

Flood Risk Assessment

New Development at Saunderson Road, Penistone, Sheffield

15 November 2012



12T716 / FRA 001

Prepared By
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1.0 Introduction

It is proposed to construct a 22 no. residential development in the form of affordable housing located at the head of Saunderson Road in Penistone. Yorkshire Housing have requested that a Flood Risk Assessment Report be prepared to satisfy the requirements of planning and the Code for Sustainable Homes (CSH) criteria under section SUR2 Flood Risk and is to confirm the Flood Zone that the site is situated in.

This report has been prepared to support the Design & Access Statement for Planning and the CSH submission.

This report has been prepared after considering the requirements of the Environment Agency FRA Guidance Note 1, and the Department for Communities and Local Government document PPS 25 (Planning Policy Statement 25 : Development and Flood Risk).

The report has been presented following the guidelines in the document "Development and Flood Risk : A Practice Guide Companion to PPS 25 "Living Draft".

Specific areas of consultation and information gathered for the preparation of the report are as follows:

- 1 A ground investigation has been carried out, ground conditions are that of clay material and soakaways are not suitable. The GI can be provided on request.
- 2 A site visit walk-over survey has been carried out.
- 3 A Geoenvironmental appraisal and investigative report by Solmek has been prepared.
- 4 Borehole records for the site are included in the above.
- 5 A topographical survey has been carried out and the drawing is included in Appendix B.
- 6 Records of the existing drains are included in Appendix C.
- 7 Yorkshire Water have been consulted regarding existing drainage. YW records confirm foul and storm sewers exist within the vicinity of the site.
- 8 The current site owner has been consulted for information on any known instances of flooding within the site boundary.
- 9 Barnsley Metropolitan Borough Council Preliminary Flood Risk Assessment, Final Report (2011) has been reviewed. A map extract showing Records of past floods within Penistone is included in Appendix E. Please note Saunderson Road is not considered within the document.

2.0 Development Description and Location

The proposal is to build 22 new dwellings on a parcel of land at the end of Saunderson Road within Penistone, Sheffield.

The site occupies an area of land measuring 0.60 hectares and is site centred at National Grid Reference E424037, N403540. A site location plan is included in Appendix A.

The vulnerability classification for the site is defined in PPS 25 Table D.2 as " More Vulnerable" dwellings.

The development is consistent with the Local Development Documents and the Local Authority has been consulted during the design development stages. The involvement of the Local Authority in the design development process demonstrates that the Sequential Test has been applied in the selection of this site for this development type.

3.0 Definition of the Flood Hazard

Flooding from the Sea:

The site is located approximately 95km from the sea at an elevation ranging between 200.0m and 2004.0m A.O.D. and is therefore unlikely to be affected by flooding from the Sea.

Flooding from Rivers:

The site is located approximately 0.1km from the River Don, located within a Flood Zone 1, therefore the probability of flooding from a river is low.

Refer to the map in Section 4 on page 6 which shows the site in relation to the flooding of the rivers. The site is not at risk of flooding from Rivers.

Flooding from Land:

Intensive rainfall, often of short duration, that is unable to soak into the ground or enter drainage systems can run quickly off land and result in local flooding. BMBC Preliminary Flood Risk Assessment confirms the site has not been affected by surface water flooding.

Refer to Appendix E that includes a map of Penistone taken from BMBC Preliminary Flood Risk Assessment that shows 'areas affected by surface water flooding'.

Flooding from Groundwater:

Groundwater flooding occurs when water levels in the ground rise above surface elevations. It is most likely to occur in low lying areas underlain by permeable rocks.

The site investigation report revealed that this site is underlain by firm clay over sandstone. There was some water seepage recorded within each of the boreholes at varying levels. This was advised as being perched water sitting between the topsoil layer and firm clay and between the firm clay and sandstone. In addition some water seepage was recorded within each of the trial holes. Ground water levels can fluctuate with seasonal and climatic changes it must be noted the ground investigation was undertaken during September, which followed heavy and prolonged rainfall periods.

Historical mapping included within the Phase 1 Desk Study report shows part of the site as being of a wetland or marshland nature. Given the historical map information, ground investigation report and the location of the site it is likely that the site maybe susceptible to the influences of ground water.

Given the volumes of water noted on site and encountered during the exploratory work, undertaken following a particularly saturated period in September, the risk of flooding from groundwater is deemed to be low.

Flooding from Sewers:

Flooding from Sewers occurs when the existing system is blocked or during heavy rainfall periods, or over capacitated systems.

