

FLOOD RISK
AND
SURFACE WATER DRAINAGE ASSESSMENT
FOR
PROPOSED RESIDENTIAL / RETAIL DEVELOPMENT
LAND OFF
NANNY MARR ROAD, DARFIELD, BARNSELEY
ON BEHALF OF
PARTNER CONSTRUCTION

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1. EXECUTIVE SUMMARY

- 1.1 Integra Consulting have assigned this report to Partner Construction on the basis of undertaking a Flood Risk Assessment in accordance with the National Planning Policy Framework for the proposed residential / retail development off Nanny Marr Road, Darfield, Barnsley. This document has been prepared to accompany the planning application for the site.
- 1.2 The site is approximately 2.3 hectares in area and is located directly to the east of Nanny Marr Road, Darfield, as shown in the location plans in Appendix 1. The national Ordnance Survey grid reference for the centre of the site is E 441533 N 404510 and it is located at post code S73 9AB. The site is bounded by housing on Coronation Street to the north, housing on Queen Street and Victoria Street with an area of open land to the east, Barnsley Road to the south and Nanny Marr Road to the west.
- 1.3 Following appraisal of the Environment Agency flood maps, the site lies entirely within Flood Zone 1.
- 1.4 The BGS 1:50,000 geological map of the area shows the site to be underlain by silty sands and clayey sands across the site which are in turn underlain by solid deposits of Mexborough Rock sandstone.
- 1.5 On the basis of the anticipated site ground conditions, the use of sustainable urban drainage systems (SUDS) in the form of infiltration techniques is considered to be a potential post development surface water drainage strategy. This will naturally be verified by the construction of infiltration test pits on site in order to determine the soil permeability.

2. INTRODUCTION

Integra Consulting have assigned this report to Partner Construction following a previous report in 2013 commissioned by Mark Rothery of Rothstone to undertake a Flood Risk Assessment in accordance with the National Planning Policy Framework for the proposed mixed use development off Nanny Marr Road, Darfield, Barnsley. This document has been prepared to accompany the planning application for the site.

The objective of the Flood Risk Assessment was to identify potential flooding issues and any consequent implications on the proposed development. Existing and proposed foul and surface water drainage for the site development are considered in detail.

This assessment has been undertaken in accordance with the following documents:

- Pro-forma guidance contained in the Department for Communities and Local Government document 'Technical Guidance to the National Planning Policy Framework' dated March 2012;
- Barnsley Strategic Flood Risk Assessment Level 1 dated September 2010.
- DEFRA / Environment Agency publication SR744 Preliminary Rainfall Runoff Management for Developments revision E dated January 2012.

3. STANDARDS AND LIMITATIONS

This report has been prepared solely for use by Partner Construction. It shall not be relied upon or transferred to any other party without prior written authorisation of Integra Consulting.

The findings and opinions in the report are based on information derived from a variety of different sources. Integra Consulting do not accept any liability for the accuracy or otherwise of any information provided by third parties.

It should be noted that some aspects considered in this study may be subject to change with time. Therefore, consideration should be given to reviewing such issues to confirm that no changes have taken place, either at the site or within relevant legislation at the detailed design stage.

4. CURRENT SITUATION

4.1 Site Location and Description

The site is approximately 2.3 hectares in area and is located directly to the east of Nanny Marr Road, Darfield as shown in the location plans in Appendix 1. The national Ordnance Survey grid reference for the centre of the site is E 441533 N 404510 and it is located at post code S73 9AB.

The site currently consists of a school, youth centre and community education centre and is bound by housing on Coronation Street to the north, housing on Queen Street, Victoria Street and open land to the east, Barnsley Road to the south and Nanny Marr Road to the west.

4.2 Hydrology and Flooding

Following an appraisal of current Environment Agency flood maps, the entire site is situated in Flood Zone 1.

