Phase I Environmental Review

Milton Park
Abingdon
Oxford OX14 4SE

Prepared for:
Vale of White Horse District Council
and
MEPC Milton Park General Partner Limited

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Executive Summary

ENVIRON UK Limited (ENVIRON) has been instructed by MEPC Milton Park to undertake a Phase I Environmental Review for Milton Park, Oxford. Historically, the main part of the site was developed with warehousing, railway sidings and a number of bulk storage tanks and was operated by the Ministry of Defence until the 1960s. Rubble and pulverised fuel ash were used to level parts of the site. The site subsequently became an industrial estate, with gradual redevelopment of individual areas.

Current activities include a range of industrial, office and distribution uses. From ENVIRON's site inspection, bulk oil storage, bulk chemical storage, and transformers have been identified. All tanks are inspected by MEPC on a 6-monthly basis and twice-yearly inspections of industrial and laboratory units are undertaken by MEPC.

Areas MP5, MP8 and MP9 have a generally lower potential for contamination, with recorded historical activities having been limited to agricultural uses and the temporary siting of materials, portacabins and site vehicles associated with highway works (the latter uses being recorded on MP8 only). ENVIRON understands that a planning permission is in force for MP8 which does not require specific assessment of ground contamination.

Potentially contaminative activities in the surrounding area have included an historical landfill located approximately 60m north of the site, which accepted mixed wastes including some putrescible materials. However, a gas spiking survey (date not known) did not identify significant levels of methane (<1%). The landfill was recorded as being very small. In addition, a petrol filling station has been present between MP5 and MP8 since the 1980s. Other historic potential contamination sources include the Didcot Power Station and associated industrial buildings from adjacent to the east of Area A, and the railway line located immediately adjacent to the southern site boundary of Area A.

The site is not located in a sensitive location with respect to groundwater resources. However, the site is situated in a sensitive location with respect to surface water resources, due to the good quality Moor Ditch adjacent to the north. Booms and brush-type oil/water separators are in use in the final settling pond prior to discharge to the Moor Ditch, and booms are also in use as a further preventative measure across Moor Ditch at the downstream site boundary. The site has a history of minor pollution incidents to controlled waters, but also includes two significant pollution incidents involving oils, one dated 25th February 1991, in the area occupied by MP2, and the other undated, but occurring next to the eastern boundary of MP4.

Previous reports provided by MEPC and a site wide Phase II investigation by ENVIRON in November 2000 identified limited, and only localised contamination of shallow groundwater, and soils (confined to the made ground). Occasional "hot spots" of metals in soils are present, at generally modest concentrations. No natural strata have been reported to be affected. Overall, a reasonable level of site coverage has been achieved, targeted at suspected areas of potential contamination.

The Local Authority Environmental Health Department has indicated that it intends to address the potential for contamination to be present on site through the planning process as individual plots come forward for development.

In summary, while the main part of the site has a potential for contamination arising from historic and recent industrial uses and is located in a setting of surface water sensitivity, site

investigation results obtained by ENVIRON and others have not indicated levels of contamination likely to pose a significant constraint to future development in those areas which have been subject to intrusive investigation. Due to the size of the site and the incomplete records of historical uses, there is a potential for undiscovered areas of contamination to be present in uninvestigated areas of the site.

Areas B and C (MP5, MP8 and MP9) are considered to have a low potential for contamination arising from site activities, and as such it is proposed that these areas are excluded from further assessment with respect to contaminated land.

1 Introduction

1.1 Background

ENVIRON UK Limited (ENVIRON) has been instructed by MEPC Milton Park to undertake a Phase I Environmental Review for Milton Park, Oxford. The Phase I Environmental Review has been prepared for the benefit of Vale of White Horse District Council and MEPC Milton Park General Partner Limited.

The Milton Park Local Development Order (LDO) is a partnership between Vale of White Horse District Council as the local planning authority, and MEPC Milton Park as the landowner. Terence O'Rourke Ltd has been instructed by MEPC to help coordinate the LDO process.

The purpose of the Milton Park LDO is to enable a vibrant business area, promoting employment-generating uses at the business park, to maximise the success of the Science Vale UK Enterprise Zone and give greater confidence to business to invest in Milton Park. It is being prepared in accordance with the Town and Country Planning (Development Management Procedure) (England) Order 2010.

The Milton Park LDO will simplify planning control to give greater flexibility for businesses to develop new premises and facilities or adapt existing premises, whilst maintaining a successful and diverse mix of employment generating uses. Development will only be permitted where the local authority is satisfied that it is in accordance with the permitted uses and development parameters set out in the Order. Development proposals not in accordance with the provisions of the Order will be determined by a planning application.

The LDO has been designed to be effective for a period of 15 years to reflect the typical timescale of business leases and give greater certainty for potential investors.

1.2 Local Development Orders

LDOs can be issued by Local Planning Authorities (LPA) and grant planning permission for specified types of development without the need for a planning application by the developer. As part of the process, the LPA prepares a draft LDO and a 'statement of reasons' indicating what development the LPO would permit.

We understand that the proposed Milton Park LDO will permit 'change of use' of existing buildings and 'operational development' (i.e. construction of new buildings or extension and alterations to existing buildings) without the need for further planning applications. The LDO also allows for new build within defined parameters.

We also understand that the LDO will last for at least 15 years and that regular reviews of the LDO are likely to be required (possibly every 5 years) to monitor impacts.

1.3 Previous Reports

ENVIRON initially undertook a Phase I Environmental Review of Milton Park in 2000 followed by a Phase II intrusive environmental site investigation also in 2000 (Ref. C4058(50)). In 2008 and 2011, ENVIRON provided MEPC with updated Phase I Environmental Reviews of Milton Park (Refs: 61C12487 and UK14-16871).

1.4 Objectives

ENVIRON's overall approach is to assess the potential for ground contamination to represent an environmental constraint with respect to the on-going use of the site as a business park in order to inform the development of the LDO.

The objectives of the Phase I Environmental Assessment are to assess the potential for ground contamination and its likely implications with respect to the future development of Milton Park. Specifically, the assessment considers the potential for soil and groundwater contamination, from current and historical uses on and off-site in order to assess potential risks to sensitive receptors such as site users and controlled waters.

In preparing this report reference to the following documents has been made:

- Model Procedures for the Management of Land Contamination (Contaminated Land Report 11), Environment Agency (September 2004);
- Guiding Principles for Land Contamination, Environment Agency (March 2010);
- National Planning Policy Framework, DCLG (March 2012); and
- Vale of White Horse Local Plan 2011, especially Policies DC9, DC10 and DC12.

1.5 Scope and Limitation

The scope of the Phase I Environmental Assessment has included the following:

- examination of historic, recent and current Ordnance Survey plans to identify activities which might have led to contamination of soil or groundwater (for example, from manufacturing processes, from storage activities or waste disposal practices) both on the subject site and on adjacent sites;
- examination of published records and plans on the shallow and deep geology and hydrogeology of the site to assess the vulnerability and sensitivity of groundwater and surface water resources to contamination, if present, and the possible direction of movement off site, if mobile;
- search of a proprietary database of environmental permits, records and incidents at the site and surrounding area;
- enquiries of the Local Authority Environmental Health Department to obtain information on environmental conditions, incidents and known contamination risks and on the Local Authority's Contaminated Land Strategy;
- enquiries of the Petroleum Officer to determine if records exist of above ground or below ground licensed (petrol) storage facilities;
- enquiries of the Environment Agency to determine if records exist of known contamination issues or complaints, enforcements, prosecutions or other regulatory involvement affecting the site or surrounding area; and
- a limited site walk-over inspection to establish general land uses and activities at the site (e.g. presence of industrial activities such as oil, fuel and chemicals storage). Inspections of a number of the individual units were carried out based upon the activities undertaken (where known) and targeted at specific activities of concern, subject to availability of access.

No sampling or analysis of soils, waters or other materials has been carried out as part of the Phase I Environmental Assessment.

2 Site Inspection

A site inspection, comprising a walkover of the site to broadly assess risks of soil or groundwater contamination deriving from current or historic activities was undertaken in May 2011 by Marcus Reynolds and Damian Luscombe of ENVIRON, and has been updated via a re-inspection on 10th August 2012 by Marcus Reynolds of ENVIRON targeting areas that had undergone a change of tenancy since May 2011.

The inspection set out to establish general land uses and activities at the site (e.g. presence of industrial activities such as oil, fuel and chemicals storage). Inspections of a number of the individual units were carried out based upon the activities undertaken at the sites (where known) and targeted at specific activities of concern, subject to availability of access. The level of inspection, combined with the review of reports provided, is considered sufficient to characterise the overall environmental risk associated with the site.

Figures showing the location of the site, site boundary and key features on site are presented in Annex A.

2.1 Site Setting

Surrounding uses are as follows:

- North: Undeveloped and agricultural land, beyond which lie residential properties.
- East: Didcot Power Station and associated industrial buildings.
- South: A railway line intersects the southern part of the site, beyond which lies undeveloped and agricultural land. A BP petrol filling station lies between MP5 and MP8 (see Figure 2).
- West: The main A34 road, beyond which lies undeveloped land along with a fuel station.

Residential properties are located in the wider surrounds to the north and east, with the nearest residential properties being located approximately 100m to the north.

2.2 Site Layout and Activities

The site is located 5 km south of Abingdon close to the village of Milton, approximately 200m east of the A34.

The site is an extensive mixed-use business park, comprising distribution, warehousing, light industrial and offices (approximately 90-100 units). Site uses include technological, research and development, pharmaceutical, vehicle maintenance, storage and research by the numerous separate tenants at the site. The majority of the buildings appear to be less than 20 years old with only about 10% appearing to date from the 1970s or earlier. External areas include car parks, landscaped areas, balancing ponds and hard standing storage areas.

The site is bounded to the east by Sutton Courteney Lane. The land directly east of the site is occupied by Didcot Power Station. Moor Ditch runs along the northern boundary of the developed area of Milton Park. A number of booms have been positioned across Moor Ditch at the downstream boundary of the site to provide containment for potentially polluting incidents.

Milton High Street forms the western boundary of the site with agricultural/undeveloped land located beyond. The A34 runs north-south approximately 200m west of the site.

The site is bounded to the south by the main London-Bristol railway. Two areas of undeveloped land are situated south of the railway occupying a combined area of 7.2 hectares. The land is bounded to the west by the A34 with the majority of the surrounding area being mainly agricultural/greenfield.

The topography of the site is relatively flat. Many areas have been landscaped and a number of balancing ponds are present.

An undeveloped field belonging to Milton Park, covering 11 hectares, is located adjacent to the north of existing estate and is included in the proposed LDO. In addition, approximately 8.5 hectares of land owned by MEPC to the south of adjacent railway line is also included in the proposed LDO. The site layout and proposed LDO boundary is provided in Annex A.

2.3 Storage of Chemicals and Hazardous Substances

Information relating to bulk oil storage, either in underground storage tanks (UST) or above ground storage tanks (AST) is listed below. This information is based on a detailed Hazardous Chemical Storage report (produced by Glanville Associates in December 2005), augmented by previous environmental reports and visual observations from the 2011 and 2012 site inspections.

2.3.1 Underground Storage Tanks (USTs)

The following USTs are recorded or were observed on site:

- Unit 35 (TNT Logistics): two historic diesel USTs, reportedly used for HGV refuelling are located west of Unit 35. Signage affixed to the dispensing pumps suggests the tank capacity is 33,000 litres each. Hydrocarbon staining was noted surrounding the fuel dispensing pumps. No further information, regarding tank age, construction, integrity or decommissioning status was available. MEPC has advised that the tanks and pipework are subject to integrity testing every six months, as part of the corporate TNT standard.
- Unit 95 (UPS): one historic diesel UST, reportedly used for HGV refuelling is located west of Unit 95. Information provided by the tenant's vehicle maintenance personnel suggests the UST was decommissioned (foam filled) approximately in 1997. A vent pipe was observed adjacent to the current AST with no staining in the vicinity. No information regarding tank capacity, age, construction or integrity was available.
- Unit 130 (Bookpoint): one current diesel UST, used for refuelling one site van and the fire fighting sprinkler system , is present to the north of unit 130. The data plate affixed to the fuel dispensing pump suggests the tank has a capacity of 46,050 litres. Some localised hydrocarbon staining was noted surrounding the fuel dispensing pump. According to facility personnel, the tank undergoes weekly quantity checks and no leaks have been recorded. No information regarding tank age or construction was available.

MEPC has reported that underground storage tanks historically located at Units 170 and 173 have been decommissioned and removed.

A fuel dispensing pump was observed by ENVIRON to the west of Unit 184. This is a CANON Group owned long leasehold property (999 year lease). ENVIRON was unable to access the unit for inspection; however, MEPC has confirmed that Unit 184 contains below ground fuel tanks which have not been used since c. 2009. No further details are available.