No record of any flooding from the sewers in the near vicinity of the site has been forthcoming to date. The proposed development will discharge surface water at agreed rate inline with Yorkshire Water / EA permissions. The discharge rate given will prevent surface water flows surcharging the sewer network. Therefore the likelihood of flooding from Sewers is low.

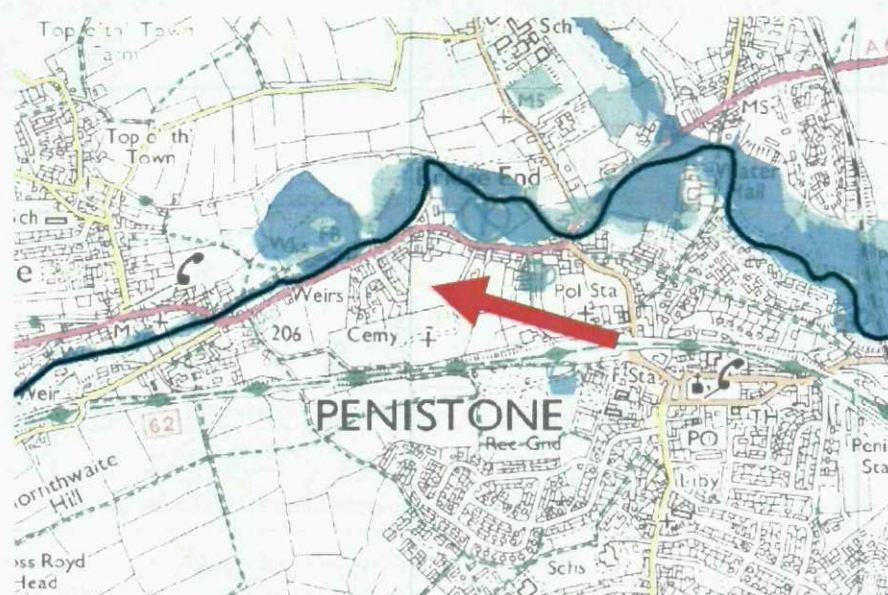
BGP have not been made aware of any previous reports that have been prepared for this site.

4.0 Probability of Flooding

Barnsley Metropolitan Council Preliminary Flood Risk Assessment, dated 2011, has been examined and the relevant flood map is included within Appendix E. The Environment Agency maps reviewed (copy shown below), identify the site to be in Flood Zone 1. The previous section describes other flood hazards and the risk they pose to this development. Flood Zone 1 describes land assessed as having a less than 1 in 1000 annual probability of flooding from river or sea in any one year. Therefore the overall assessment of the probability of flooding of the site is low.

Environment Agency
Flood Risk Map
Location of site

Fig 1



5.0 Climate Change

Annex B of PPS 25 gives guidance of the impacts of climate change. The effects of climate change include sea level changes, river flash flooding and more frequent high intensity, short-duration rainfall. As explained in previous sections, the risk from the sea and rivers is low. The effect on flooding from land is again low and therefore the site is unlikely to be affected.

6.0 Detailed Development Proposals

Refer to Appendix D for the proposed site layout plan. It is proposed to build 22 no. dwellings with associated external works within the site. The development site is 0.60 ha.

The surface water generated by the new buildings and associated hardstanding areas will be drained to an attenuation tank and then pumped to the public sewer within Saunderson Road at a controlled rate (discharge rate TBC) to the existing public sewer subject to Yorkshire Water / Environment Agency agreement.

Foul water discharge will be pumped (TBC) to the existing public combined sewer at the rear of the properties along Saunderson Road subject to Yorkshire Water agreement.

Agreed points of connections to the public sewer will be confirmed following approval by Yorkshire Water.

7.0 Flood Risk Management Measures

As discussed in previous sections, the site is not at risk from flooding. Yorkshire Housing will be managing the maintenance of new properties and their assets.

Sewers and pumping stations serving dwellings will be adopted under a S104 agreement with YW. Post completion YW will manage and maintain the adopted sewer network.

The highways are to be adopted by the local highway authority and therefore associated highway drains will be managed and maintained by the adopting authority (BMBC). All site levels and highway levels will be designed to direct surface water flows away from the adjoining buildings with minimum gradients to prevent standing water.

8.0 Off Site Impacts

The proposals for this site should not increase the flood risk elsewhere off site for the following reasons:-

Surface water discharge will be restricted to Greenfield rates or otherwise inline with YW / EA requirements.

Residual Risks

Due to the location of the site, site topography, setting proposed building floor levels above the surrounding ground level and the design to channel surface water to flow away from the building it is deemed the residual risks are negligible.

