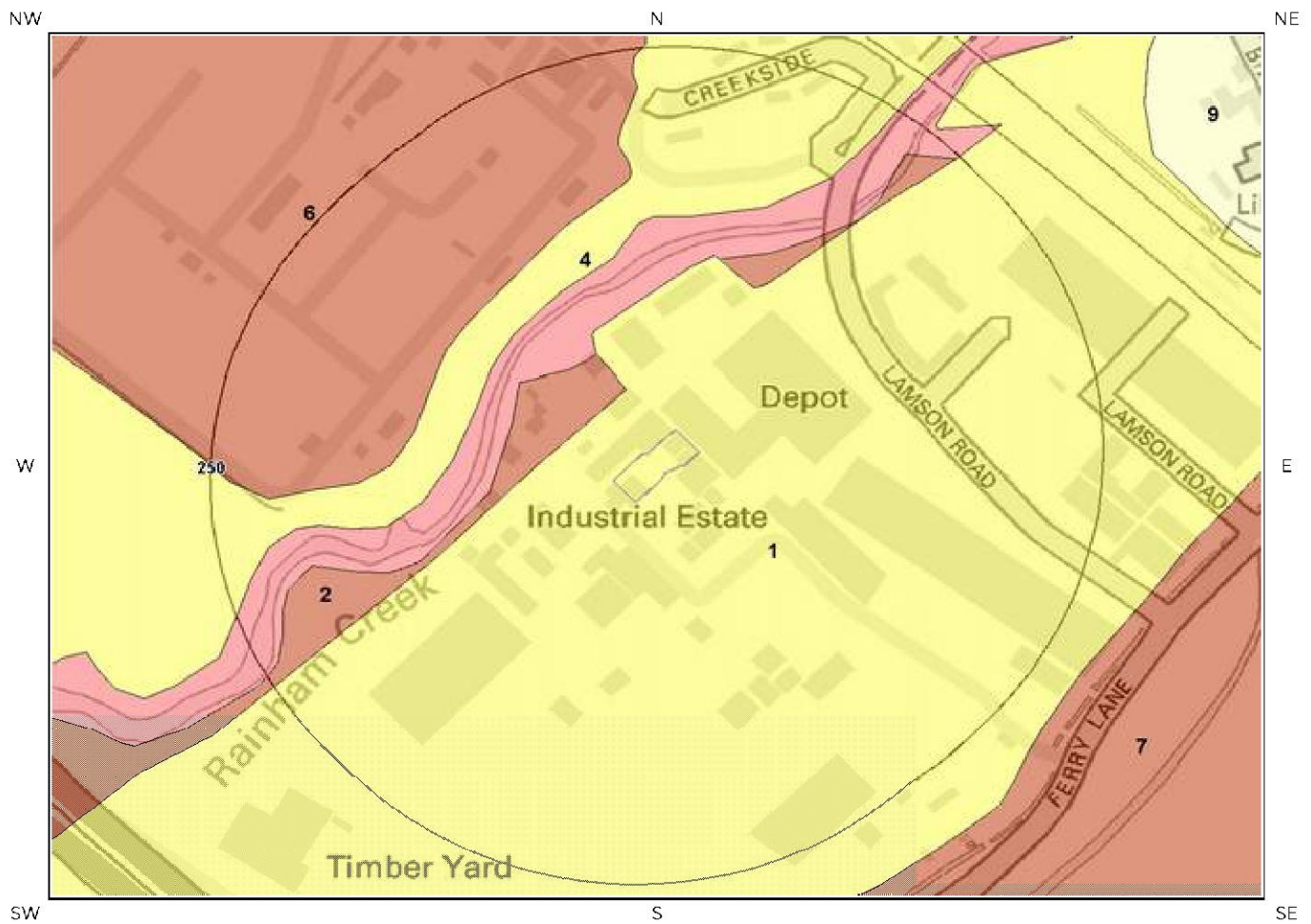
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6.3 Ground Dissolution of Soluble Rocks map