2.3.2 Above Ground Storage Tanks (ASTs)

The following ASTs are recorded or were observed on site:

- Unit 37a (M&M Commercial Vehicles): one gas oil AST is located externally, to the north of Unit 37a. The tank is of double skinned plastic construction, with a capacity of 2,500 litres, positioned on a concrete base. No staining was observed in the vicinity of the tank and no releases have been reported by the tenant. Internally, the unit operate two engine oil ASTs, with an approximate capacity of 1,500 litres each. The tanks are of single skinned metal construction, located directly on the facility floor. Minor staining was noted on the tanks, but no staining was noted on the underlying concrete surface.
- Unit 39 (Oxford Fleet): one engine oil AST is located internally within the building. The tank is of double skinned metal construction, with a capacity of 2,000 litres. The tank is fitted with alarm systems in case of product release. The tank was observed to be in good condition, with no staining on the underlying concrete floor.
- Unit 95 (UPS): One diesel AST, used for HGV refuelling, is located externally to the west of Unit 95. The tank is of double skinned metal construction provided within an integrally bunded metal storage container. The tank has a capacity of 50,000 litres and is fitted with an overfill alarm system. Localised staining was noted surrounding the fuel dispensing pumps, both within the container and on the underlying concrete surface. One heating oil AST is also present externally to the south of Unit 95. The tank is of double skinned plastic construction, with a capacity of 2,500 litres, positioned on a concrete base. Pipe work from the AST appears to travel below ground, presumably into the building. No staining was noted on the tank or the underlying concrete surface.
- Unit 130 (Bookpoint): One diesel AST, used to power the emergency generator, is located externally, east of Unit 130. The tank is of double skinned metal construction provided within an integrally bunded metal storage container. The tank has an approximate capacity of 2,500 litres. No staining was observed on the tank or on the underlying concrete surface at the time of ENVIRON's visit.
- Unit 35a (TNT Logistics): Three ASTs are located externally to the west of Unit 35a. All tanks are of single skinned metal construction, located within a shared brick bund. Two tanks each have a capacity of approximately 2,500 litres and contain engine oil and heating oil. A third tank has an approximate capacity of 1,500 litres and contains gear oil. Heavy staining was noted on the tanks with free product and oily water noted within the brick bund. This appeared to originate from a historic tank overfill event which is considered likely to have been contained within the bund. The bund integrity appeared to be good based on a visual inspection. The surrounding gravel surfacing did not show evidence of leaks or spills. We have made enquiries and been advised that the tanks and pipework are subject to integrity testing every six months, as part of the corporate TNT standard.
- Unit 37c (Frogs Island Motor Vehicles): Three gas oil ASTs are located externally to the north of Unit 37c. The tanks are of double skinned plastic construction, positioned above brick bunds. Each tank has an approximate capacity of 2,500 litres. No staining was noted on the tanks, the bund or the surrounding concrete surface. One engine oil AST is also present internally within the building. The tank is of single skinned metal construction, with an approximate capacity of 1,500 litres. Minor staining was noted on the tank and the underlying concrete surface. The draw-off pipework was noted to pass through the bund with inadequate sealing, compromising the integrity of the bund.

- Unit 38/39: Two gas oil ASTs are located externally to the south of Units B38 and B39. The tanks are of single skinned metal construction and are positioned within a brick bund. Estimated tank capacities are 8,000 litres and 4,000 litres. No significant staining was noted in the base of the bund or the surrounding grass surface.
- Unit 44: One gas oil AST is located externally to the south of Unit 44. The tank is of double skinned metal construction and is positioned over a modern brick bund which was noted to be in good condition. The tank is of 2,500 litre capacity. No staining was noted in the base of the bund or the surrounding grass surface.
- Unit 59: One kerosene AST, with an approximate capacity of 1,000 litres, is located to the south of Unit 59. The tank is of single skinned metal construction, positioned within a brick bund. The tank was noted to have spots of corrosion; however, no significant staining was noted in the bund or on the underlying concrete surface.
- Unit 63: Two oil ASTs, with an approximate capacity of 2,000 litres, are located externally to the south of Unit 63. The tanks are of single skinned metal construction, positioned within brick bunds. The tanks had some areas of corrosion; however no significant staining was noted in the bund or underlying concrete surface.
- Unit 160: Two ASTs are located on a steel frame in the car park/yard adjacent to Unit 160. One of the tanks is of double skinned steel construction, and holds a maximum of 6,000 litres of vegetable oil for fuelling buses. The tank has been in place since 2008. The other tank is of double skinned plastic construction and holds 2,500 litres of diesel. This tank has been in place since early 2011. Limited staining was noted beneath the dispensing points of both tanks which were stored above hard standing in moderate to good condition. The tenant uses absorbent granules to control drips emitted during vehicle filling. This activity is not considered to represent a significant risk of ground contamination.
- Unit 174a: Two diesel ASTs are located on a new concrete slab to the east of Unit 174a. The tanks are of double skinned steel construction and are integrally bunded. The tanks are for back-up generators installed adjacent to the tanks and are of 11,365 litres and 18,500 litres capacity. No staining of the tanks or the surrounding concrete hard standing was observed.
- Unit 175: One diesel AST is located on a new concrete slab to the east of Unit 175. The tank is of double skinned steel construction and is integrally bunded. The tank is for an adjacent back-up generator and is of 3,485 litre capacity. No staining of the tank or the surrounding concrete hard standing was observed.
- The following ASTs, previously located on site, were confirmed to no longer be present during the 2011 site inspection:
  - 1 no. north of Unit 25;
  - 1 no. south of Unit 38;
  - 1 no. south of Unit 63;
  - 2 no south of unit 120f;
  - 1 no. west of Unit 154;
  - 1 no. east of Unit 167;
  - 2 no north west of Unit 167; and
  - 1 no. south of Unit 179.
- The following ASTs, previously located on site, was confirmed to no longer be present during the 2012 site inspection:

- 1 no. west of Unit 36.

In addition to the above tanks, waste oil ASTs are described in Section 2.5 below. Unless otherwise stated, all ASTs are filled via above ground pipe work or directly into the tank. The presence of other bulk oil storage at Milton Park not observed by ENVIRON cannot be ruled out.

2.3.3 Other Bulk Storage

Aptuit, a manufacturer of pharmaceuticals and chemicals, currently occupies Unit 117. The company operates under the conditions of a Part A(1) Environmental Permit. MEPC has advised that the site undergoes bi-annual inspections by the Environmental Agency. ENVIRON was not provided with access to this unit. According to facility personnel, the primary chemical storage area is located internally within Unit 117, which includes a total solvent capacity of 256,000 litres, including common solvents and chlorinated solvents (e.g. dichloromethane) stored in intermediate bulk containers. Building 117 is a purpose built unit, provided with a below ground sump for emergency spill collection. MEPC has stated that the sump is double skinned and fitted with an alarm. No significant spills have reportedly occurred in connection with Aptuit operations.

MEPC has stated that other tenanted activities on site use limited quantities of chemicals, including (but not limited to) Patheon pharmaceuticals (Unit 151) and Purple Label dry cleaning services (Unit 57), principally a wet laundry, but with some dry cleaning operations, though no bulk chemical storage was observed during ENVIRON's inspection of this unit. The presence of other hazardous chemical storage areas at Milton Park not observed by ENVIRON cannot be ruled out.

2.4 Water, Wastewater and Drainage

A drainage plan was made available for ENVIRON to review. Foul water is primarily removed from site via the municipal public sewer system, although a limited number of private sewers and private pumping stations are operational on site.

Surface water run-off passes via a network of balancing ponds (total of 7 on site), culverts (total of 4 on site) and/or oil separators (total of 42 on sites) prior to discharge into Moor Ditch at the north eastern corner of the site. Booms and brush-type oil separators are present in the final settling pond, used as a further preventative measure against, in particular, hydrocarbon spills entering the surface watercourse.

MEPC does not hold any permits for wastewater discharge for the managed or tenanted facilities. The site facilities manager has stated to ENVIRON that a discharge consent for surface water runoff from the site is not required, although documentary confirmation from the Environment Agency has not been provided for review by ENVIRON. An assessment of compliance with environmental regulations is not included within the scope of works for this environmental review.

2.5 Waste Storage and Disposal

MEPC manages non-hazardous waste from its managed buildings. For all other areas, each tenant provides storage and makes their own arrangements for the removal of waste. In the units inspected, all wastes are reported to be removed by licensed waste disposal contractors.

A number of waste oil ASTs were observed during ENVIRON's site walkover, and are summarised as follows:

- Unit 35a (TNT): 1 x 1,000 litre single skinned AST, located externally to the west of Unit 35a, positioned within a brick bund. Hydrocarbon staining was noted on the tank and in the underlying bund. We have made enquiries and been advised that the tanks and pipework are subject to integrity testing every six months, as part of the corporate TNT standard;
- Unit 37c (Frogs Island Vehicle Maintenance): 1 x 1,500 litres double skinned AST, located internally within the facility, within a metal bund. Staining was noted on the tank and bund but not on the underlying concrete surface. This unit also has 1 x 2,500 litre double skinned AST, located externally to the north of the unit, positioned on a concrete platform. No staining was noted;
- Unit 37a (M&M Commercial Vehicles): 1 x 2,500 litre double skinned AST, located externally to the north of the unit, positioned on a concrete platform. No staining was noted;
- Unit 39 (Oxford Fleet): 1 x 2,000 litre double skinned AST, located internally and provided with a metal bund. No staining was observed; and
- Unit 95 (UPS): 3 x 2,000 litre single skinned ASTs, located externally to the west of the unit, positioned within a brick bund. The tanks were noted to be corroded with hydrocarbon staining; however, no product was noted in the base of the bund.

Chemical and pharmaceutical manufacturers also produce waste chemicals classified as hazardous waste. Two dedicated hazardous waste stores were observed north of Unit 111 and north of Unit 151, both of which appeared to be in good condition.

Waste management is predominantly the responsibility of the tenant and the management and storage of waste is monitored by MEPC during the routine inspection schedule detailed above. ENVIRON has not identified a significant potential for on-site ground contamination arising from waste handling at those units inspected by ENVIRON.

2.6 Polychlorinated Biphenyls (PCB)

There are approximately 33 electrical substations present on site. Some of these transformers may date from the site's construction and early development (1920s-1970s), and may thus have contained PCBs historically. ENVIRON has made enquiries of MEPC and has been advised that the local energy company has undertaken testing of all transformers and confirmed that no PCBs are currently present within transformer oils on site. No significant staining was noted on the gravel surfaces underlying transformers identified during ENVIRON's inspection.

2.7 Other Issues

According to the site representative, there is no known history of complaints, enforcements or other regulatory actions regarding the site or immediate surrounding properties related to environmental conditions. No fire or spill events were reported.

2.8 Potential for Ground Contamination from Current Uses

2.8.1 Potential On-site Contamination Sources

The site is currently occupied by a number of tenants with activities including paint manufacture; commercial and car vehicle servicing; road haulage services/distribution; precision engineering; printing, laboratories and laboratory equipment manufacture; computer manufacturers; ceramics; plastic moulding; concrete manufacture; plastics moulding telecommunications; chemical and pharmaceutical manufacturers; dry cleaners; fibre optics; recycling centre; and engineering works.

Bulk oil and chemical storage takes place on site at a number of locations. However, no significant leaks or spills have been reported in connection to bulk storage and only limited areas of hydrocarbon staining were noted during the site visit. Tanks are inspected on a 6-monthly basis by MEPC. The presence of underground tanks and pipework represents a potential for contamination. The potential for such contamination (if present) to migrate beneath the site would be dependent on the underlying geological conditions, which are discussed in Section 9.

2.8.2 Potential Off-site Contamination Sources

The site surroundings are predominantly undeveloped. Nearby potentially contaminative uses include the following:

- Didcot Power Station and associated industrial buildings from adjacent to the east.
- Railway line located immediately adjacent to the southern site boundary
- A BP petrol filling station located to the south between MP5 and MP8.

3 Historical & Regulatory Information

3.1 Map History

ENVIRON has undertaken a review of historical mapping and aerial imagery (where available) obtained from a proprietary environmental database and a review of historical aerial photography held at the National Monument Record which is summarised below. Selected historical maps are presented in Annex B.

3.1.1 The Site

For the purposes of this assessment, Milton Park has been divided into the following areas:

- **Area A** – comprising the majority of the park, Area A includes Zones A, B and C as shown in Figure 2, excluding MP8 of the Enterprise Zone.
- **Area B** – The two plots of land marked as MP5 and MP8 of the Enterprise Zone.
- **Area C** – a parcel of land in the north eastern corner of Milton Park which is currently undeveloped grassland (MP9).

The entire site was in agricultural use until the early 1900s.

Area A

A small out-building marked 'Potash' (possibly a fertiliser store) was located adjacent to the western boundary of the site from at least 1875 until the late 1950s (< 5% of the site area). By 1932, part of the eastern side of the site was shown to be made or rough ground. The earliest aerial photos from 1942 showed a large number of warehouses and storage containers, occupying mainly the western areas of the site. Approximately 50% of the site was covered by buildings. It appears from the building layout and camouflage evident in aerial photographs that the site was in military use. Similar activities extended off site for a significant distance to the east and north east. A large number of storage containers shown in the east of the site were no longer present by 1954.

A 1954 plan appended to previous reports reviewed in Section 5 showed a boiler house, underground storage locations, garages, a waste disposal area, bulk above ground storage tanks and a neutralising pit. Rubble and pulverised fuel ash have apparently been used to level parts of the site. Maps from 1956 appended to previous reports reviewed in Section 5 confirm Ministry of Defence occupation and the presence of a number of depots and unmarked buildings. Potentially contaminative uses of the site at this time include the potash area; oil traps (three on site); fuel pump house; cooling pond; garage activities; a grease trap and a railway shed.

A 1964 aerial photo showed the presence of three round tanks onsite (in the north east). The site subsequently became an industrial estate, with gradual redevelopment of individual areas.

Area B (MP5 and MP8)

MP5 has remained largely undeveloped since the earliest map dated 1875. However, during the upgrade of the Milton Interchange roundabout in 2009 the southern area of this site was used for the temporary siting of materials, portacabins and site vehicles. The site is currently unoccupied. ENVIRON has been provided with documentation confirming that planning permission for development within Use Class B1 was granted in 2011 relating to MP8. This was an extension to permission MIL/14839/X dated 2002. While ENVIRON has not seen the

detail of MIL/14839/X, the permission for extension was noted to contain no conditions relating to ground contamination.

MP8 has remained undeveloped since the earliest map dated 1875.

Area C (MP9)

MP9 has remained undeveloped since the earliest map dated 1875. A footpath is visible on historical photography running north east/south west which was visible during the 2012 site inspection.

3.1.2 The Surrounding Area

The surrounding area was agricultural, with the village of Milton to the north west of the site from at least 1875. By 1932, areas of rough grassland were shown to the immediate north east, 150m north and 200m south. A sewage disposal works was located to the south, adjacent to the east of area MP5. Two gravel pits were shown, one 600m north of the site and another 60m north west of the site, which relates to the location of the Manor Farm Landfill described in Section 3.2 below.

