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- 5.0 FLOOD RISK ASSESSMENT**
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BARNSELY
Metropolitan Borough Council





Flood Risk Assessment

Goldthorpe Primary School Goldthorpe

On behalf of Barnsley Metropolitan District Council

Report 140239/01/JS
September 2013

Report Issue Record

Project No.:	140239
Project Title:	Goldthorpe Primary School, Goldthorpe
Site Location:	Goldthorpe, near Barnsley
Client:	Barnsley Metropolitan District Council
Report Title:	Flood Risk Assessment
Issue Date:	September 2013
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Appendices

- A Site Location Plan**
- B Yorkshire Water sewer records**

1 Introduction

1.1 Context

Robson Liddle Limited has been commissioned to undertake a Flood Risk Assessment in support of the feasibility study for a primary school in Goldthorpe, near Barnsley, South Yorkshire.

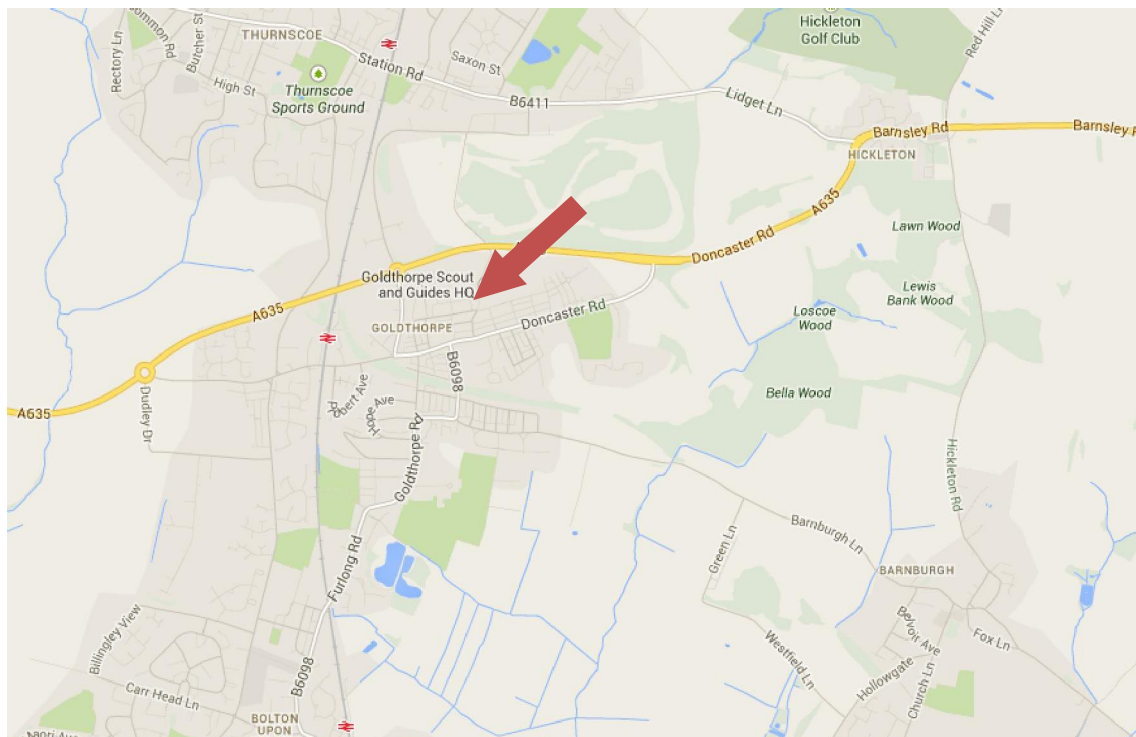
This assessment has been undertaken to assess the impact of the proposals with respect to flood risk.