9.0 Conclusions

The above analysis identifies the flood risk for the new development at Saunderson Road to be low from all forms of risk as categorised in PPS25. The above analysis also satisfies the requirements of the CSH Assessment criteria under section SUR1 & 2 Flood Risk and confirms the Flood Zone that the site is situated in.

The proposed uses of land are appropriate in this zone (Tables D1, D2 PPS25).

Safe egress from the site to higher ground will be gained via the new access road up to Saunderson Road and beyond to Thurlstone Road.



This report has been prepared with reference to the information available at the time of writing. The summary and recommendations may be revised upon receipt of further information regarding records and advices.

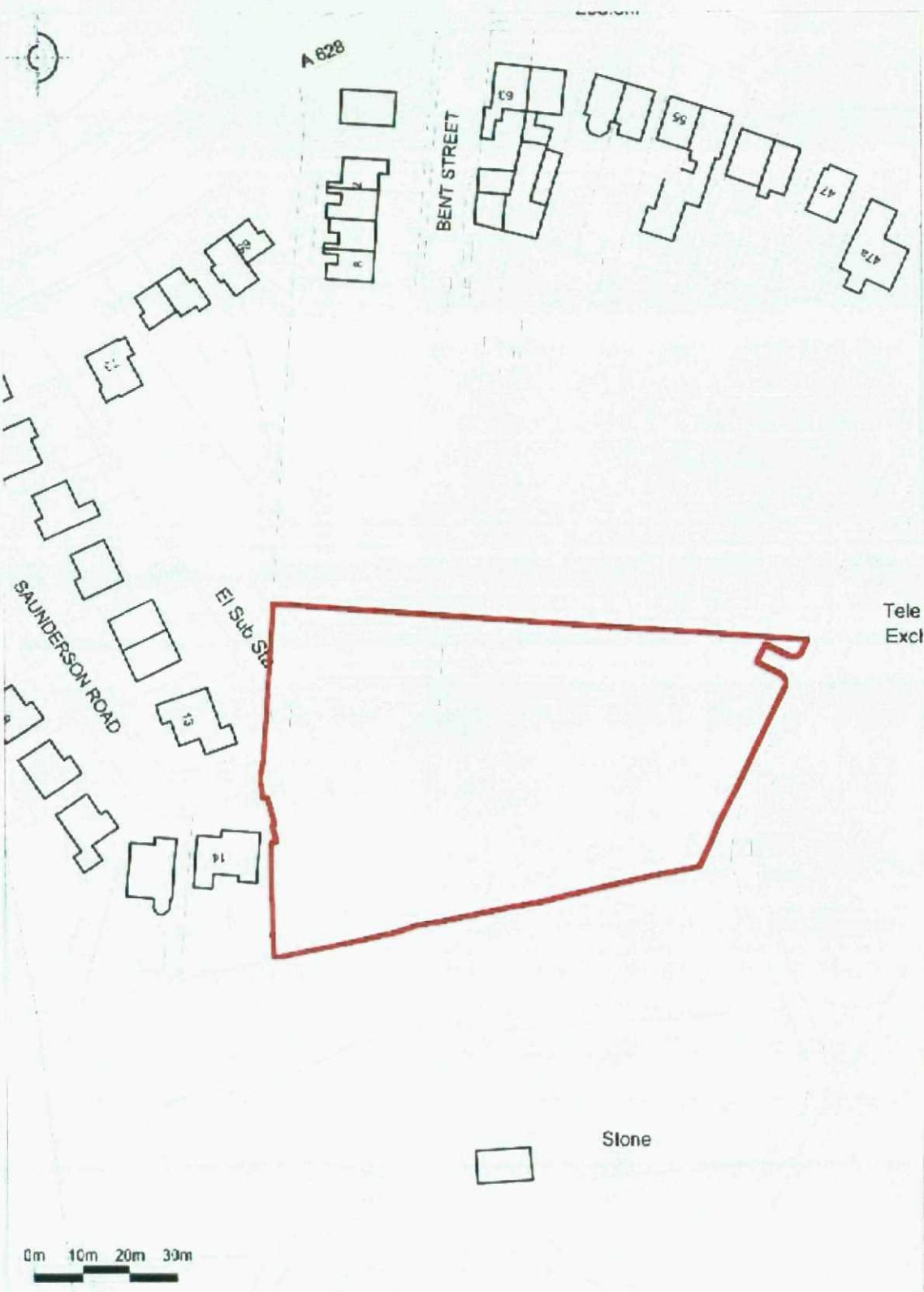
For and on behalf of Billinghurst George & Partners

