

APPENDIX 4
HISTORICAL ORDNANCE
SURVEY MAPS

Site Details:

MOORGATE EAST FARM,
BROAD LANE, ROCHDALE,
OL16 4QL

Client Ref: 2466-22
Report Ref: GS-9085005
Grid Ref: 392002, 410452

Map Name: County Series

Map date: 1851

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1848
Revised N/A
Edition 1851
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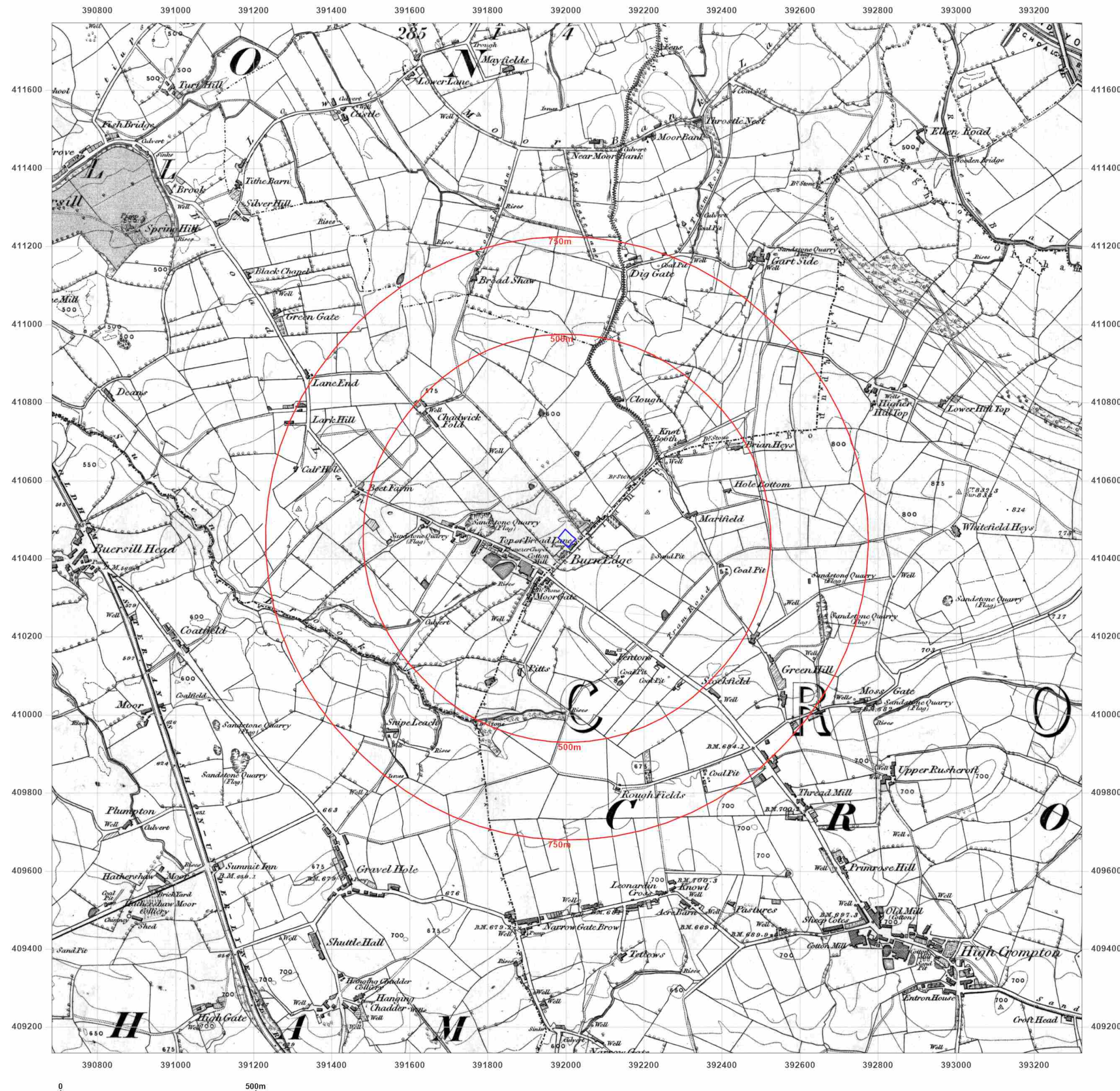


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Site Details:

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BROAD LANE, ROCHDALE,
OL16 4QL

Client Ref: 2466-22
Report Ref: GS-9085005
Grid Ref: 392002, 410452

Map Name: County Series

Map date: 1890-1891

Scale: 1:2,500

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Edition N/A
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Revised 1891
Edition N/A
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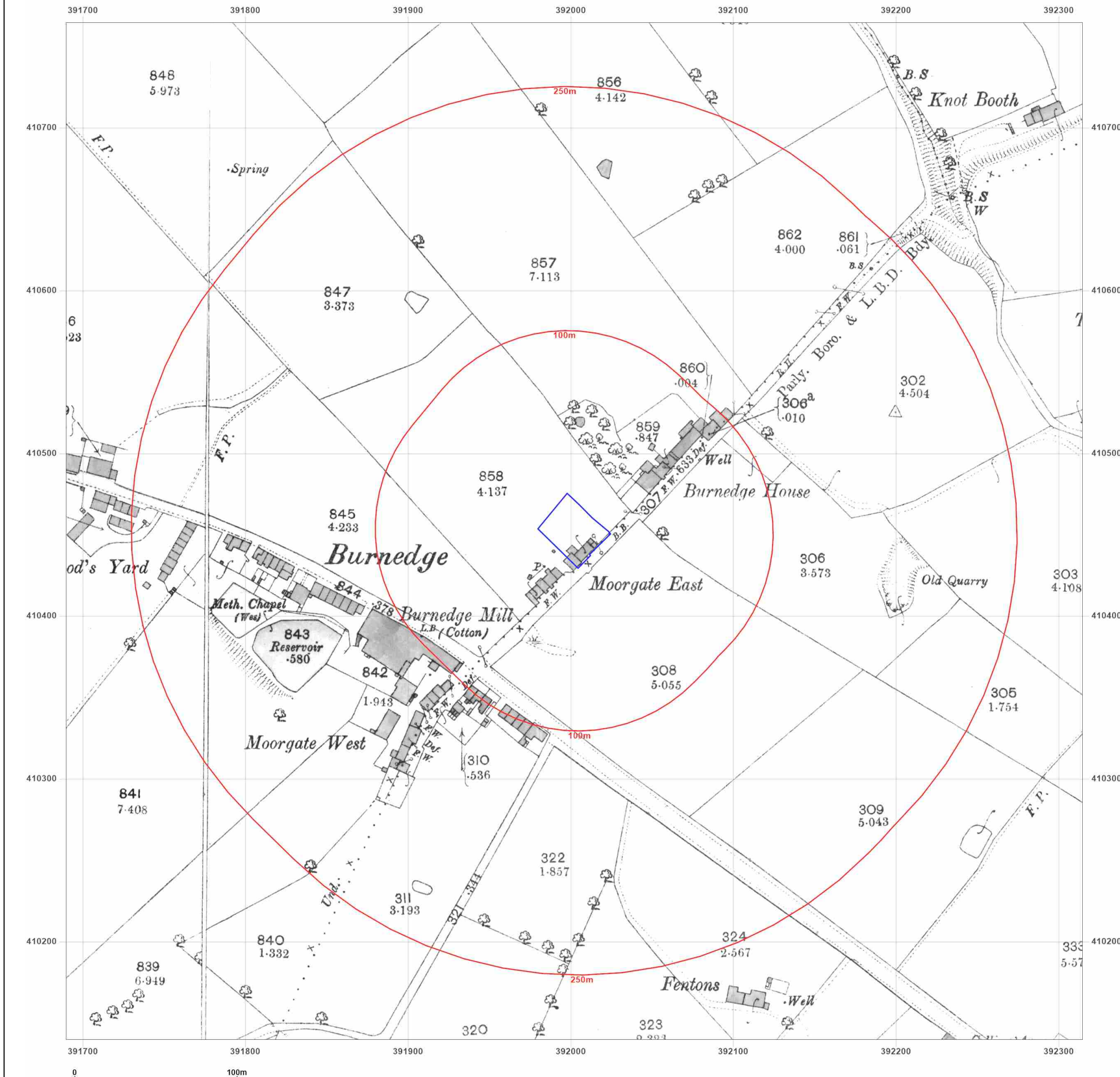