It is noted that the proposed residential development is classified as 'more vulnerable' and the proposed retail development is classified as 'less vulnerable' in accordance with Table 2 of the Department for Communities and Local Government document 'Technical Guidance to the National Planning Policy Framework' dated March 2012.

4.3 Watercourses and Surface Water Features

The nearest significant watercourse is the River Dearne which is situated approximately 500m to the east of the development site.

4.4 Existing Site Combined Water Drainage

From a review of the Yorkshire Water sewer record drawings, the following adopted sewers lie adjacent to the site.

- 225mm diameter combined sewer running across the northern section of the site from west to east – subject to detailed liaison with Yorkshire Water, this sewer will be subject to either diversion or a 'build over' agreement to suit the proposed development plan.
- 225mm diameter combined sewer to the east of the site running from west to east beneath Queen Street.
- 225mm diameter combined sewer to the east of the site running from west to east beneath Victoria Street.
- 225mm diameter combined sewer to the south of the site running from west to east beneath Barnsley Road.

5. PROPOSED DEVELOPMENT

5.1 Development Proposals

The proposed development extends over an area of 2.3 hectares. The planning application proposes the erection of food retail units and associated parking with an area of residential development to the north.

It is noted that the proposed residential development is classified as 'more vulnerable' and the proposed retail development is classified as 'less vulnerable' in accordance with Table 2 of the Department for Communities and Local Government document 'Technical Guidance to the National Planning Policy Framework' dated March 2012.

5.2 Surface Water Drainage Proposals

It should be noted that, following the submission of the planning application, detailed drainage design will be undertaken and, accordingly, the outline drainage proposals presented in the document are subject to further design work.

The issue of surface water drainage to the proposed development has been considered with reference to the hierarchy of surface water disposal as noted in the Building Regulations H3:

- i) Sustainable urban drainage systems (SUDS)
- ii) Discharge of surface water off site direct to watercourse
- iii) Discharge to adopted sewer

Using the above hierarchy, the potential for using soakaways at the site was considered in relation to the nature of the existing soils. The BGS

1:50,000 geological map and historical BGS borehole logs located on the site shows the site to be underlain by silty sands and clayey sands across the site, which are in turn underlain by solid deposits of Mexborough Rock sandstone.

SUDS are made up of one or more structures built to manage surface water runoff. They are used in conjunction with good management of the site to prevent flooding and pollution. There are four general methods of control:

- Filter strips and swales
- Filter drains and permeable surfaces
- Infiltration devices
- Basins and ponds

On the basis of the ground conditions on site, the use of sustainable urban drainage systems (SUDS) in the form of infiltration techniques is considered to be a potential post development surface water drainage strategy. This will naturally be verified by the construction of infiltration test pits on site in order to determine the soil permeability.

5.3 Construction

Where appropriate, all construction will be carried out in accordance with the DTLR document 'Interim Guidance for Improving the Flood Resistance of Domestic and Small Business Properties' and 'Improving the Flood Performance of New Buildings, Flood Resilient Construction 2007.'

All proposed building footprints lie in Flood Zone 1 and there will therefore be no loss of floodplain volume requiring consideration during the 1 in 100 year enhanced flood event.

A safe emergency access can be maintained at all times during a 1 in 100 year enhanced flood event.

There will be a site management Health and Safety document prepared in respect of the site.

6. CONCLUSIONS

6.1 Flooding

Following review of the Environment Agency flood maps, it has been confirmed that the site lies entirely within Flood Zone 1.

The Environment Agency has stipulated that there are to be no off site surface water flood routes generated by the development during an enhanced 1 in 100 year storm.

6.2 Site Surface Water Drainage

The issue of surface water drainage to the proposed development has been considered with reference to the hierarchy of surface water disposal as noted in the Building Regulations H3.

On the basis of the ground conditions on site, the use of sustainable urban drainage systems (SUDS) in the form of soakaways is considered a practical option. This will naturally be verified by the construction of soil infiltration test pits to be carried out as part of future site investigation works.