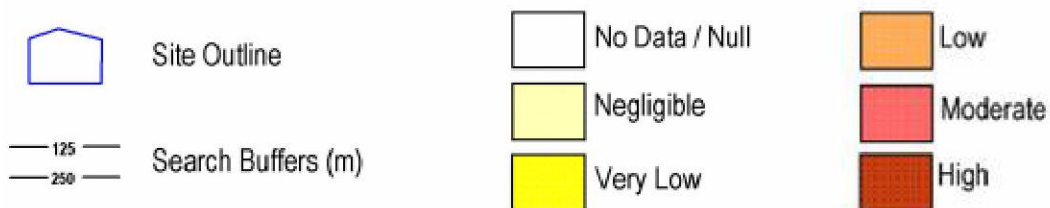


6.4 Compressible Deposits map

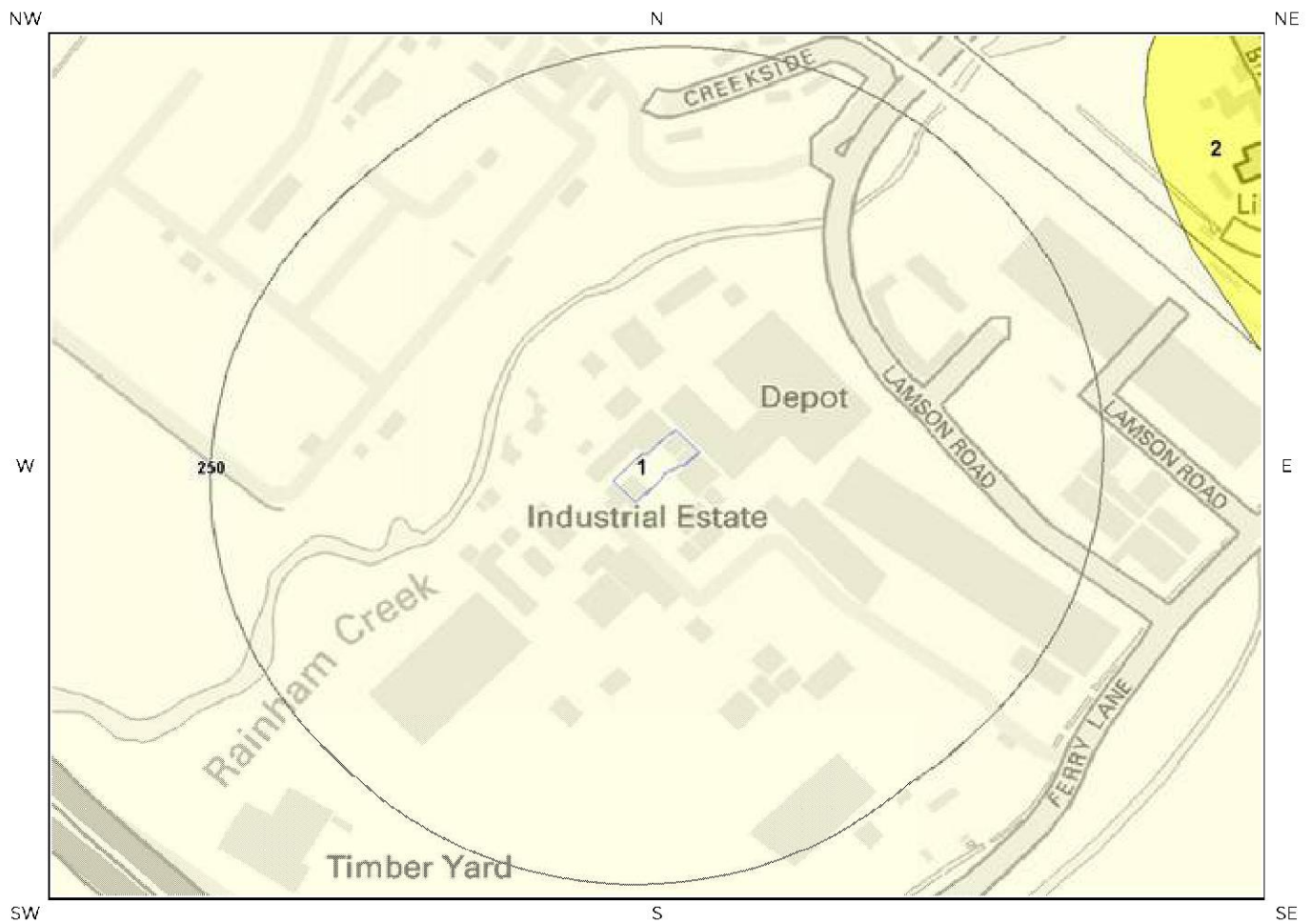


Compressible Deposits Legend

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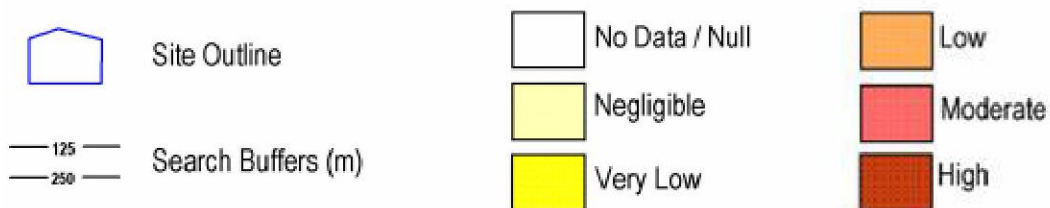