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Site Details:

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BROAD LANE, ROCHDALE,
OL16 4QL

Client Ref: 2466-22
Report Ref: GS-9085005
Grid Ref: 392002, 410452

Map Name: County Series

Map date: 1891

Scale: 1:10,560

Printed at: 1:10,560



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Revised 1891
Edition N/A
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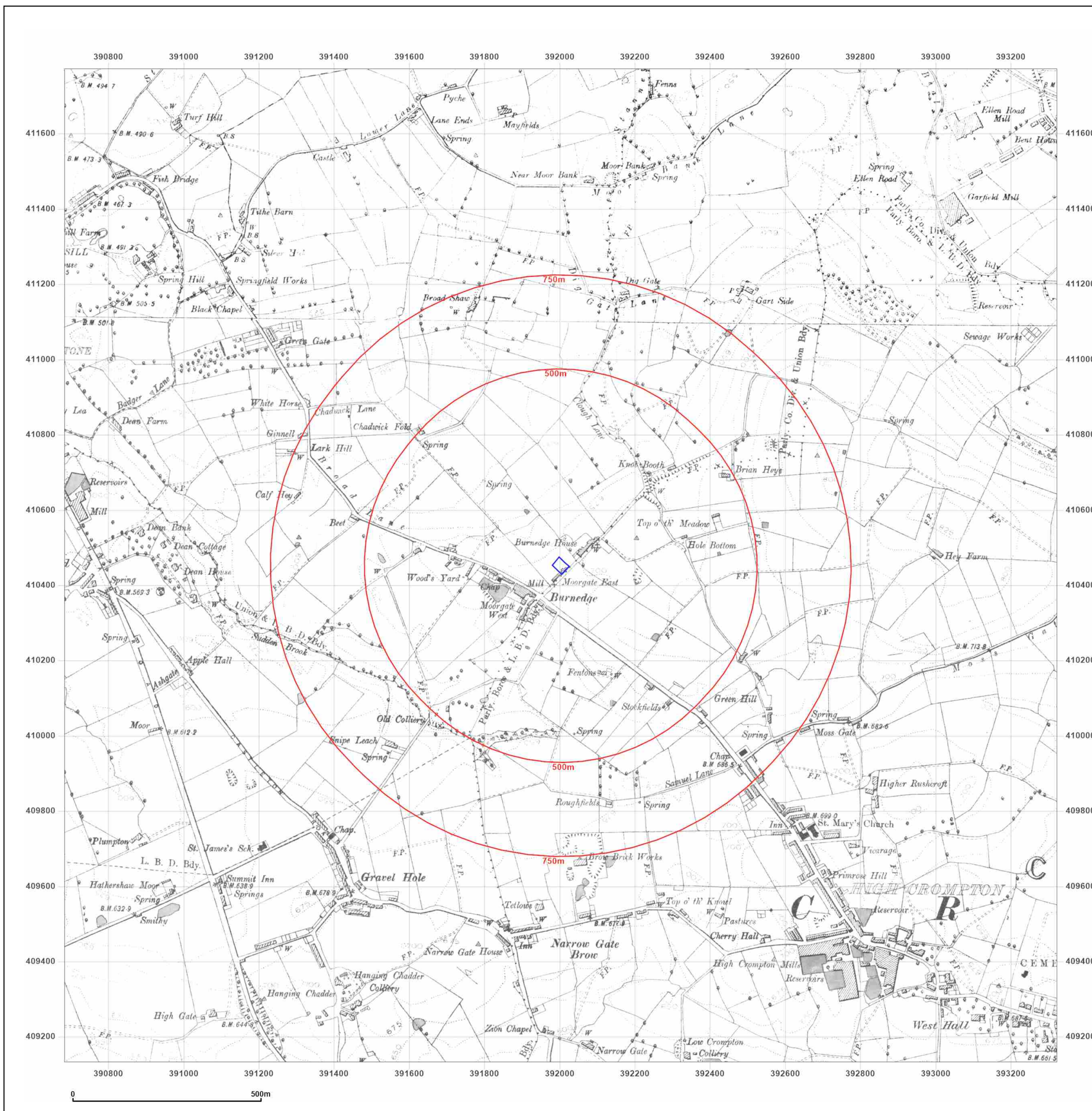


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BROAD LANE, ROCHDALE,
OL16 4QL

Client Ref: 2466-22
Report Ref: GS-9085005
Grid Ref: 392002, 410452

Map Name: County Series

Map date: 1907-1908

Scale: 1:10,560

Printed at: 1:10,560



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Revised 1907
Edition N/A
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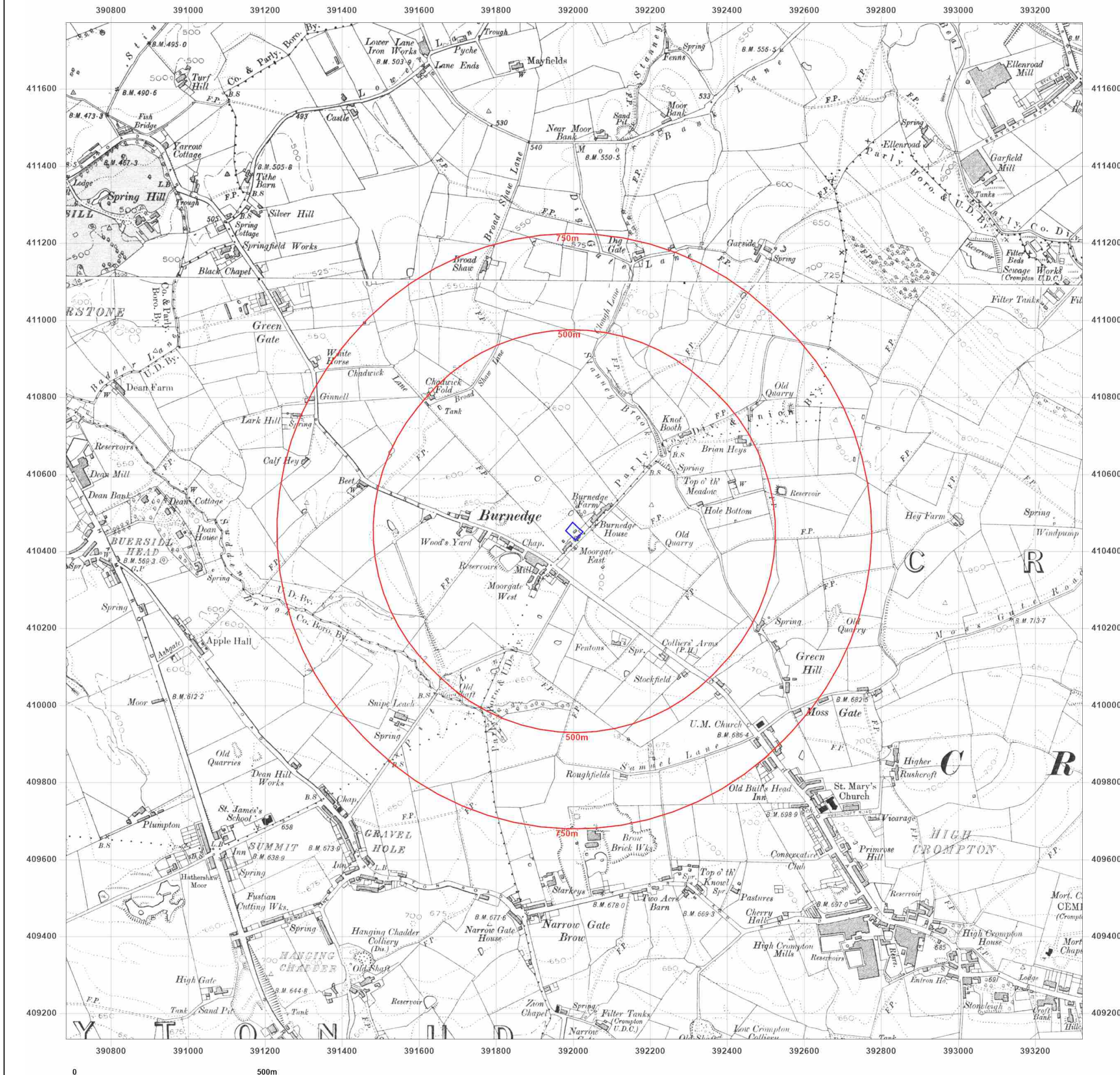