By 1930, the gravel pit to the north west appeared to have been filled and by 1956, a residential area had been developed to the north east of the site. From the 1940s onwards, land adjacent to the east had been developed with military and later industrial uses. More recent maps showed Didcot Power Station (coal fired) to the immediate east of the site from the 1960s onwards. There was one inactive gravel pit 400m north east of the site.

The Milton Interchange Petrol Filling Station has been present between MP5 and MP8 since the historic map dated 1983, prior to which it was undeveloped land. The total area occupied by forecourt surfacing appeared to be enlarged in 1996 map edition, though the filling station itself appeared largely unchanged.

No further significant changes in use were evident on the subsequent mapping.

3.2 Environmental Database Records

The following information has been obtained from a review of Landmark Envirocheck environmental database records procured by ENVIRON in August 2012 relating to the site and surrounding land.

- There are no current or former licensed landfill sites on the site. A special waste transfer station was operated by Akzo Nobel Coatings Plc on site (permit surrendered in 1999).
- There is one recorded historical landfill located approximately 60m north of MP2, registered to H S Raynor. This corresponds to the historical gravel pit identified above and the Manor Farm landfill reported by the Environmental Health Department below. The landfill is recorded variously as accepting inert waste and ash, glass, hardcore, scrap metal, paper, plastics, textiles and wood. The landfill was recorded as being very small and closed in 1990. There are no further records of historical or current landfills within 500m of the site.
- There is one Control of Major Accident Hazards Site (COMAH) within 1km of the site; this is RWE Npower Plc., Didcot B Power Station. It is classed as a Lower Tier and is located 923m northeast.
- According to contemporary trade directory records, the site is currently occupied processes including: paint manufacture; commercial and car vehicle servicing and

bodybuilders; road haulage services/distribution; precision engineering; printing, laboratories and laboratory equipment manufacture; computer manufacturers; ceramics; plastic moulding; concrete manufacture; plastics moulding telecommunications; chemical and pharmaceutical manufacturers; dry cleaner; fibre optics; recycling centre; and engineering works.

- There are two Part A(1) Environmental Permits recorded on the site; both are listed to Aptuit (Edinburgh) Ltd for pharmaceuticals processes (Unit 117 and 150). There are a further two Part A(1) Environmental Permits within 1km of the site relating to the Didcot B power station 925m to the northeast.
- There are five Part B Environmental Permits recorded on site; these are held by: M&M Commercials for waste oil burners; Oxford Fleet Management (no longer a tenant) for respraying of road vehicles; Hanson Conbloc and Lime Technology, both for the blending, packaging, loading and use of bulk cement; and Purple Label Ltd for dry cleaning services. There is a further Part B Environmental Permit within 221m southeast of the site for a petrol station, listed as Milton Interchange Service Station.
- There are eight radioactive substances act authorisations registered on site, consents are held to keep/use and to dispose of radioactive material by: Immunocore Ltd (two registrations for keeping/use and disposal); Vertex Pharmaceuticals Europe Ltd (two registrations for keeping/use and disposal); Chroma Therapeutics Ltd (for keeping/use); Biovex Ltd (two registrations for keeping/use and disposal); and Reviss Services UK Ltd (disposal). Information on certain closed or mobile radioactive substance authorisations has been removed from the public register and is not available.
- Browning Sports UK Ltd (a small arms manufacturer no longer on site), was previously registered for the keeping of explosives. This activity has now ceased. There are no other explosive sites within 500m of the site.
- There are sixteen recorded pollution incidents attributable to the site. No incidents have been recorded since 1998. These include two significant pollution incidents involving oils, one dated 25th February 1991, in the north of the site within area MP2, adjacent to the Moor Ditch, and the other undated, but occurring next to the eastern boundary of MP4, in the vicinity of the Moor Ditch in the east of the site. The remaining incidents are recorded as minor; eight are listed as involving oils, one as storm sewage, one involving unknown chemicals and the remainder are noted as miscellaneous or no details given. There are a further seven minor incidents within 500m of the site:
  - 18th June 1991 – Minor Incident – unknown pollutants to an unnamed watercourse 11m north of the site.
  - 26th February 1994 – Minor Incident – oils to unnamed watercourse 90m north of site.
  - 26th April 1994 – Minor Incident – oils to unnamed watercourse 85m north of site.
  - 18th January 1995 – Minor Incident – oils to unnamed watercourse near Pembroke Lane 84m north of site.
  - 20th February 1995 – Minor Incident – oils to unnamed watercourse 22m north of the site.
  - 25th February 1995 – Minor Incident – oils to unnamed watercourse 89m north of site.
  - 13th October 1998 – Minor Incident – storm sewage to unnamed watercourse 28m north of site.

- No prosecutions or enforcement actions have been taken against the site for breached of permitted processes, pollution incidents to controlled waters or substantiated pollution incidents.
- There are three trade effluent discharge consents registered on the site, one for Research Machines Plc. for the discharge of other matter – surface water to the Moor Ditch, one for Thames Water Utilities Ltd for sewage discharge-pumping station to Moor Ditch (temporary) and one to Akzo Nobel Decorative Coatings Plc. for the discharge of other matter-surface water to a tributary of the Moor Ditch. There are a further 3 discharge consents registered within 500m of the site.
- There is one fuel station located within 250m of the site. This is Milton Heights Service Station, c. 240m south.
- The site is located in an area where less than 1% of properties are above the action level for Radon set by the National Radiological Protection Board.
- No sensitive ecological sites are recorded within 1km of the site.

A review of the Linesearch database of pipelines and other infrastructure has identified no records of underground pipelines either on the site or within 250m.

3.3 Regulatory Authority Enquiries

3.3.1 Local Authority Environmental Health Department

Charles Packham, Contaminated Land Officer at the Vale of the White Horse District Council stated verbally to ENVIRON on 2nd August 2012 that Milton Park industrial estate has been identified as requiring further inspection under the Council's Contaminated Land Strategy. The Council intends to prioritise the estate for inspection at some point due its historic uses. However, there is no current budget or timeframe established for implementing the strategy. Furthermore, there are nearly one thousand potentially contaminated sites within the Council's area of responsibility which are stated to take precedence over Milton Park for the purposes of investigation.

The Council has stated that it has not identified any areas on the estate as specific targets for future inspection.

The Council has stated that it therefore intends to address contaminated land issues through the planning process by requiring site investigations on individual plots as they come forward for redevelopment.

The Environmental Health Department reported to ENVIRON in 2007 that the following site investigation reports had been submitted via the planning process. These have not been provided to ENVIRON for review as part of this assessment:

- MACC (October 2005) Desk Study for Unexploded Ordnance at Plot 9 Didcot (Report No. 3120/01).
- RSA Geotechnics Ltd. (September 2005) Geotechnical Investigation. Proposed Commercial/Industrial Development at Plot 9, Didcot West, Oxfordshire. (Report No. 9706/2).
- RSA Geotechnics Ltd. (June 2005) Desk Study Report. Proposed Commercial/Industrial Development at Plot 9, Didcot West, Oxfordshire (Report 9706).
- STATS Ltd. (October 2006) Report on Exploratory Contamination Investigation. 97 Milton Park, Abingdon, Oxfordshire. (Report No, 35368-001).

There are records of two former landfills within 250m of the site, as follows:

- Manor Farm, Milton, c. 65m north. This landfill was licensed in 1979 and received semi-inert waste. A gas spiking survey (date not known) did not identify significant levels of methane (<1%). No further monitoring has been undertaken.
- Willow Lane, Milton, c. 210m north. This was an unlicensed landfill. No further information is available.

A number of pollution incidents are recorded as having occurred on the site. No specific details of the incidents are held by the Environmental Health Department. However, there have been no known nuisance issues, prosecutions or enforcements associated with the site. The Council has historically received complaints about dust from the adjacent power station; these complaints have been dealt with informally.

There are currently no private water supplies within a 2km radius of the site.

The Environmental Health Department holds no records of flooding at the site.

3.3.2 Environment Agency (EA)

An enquiry has been submitted to the EA in order to ascertain whether it holds any pertinent environmental information in relation to the site. *This information is awaited.*

3.3.3 Petroleum Licensing Authority

The Petroleum Licensing Authority confirmed to ENVIRON in 2007 that it holds no records of current or former bulk petroleum storage at the site. No petroleum installations are reported to have been installed at the site since 2007.

3.4 Historical Potential for Ground Contamination

3.4.1 The Site

The previous activities on the site have a potential for contamination. From the 1930s onwards the site was developed with warehousing, railway sidings and a number of bulk storage tanks. The site was operated by the Ministry of Defence until the 1960s, and hence public records of the nature of the site uses are limited. Previous reports state that “wastes may have been tipped on the site”. Rubble and pulverised fuel ash have been used to level parts of the site. The site subsequently became an industrial estate, with gradual redevelopment of individual areas.

The site has a history of minor pollution incidents to controlled waters, but also includes two significant pollution incidents involving oils, one dated 25th February 1991, in the area occupied by MP2, and the other undated, but occurring next to the eastern boundary of MP4.

Overall, there is a potential for contamination at the site arising from its longstanding industrial and military uses. As with any UK defence related site, some information is either unavailable, not recorded or incomplete, for security and other reasons. There is considerable potential for the past presence of unrecorded underground and above ground tanks.

3.4.2 The Surrounding Area

Site surroundings have been predominantly agricultural from the earliest maps, with potentially contaminative activities including the following:

- An historical landfill located approximately 60m north of the site, which corresponds to a historical gravel pit (Manor Farm landfill). The landfill is recorded variously as accepting inert waste and ash, glass, hardcore, scrap metal, paper, plastics, textiles and wood. The landfill was recorded as being very small and closed in 1990.
- The Milton Interchange Petrol Filling Station has been present between MP5 and MP8 since the historic map dated 1983, located on previously undeveloped land. The total area of the filling station premises appeared to be enlarged in 1996 map edition. The filling station is currently operated by BP and is part of a service area including a hotel and restaurant.

4 Environmental Setting

Desk-based research of the local geology, hydrogeology and hydrology was carried out in order to establish the potential for migration of contamination onto or away from the site, and to assess the sensitivity and vulnerability of the site's setting with respect to surface water, groundwater and ecological resources.

Information was obtained from a number of sources, including:

- examination of published geological maps produced by the British Geological Survey (BGS) and associated sheet memoirs (where available);
- a proprietary environmental database procured by ENVIRON; and
- Regulatory Authority websites including the Environment Agency (EA).

4.1 Geology and Hydrogeology

According to the 1:50,000 BGS map (sheet 253), the site is directly underlain by thin drift deposits of Alluvial Sandy Clay (< 1m thick). This is further underlain by solid geology of low permeability Gault Clay.

The Gault Clay underlying the site is classified by the Environment Agency (EA) as an unproductive strata. The superficial deposits underlying the site are generally classified as a Secondary A Aquifer and a secondary undifferentiated on the southern boundary although the geology map and BGS borehole logs suggest that the alluvium is very thin or absent below much of the site.

According to the environmental database, there are four licensed ground water abstractions within 2km of the site. One of these is within 1km of the site relating to abstraction for spray irrigation.

The site is not situated within an EA designated Source Protection Zone.

4.2 Hydrology

The nearest surface watercourse is Moor Ditch, which runs adjacent to the northern site boundary. The Ditch was classified by the EA as Good (chemical grade) in the General Quality Assessment Scheme in 2000. The EA currently classify the Moor Ditch as Good for Chemical Quality under the Water Framework Directive. Furthermore, the 2015 Predicted Chemical Quality for Moor Ditch is predicted to be Good.

According to an environmental database, there are five licensed surface water abstractions between 1km and 2km of the site. Three of these are registered to C & A J Hartwright located between 1.2 and 1.3km south and are used for general agriculture, spray irrigation and non-evaporative cooling; One abstraction for spray irrigation is located 1.2km northeast registered to C.E. Allen and Son; One further abstraction, for evaporative cooling 1.9km east is registered to Air Products Chemicals (Teesside) Ltd.

4.3 Ecological receptors

There are no statutory protected ecological areas , e.g. SSSIs, SPAs, SACs, Ramsar sites within 1km of the site.

4.4 Environmental Sensitivity and Vulnerability

The site is not situated in a sensitive location with respect to groundwater resources. The site underlain by relatively impermeable Alluvial Sandy Clay and Gault Clay. The site is not situated within an EA designated Source Protection Zone and there are no abstractions for public potable use within 2km and

The site is located in a sensitive location with respect to surface water resources, due to the “good” quality Moor Ditch adjacent to the north. Booms and brush-type oil/water separators are in use in the final settling pond prior to discharge to the Moor Ditch, and booms are also in use as a further preventative measure across Moor Ditch at the downstream site boundary. However, there are no public potable abstractions recorded with 2km of the site.

5 Previous Reports

The following reports have been provided to ENVIRON for review.