6.5 Collapsible Deposits map

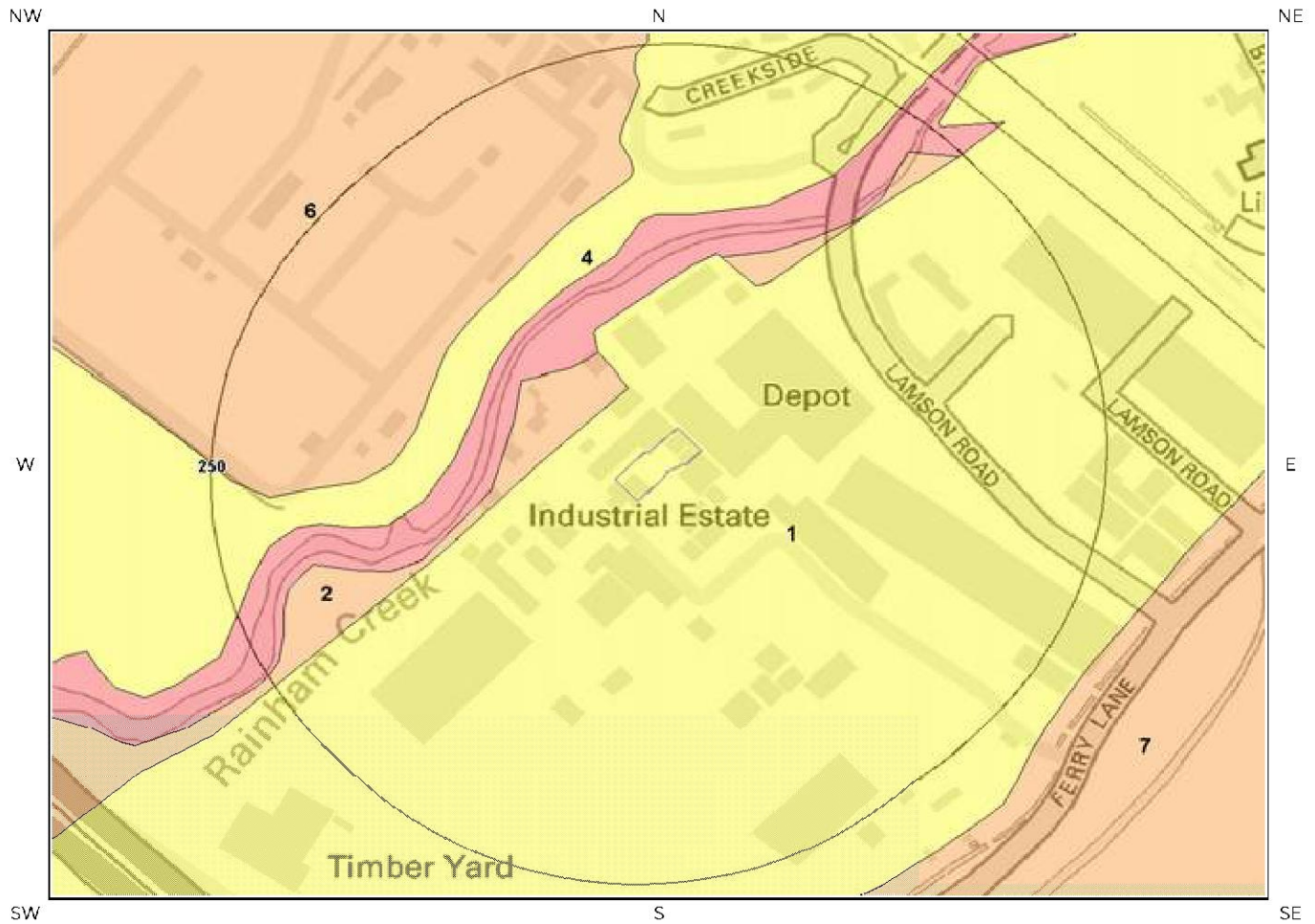


Collapsible Deposits Legend

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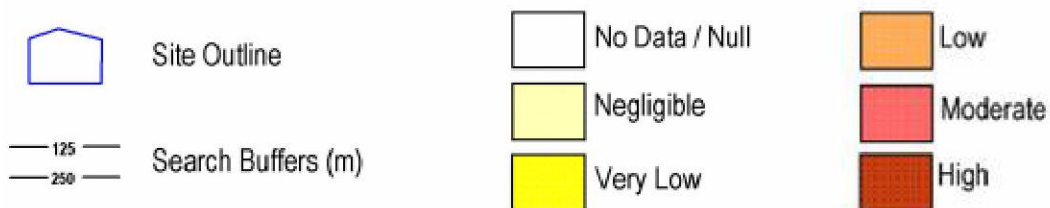