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Site Details:

MOORGATE EAST FARM,
BROAD LANE, ROCHDALE,
OL16 4QL

Client Ref: 2466-22
Report Ref: GS-9085005
Grid Ref: 392002, 410452

Map Name: County Series

Map date: 1910

Scale: 1:2,500

Printed at: 1:2,500



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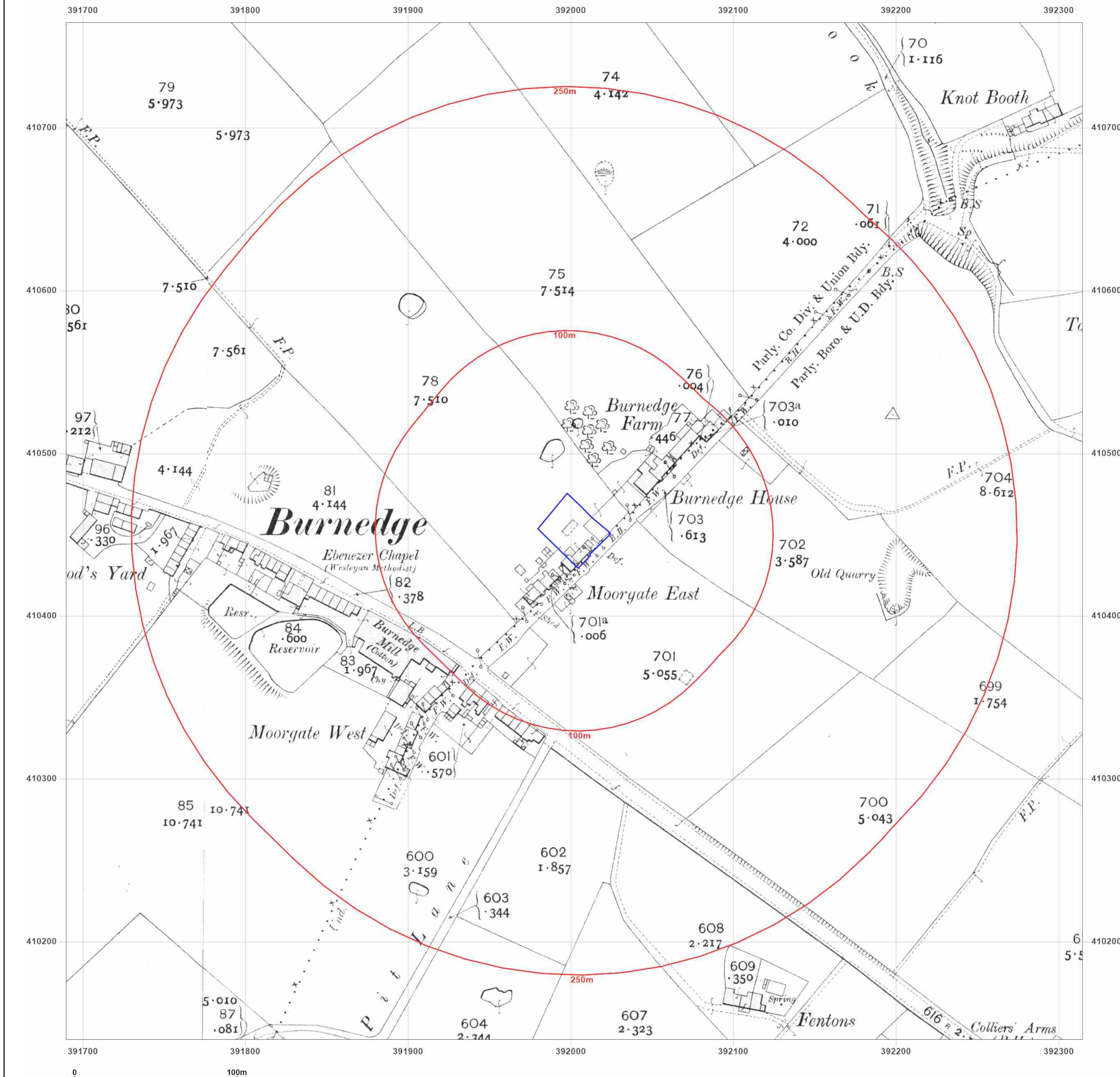


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BROAD LANE, ROCHDALE,
OL16 4QL

Client Ref: 2466-22
Report Ref: GS-9085005
Grid Ref: 392002, 410452

Map Name: County Series

Map date: 1928

Scale: 1:10,560

Printed at: 1:10,560



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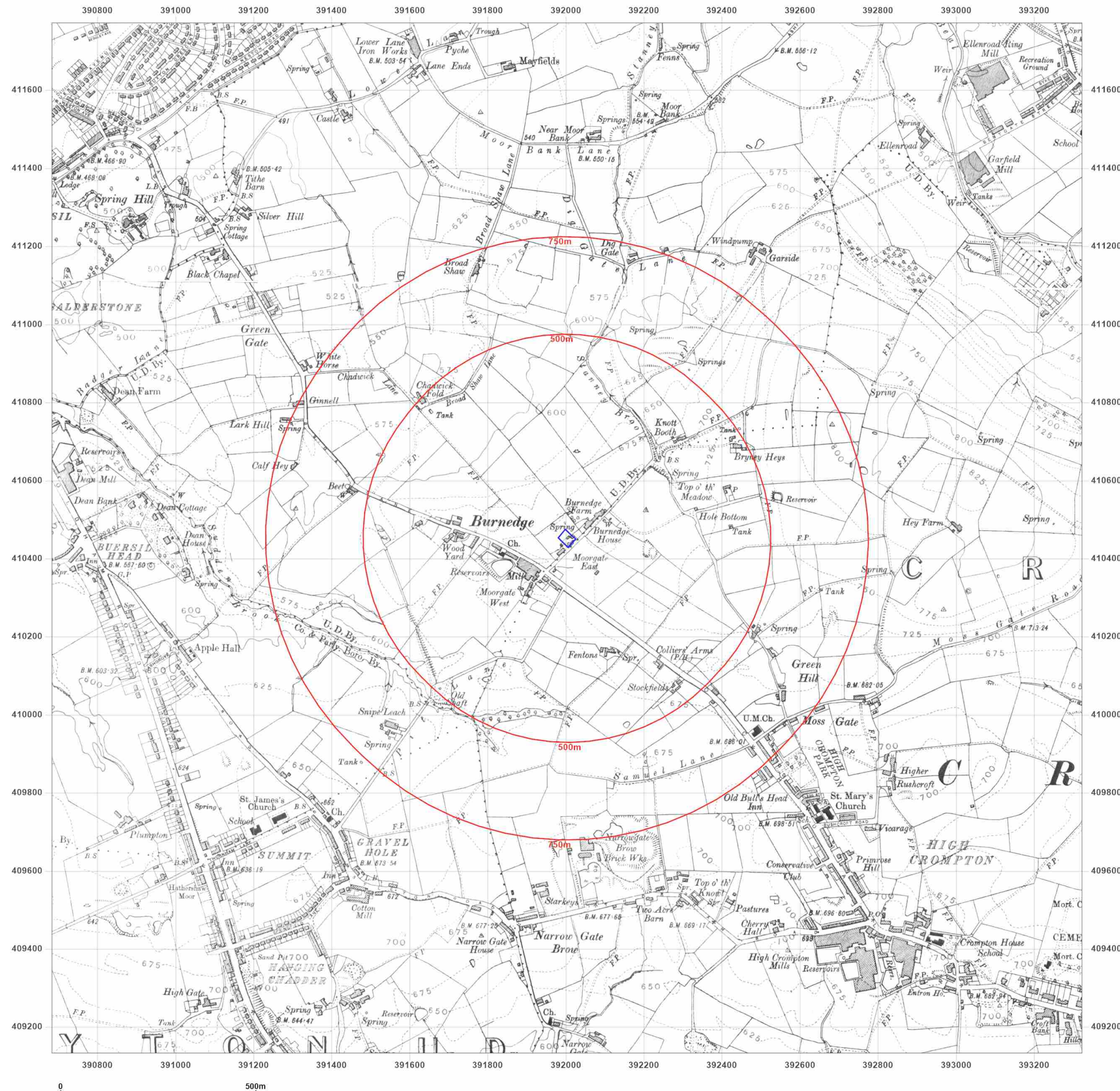