1.2 Site Location and Features

Details of the site location are shown below:

Grid Reference: SE 46463 04508

Eastings/ Northings: 446440, 404535



A more detailed plan of the existing site is included in Appendix A

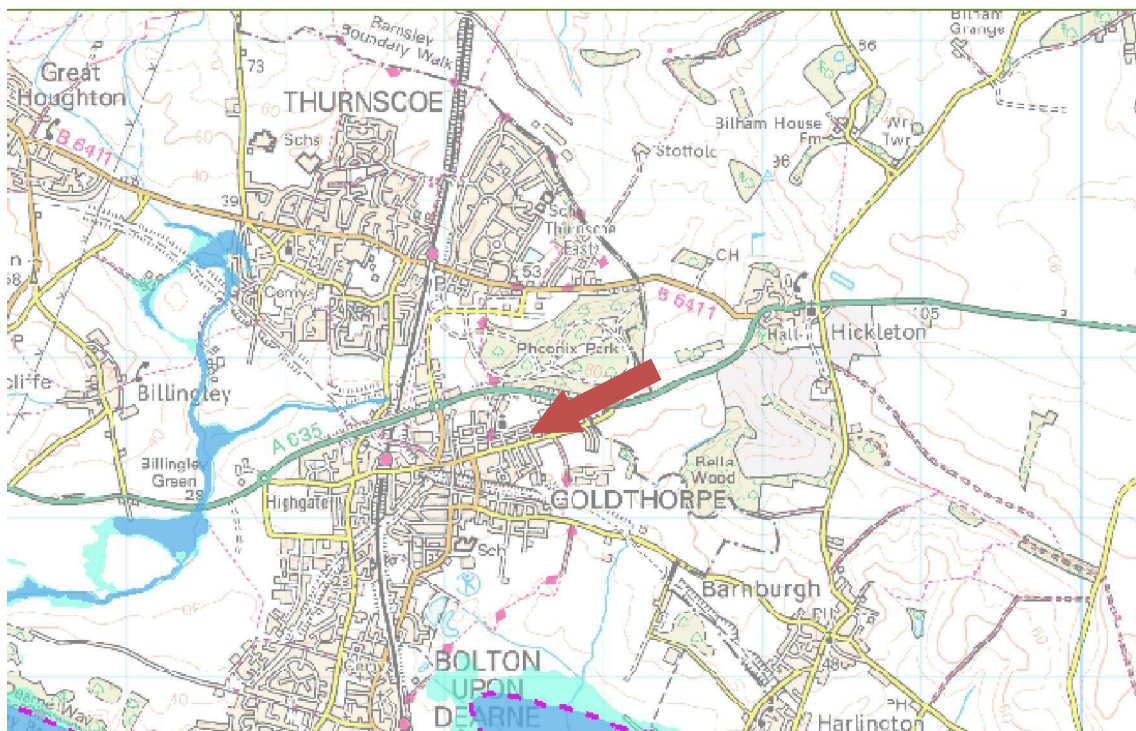
The area proposed to be developed is approximately 2.4 hectares in area. The site is currently residential and green field bounded by residential areas to the west, south and east and parkland to the north.

1.3 Development Proposals

Current proposals for the site are to construct a primary school with associated car parking, play areas and landscaping. The design of the buildings and external areas will follow feasibility study.

1.4 Flood Zone Allocation

Based on the latest Flood Zone Mapping available from the Environment Agency (EA) the site is within flood zone 1, i.e. not at risk of fluvial flooding in events up to the 1000 year return period. See map below



1.5 Appropriateness of Development Proposals

Table 2 of the Technical Guidance to the National Planning Policy Framework (TGNPPF) provides information of the vulnerability classification of various developments. The site is within Flood zone 1, sequential and exception tests are not required.

1.6 Influence of Climate Change

When considering surface water runoff from a site the increase in peak rainfall intensity varies over the lifetime of the development. In line with guidance from TGNPPF a 30% increase in rainfall intensities should be applied in calculations.

2 Sources of Information

2.1 Flood Zone Maps and Flood Defence Data

A copy of the flood risk map from the EA website is included in this report in section 1.4. As the site is within Flood Zone 1 no further information is required.