6.6 Running Sand map

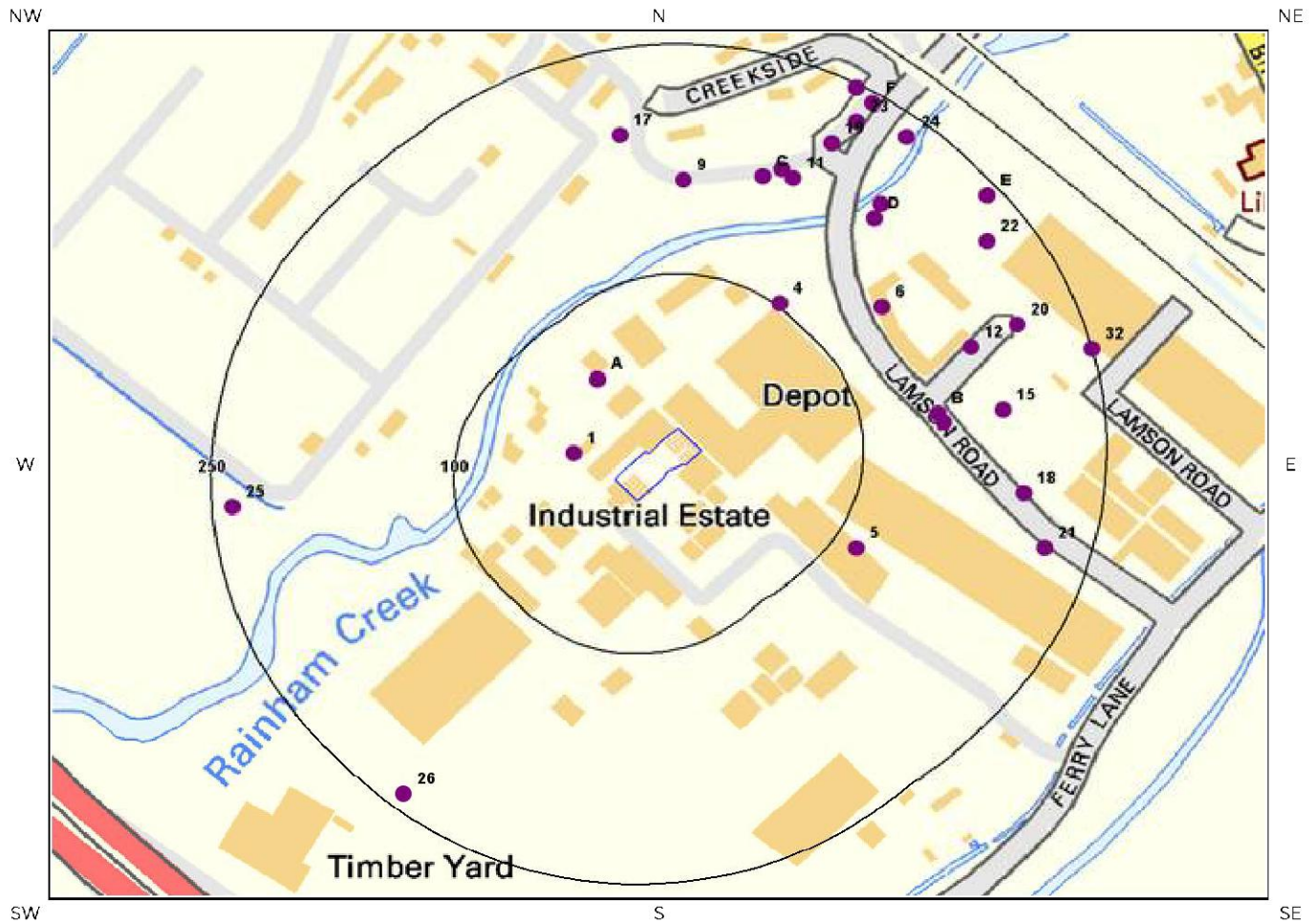


Running Sand Legend

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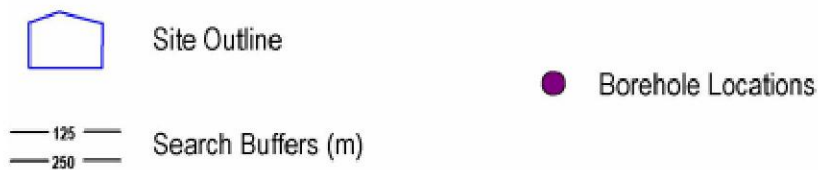