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BROAD LANE, ROCHDALE,
OL16 4QL

Client Ref: 2466-22
Report Ref: GS-9085005
Grid Ref: 392002, 410452

Map Name: County Series

Map date: 1930

Scale: 1:2,500

Printed at: 1:2,500



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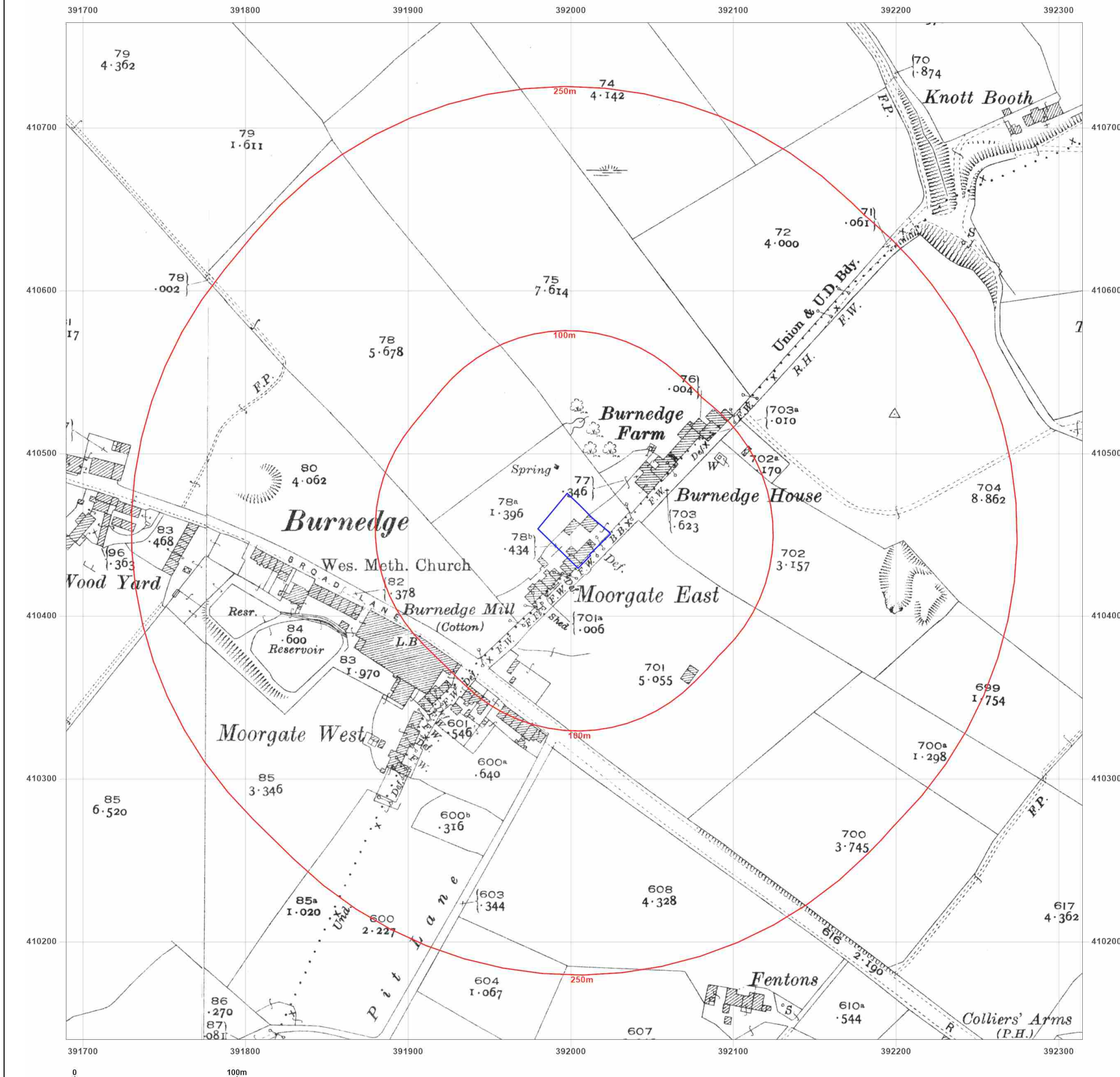


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Site Details:

MOORGATE EAST FARM,
BROAD LANE, ROCHDALE,
OL16 4QL

Client Ref: 2466-22
Report Ref: GS-9085005
Grid Ref: 392002, 410452

Map Name: County Series

Map date: 1936-1937

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1937
Revised 1937
Edition N/A
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Surveyed 1936
Revised 1936
Edition N/A
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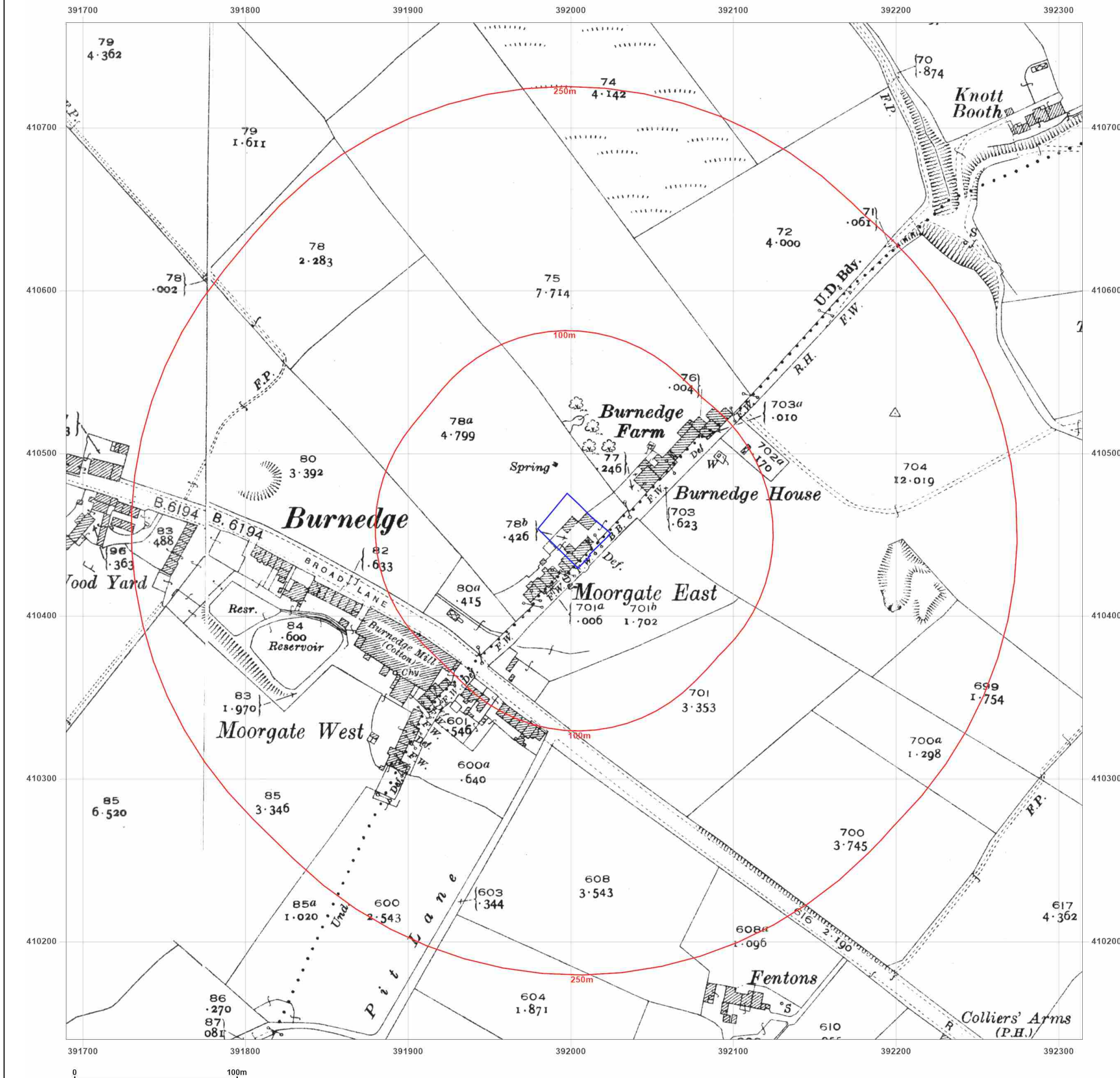