6.3 Flood Risk Management Measures

There will be a site management Health and Safety document prepared in respect of the site.

6.4 Off Site Impacts

The proposed site drainage infrastructure will be designed and constructed in accordance with Yorkshire Water sewer adoption design standards. It will also be designed so that it does not compromise the existing Yorkshire Water public sewerage system infrastructure.

All roofed and paved areas are to be drained into the site surface water drainage system. The design of the on site surface water drainage system will ensure that no off site flood flows are generated by the proposed development in the 1% plus climate change event.

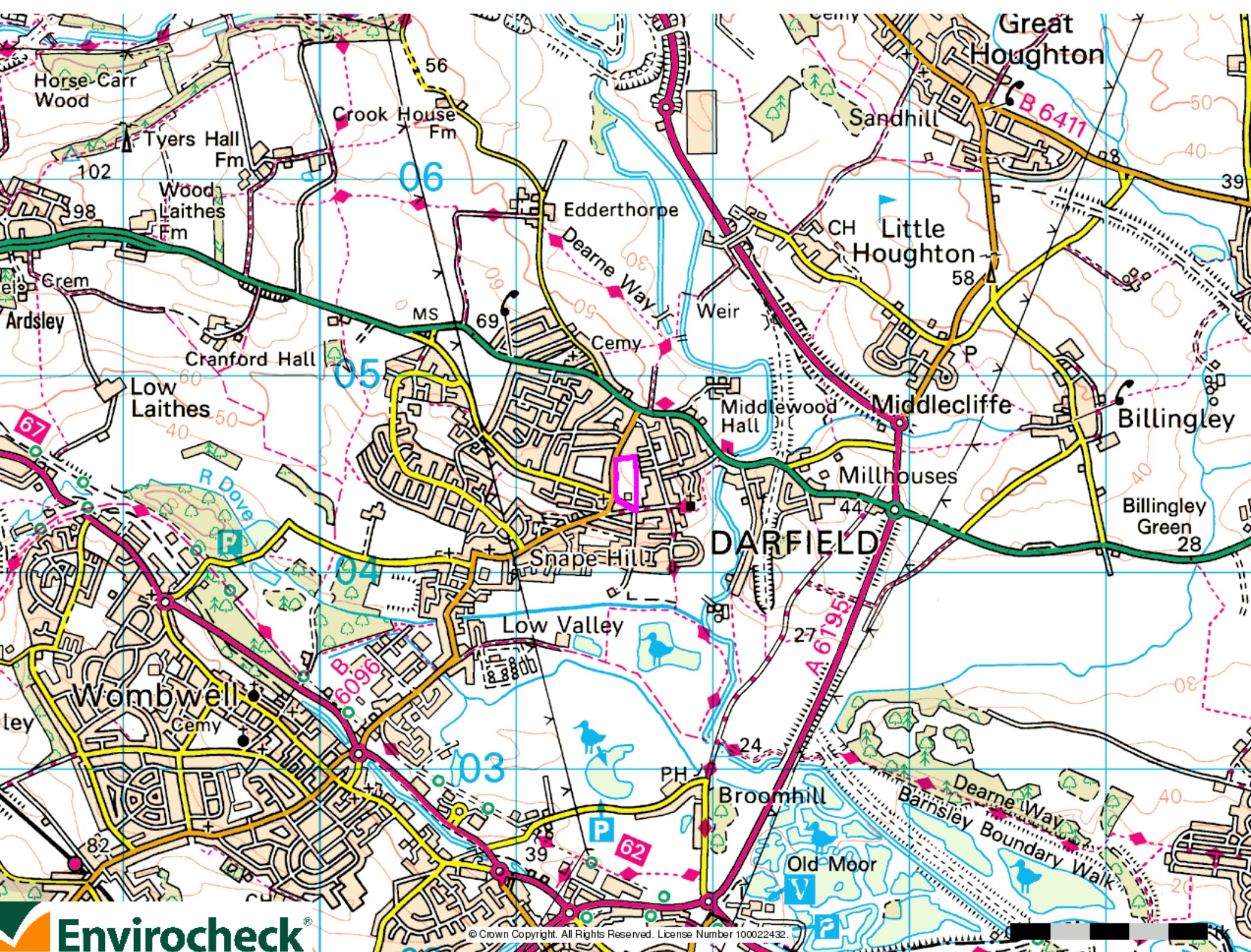
6.5 Residual Risk

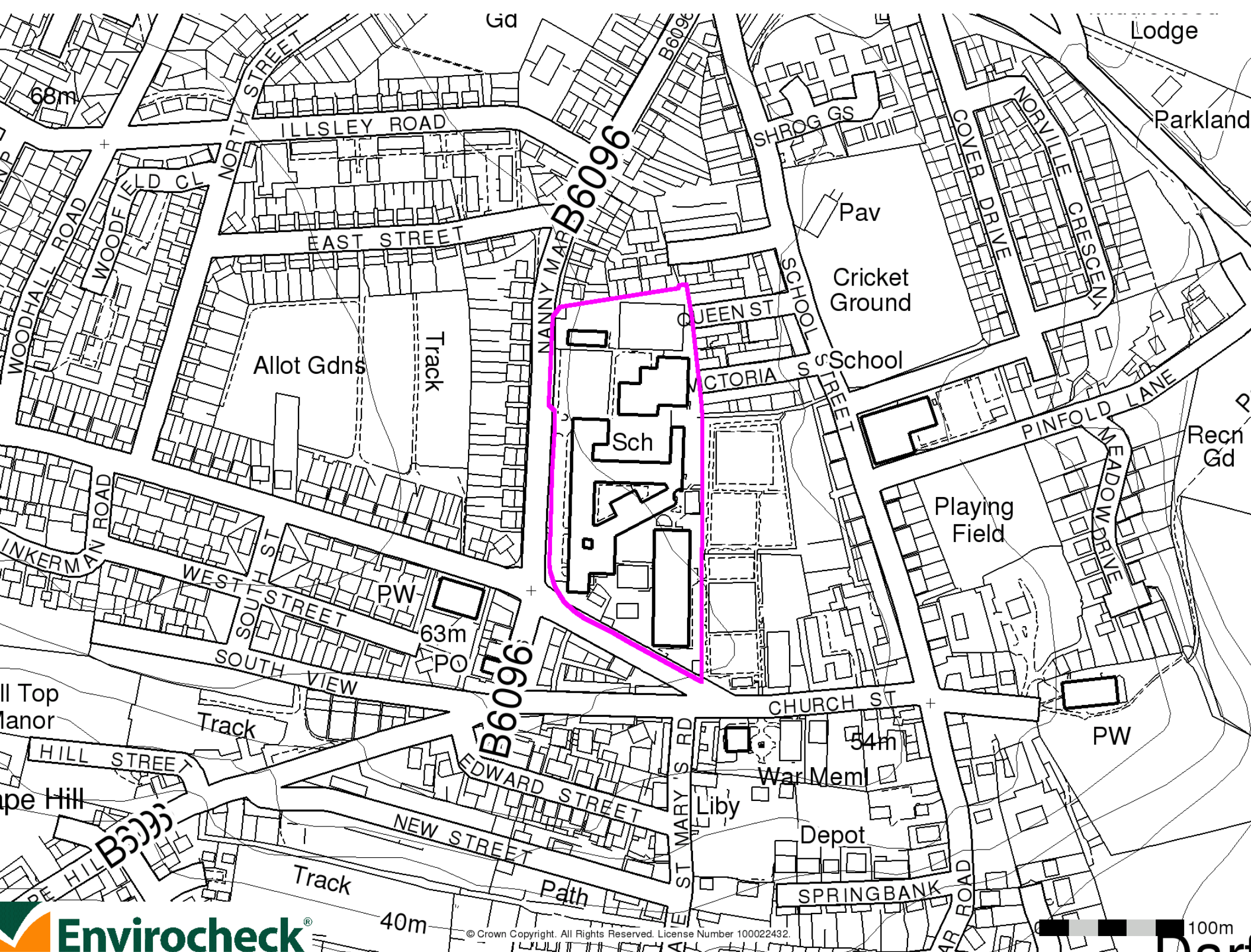
With careful design of the drainage elements as described above, there will be no residual flood related risks remaining after the development has been completed.