7 Borehole Records map

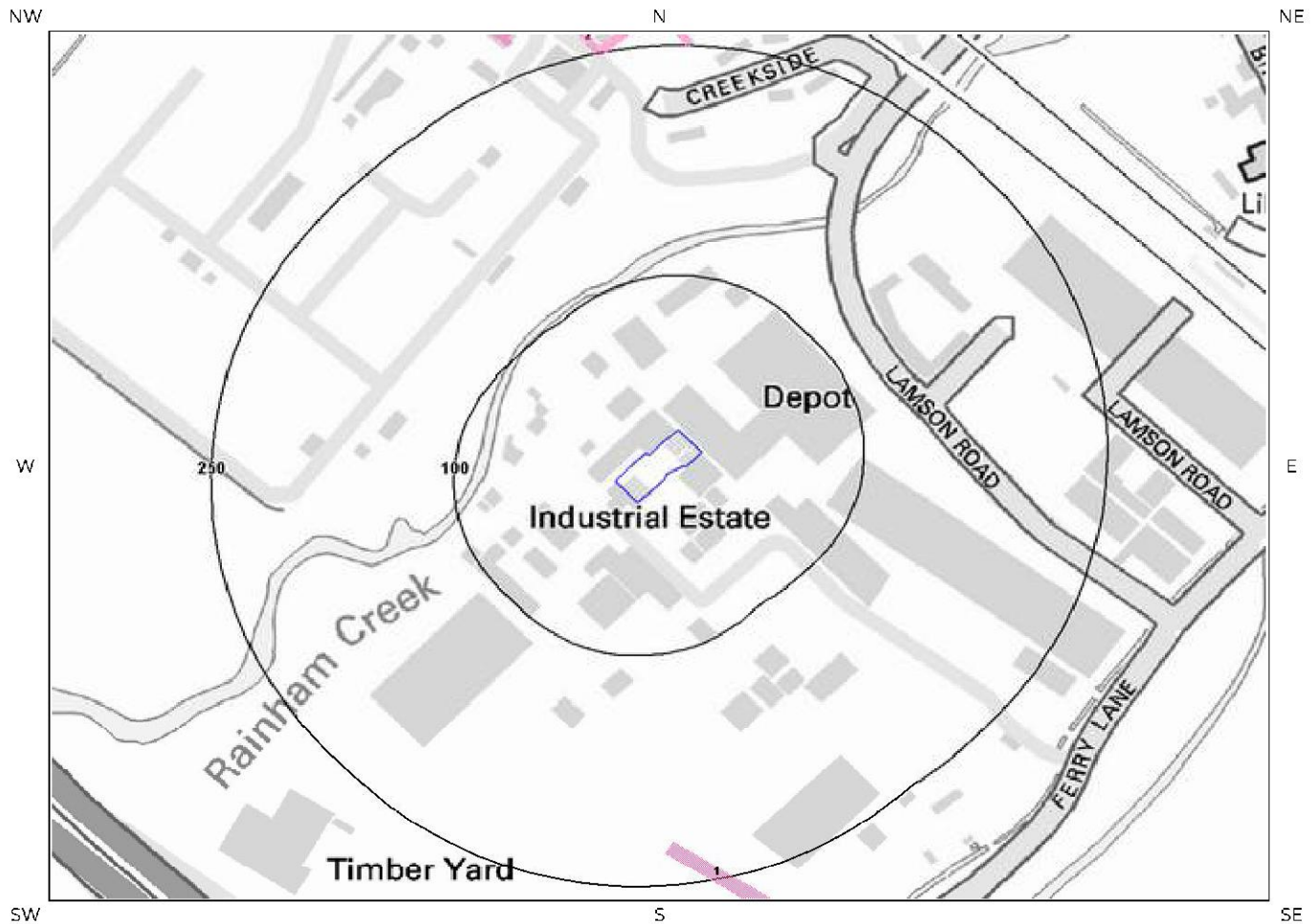


Borehole Records Legend

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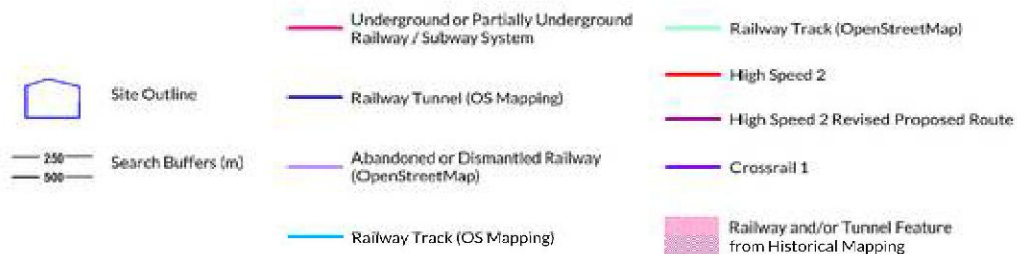


9 Railways and Tunnels map



Railways and Tunnels Legend

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APPENDIX 6

CONCEPTUAL MODEL