2.2 Watercourses and Ponds

The nearest water course to the development is Thruscoe Dyke approximately 390m north of the site. The nearest major water course is the River Dearne, approximately 2km to the south of the development.

2.3 Historic Flooding

There is no known history of flooding on this site

2.4 Public Sewer Records

| The Yorkshire Water public sewers in the vicinity can be summarised as follows:

- 225mm combined sewer running east to west through the north of the site between West Street and Hamilton Road
- 450mm combined sewer running east to west to the south of the site in Doncaster Road
- 225mm surface water sewer running north in Hamilton Street then through the allotments in the north of the site.
- 225mm combined sewer running east to west through the site from the south end of West Street to Hamilton Street
- Yorkshire Water sewer records are available in Appendix B

2.5 Topographical Data

A topographical survey has yet to be carried out. A site walkover conducted in July 2013 found the site to be mostly level. From ordnance mapping the level of the site is approximately 55m AOD.

2.6 Barnsley Council Flood Risk Management

Barnsley Metropolitan District Council has no historical records of the site flooding

3 Flood Risk Assessment

3.1 Flood Risk Assessment Methodology and Objectives

It is recognised that developments that are designed without regard to flood risk may endanger lives, damage property, cause disruption to the wider community, damage the environment, be difficult to insure and require additional expense on remedial works. Current guidance on development and flood risk¹ identifies several key aims for a development to ensure that it is sustainable in flood risk terms. These aims are as follows:

- The development should not be exposed to flood risk such that the health, safety and welfare of the users of the development, or the population elsewhere, are threatened;
- The development should not be at significant risk of flooding and not be subject to damage due to flooding
- Safe access to and from the development should be possible during flood events;
- The development should not increase flood risk elsewhere;
- The development should not prevent safe maintenance of watercourses or maintenance and operation of flood defences;
- The development should not be associated with an onerous or difficult operation and maintenance regime to manage flood risk. The responsibility for any operation and maintenance required should be clearly defined;
- Future users of the development should be made aware of any flood risk issues relating to the development;
- The development design should be such that future users will not have difficulty obtaining insurance or mortgage finance, or in selling all or part of the development, as a result of flood risk issues;
- The development should not lead to degradation of the environment; and
- The development should meet all of the above criteria for its entire lifetime, including consideration of the potential effects of climate change.

¹ CIRIA, 2004, Funders Report CP/102 Development and Flood Risk – Guidance for the Construction Industry.

This Flood Risk Assessment is undertaken with due consideration of these sustainability aims, and has been prepared to inform the proposed scheme. A development lifetime of 100 years has been assumed.

3.2 Project Scope

In order to achieve the aims outlined above, this Flood Risk Assessment has been undertaken in accordance with current best-practice guidance, including TGNPPF. The report has been undertaken with due regard to the EA's National Standing Advice on Development and Flood Risk².

3.3 Potential Sources of Flooding

All potential sources of flooding must be considered for any proposed development. Using the EA flood risk zone mapping, public sewer records, topographical survey and Ordnance Survey maps a summary of the potential sources of flooding for the site have been reviewed and summarised in the table below.

Table 1: Potential Risk Posed by Flooding Sources

Potential Source	Potential Flood Risk to Site?	Comment
Fluvial flooding	No	The land is 2km away from the River Dearne and not in the flood zone
Tidal flooding	No	Not close to the coast
Flooding from rising / high groundwater	No	No issues known
Overland flow flooding	No	Site is not at the low point of surrounding topography
Flooding from piped drainage systems	No	The site may be at risk of flooding resulting from surcharging of the local drainage system. However, the surrounding sewers are owned and maintained by Yorkshire Water. We are unaware of any capacity issues or flood risk associated with these systems.
Flooding due to infrastructure failure (Reservoirs, lakes etc)	No	No
Increase in flood risk due to urbanisation of the catchment	No	No

In conclusion, the site is not deemed to be at risk of flooding.