A safe emergency access can be maintained at all times during a 1 in 100 year enhanced flood event.

This system will also act to ensure that there are no off site overland flood flows generated by the proposed development. There is no evidence to indicate that there will be any impact on the flora and fauna that depend on the local watercourses for their survival

APPENDIX 1
SITE LOCATION PLANS







APPENDIX 2

YORKSHIRE WATER SEWER PLANS

YORKSHIRE WATER













PROTECTION OF MAINS AND SERVICES

1. The position of Yorkshire Water Services Ltd (YWS) apparatus shown on the existing mains record drawing(s) indicates the **general** position and nature of our apparatus and the accuracy of this information cannot be guaranteed. Any damage to YWS apparatus as a result of your works may have serious consequences and you will be held responsible for all costs incurred. Prior to commencing major works, the exact location of apparatus must be determined on site, if necessary by excavating trial holes. The actual position of such apparatus and that of service pipes which have not been indicated must be established on site by contacting the Customer Helpline (0845 124 24 24) for water and (0845 124 24 29) for sewerage.
2. The public sewer network is lawfully retained in its existing position and the sewerage undertaker is entitled to have it remain so without any disturbance. The provisions of section 159 of the Water Industry Act 1991 provides that the sewerage undertaker may "inspect, maintain, adjust, repair or alter" the network. Those rights are given to enable the sewerage undertaker to perform its statutory duties. Any development of the land or any other action that unacceptably hindered the exercise of those rights would be unlawful.
3. Ground levels over existing YWS apparatus are to be maintained. Sewers in highways will **generally** be laid to give 1200mm of cover from finished ground level working to kerb races, other permanent identification of the limits of the road or to an agreed line and level. Substantial increases or decreases to this 1200mm depth of cover will result in the sewer being re-laid at your expense.
4. If surface levels are to be decreased / increased significantly the effects on existing water supply apparatus will be carefully considered and if any alterations are necessary, the costs of the alterations will be recharged to you in full. Outlets on fire hydrants must be no more than 300mm below the new levels and all surface boxes must be adjusted as part of the scheme.
5. To enable future repair works to be carried out without hindrance; any pipe, cable, duct, etc. installed parallel to a water main or service pipe should not be installed directly over or within 300mm of a water main or service pipe or 1000mm of a waste water asset. Where a pipe, cable, duct, etc. crosses a main or service it should preferably cross perpendicular or at an angle of no less than 45° and with a minimum clearance of 150mm. These requirements apply to activities within an existing highway and are relevant to the installation of pipes, cables, ducts, etc. up to and including 250mm in diameter. Necessary protection measures for installations greater than 250mm in diameter and/or in private land will need to be agreed on an individual basis. Installations within a new development site must comply with the National Joint Utilities Group publication Volume 2: NJUG Guidelines On The Positioning Of Underground Utilities Apparatus For New Development Sites.
6. All excavation works near to YW apparatus should be by hand digging only.
7. Backfilling with a suitable material to a minimum 300mm above YW apparatus is required.
8. Adequate support must be provided where any works pass under YW apparatus.
9. Jointing chambers, lighting columns and other structures must be installed in such a way that future repair or maintenance works to YW apparatus will not be hindered.
10. Apparatus such as; railings, sign posts, etc. must not be placed in such a way that they prevent access to or full operation of controlling valves, hydrants or similar apparatus. YWS surface boxes must not be covered or buried. Any adjustment, alteration or replacement of manhole covers must be agreed on site prior to the commencement of the works with a YWS Inspector who may be contacted via our Call Centre on 0845 124 24 29.
11. Explosives shall not be used within 100 metres of any Yorkshire Water Services apparatus or installations.
12. Vibrating plant should not be used directly over any apparatus. Movement or operation by vehicles or heavy plant is not to be permitted in the immediate vicinity of YWS plant or apparatus unless there has been prior consultation and, if necessary, adequate protection provided without cost to YWS.
13. **Under no circumstances** should thrust boring or similar trenchless techniques commence until the actual position of the Company's mains/services along the proposed route have been confirmed by trial holes.
14. Any alterations to the highway should be notified following the procedures outlined in the New Road and Street Works Act 1991 Code of Practice; Measures Necessary Where Apparatus Is Affected By Major Works (Diversionary Works).
15. You will be held responsible for any damage or loss to YWS apparatus during and after completion of work, caused by yourselves, your servant or agent. Any damage caused or observed to YWS plant or apparatus should be immediately reported to YWS. Should YW incur any costs as a result of non-compliance with the above, all costs will be rechargeable in full.
16. You should ensure that nothing is done on the site to prejudice the safety or operation of YWS employees, plant or apparatus.
17. In accordance with the New Roads and Street Works Act 1991, Chapter 22, Part 3, Section 80. The location of any identified YW asset "*which is not marked, or is wrongly marked, on the records made available*" should be communicated back to Yorkshire Water. The location of the apparatus should be identified on copies of the supplied plans which should be returned to Yorkshire Water (Asset Records Team) with photographic supporting evidence where possible.
18. The Government has decided that responsibility for private sewers serving two or more properties and lateral drains (the