- Environmental Setting and Sensitivity Analysis – Milton Park Trading Estate, RPS Consultants, March 1993.
- Geotechnical Report – 160 Milton Park, STATS Geotechnical, April 1994.
- Geo-environmental Report on Diesel Spill – 35 Milton Park, STATS Geotechnical Ltd, June 1994.
- Geotechnical and Geo-environmental Report - 163 Milton Park, STATS Geotechnical Ltd, April 1995.
- RPS Consultants: Contamination Survey - Milton Park, June 1995 (ref: CON 3761).
- Geotechnical and Geo-Environmental Report - 8-9 Milton Park, Abingdon, Oxford, by STATS Geotechnical Ltd, June 1995.
- Geotechnical and Geo-environmental Report – 90-92, Milton Park, STATS Geotechnical Ltd, June 1995.
- Geotechnical and Geo-environmental Report – 127 Milton Park, STATS Geotechnical Ltd, June.
- Geotechnical and Geo-environmental Report - 163 Milton Park, STATS Geotechnical Ltd, June 1995.
- Geotechnical and Geo-environmental Report – 140 Milton Park, STATS Geotechnical Ltd, July 1995.
- Site Investigation Report – 140 Milton Park, STATS Geotechnical Ltd, July 1996.
- Site Investigation Report – Unit 88 Milton Park, STATS Geotechnical Ltd, June 1997.
- Site Investigation Report – 110-117 Milton Park, STATS Geotechnical Ltd, June 1997.
- Geo-environmental Baseline Report for Proposed Development at an Industrial Unit of 117 Milton Park, STATS Geotechnical Limited, October 1997.
- Site Investigation - 20 Milton Park, STATS Geotechnical Ltd, 16 June 1998.
- Site Investigation Report - Unit 25 Milton Park, STATS Geotechnical Ltd, June 1998.
- Site Investigation Report – Unit 30 Milton Park, STATS Geotechnical, June 1998.
- Environmental Land Quality Report, STATS, June 2000 (Ref: 32749/01).
- Phase 2 Site Investigation, ENVIRON, November 2000 (Ref: 61C4058).
- Report on Ground Investigation - 93-96 Milton Park Structural Soils Ltd, March 2001, (Ref: 10243).
- Site Investigation Report - 127 Milton Park, Abingdon, STATS, December 2003.
- Type 3 Asbestos Survey - Unit 103 Milton Park, Tersus Ltd, February 2006.
- Site Investigation Factual Report - Unit 103 Milton Park, CJ Associates, June 2006.
- Geotechnical and Geoenvironmental Interpretative Report, PBA, June 2006.
- Exploratory Ground Investigation - Unit 97, STATS, October 2006.
- Explosive Ordnance Clearance Report - 103 Milton Park, Oxfordshire, BACTEC, 5 March 2009.
- Ground Investigation Report - 172 Milton Park, Listers Geotechnical, April 2011.

RPS 1993 Environmental Setting Analysis & 1995 Contamination Survey

These reports summarise a desk study and site investigation. They refer to, and summarise two previous investigations, and a geophysical survey (1995), which have not been provided to ENVIRON.

The 1993 report indicates that the site was agricultural land up to World War I. A single depot was first shown, but by 1930 the site was heavily developed with warehousing, railway sidings and bulk storage tanks. The site was operated by the Ministry of Defence until the 1960s, and hence public records of the nature of the site uses may have been restricted for security reasons. The 1954 plan showed a boiler house, underground storage locations, garages, a waste disposal area, bulk ASTs, and a neutralising pit. The report states that "wastes may have been tipped on the site". Rubble and pulverised fuel ash (PFA) have been used to level parts of the site. The site subsequently became an industrial estate, with gradual redevelopment of individual areas. The report suggested that old air raid shelters may have been employed to dispose of waste. The disposal of asbestos material may have taken place near units 175-179. PCBs were reportedly used within transformers on the site. In addition, an underground tank thought to have been used for chromium waste water disposal was located near Unit 186, and a possible waste disposal area was located near Unit 186 (now 130).

The report indicated that the off-site clay marsh area (500m north of the site) was used as a landfill up until 1987. Primarily inert material was used although over 20% of material disposed was biodegradable.

The geology is given as alluvium, silty clays and gravels (0.7m thick) over Gault Clay (>50m thick). The Gault Clay should restrict vertical movement of contamination (if present), but water is present in the gravel (on perched groundwater at 1.5m). The site is not in an SPZ. A number of streams flow into the site from Milton Heights (a hill to the south). These flow via balancing ponds to discharge to Moor Ditch, which flows east along the northern boundary.

Five boreholes were excavated in five suspect areas, and four boreholes in other areas. The samples were taken from 1m intervals through the depth of the borehole. Five groundwater samples were analysed. Obviously this does not represent any substantive site coverage. The ground conditions confirmed that the site comprises fill (except in the north east) up to a maximum of 4.5m (one location). This largely comprised PFA (4.35m). In other locations the fill was 0.3-0.5m (imported material matrix with some brick rubble). The natural ground comprised alluvial clay with gravels (0.3-1.9m thick) in places, over Gault Clay, at 2.3-4.9m bgl.

The results showed no significant evidence of contamination. Minor hot spots with zinc and arsenic (PFA) occurred at two locations, but the extent of contamination was modest. No petroleum hydrocarbons or semi-volatile organic compounds (SVOCs) were detected in soils. Of the five groundwaters, all results were modest, other than for polycyclic aromatic compounds (PAHs) at one location. The report stated that, due to the low groundwater sensitivity, this is not a major issue.

Land gas results were modest. No methane was encountered, albeit that CO2 concentrations were noted, slightly above guideline levels. No gas flows were monitored and RPS did not recommend gas protection measures.

Geotechnical Report – 160 Milton Park, STATS Geotechnical, April 1994.

The report covers the current Unit 160. The investigation was essentially geotechnical in nature with four 4 pits and 2 boreholes excavated.

Ground Conditions comprised Made ground up to 0.9m (variously concrete PFA and "bash") over alluvium (silty sandy clay) then coarse alluvium (clay gravelly sand) over Gault clay.

Analytical Results: Only one sample of made ground for general suite and total PAH. Results were below relevant criteria for an industrial commercial site use.

Geo-environmental Report on Diesel Spill – 35 Milton Park, STATS Geotechnical Ltd, June 1994.

The report was commissioned after an alleged leakage of diesel spill adjacent to the current Unit 35A (USTs). 10 shallow boreholes were installed. The leak was determined to have been from a feeder line to the pump. Remediation was undertaken prior to the investigation in the form of an interception trench.

Ground Conditions (in area of spill): 0.5m to 0.9m of PFA over alluvial clay and ~0.5m of clayey silt and sand from 1.5m to 2m. Free product was not found in the one borehole installed adjacent to the fuel pump.

Analysis: Field testing for benzene, toluene, ethylbenzene and xylenes (BTEX) and some lab testing for total petroleum hydrocarbons (TPH). The full set of results does not appear to be included. A TPH concentration of 106mg/l was recorded in the interceptor pit and 80mg/l in a borehole at approximately 20m north of the tank.

The report concluded that the contamination was localised but that it would be prudent to remove "some" soil. It was not stated if additional remediation was carried out or if the interception trench continued operation.

Geotechnical and Geo-environmental Report, 163 Milton Park, STATS Geotechnical Ltd, April 1995.

The report covers the current Unit 163 and concluded that ground contamination should not provide a significant restraint to development. The site investigation comprised three boreholes.

Ground Conditions: Made ground to a maximum of 0.5m (clay or brick fill) over alluvium (silty sandy clay) then Gault clay at ~2.2m depth.

Analytical results: Three samples only for general suite and toluene extractable material (TEM) and PAH total. Results did not show significant contamination.

Geotechnical and Geo-Environmental Report at 8-9 Milton Park, Abingdon, Oxford, by STATS Geotechnical Ltd, June 1995.

This report appears to encompass area around Units 5, 6, 7 and 8 (total 3.9ha) and an area (undeveloped) to west. The history, geology and hydrology sections do not add to previous reports. The site investigation comprised 33 trial pits.

Field Observations: Made ground generally 0.8m or less (ashy sandy with some coal and PFA). An area of deeper fill was encountered approximately between and to the west of units 5 and 6 (current) 1.6-3m depth.

Soil results: A total of 74 soils analysed for metals, CN, phenols, pH, sulphate, toluene extractable matter, 5 for PAH screen. No photoionisation detector (PID) screening or testing

for volatile organic compounds (VOCs), SVOCs, PCBs was undertaken. Copper, nickel and zinc elevated in only 12 samples of made ground across site. Moderately elevated only, and limited to the Made Ground: One elevated arsenic (200mg/kg) at 0.1-0.4m depth on western site (TP4). One elevated cadmium (278mg/kg) at 0.2-0.5m depth at eastern end of site (PH14);

Groundwater results: 4 perched waters analysed.

The report recommended removal of made ground at TP4 and TP14 as local hot spots – it is not known if this was carried out.

Geotechnical and Geo-environmental Report – 90-92, Milton Park, STATS Geotechnical Ltd, June 1995

Appears to cover sites 90-92 although the location plan is not clear and although the text refers to "90-92" unit numbers across the site have since changed. The Site history and Phase I review did not reveal any issues not previously discussed in other reports. The Site Investigation comprised 31 trial pits.

Site Conditions: The geology consisted of made ground up to 1m deep (generally ashy gravelly sand fill) over alluvium down to 1.2-2.8m (silty clay). Then Gault clay – perched groundwater was encountered in made ground or alluvium.

Soil Analytical Results: 53 for general suite and TEM, 15 for PAH (total). Results showed moderately elevated boron in made ground across site 4 (up to 12.3mg/kg). TEM above 10,000mg/kg at five locations indicating possibly significant hydrocarbon contamination (all from shallow strata). Copper and zinc above guidelines at four locations, all from made ground)

Groundwater Analytical Results: 7 for general suite, and TEM. No significant issues.

Geotechnical and Geo-environmental Report – 127 Milton Park, STATS Geotechnical Ltd, June.

The report covers a "development area" at 127 Milton Park (~1.1ha). The Site Investigation comprised 17 trial pits.

Ground Conditions: Made Ground up to 1.6m (~0.5m of PFA in ashy clay) – in southern third made ground contained brick, ash, clinker, pottery, some asbestos, cement and "metal drums" (2 locations). Alluvium down to depths of 1.8-2.9m (silty clay over sand and gravel) then Gault clay.

Analytical Results: Soils tested for 38 general suite and TEM, 5 for total PAH. 5 groundwaters for general suite and TEM.

Slightly elevated boron, copper, nickel, zinc in made ground, particularly in southern half of site (up to 2000mg/l of Cu and Zn). Arsenic at 92mg/kg in south west corner. Elevated hydrocarbons (TEM) of 1.5% and 1.2% near centre of site. Cadmium of 70mg/kg in south east corner.

Remediation was recommended in the southern half of the site where hard standing was not part of the development – to remove the ashy made ground. The area of suspect fill is estimated to cover approximately 3000m2. It is not documented whether remediation was carried out.

Geotechnical and Geo-environmental Report, 163 Milton Park, STATS Geotechnical Ltd, June 1995.

A report detailing an investigation of 14 trial pits on site previously investigated (see above). The report concludes that no special measures were required with respect to contamination.

Ground Conditions: Geology generally as per previous investigation although made ground up to 1m thick was encountered at two locations. A “strong organic/solvent “paraffin odour” was encountered at three trial pits around the building.

Analytical Results: Some 27 soils were tested for general suite and TEM. 2 waters for general suite and TEM. Of the parameters analysed, no concentrations of concern were detected given the site use. However, given solvent odours were noted at three separate locations across the site, the analyses were inadequate in that no VOCs were undertaken and no PID screening took place.

Geotechnical and Geo-environmental Report – 140 Milton Park, STATS Geotechnical Ltd, July 1995.

The report covers Unit 140 (~0.7ha). The Site Investigation comprised 11 trial pits.

Ground Conditions: The geology encountered was less than 1m of made ground (ashy gravelly sandy fill) over alluvium down to 2-2.5m (silty clay with a sand layer of base). Then Gault clay. Groundwater present at 1.6m and 2.3mbgl.

Analysis comprised 24 soils for general suite and TEM, 2 for PAH. No groundwater samples taken. Boron (ranging up to 14mg/kg) was detected at slightly elevated concentrations. Copper (up to 387mg/kg) and zinc (up to 414mg/kg) was detected at three locations. Modest contamination levels only. No other evidence of contamination.

Site Investigation Report – 140 Milton Park, STATS Geotechnical Ltd, July 1996.

Follows on from earlier STATS report (1995) at same site (reviewed above). Geotechnical site Investigation – 2 boreholes, no additional testing for contamination.

Site Investigation Report – Unit 88 Milton Park, STATS Geotechnical Ltd, June 1997.

It is not clear from the report which site the investigation represents. It is in the general area of the current Unit 88 i.e. central northern area of the estate. Three boreholes were drilled. The boreholes encountered 0.9m-1.2m of made ground (silty, sandy gravelly fill with some ash) over 1 to 1.5m of alluvium (silty clay) then Gault clay.

Analytical Results: The laboratory certificates were not provided but a summary table indicated only two samples were above the UK threshold. Arsenic of 23.6mg/kg and a PAH total of 229mg/kg. The concentrations detected are not considered significant for the current use. A maximum TPH of 3.7mg/kg was detected in soil.

It has been assumed that the analyses covered were similar to the other STATS reports i.e. general suite and TEM but not VOC, SVOC, PCB, Asbestos.

Site Investigation Report – 110-117 Milton Park, STATS Geotechnical Ltd, June 1997.

The report appears to cover current Units 110, 111, 112, 113, 114, 115 and 117. The site investigation comprised nine boreholes to c.10m.

Ground Conditions: Made ground to approximately 1m depth (silty, sandy, gravel fill with areas of ash) over alluvium (silty clay) to approximately 2 to 2.5m, then Gault clay. Perched groundwater was encountered in 4 of the 9 boreholes.

Analytical Results: Soil – 9 samples for general suite and TPH. No significant concentrations detected. Two groundwaters for TPH – both <0.05mg/l.

Geo-environmental Baseline Report for Proposed Development at an Industrial Unit of 117 Milton Park, STATS Geotechnical Limited, October 1997.

Appears to cover the current Unit 117 although this is not 100% clear from the site location plan (~0.6ha). Investigation comprised 5 boreholes, 4 trial pits, 13 window samples.

Field Observations: Made ground 0.2-1.1m thick – silty clayey with some ash and brick; Alluvium to 1.6-2.4m depth; Gault Clay.

5 groundwaters were tested for general suite and PAH (total), and 30 soils for general suite, PAH total, toluene extractable material, and three for TPH.

Groundwater results: Only ammonia (up to 1.75µg/l) chloride and electrical conductivity, found above drinking water guidelines. No other significant contamination.

Soil results: Some zinc (433mg/kg) contamination at one location TP2 in north west corner and elevated lead (4192mg/kg) found at one isolated location – both in the made ground. Very slight boron contamination/up to 7mg/kg found in several made ground samples across the site. It was recommended the small area of lead contamination (TP3) be removed. It is not known if this was done.