² Environment Agency, March 2007, National Standing Advice to Local Planning Authorities for Planning Applications – Development and Flood Risk.

4 Drainage Strategy

4.1 Surface Water

This section of the report is supported by Yorkshire Water sewer records, the topographic survey and the existing and proposed drainage layouts available in the appendices.

4.1.1 Method of Discharge

The Building Regulations Part H prescribes a hierarchical approach to surface water discharge. In order of preference, surface water should be discharged:

- Via infiltration.
- To watercourse.
- To public sewer.

Discharge via Infiltration

Building Regulations Part H requires all infiltration devices to be a minimum of 5m away from buildings, this is achievable landscaped areas. The Ground Investigation Report states the site is based on sandstone. This indicates infiltration may be a viable means of surface runoff elimination.

Decision: Further investigation required to confirm whether infiltration method of surface water disposal is viable.

Discharge to watercourse

The nearest watercourse is over 390m away and would require excavating and installing pipework across third party land. The disruption to the public and cost of these works make this method of surface water elimination not viable.

Decision: Method of discharge not viable

Discharge to public sewer

There are existing surface water connections from the site to the public sewerage system from the rainwater pipes and gullies serving the houses and highways. Should the development discharge to the public sewer the proposed peak discharge rate will be restricted to the equivalent existing 1 year return period runoff for storm events up to the 30 year return period. This discharge restriction would require attenuation to be provided on site.

Decision: Method of discharge viable.

Conclusion: The surface runoff from site will either infiltrate to the ground or discharge to the public sewer system.

4.2 Disposal of Foul Water Runoff

Foul flows from the development will drain to the combined sewer system crossing the site. Invert levels and condition of this system will require confirmation.

5 Summary and Conclusion

Robson Liddle Limited has been commissioned by NPS Ltd to undertake a Flood Risk Assessment in support of a feasibility study for a new primary school in the Goldthorpe area of Barnsley. This assessment has been undertaken to ascertain the constraints to the development of this site, and to assess the impact of the proposals with respect to flood risk.

The site lies within Flood Zone 1 when considered against EA flood zone maps and as such is not at risk from fluvial flooding. Further assessment has found that the risk of flooding to the site is minimal.