section of pipe beyond the boundary of a single property, connecting it to the public sewer) will be transferred to the water companies on Oct 1 2011. Private pumping stations will also transfer during the period 1 October 2011 – 1 Oct 2016. Records of these assets may not yet be shown on the existing mains record drawing(s). If you encounter any of these assets you must inform Yorkshire Water Services Ltd (YWS).

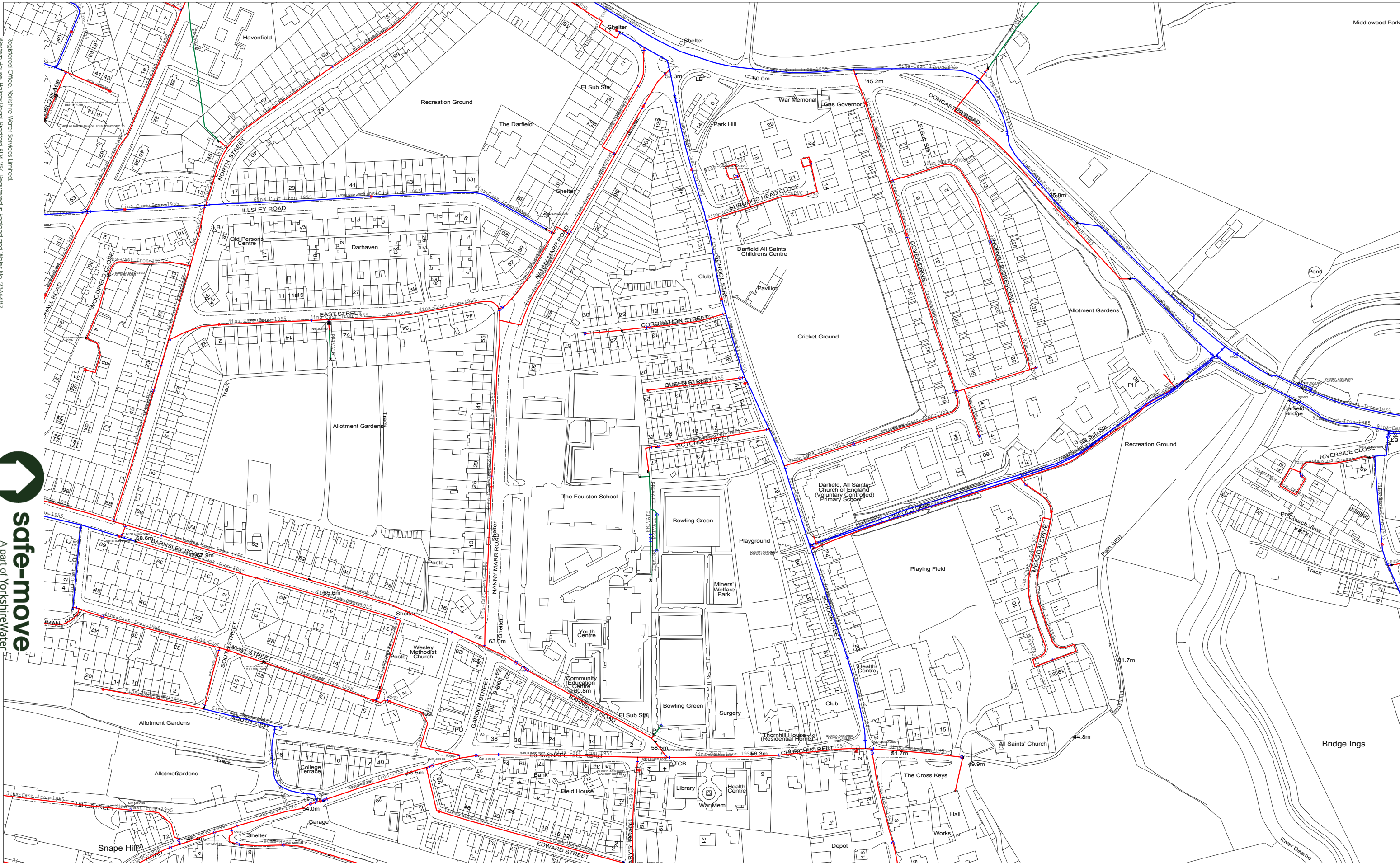
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Sewer Legend

	Combined Sewer		S24 Combined Sewer
	Surface Water Sewer		S24 Surface Water Sewer
	Foul Sewer		S24 Foul Sewer
	Section 104 Sewer		Public Rising Main
	Pumping Station		Abandoned Sewer
	Public Sewage Treatment Works		Syphon Sewer & Vacuum Sewer
	+		Property Identifier

Water Legend

	Water Main 4" and below
	Water Main 4" and above
	Raw Water Main
	Private Water Main
	Fire Hydrant
	Pumping Station



441197 : 404257

Map Name : SE4104SW

Title

Partial Key

The position and depths of apparatus shown on this plan are approximate only. The exact positions and depths should be obtained by excavation trial holes.



Yorkshire Water,
PO Box 500,
Halifax Road,
Bradford BD6 2LZ
Contact Name :
Ms H Webster
Contact Tel :

Notes

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- Water mains up to 4" in diameter —
- Water mains over 4" in diameter —
- Raw water mains —
- Private water mains —