Site Investigation for 20 Milton Park, STATS Geotechnical Ltd, 16 June 1998

Covers Units 20, 25 and 30 (area 2.3ha). No new information on history, geology or hydrology (i.e. similar to previous reports). Fieldwork comprised 7 boreholes up to 10m in depth.

Ground Conditions: Made ground, silty clay or sand, 0.6m to 1.3m thick; Alluvium, sandy silty clay, 1.6m-2.5m depth; Gault clay.

Analysis: 6 samples were analysed (made ground) for metals, phenols, pH, sulphate, toluene, external matter and PAHs (3). The 3 PAH samples showed slightly elevated total PAH (62-188mg/kg). Otherwise slightly elevated copper (193mg/kg) at one location was the only evidence of contamination.

Site Investigation Report, Unit 25 Milton Park, STATS Geotechnical Ltd, June 1998.

Appears to cover current Unit 25. 7 boreholes were drilled. No location plan was provided.

Ground Conditions: Made ground to 0.6m (sand and some ash and clay) over 1 to 1.5m thickness of alluvium (silty clay) then Gault clay. Groundwater was encountered in 5 of the 7 boreholes.

Analytical Results: 6 soils for general suite and TEM and PAH 13. Generally low results below the then current guidelines. Slightly elevated total PAH (188mg/kg) at one location.

Site Investigation Report – Unit 30 Milton Park, STATS Geotechnical, June 1998.

Appears to cover the current Unit 30, although a location plan was not provided. The investigation was primarily geotechnical. Seven boreholes were drilled. The results were consistent with the previous investigation on the site (report reviewed).

Made ground was encountered to depths of between 0.3m and 1.5m depth (silty sandy clay) over alluvium and Gault clay.

Two samples of made ground were analysed (location unknown) and slightly elevated total PAH concentrations were detected (77 to 188mg/kg). The remaining parameters were below levels of concern for the current site use (general suite and TEM).

Glanville Consultants (February 1999): Summary of Geotechnical Information for Proposed Development at 140 Milton Park

This report refers to other previous reports (1996) by STATS Geotechnical Ltd, related to the proposed development of the site, which was at that stage a car park. This report is stated to be a "supplementary ground investigation". The site investigation was limited to two boreholes, and there was no environmental testing, as the previous reports were considered to be adequate in this respect. The previous reports were reviewed in terms of the environmental testing.

Ground conditions are described as made ground over alluvium (clays/gravels) over Gault Clay. There is mention of a geotextile membrane below the made ground (purpose not known). Groundwater was present between 1.6 and 2.3m, and appears to be a contiguous body in the alluvium.

Chemical analyses from a previous report were reviewed. The results indicated only minor contamination by metals (copper, zinc, boron). However, there was no analysis for VOCs, asbestos (unlikely given the nature of the made ground) and no groundwater testing. The only recommended "remedial" action was the capping of any metal contaminated areas to be used for landscaping, with 0.5m of clean cover.

STATS Environmental Land Quality Report. June 2000 (Ref: 32749/01)

This report was essentially a desk study, collating the previous information on the environmental characterisation of the site, and to produce an overall statement on "environmental land quality".

The site history is given as described elsewhere: since the 1920s/30s the site was a rail supplied ordnance/military depot. Since WWII the site has been, and continues to be progressively developed, on an individual plot basis.

The geology is given as alluvium (minor aquifer) with, typically, 1m depth of made ground. It overlies Gault Clay. The Moor Ditch cuts across part of the site.

The report does not include a detailed evaluation of current uses, but refers to:

- nearby light industrial uses, but including some chemical/biochemical activity;
- possible asbestos containing materials (ACMs) in the outer buildings; and
- underground/above ground oil/fuel/chemical storage, including various road haulage operations.

The report concludes that the overall environmental liability for the Milton Park site is low overall, but on individual plots which "have not been developed in the last 5 years" a low-moderate rating is applied.

Industrial uses including ordnance/military uses have been present on site since the 1920s. STATS state that:

"Potentially contaminative activities have been undertaken on premises at Milton Park for many years, including the storage, handling, use and waste management of a wide range of

hazardous substances, such as fuels, oils, solvents, metals and other chemicals. Contamination ground investigations carried out at various localities around the Park in advance of specified redevelopment schemes have revealed evidence of chemical contamination, which is generally associated with made ground. The most commonly detected and widespread form of chemical contamination has been with heavy metals and phytotoxins (especially copper and zinc) which can affect the health of plants. Localised 'hotspots' of hydrocarbon contamination have also been detected and hydrocarbon pollution incidences have been recorded affecting the water quality in Moor Ditch.

Overall the nature and extent of ground contamination detected at Milton Park is commensurate with the site's long history of light industrial land use and is not considered to be a significant cause for concern. Individual plots proposed for redevelopment will continue to need to be investigated and assessed for contamination with any appropriate alleviation and/or remediation measures being taken."

ENVIRON (November 2000) Phase II Site Investigation (Ref. R61C4058)

The objective of the investigation was to provide improved reassurance that there were not substantial areas of contamination at the site, and that groundwater and surface water risks were modest. 105 sample locations were selected to ensure that any widespread significant contamination would be identified. A total of thirty four (34) boreholes were drilled at the site, to a depth ranging between 0.5m and 5.5m below ground level (bgl). Twenty nine (29) boreholes were installed as monitoring wells. A total of 71 window sample boreholes (WS1-WS71) were advanced to depths between 0.4m and 3.0m bgl.

The soil analytical results showed low concentrations of general contaminants such as sulphates and metals within the shallow fill material. Metal concentrations, exceeding the then-current guidelines, were identified in shallow soil samples in one location within the proposed development site 127.

Groundwater sampling and analysis showed groundwater beneath the site generally contained levels of potential contaminants below guideline levels. An exception to this was elevated TPH and PAH concentrations detected near the central northern boundary which exceeded the guideline values. This was consistent with the adjacent AST and field observations of hydrocarbon odour and staining during the soil sampling. Overall, due to the underlying impermeable clay and the low sensitivity of the groundwater ENVIRON consider that groundwater remediation is unlikely to be required by regulators, even prior to redevelopment of parts of the site.

Methane was not detected at concentrations in excess of the Building Regulations guideline of 1% by volume in any of the wells monitored. Only one well (BH7 at 6.9%) had a carbon dioxide concentration above the BRE 5% guideline level and this is considered to within the range for natural soils. Only low flow rate were recorded on site (i.e. non-detectable). Overall, the monitoring indicates that land gas is unlikely to be a significant issue for current or future development at the site.

In summary, ENVIRON concluded that the results indicated very modest contamination. On the basis of the results, no remedial work was considered likely to be required by regulators or third parties with the site in its current use. The groundwater was considered of low sensitivity and there was no evidence of contamination. The occasional "hot spots" of metals in soils are generally modest, and largely from one location. All are confined to the (shallow) made ground. Underlying materials are clean. Individual site assessments were recommended on all future redevelopment sites.

Structural Soils Ltd (March 2001): Report on Ground Investigation at 93-96 Milton Park (Ref: 10243)

This is a combined geotechnical/environmental report, which includes a site investigation. The plot area is given at approx. 2ha. The geology is as described above. The investigation comprised 9 trial pits and 4 boreholes, but only 10 samples were tested, and the range of analysis was not complete: no groundwaters were tested.

Made ground was typically 0.5-1.0m thick which comprised tarmac/ash/clinker (former roadways) over Gault Clay.

There were localised hot spots of zinc and copper in the made ground, and one particularly elevated level of PAH, which at the time was not considered to require remediation but would probably require it under current guidance.

No remedial work was recommended, for the redevelopment then proposed.

STATS (December 2003): 127 Milton Park, Abingdon – Site Investigation Report.

This is primarily a geotechnical report for future intended development of this particular plot. There was not environmental testing. The site is some 1.5ha in area and was then derelict with some tarmac cover and areas of fly-tipping. The general geology is as previously described. There is made ground (largely re-worked natural materials) to a depth of 0.4-1.5m, over Gault Clay. The geotechnical work comprised three boreholes only. No chemical analysis.

STATS (October 2006): 97 Milton Park, Abingdon - Report on Exploratory Ground Investigation

This report was again commissioned primarily as a geotechnical report for the intended future redevelopment of this particular plot. The geology and groundwater conditions are as previously described. The site area is given as c. 0.5ha.

The site history is as generally previously described, with the site is said to have been used for equipment storage and vehicle maintenance by the MOD (Army – previously RAF). More recently the plot was used for “road haulage”, but there are no further details.

The geology is as previously described. The site investigation comprised 7 trial pits and analysis of 15 samples for a range of parameters including petroleum hydrocarbons, PAHs and asbestos. There was no groundwater testing.

There were slightly elevated levels of PAH (benzo(a)pyrene) in one location (associated with fill containing tarmac) and some very modestly elevated metals (arsenic/zinc). Overall, however, ENVIRON agrees with STATS that the ground contamination is localised, shallow and of limited significance to a commercial use. The only recommendation made by STATS was for removal of the fill material in areas of landscaping.

Tersus Ltd (February 2006): Unit 103 Milton Park, Type 3 Asbestos Survey.

Details a Type 3 Asbestos survey undertaken at the above unit prior to demolition. This report was not available for review in 2011.

CJ Associates (June 2006): Site Investigation Factual Report.

This report presented the factual results of the site investigation interpreted by Peter Brett Associates in the report summarised below.

Peter Brett Associates Ltd (June 2006): Unit 103 Milton Park, Geotechnical and Geoenvironmental Interpretative report.

This report was commissioned as a geotechnical and geo-environmental assessment prior to demolition and redevelopment of this plot.

The investigation comprised five boreholes up to 20m deep, 5 window sample boreholes up to 5m deep and 6 trial pits up to 3.5m deep. Up to 1.5m of Made Ground was encountered comprising medium and coarse gravel and cobbles with clay lenses and localised inclusions of concrete and brick, and localised black ashy/clinker lenses at two locations. A hydrocarbon odour and staining were noted in one location in the Made Ground and superficial deposits. Superficial deposits comprising locally sandy/gravelly clay were encountered continuously across the site to depths of between 0.8m and 3.7m bgl.

The soil analytical results showed a number of elevated concentrations of PAHs. Five out of fifteen samples exceeded the then current (2006) guideline soil values for PAHs; although it was considered that there was no risk to potential receptors given the industrial setting.

The water sample analytical results showed concentrations of chromium of up 125ug/l, which was above environmental quality standards. The analytical results also showed slightly elevated PAH concentrations in one water sample slightly exceeding environmental quality standards. However given the low permeability and sensitivity of the groundwater body these concentrations were not considered significant. The report concluded that the identified groundwater quality was to be expected given the site setting and known contamination sources did not present a significant risk to wider groundwater quality or sensitive receptors.

The report states that soil gas generation may have been occurring and recommended that prolonged monitoring would be necessary to determine the status of the site. It is not known if this recommendation was actioned.

The site was reported to falls into Design Sulphate Class DS-4 and Aggressive Chemical Environment for Concrete Class AC-4. Special protective measures for buried concrete are likely to be necessary.

No remedial work was recommended other than the excavation and disposal/treatment of hotspots that may have been encountered during development excavation works. It is not known whether any such disposal/treatment of hotspots was undertaken.

Explosive Ordnance Clearance Report, 103 Milton Park, Oxfordshire, BACTEC, 5 March 2009.

During works to excavate an area adjacent to Unit 103 during development works, the groundworks contractor encountered a large number of 20mm ammunition rounds disposed of by burial. The Royal Logistics Corps was called which discovered approximately 12,000 20mm rounds. BACTEC was then appointed and subsequently excavated a total of 31,253 rounds which were removed from site for disposal.

BACTEC subsequently issued two Explosive Ordnance Clearance Certificates for the site:

- Certificate 131/9689/01 dated 17th December 2008, covering a single spoil heap; and
- Certificate 131/9689/02a dated 26th January 2009, covering the fully cleared section of the site.

Listers Geotechnical (April 2011): 172 Milton Park, Ground Investigation Report

This ground investigation was undertaken to provide an assessment of geotechnical engineering properties and soil contamination at 172 Milton Park. The site area is given as c. 1.1ha.

The site investigation comprised 6 trial pits up to 3.8m depth and 3 boreholes up to 20m depth.

The investigation targeted the previously existing fuel tank and the car and HGV parking areas.

Made ground was encountered at depths of between 0.6 and 0.9m bgl. Alluvium was present up to depths of between 2.3 to 3.0m comprising clays and silty sand / gravel. Groundwater was standing between 1.5m and 1.9m bgl. No evidence of contamination was noted during the investigation.

ENVIRON agrees that no analytical results for soil or water were at concentrations above levels of concern for current site use and there was no evidence of risk to potential receptors.

ENVIRON Comments

Overall, in ENVIRON's view, while there is the potential for contamination at the site associated with the historical military and industrial uses of the site for many years, given the limited historical information and also the size of the site, it is impracticable to fully characterise the site in a single environmental site investigation. However, there have been numerous site investigations which together provide a reasonable level of site coverage, and have targeted known areas of potential contamination.

In terms of environmental investigations the strategy has been to investigate and remediate, as if required, as sites come forward for redevelopment. Various reports have been prepared for individual plots, and all give a similar picture. The site appears a typical brownfield site, with localised areas of contamination, generally confined to shallow soil. However, because of the size of the site, and the absence of full historic details, there is a residual possibility of undiscovered areas of greater or particular contamination on uninvestigated areas of the site.

6 Qualitative Risk Assessment

6.1 Regulatory Background

Land contamination is regulated under several regimes. The principal legislation and policies of relevance include:

- Part IIA of the Environmental Protection Act (EPA) 1990;
- The Water Resources Act 1991;
- National Planning Policy Framework, DCLG (March 2012); and
- Vale of White Horse Local Plan 2011, especially Policies DC9, DC10 and DC12

Legislation and guidance on the assessment of contaminated sites is provided under Part IIA of the Environmental Protection Act 1990, as introduced by Section 57 of the Environmental Act 1995. This came into effect in England on 1st April 2000 as The Contaminated Land (England) Regulations 2000. These regulations were subsequently revoked with the provision of the Contaminated Land England Regulations 2006, which consolidated the previous regulations and amendments.