Prepared by: G. Phillips
Date: 15.11.2012

Checked by: J. Conway
Date: 16.11.2012

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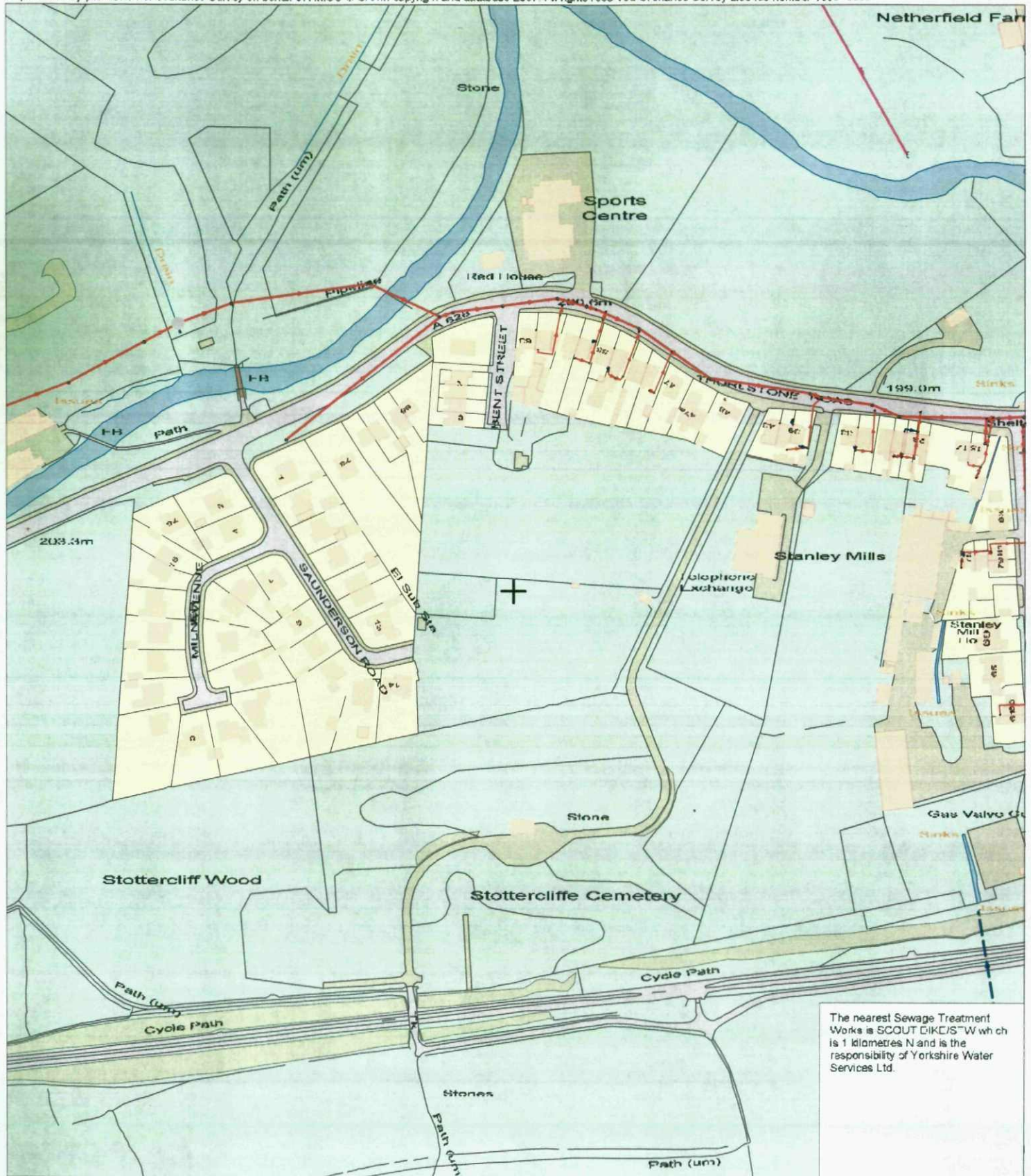
Appendix A – Site Location Plan



Appendix B - Topographical Survey



Appendix C – YWL sewer Records



Public Waste Water Network 02/08/2012 13:07:36 CS Grid Coordinates: 423810 : 403286 Map Name: SE2303SE