Scale : 1:2500

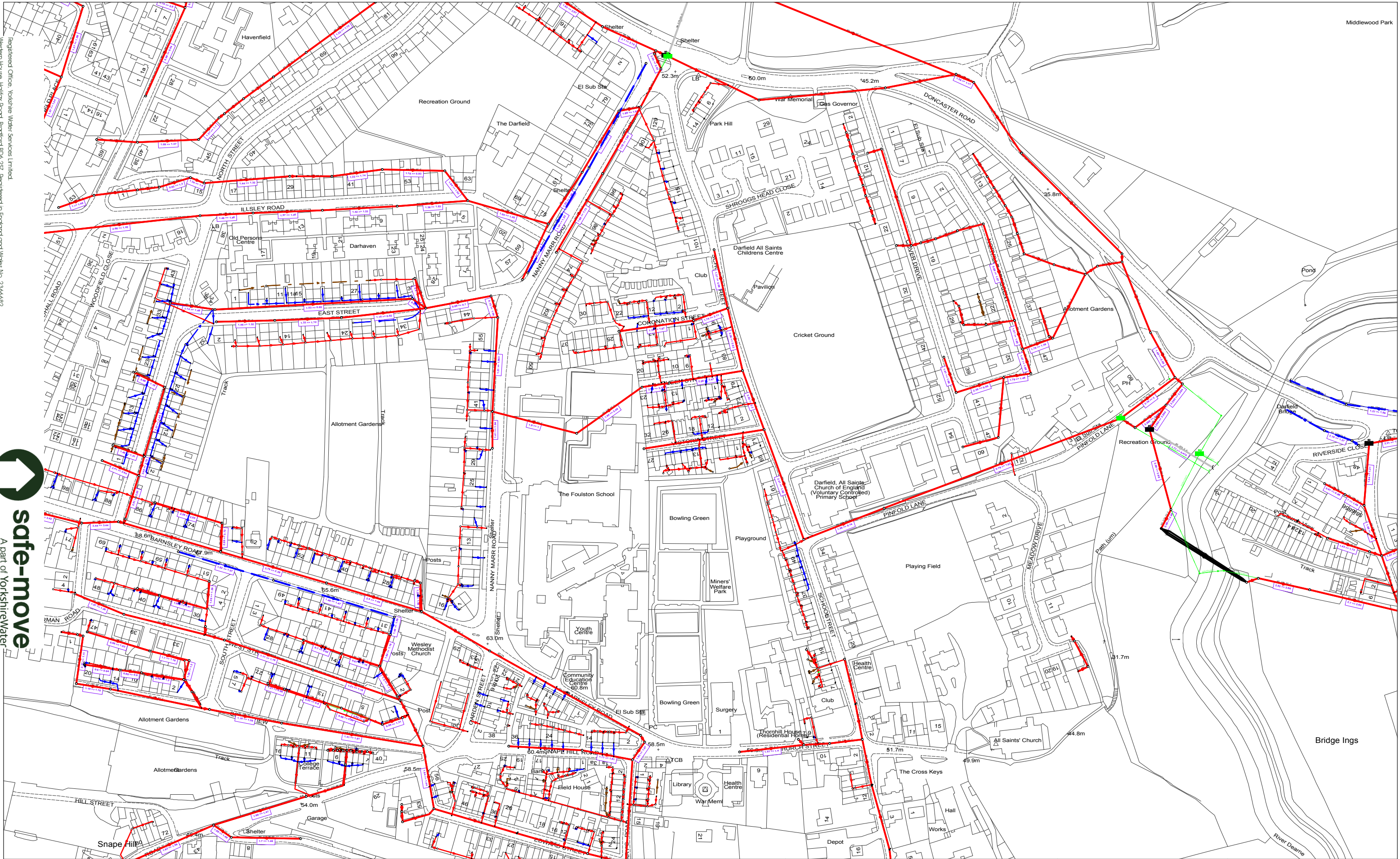
Drg No :

Maris No :

Date Req : 20/09/2013, 12:15:31

Date Gen : 20/09/2013, 12:15:35

Source : Water Network Enquiry



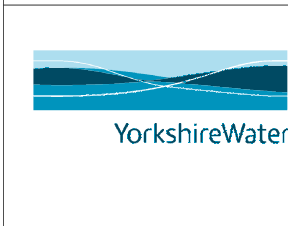
441197 : 404257

Map Name : SE4104SW

Title

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 connections are shown.



Yorkshire Water,
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Notes

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

Date Req : 20/09/2013, 12:15:51
Source : Sewer Network Enquiry

Date Gen : 20/09/2013, 12:15:56