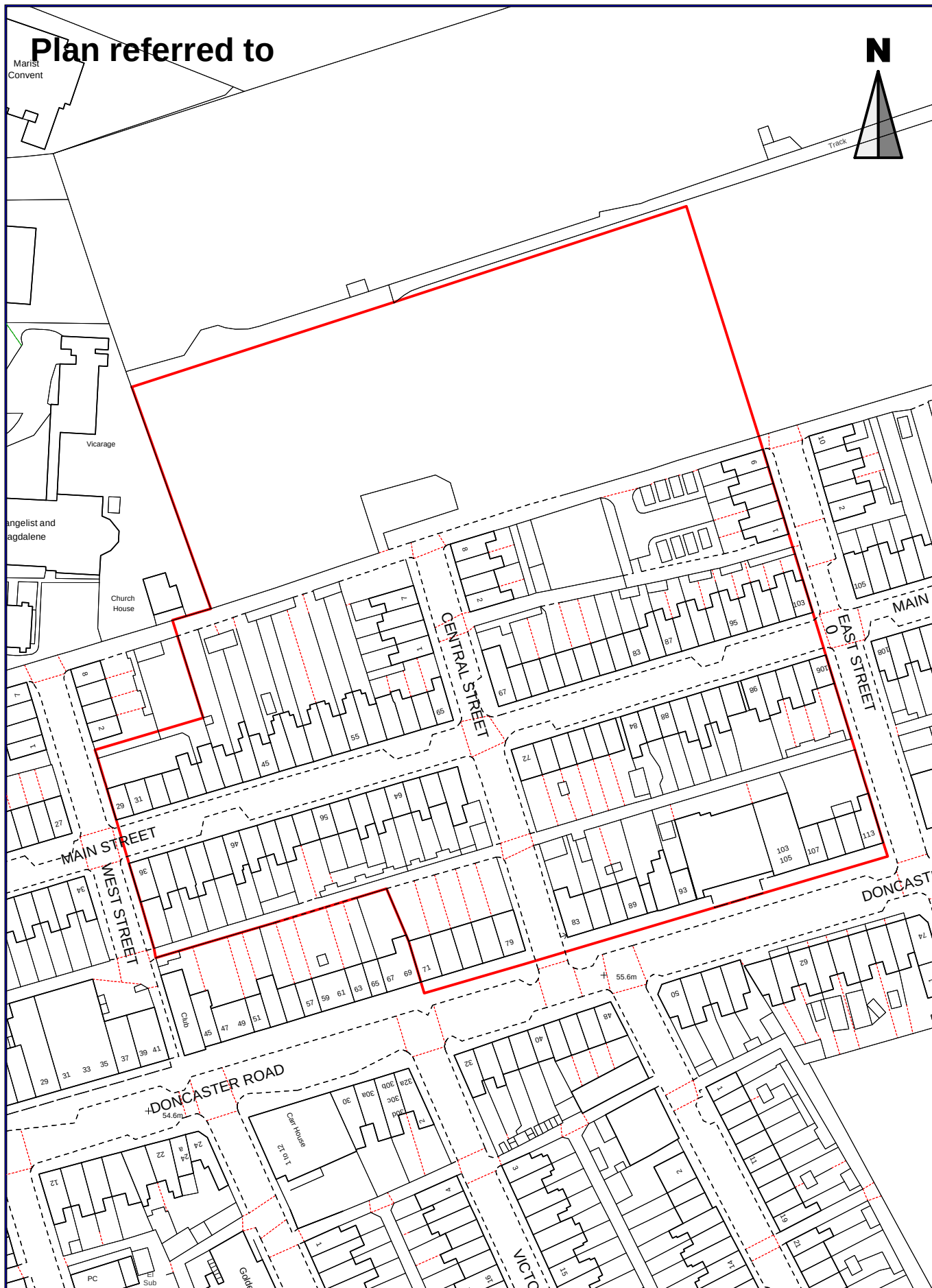
The method of surface water disposal from the development is yet to be determined. In order to connect surface water from the proposed development to the public sewer further site investigation is required to conclude whether the preferred method of infiltration is a viable means of surface water disposal.

The foul flows from the site will discharge into the public combined sewer running through the site. This will be subject to a section 106 agreement with Yorkshire Water. Additional CCTV survey will be required to determine the invert level and condition of the sewer.

If this site is developed as proposed within this FRA it will not increase the flood risk in the vicinity of the site or affect other properties downstream.

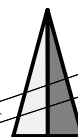
Appendix A

Site Location Plan



Plan referred to

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Date: 28/06/2012

Scale 1: 1,250

Drawing Title :