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OL16 4QL

Client Ref: 2466-22
Report Ref: GS-9085005
Grid Ref: 392002, 410452

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1848
Revised 1938
Edition N/A
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Surveyed 1848
Revised 1938
Edition N/A
Copyright N/A
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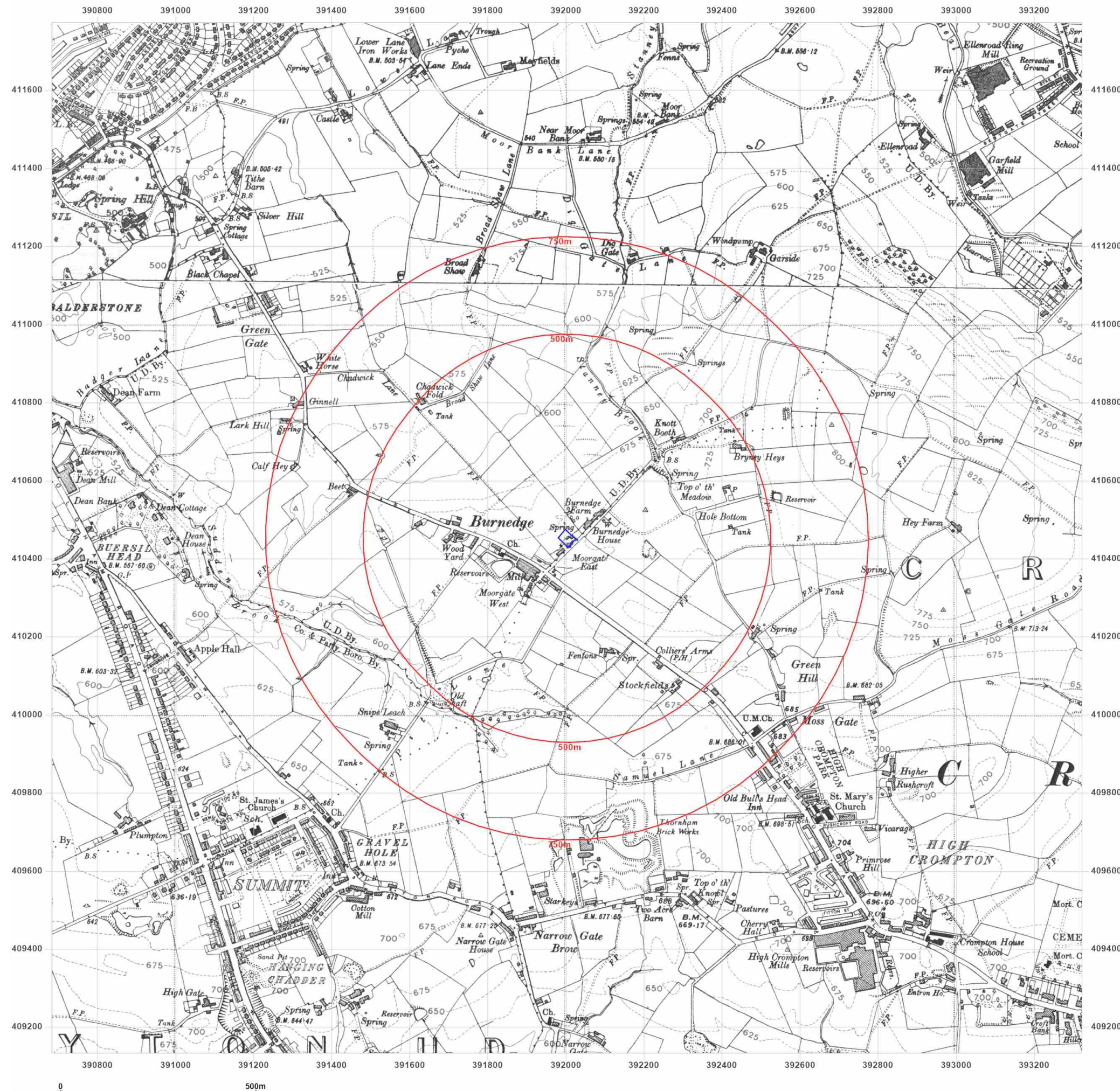


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OL16 4QL

Client Ref: 2466-22
Report Ref: GS-9085005
Grid Ref: 392002, 410452

Map Name: Provisional

Map date: 1954-1956

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1954
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Surveyed 1956
Revised 1956
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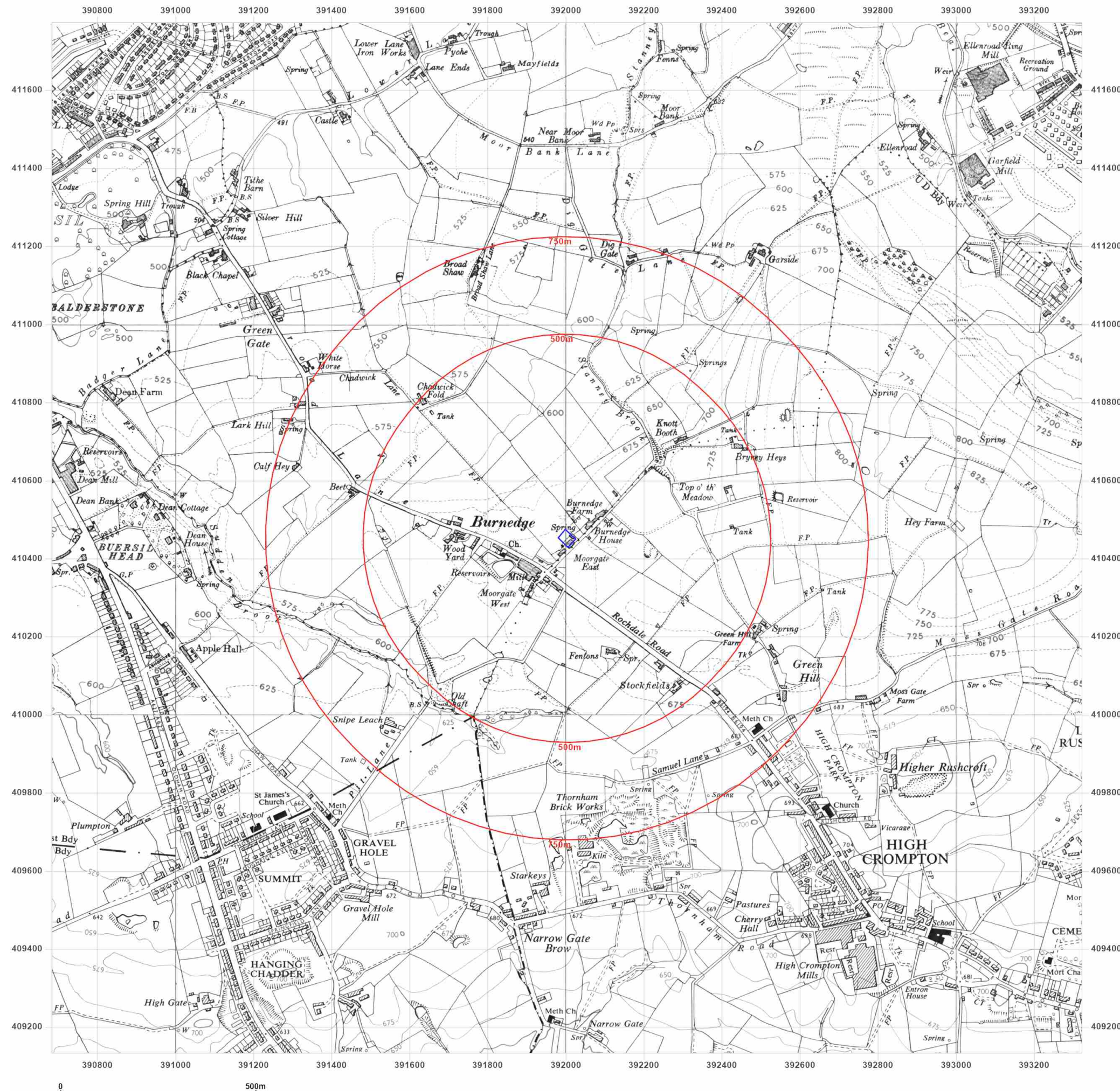