6.2 Conceptual Model

In line with the statutory guidance, an initial assessment of the presence of a potential pollutant linkage has been made qualitatively by the development of a generic conceptual site model (CSM) covering Milton Park as a whole.

The CSM is a representation of the hypothesised relationships between potential contaminant sources, pathways and receptors. Potentially significant pollutant linkages are identified through the development of the CSM, and on this basis, potentially significant risks may be identified. The CSM is intended to inform the LDO and is not intended to provide sufficient information for specific developments on individual plots.

The conceptual site model, based on this environmental assessment, is presented in Table 6.1 below.

Table 6.1: Generic Conceptual Model

Potential Contamination Sources	Potential Pathways	Potential Receptors	Potential pollutant linkage?
Contamination associated with former activities at the site, including railway sidings, bulk storage tanks, possible waste deposition and military and industrial activities.	Inhalation and dermal contact	Site workers during development, site users	✓
	Leaching of contaminants in soil (if present) into groundwater	Controlled Waters (groundwater)	✓
	Migration of contaminants (if present) via groundwater present in the underlying Made Ground.	Damage to third party land	✓
		Controlled Waters (Moor Ditch)	✓
	Chemical attack	Building materials and services	✓
	Accumulation of potentially explosive gases	Building materials and services, site users	✓
Contaminated groundwater (leachate) and land gas from nearby former landfill site (located approximately 60m north of MP2).	Migration of contaminants (if present) via groundwater present in the underlying Made Ground.	Site workers during development phase	✓
	Accumulation of potentially explosive gases	Building materials and services, site users	✓
Off-site industrial uses of the immediate surroundings as a power station, petrol filling station and industrial units.	On-site migration of contaminants and subsequent inhalation and dermal contact.	Site workers during development phase, site users	✓

7 Conclusions

The previous activities on the site have a potential for contamination. From the 1930s onwards the main part of the site (Area A for the purposes of this assessment) was developed with warehousing, railway sidings and a number of bulk storage tanks. Area A was operated by the Ministry of Defence until the 1960s, and hence public records of the nature of site uses are limited. Previous reports state that "wastes may have been tipped on the site". Rubble and pulverised fuel ash have been used to level parts of the site. The site subsequently became an industrial estate, with gradual redevelopment of individual areas.

Area A is currently occupied by a number of tenants with activities including paint manufacture; commercial and car vehicle servicing and bodybuilders; road haulage services/distribution; precision engineering; printing, laboratories and laboratory equipment manufacture; computer manufacturers; ceramics; plastic moulding; concrete manufacture; plastics moulding telecommunications; chemical and pharmaceutical manufacturers; dry cleaners; fibre optics; recycling centre; and engineering works.

From ENVIRON's site inspection, bulk oil and chemical storage takes place on site. However, no significant leaks or spills have been reported in connection to bulk storage and only limited areas of hydrocarbon staining were noted during the site visit. Tanks are inspected on a 6-monthly basis.

MP5 and MP8 (the two island sites located to the south of the main Milton Park) have a generally lower potential for contamination. Recorded historical activities in this part of the site have been limited to agricultural uses and the temporary siting of materials, portacabins and site vehicles associated with highway works undertaken off site to the south and south-west. As such MP5 and MP8 are considered to have a low potential for contamination arising from site activities. ENVIRON understands that a planning permission is in force for MP8 which does not include conditions requiring specific assessment of ground contamination.

Area C (known as MP9 of the Enterprise Zone) has remained undeveloped since the earliest map and is considered to have a low potential for contamination arising from site activities.

Potentially contaminative activities in the surrounding area have included an historical landfill located approximately 60m north of the site, which accepted mixed wastes including some putrescible materials. However, a gas spiking survey (date not known) did not identify significant levels of methane (<1%). The landfill was recorded as being very small. The area of grey shading on Figure 2 denotes the parts of MP9 which fall within 250m of the reported perimeter of the Manor Farm landfill.

In addition, a petrol filling station has been present between MP5 and MP8 since the 1980s. Other historic potential contamination sources include the Didcot Power Station and associated industrial buildings from adjacent to the east of Area A, and the railway line located immediately adjacent to the southern site boundary of Area A.

The site is underlain by, in general, a relatively thin layer of made ground. Groundwater is present locally, perched above the underlying low permeability Gault Clay. The site is not considered to be situated in a sensitive location with respect to groundwater resources.

The site is considered to be situated in a sensitive location with respect to surface water resources, due to the "good" quality Moor Ditch adjacent to the north. Booms and brush-type oil/water separators are in use in the final settling pond prior to discharge to the Moor Ditch,

and booms are also in use as a further preventative measure across Moor Ditch at the downstream site boundary. Area A has a history of pollution incidents to controlled waters, the majority of which were minor, but which also included two significant pollution incidents involving oils, one dated 25th February 1991, in the area occupied by MP2, and the other undated, but occurring next to the eastern boundary of MP4.

The Environmental Health Department considers that the site, along with other industrial land within the district, requires further inspection under the Council's Contaminated Land Strategy. However, a number of other potentially contaminated sites within the district will take precedence over Milton Park for the purposes of inspection, and no timescales or resources have been allocated for implementing the strategy. The Council has indicated that contaminated land issues will be addressed through the planning process.

Various site investigations have been undertaken, including a site-wide Phase II investigation by ENVIRON in November 2000. The investigations have been largely in relation to individual development proposals. While there are the investigations are necessarily limited in terms of geographical coverage and the range of analyses are in some cases not in line with current standards, the available results from all of the investigations are generally consistent and can be summarised as follows:

- There is limited, and only localised contamination of groundwater;
- Soil contamination is localised, not generally severe, and confined to the made ground. No evidence of impacts to natural strata has been reported.

Overall, the investigation results obtained by ENVIRON and others indicate only modest contamination in those areas which have been subject to intrusive investigation. The groundwater is of low sensitivity and there is no evidence of significant contamination. Occasional "hot spots" of metals in soils have been identified within Area A, at generally modest concentrations. All elevated concentrations were identified by ENVIRON in the (shallow) made ground, with underlying materials remaining uncontaminated.

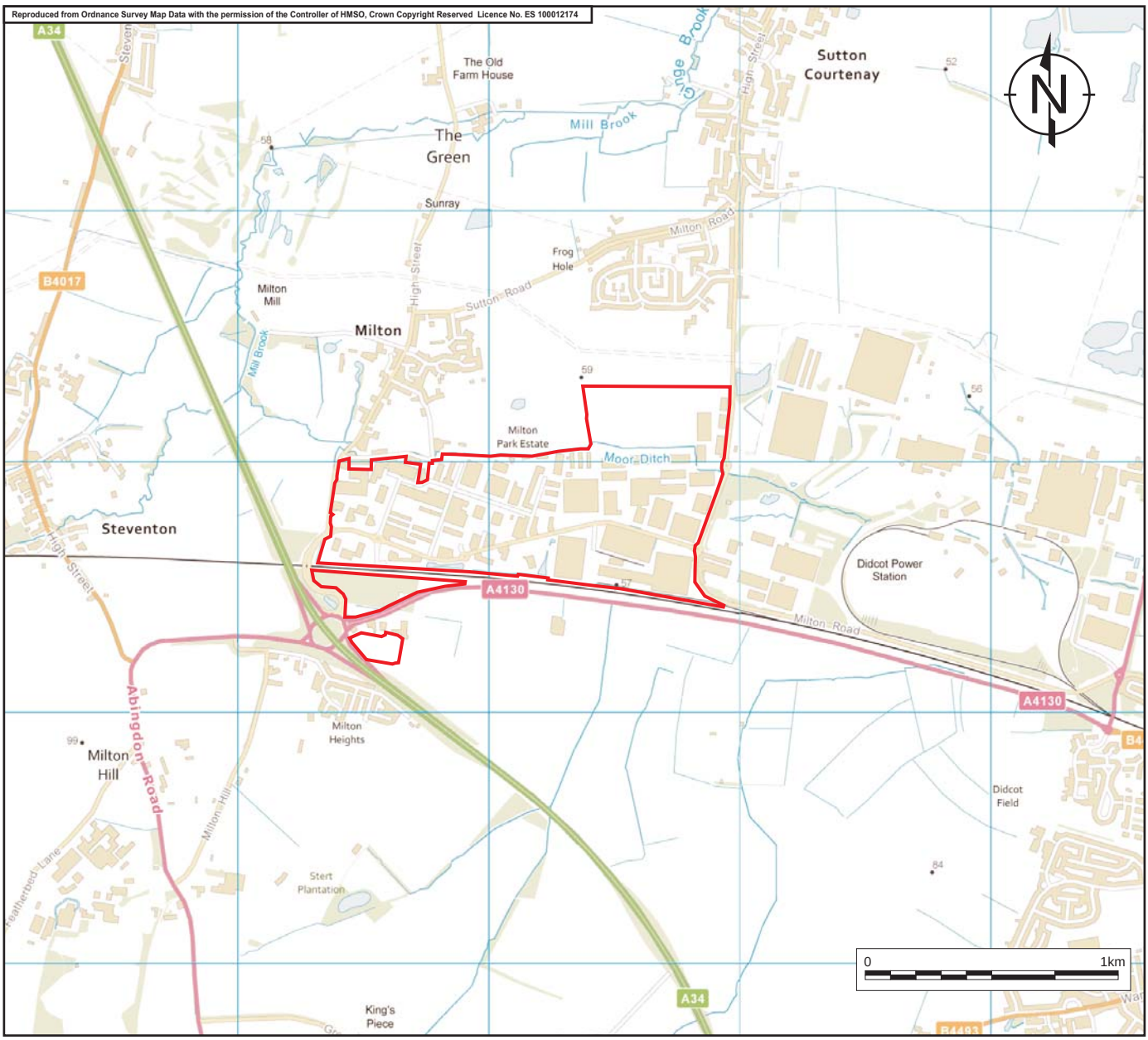
In summary, while Area A has a potential for contamination arising from historic and recent industrial uses and is located in a setting of surface water sensitivity, site investigation results obtained by ENVIRON and others have not indicated levels of contamination likely to pose a significant constraint to future development in those areas which have been subject to intrusive investigation. Due to the size of the site and the incomplete records of historical uses, there is a potential for undiscovered areas of contamination to be present in uninvestigated parts of Area A.

Areas B and C (MP5, MP8 and MP9) are considered to have a low potential for contamination arising from site activities, and as such it is proposed that these areas are excluded from further assessment with respect to contaminated land.

Annex A: Figures

Figure 1: Site Location

Figure 2: Site Boundary and Layout



Title: **Site Location Plan**	Site: **Milton Park, Didcot, Oxfordshire**	Date: August 2012	ENVIRON
		Scale: 1:1,000 @ A4	
Project No.: UK14-18063	Client: MEPC Milton Park General Partner Limited	Issue: 1 Drawn by: MR	

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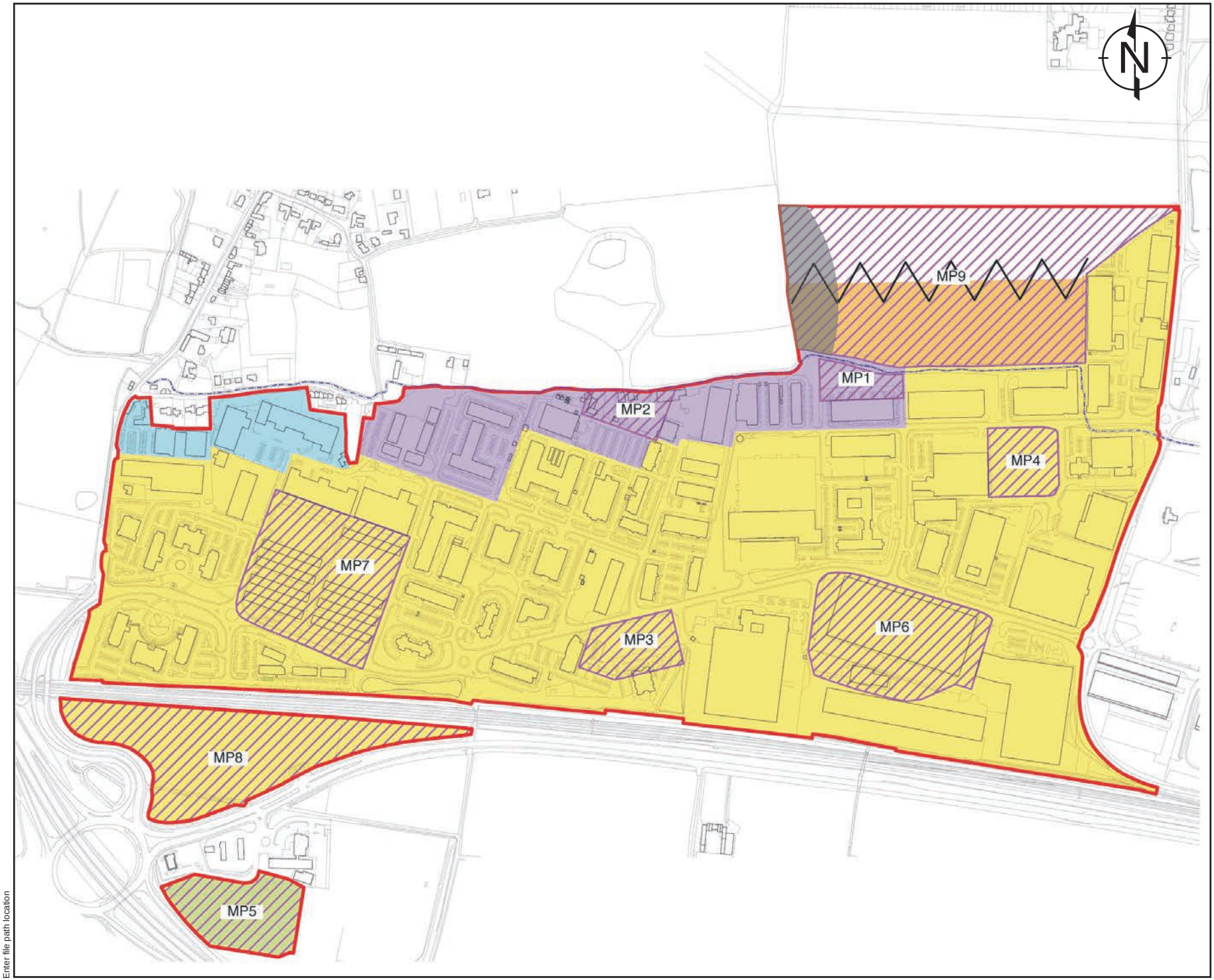