GOLDTHORPE

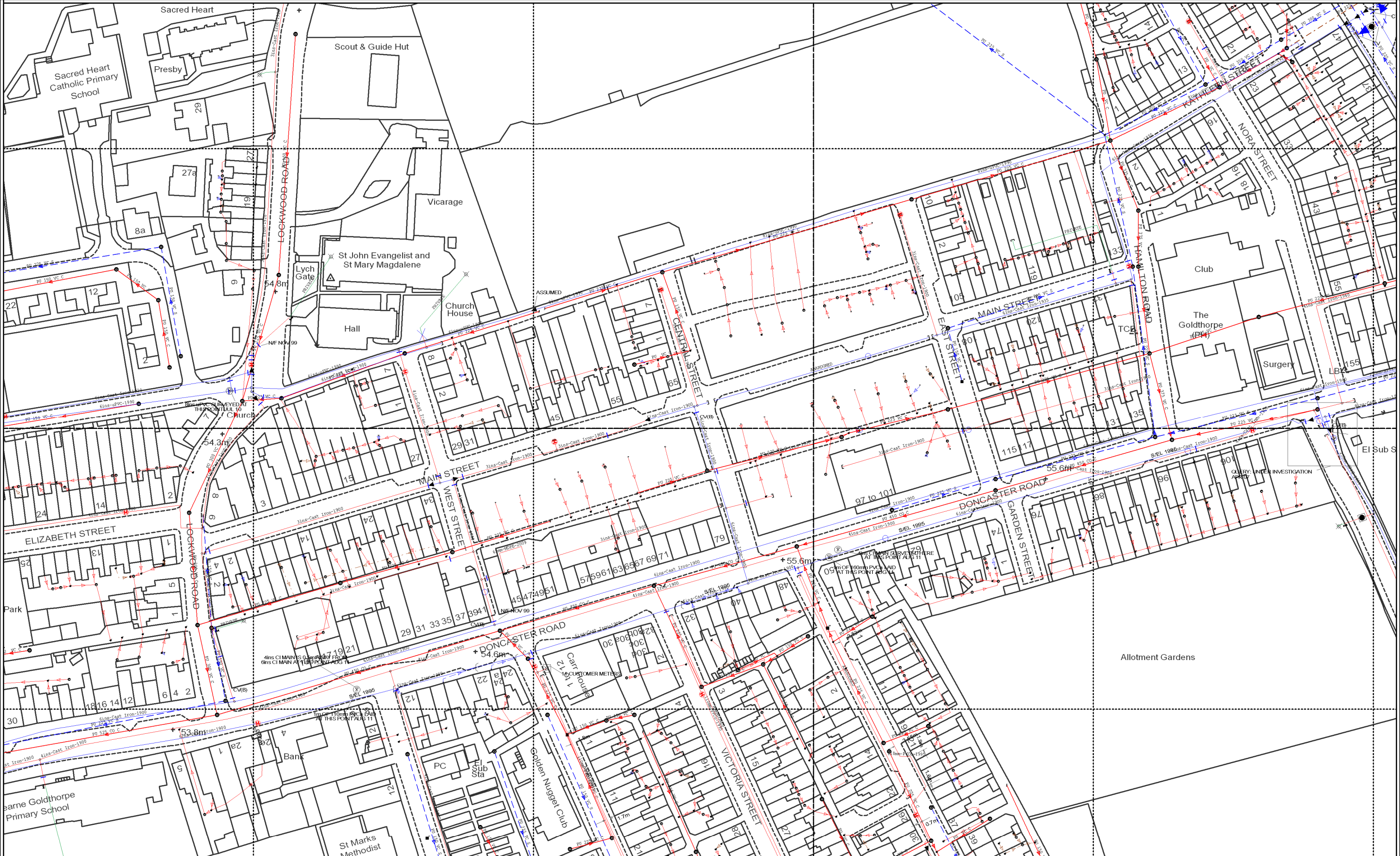


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Appendix B

Yorkshire Water Sewer and Water Main Records



Bottom-left: 446211, 404347 Scale: 1250

Map Name : SE4604SW

Notes

Partial Key

This plan is furnished as a general guide only and no warranty as to its correctness is given or implied. This plan must not be relied upon in the event of excavations or other works made in the vicinity of public sewers. No house or property connection

Yorkshire Water,
PO Box 500,
Halifax Road,
Bradford BD6 2LZ
Contact Name :

(Ody) Based upon Ordnance Survey map data with the permission of the Controller of Her Majesty's Stationary Office, (c) Crown Copyright. Licence No. WU298581.

Foul Sewer = F
Combined Sewer = C
Surface Water Sewer = SW
Trade Sewer = TD
Partially Separate = PS

Date Req :

Last Data Update09/04/2013 11:38:00

Source :

Yorkshire Water Web Mapping
System

Contact Tel :