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A part of Yorkshire Water

Appendix D – Proposed Site Plan



Schedule of Accommodation

A	2 bedroom 3 person bungalow @ 67.5sqm	2
B	2 bedroom 4 person house @ 75sqm	10
C	3 bedroom 5 person house @ 88sqm	10
		<u>22</u>

car parking
bungalows 100% houses 200%

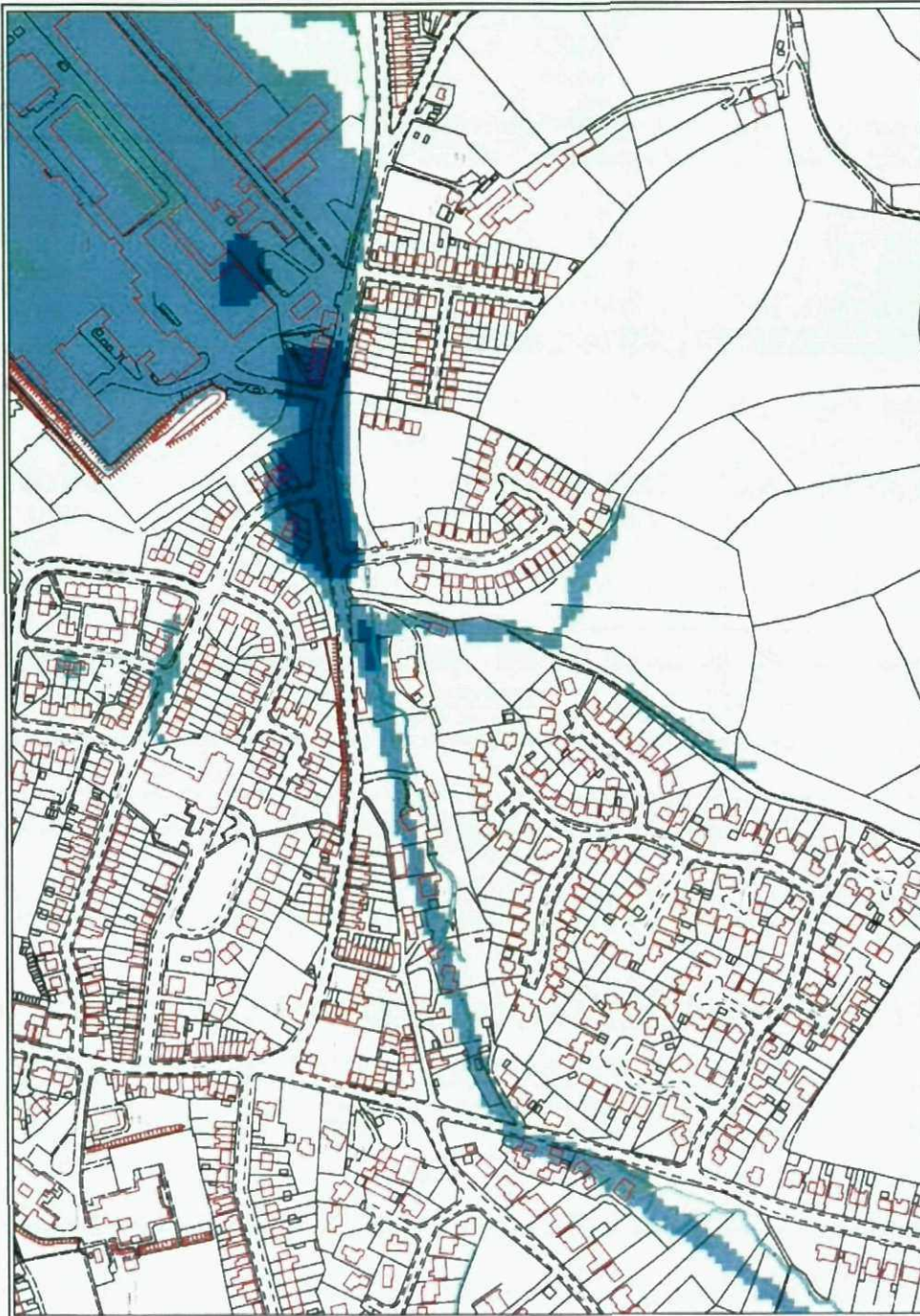
nicol thomas

Client:	Yonkers Housing			
Job:	Sanderson Road - Penthouse			
Drawing title:	Site Layout			
Drawing Number: (Job number)	M3551	(PL)	01	Revision
Scale:	1/200 @ A1			
Date:	Oct 12			

[illegible]



Appendix E – BMBC Preliminary Flood Risk Assessment



- LEGEND**
- Flooded properties register 2007
 - Environment Agency areas more susceptible to surface water flooding
 - Environment Agency areas less susceptible to surface water flooding
 - Environment Agency Flood Zone 3
 - Environment Agency Flood Zone 2
 - ★ Yorkshire Water DCS flooded properties register

BARNESLEY PRELIMINARY FLOOD RISK ASSESSMENT
Appendices 2 - Record of Past Floods
Annex 2 - Areas Affected by Watercourse Flooding
Ref 3 - Green Road Area - Penistone



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