Key

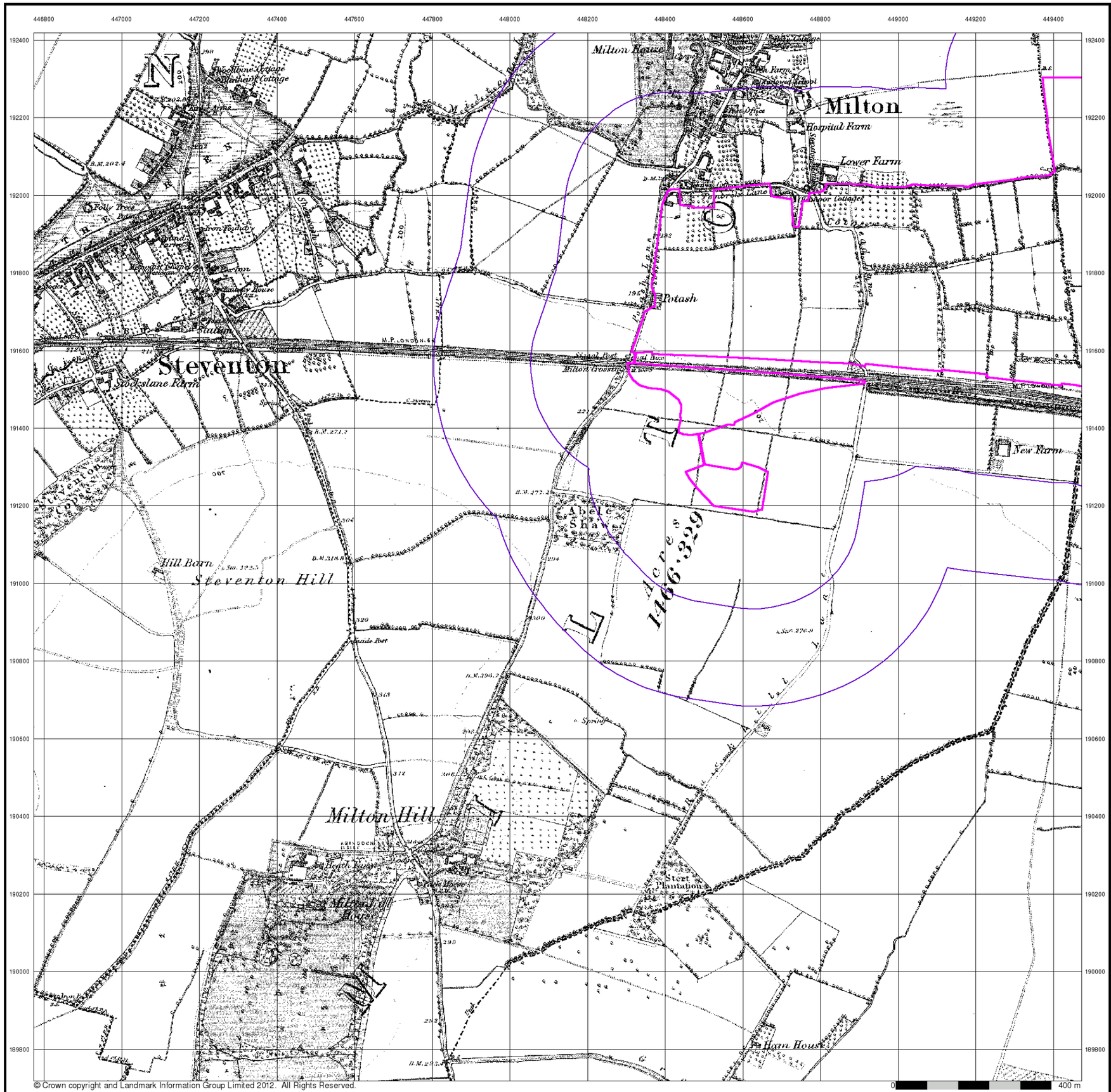
- LDO Area
- Enterprise Zone
- Zone A
- Zone B
- Zone C
- Zone D
- Zone E
- Moors Ditch
- Schedule monument fringe area
- Denotes area of MP9 which is within 250m of the off site Manor Farm landfill

Title	**Site Boundary and Layout**
Project No.	UK14-18063
Site	**Milton Park, Didcot, Oxfordshire**
Client	MEPC Milton Park General Partner Limited
Date	September 2012
Scale	Not to scale
Issue	**2**
Drawn by	MR

ENVIRON

Enter file path location

Annex B: Selected Historical Maps



ENVIRON

Berkshire

Published 1883

Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

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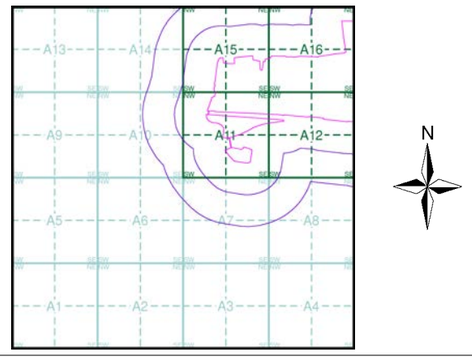
1883
1:10,560

Historical Map - Slice A



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Search Buffer (m):	500

Site Details

Site at, Didcot, Oxfordshire

Landmark Information Group
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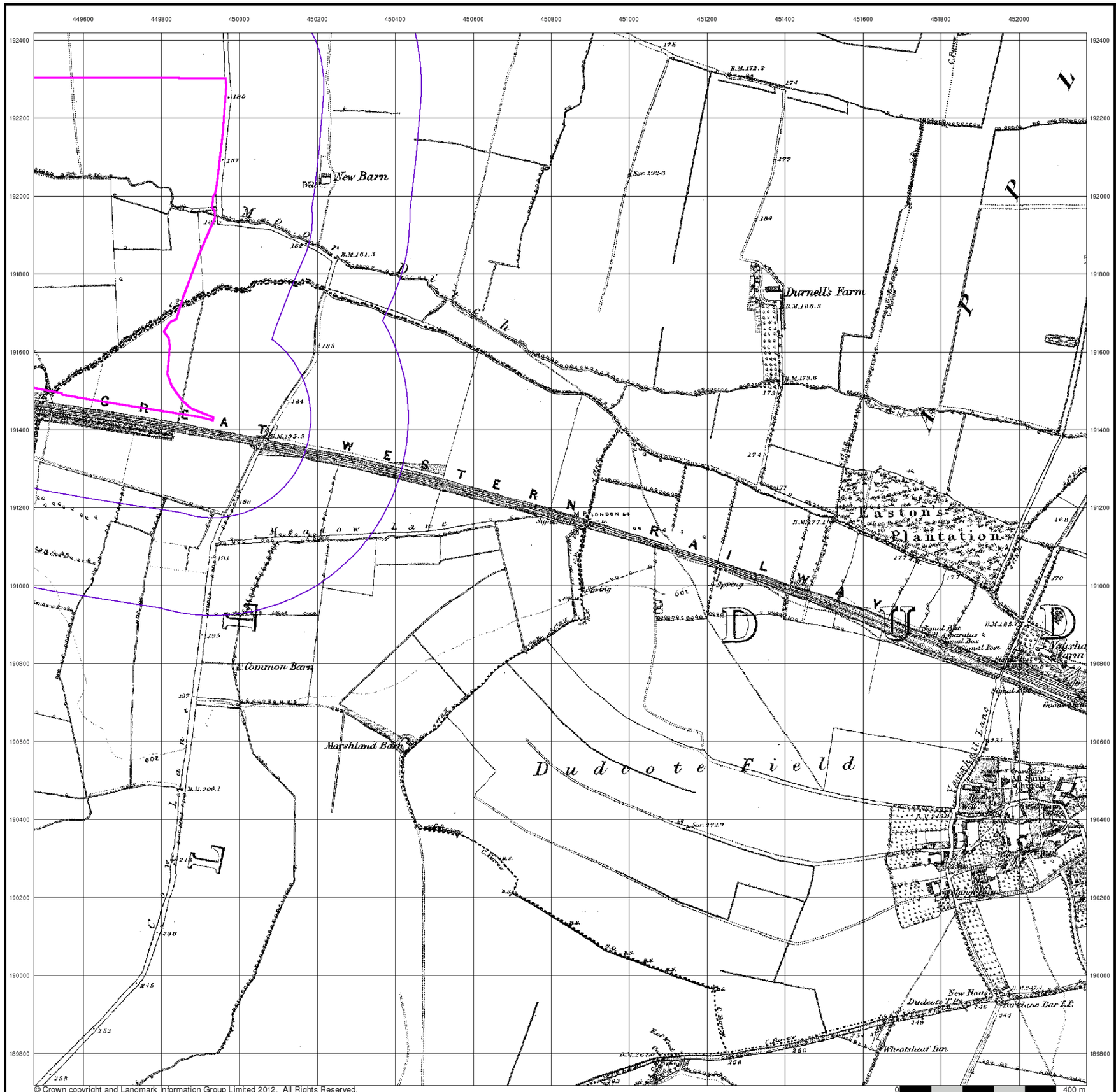
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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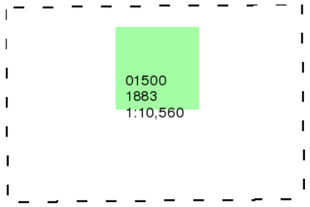
Map Name(s) and Date(s)



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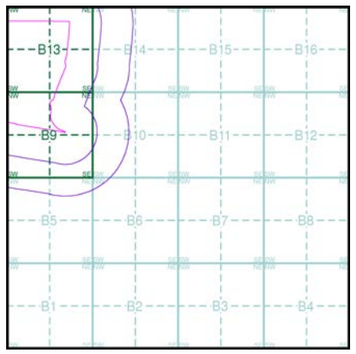

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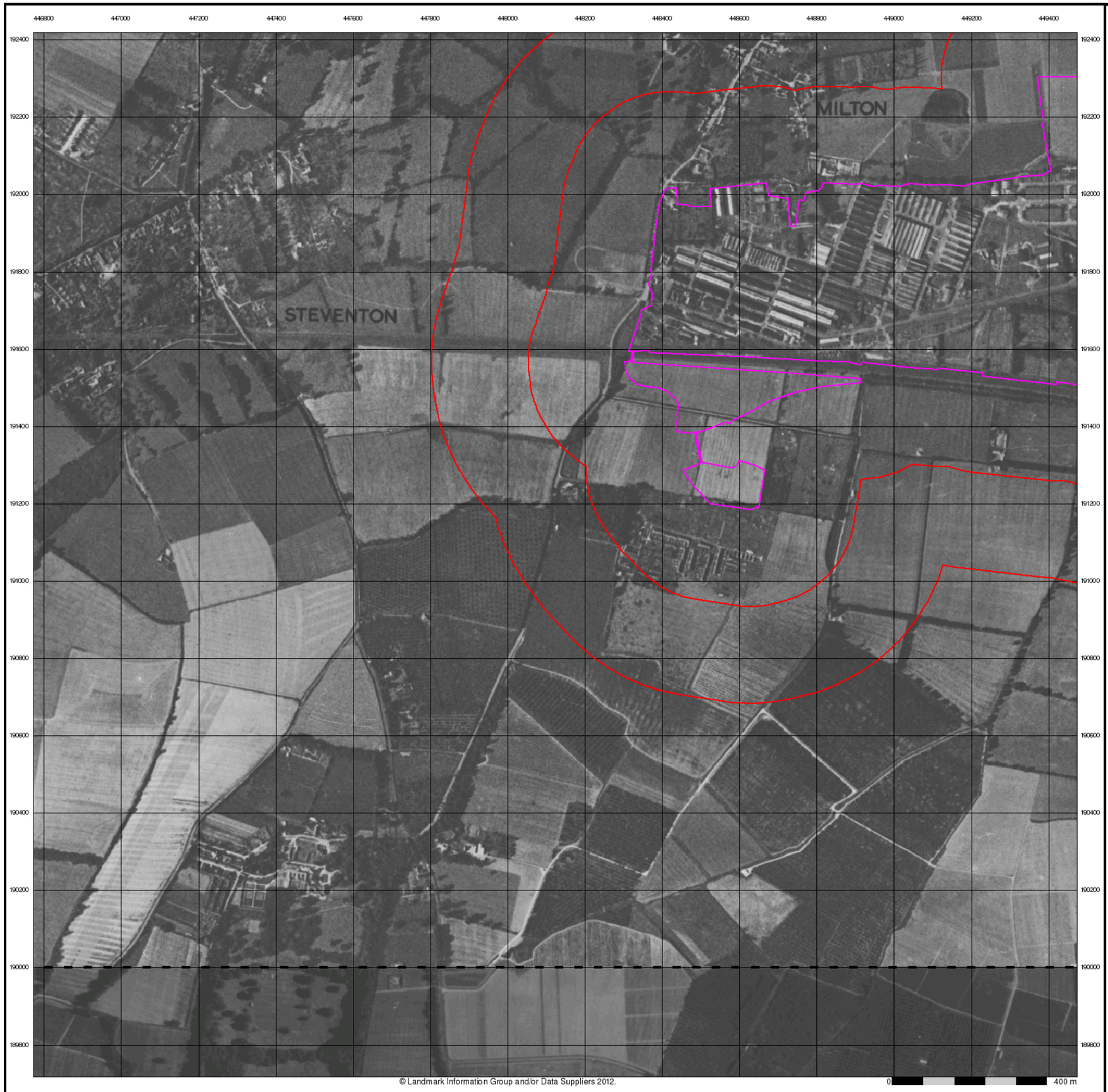


ENVIRON

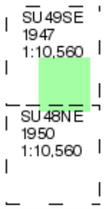
Historical Aerial Photography

Published 1947 - 1950

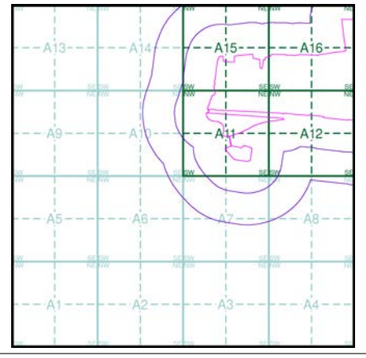
Source map scale - 1:10,560

The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the 1950's meant that every photograph was re-checked for potentially unsafe information with security sites replaced by fake fields or clouds. The original editions were withdrawn and only later made available after a period of fifty years although due to the accuracy of the editing, without viewing both revisions it is not easy to spot the edits. Where available Landmark have included both revisions.