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BROAD LANE, ROCHDALE,
OL16 4QL

Client Ref: 2466-22
Report Ref: GS-9085005
Grid Ref: 392002, 410452

Map Name: Provisional

Map date: 1966-1967

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1967
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Surveyed 1966
Revised 1966
Edition N/A
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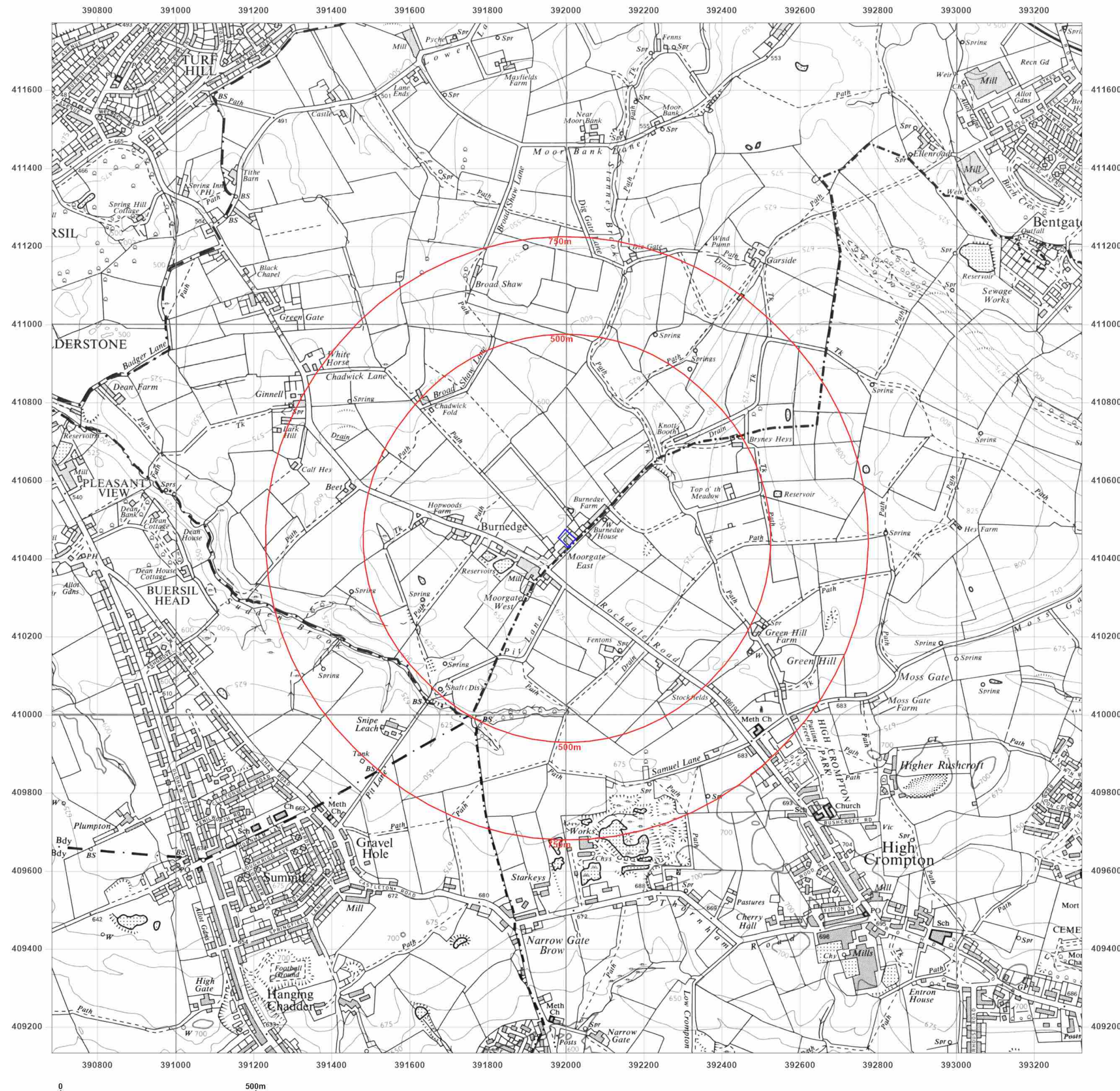


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BROAD LANE, ROCHDALE,
OL16 4QL

Client Ref: 2466-22
Report Ref: GS-9085005
Grid Ref: 392002, 410452

Map Name: National Grid

Map date: 1974-1976

Scale: 1:10,000

Printed at: 1:10,000



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Surveyed 1973
Revised 1974
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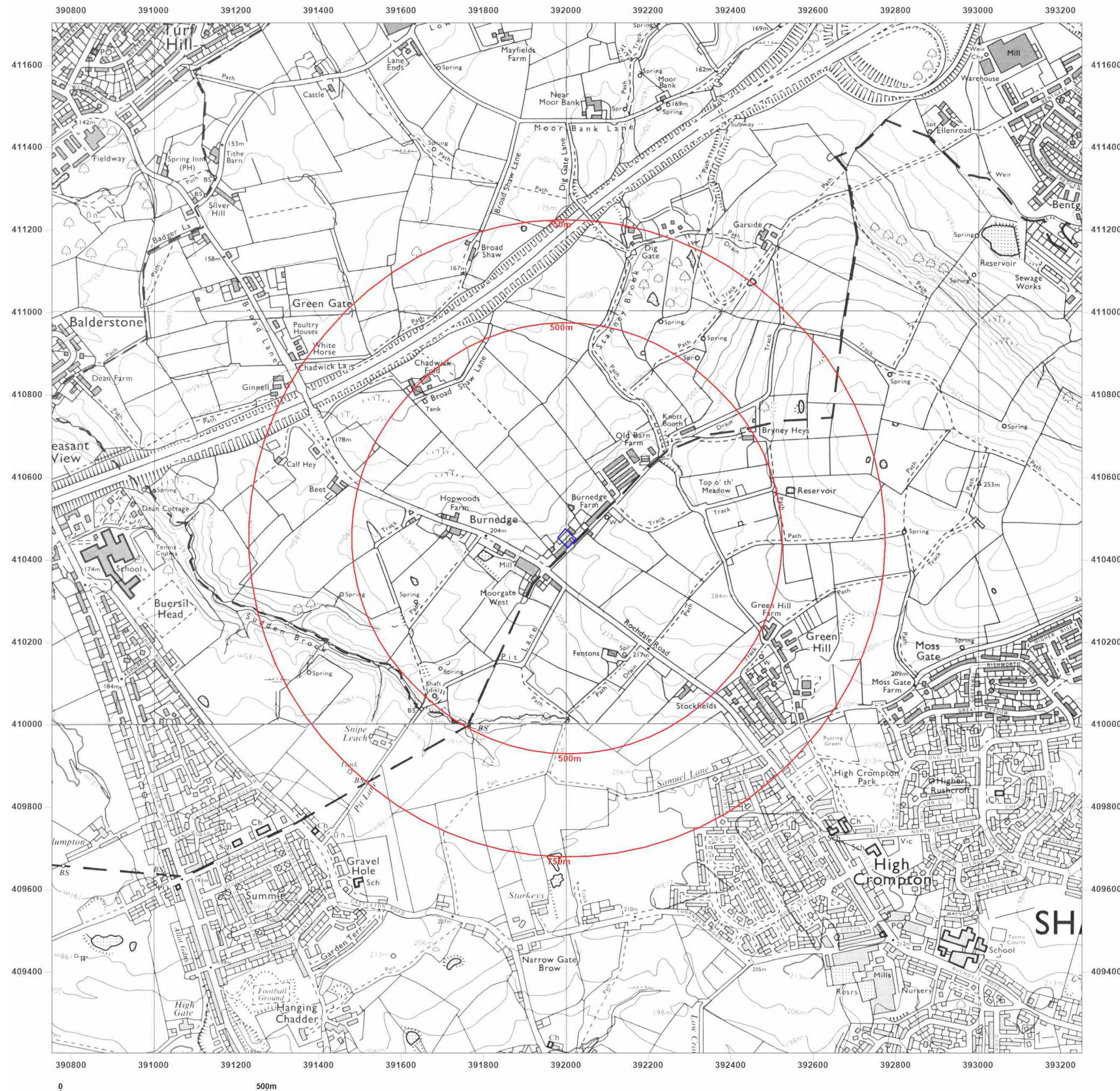