Map Name(s) and Date(s)



Historical Aerial Photography - Slice A



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Slice:	A
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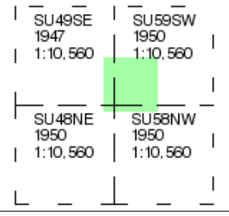
Map Name(s) and Date(s)



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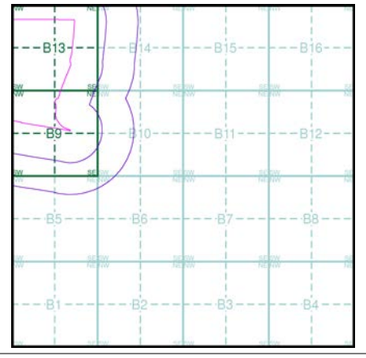

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ENVIRON

Ordnance Survey Plan

Published 1960

Source map scale - 1:10,000

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Map Name(s) and Date(s)

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1960
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SU48NE
1960
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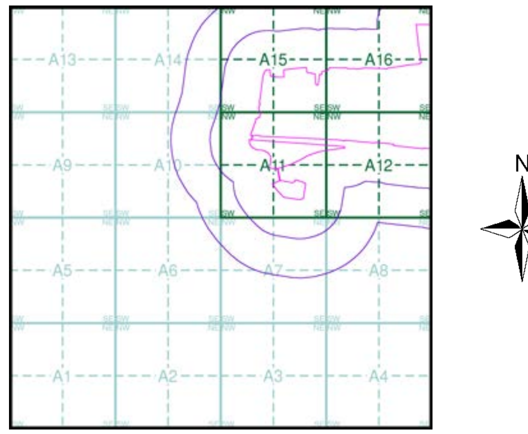
Historical Map - Slice A



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Landmark Information Group

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ENVIRON

Ordnance Survey Plan

Published 1960

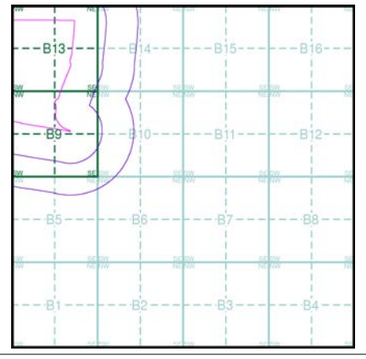
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

SU49SE 1960 1:10,560	SU59SW 1960 1:10,560
SU48NE 1960 1:10,560	SU58NW 1960 1:10,560

Historical Map - Slice B



Order Details

Order Number:	40577960_1_1
Customer Ref:	UK14-180xx Milton Park
National Grid Reference:	450170, 191490
Slice:	B
Site Area (Ha):	95.64
Search Buffer (m):	500

Site Details

Site at, Didcot, Oxfordshire

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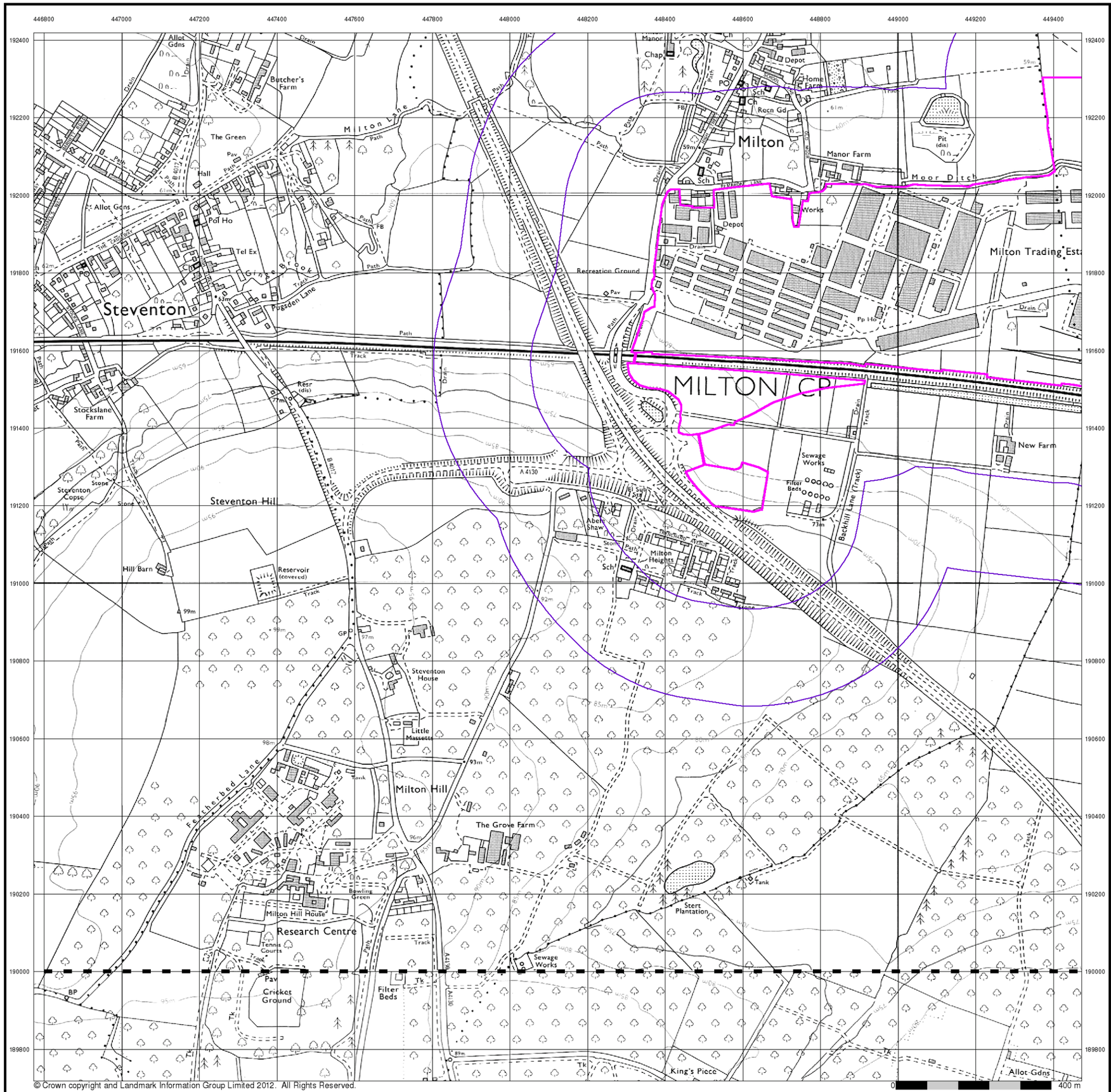

ENVIRON

Ordnance Survey Plan

Published 1980 - 1981

Source map scale - 1:10,000

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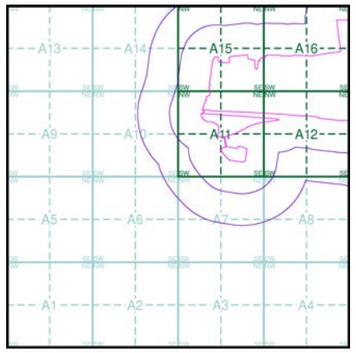
Map Name(s) and Date(s)

SU49SE
1980
1:10,000

SU48NE
1981
1:10,000

Historical Map - Slice A



Order Details

Order Number:	40577960_1_1
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Slice:	A
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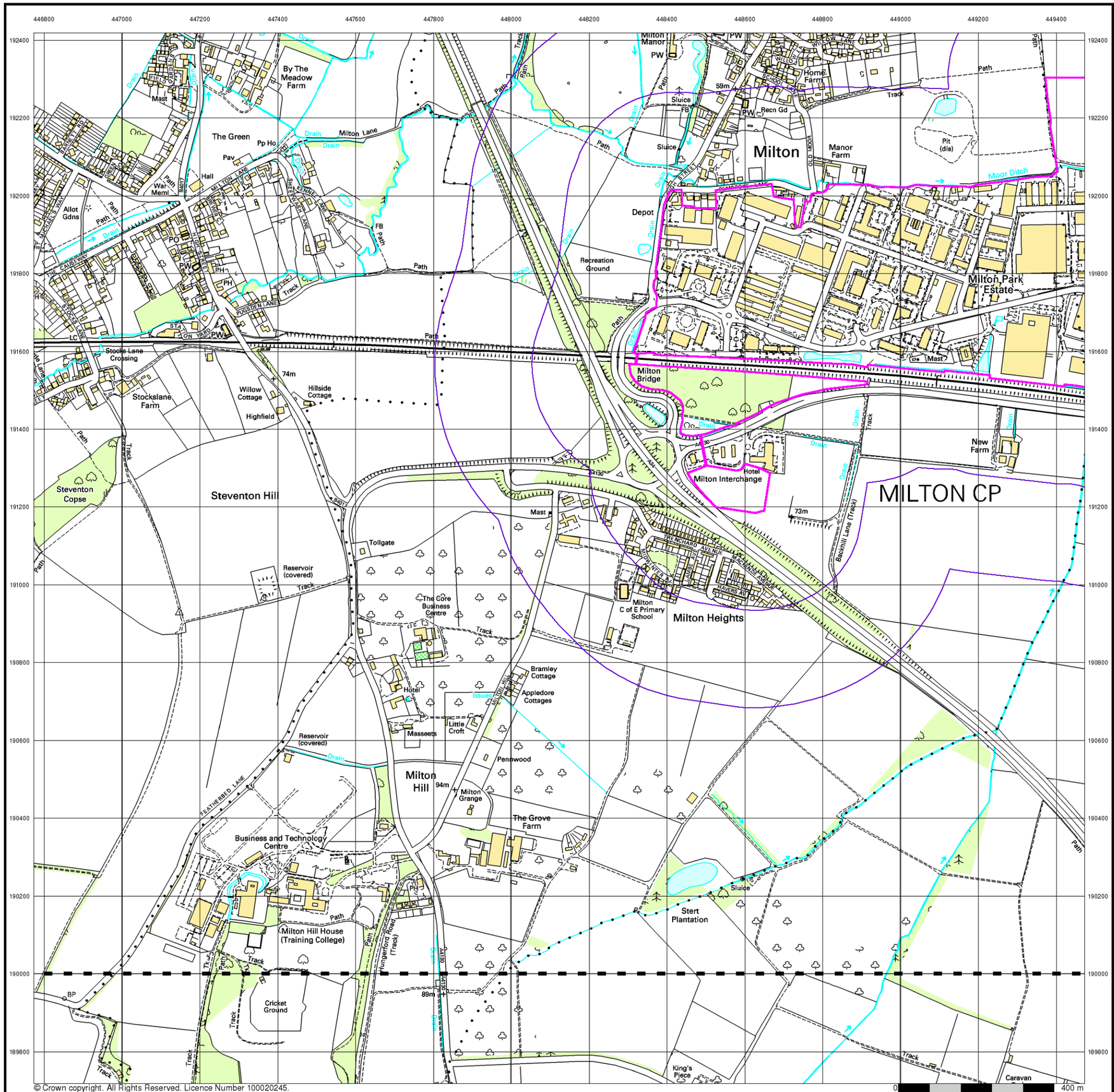


ENVIRON

10k Raster Mapping

Published 2012

Source map scale - 1:10,000

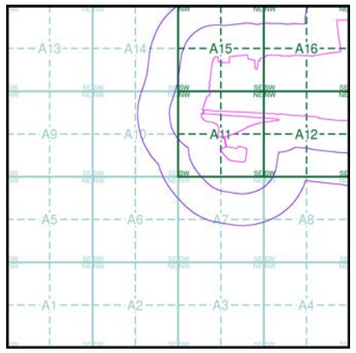
The historical maps shown were produced from the Ordnance Survey`s 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)

SU49SE
2012
1:10,000

SU48NE
2012
1:10,000

Historical Map - Slice A



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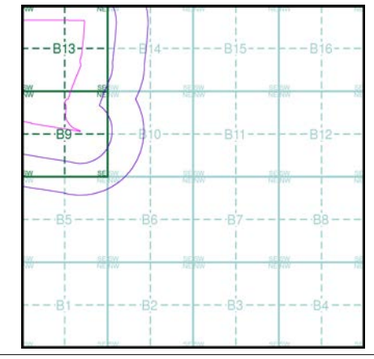
Map Name(s) and Date(s)

SU49SE 2012 1:10,000	SU59SW 2012 1:10,000
SU48NE 2012 1:10,000	SU58NW 2012 1:10,000

Historical Map - Slice B



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