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Client Ref: 2466-22
Report Ref: GS-9085005
Grid Ref: 392002, 410452

Map Name: National Grid

Map date: 2001

Scale: 1:10,000

Printed at: 1:10,000



2001



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OL16 4QL

Client Ref: 2466-22
Report Ref: GS-9085005
Grid Ref: 392002, 410452

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



2003



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Client Ref: 2466-22
Report Ref: GS-9085005
Grid Ref: 392002, 410452

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000



2010

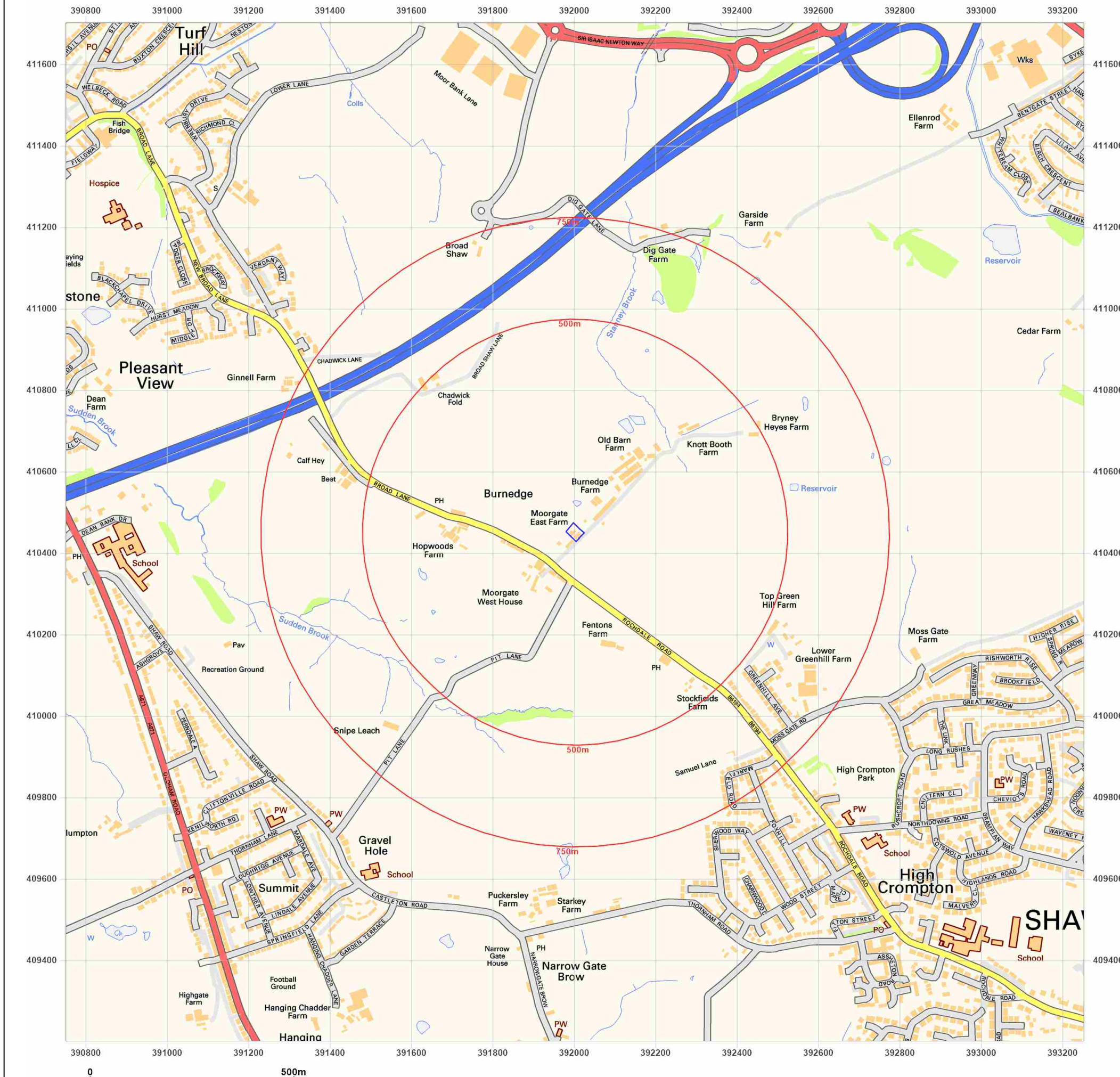


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OL16 4QL

Client Ref: 2466-22
Report Ref: GS-9085005
Grid Ref: 392002, 410452

Map Name: National Grid

Map date: 2022

Scale: 1:10,000

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2022

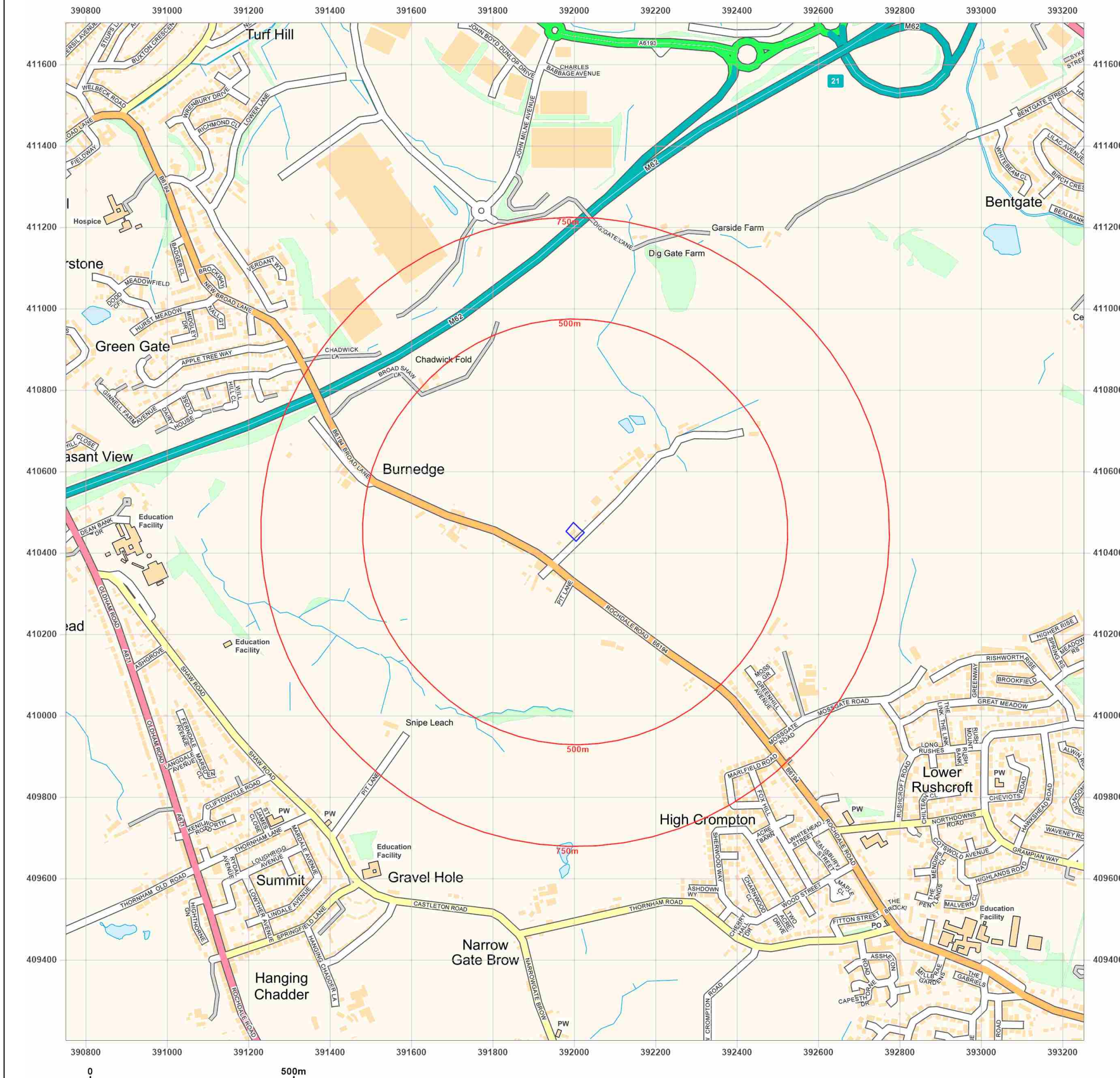


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APPENDIX 5

RISK ASSESSMENT MATRIX

Preliminary Risk Assessment Methodology (After NHBC Guidance for the Safe Development of Housing on Land Affected by Contamination (2008))

NHBC Guidance for the Safe Development of Housing on Land Affected by Contamination (2008) sets out a methodology for the estimation of risk.

At Phase I the risk estimation will take the form of a qualitative risk assessment, which will be entirely based on the conceptual model for each potential end-use of the site. Comments on level of uncertainty will also need to be included for each source-pathway-target linkage to allow the confidence in the assessed risks to be understood. The results of the qualitative risk assessment will allow the risk evaluation to be concisely described in the following chapters.

The methodology for risk evaluation is a qualitative method for interpreting the output for the risk estimation stage of the assessment. It involves the classification of the:

The magnitude of probability (i.e. likelihood).

[takes into account both the presence of the hazard and receptor and the integrity of the pathway]

The magnitude of the potential consequence (i.e. severity).

[takes into account both the potential severity of the hazard and the sensitivity of the receptor]

Classification of Probability

Classification	Definition	Examples
High likelihood (Hi)	There is a pollutant linkage and an event that either appears very likely in the short term and almost inevitable in the long term, or there is evidence at the receptor of harm or pollution.	A) <i>Elevated concentrations of toxic contaminants are present in soils in the top 0.5m in a residential garden.</i> B) <i>Ground/groundwater contamination could be present from chemical works, containing a number of USTs, having been in operation on the same site for over 50 years</i>
Likely (Li)	There is a pollutant linkage, and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.	A) <i>Elevated concentrations of toxic contaminants are present in soils at depths of 0.5-1.0m in a residential garden, or the top 0.5m in public open space.</i> B) <i>Ground/groundwater contamination could be present from an industrial site containing a UST present between 1970 and 1990. The tank is known to be single skin. There is no evidence of leakage although there are no records of integrity tests.</i>
Low likelihood (Lw)	There is a pollutant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place and is less likely in the short term.	A) <i>Elevated concentrations of toxic contaminants are present in soils at depths >1m in a residential garden, or 0.5-1.0m in public open space.</i> B) <i>Ground/groundwater contamination could be present on a light industrial unit constructed in the 1990s containing a UST in operation over the last 10 years – the tank is double skinned but there is no integrity testing or evidence of leakage.</i>
Unlikely (UI)	There is a pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long term.	A) <i>Elevated concentrations of toxic contaminants are present below hardstanding.</i> B) <i>Light industrial unit <10 yrs old containing a double skinned UST with annual integrity testing results available.</i>

Preliminary Risk Assessment Methodology (After NHBC Guidance for the Safe Development of Housing on Land Affected by Contamination (2008))

Classification of Consequence

	Definition	Examples
Severe (Sv)	Highly elevated concentrations likely to result in “significant harm” to human health as defined by the EPA 1990, Part 2A, if exposure occurs. A Category 1: Human Health risk is present. Equivalent to EA Category 1 pollution incident including persistent and/or extensive effects on water quality; leading to closure of a potable abstraction point major impact on amenity value or major damage to agriculture or commerce. Major damage to aquatic or other ecosystems, which is likely to result in a substantial adverse change in its functioning or harm to a species of special interest that endangers the long - term maintenance of the population. Catastrophic damage to crops, buildings or property.	<i>Significant harm to humans is defined in circular 01/2006 as death, disease*, serious injury, genetic mutation, birth defects or the impairment of reproductive functions.</i> <i>Major fish kill in surface water from large spillage of contaminants from site.</i> <i>Highly elevated concentrations of List 1 and substances present in groundwater close to small potable abstraction (high sensitivity).</i> <i>Explosion, causing building collapse (can also equate to immediate human health risk if buildings are occupied).</i>
Medium (Md)	Elevated concentrations which could result in “significant harm” to human health as defined by the EPA 1990, Part 2A if exposure occurs. A Category 2: Human Health risk is present. Equivalent to EA Category 2 pollution incident including significant effect on water quality; notification required to abstractors; reduction in amenity value or significant damage to agriculture or commerce. Significant damage to aquatic or other ecosystems, which may result in a substantial adverse change in its functioning or harm to a species of special interest that may endanger the long-term maintenance of the population. Significant damage to crops, buildings or property.	<i>Significant harm to humans is defined in circular 01/2006 as death, disease* serious injury, genetic mutation, birth defects or the impairment of reproductive functions.</i> <i>Damage to building rendering it unsafe to occupy e.g. foundation damage resulting in instability.</i> <i>Ingress of contaminants through plastic potable water pipes.</i>
Mild (MI)	Exposure to human health unlikely to lead to “significant harm”. A Category 3 Human Health risk is present. Equivalent to EA Category 3 pollution incident including minimal or short lived effect on water quality; marginal effect on amenity value, agriculture or commerce Minor or short lived damage to aquatic or other ecosystems, which is unlikely to result in a substantial adverse change in its functioning or harm to a species of special interest that would endanger the long-term maintenance of the population Minor damage to crops, buildings or property.	<i>Exposure could lead to slight short - term effects (e.g. mild skin rash).</i> <i>Surface spalling of concrete.</i>
Minor (Mr)	No measurable effect on humans. A Category 4: Human Health risk is present. Equivalent to insubstantial pollution incident with no observed effect on water quality or ecosystems. Repairable effects of damage to buildings, structures and services.	<i>The presence of contaminants at such concentrations that protective equipment is required during site works.</i> <i>The loss of plants in a landscaping scheme.</i> <i>Discoloration of concrete.</i>

* For these purposes, disease is to be taken to mean an unhealthy condition of the body or a part of it and can include, for example, cancer, liver dysfunction or extensive skin ailments. Mental dysfunction is included only insofar as it is attributable to the effects of a pollutant on the body of the person concerned.

The classification of consequence does not take into account the probability of the consequence being realized. Therefore, there may be more than one consequence for a particular pollutant linkage. Both a severe and medium classification can result in death. Severe relates to short term (acute) risk while medium relates to long

Preliminary Risk Assessment Methodology (After NHBC Guidance for the Safe Development of Housing on Land Affected by Contamination (2008))

term (chronic) risk. Mild relates to significant harm but to less sensitive receptors. Minor classification relates to harm which is not significant but could have a financial cost.

The classification gives a guide as to the severity and consequence of identified risk when compared with other risk presented on the site. It should be noted that if a risk is identified it cannot be classified as “no risk” but as “very low risk”. Differing stakeholders may have a different view on the acceptability of a risk.

Risk Evaluation Matrix

		Consequence			
		Severe (Sv)	Medium (Md)	Mild (Mi)	Minor (Mr)
Probability	High likelihood (Hi)	Very high risk (VH)	High Risk (H)	Moderate Risk (M)	Mod/low risk (M/L)
	Likely (Li)	High risk (H)	Moderate risk (M)	Mod/low risk (M/L)	Low risk (L)
	Low likelihood (Lw)	Moderate risk (M)	Mod/low risk (M/L)	Low risk (L)	Very low risk (VL)
	Unlikely (UI)	Mod/low risk (M/L)	Low risk (L)	Very low risk (VL)	Very low risk (VL)

Risk Categorizations

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

Reference

Rudland, D J, Lancefield, R M, Mayell, P N; 2001; Contaminated land Risk Assessment. A guide to Good Practice; CIRIA Report C552.

The NHBC (National House-Building Council) the Environment Agency and the Chartered Institute of Environmental Health, 2008, Guidance for the Safe Development of Housing on Land Affected by Contamination R&D66.