Flood Risk Assessment

New Development
Darfield, Barnsley

10 October 2012



12T671 / FRA 001

Prepared By
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1.0 Introduction

It is proposed to construct a 29 dwellings in the form of affordable housing located off George Street Road in Darfield. 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. Foul and Storm sewers exist within the vicinity of the site located along George Street.
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. Pitt Street Area, Darfield is considered within the document. Map extract showing Records of past floods is included in Appendix E.

2.0 Development Description and Location

The proposal is to build 29 new dwellings on a parcel of land off George Street within Darfield, Barnsley.

The site occupies an area of 0.71 hectares and is site centred at National Grid Reference E440794, N404016. 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 90km from the sea at an elevation ranging between 25m and 29m A.O.D. and is therefore unlikely to be affected by flooding from the Sea.

Flooding from Rivers:

The site is located approximately 0.15km from the River Dove, located within a Flood Zone 1, therefore the probability of flooding from a river is low. The site is marginally raised in elevation relative to the immediately surrounding highways. Adjoining footpaths and highway levels generally fall away from the site.

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 identifies part of the site to be affected by surface water flooding (Refer to Appendix E).

The map is a record of past floods and is referenced as 'Environment Agency areas less susceptible to 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 for the site revealed that this site is underlain by clay. There were no water strikes recorded within any of the exploration holes. Ground water levels can fluctuate with seasonal and climatic changes, however the ground investigation was undertaken during July, which was reported as the wettest July on record.

Given no ground water was encountered within any of the exploratory holes during the saturated period of July the risk of flooding from groundwater is therefore 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 permissions. The discharge rate given will prevent surface water flows over capacitating their sewer network. Therefore the likelihood of flooding from Sewers is low.

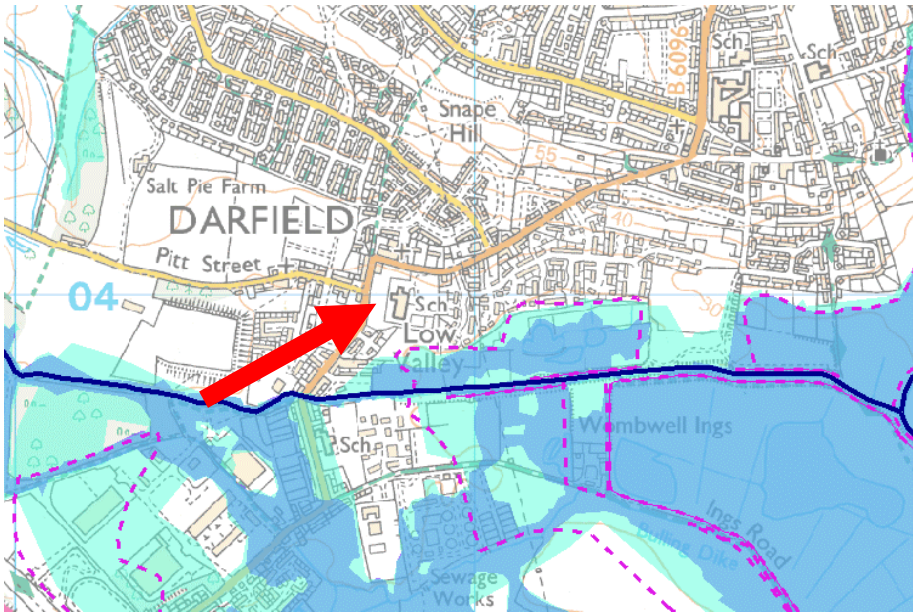
BGP have not been made aware of any previous reports that have been prepared for this site.

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 29 dwellings with associated external works within the site. The development site is 0.71 ha.

The surface water generated by the new buildings and associated hardstanding areas will be drained to an attenuation tank and released at a controlled rate (discharge rate to be confirmed) to the existing public sewer. Foul water discharge will drain to the existing foul public sewer.

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 to ensure that drains remain clear.

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 inline with Yorkshire Water 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 Darfield 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 either of the new road openings on to George Street leading to Pitt Street or Snape Hill 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.

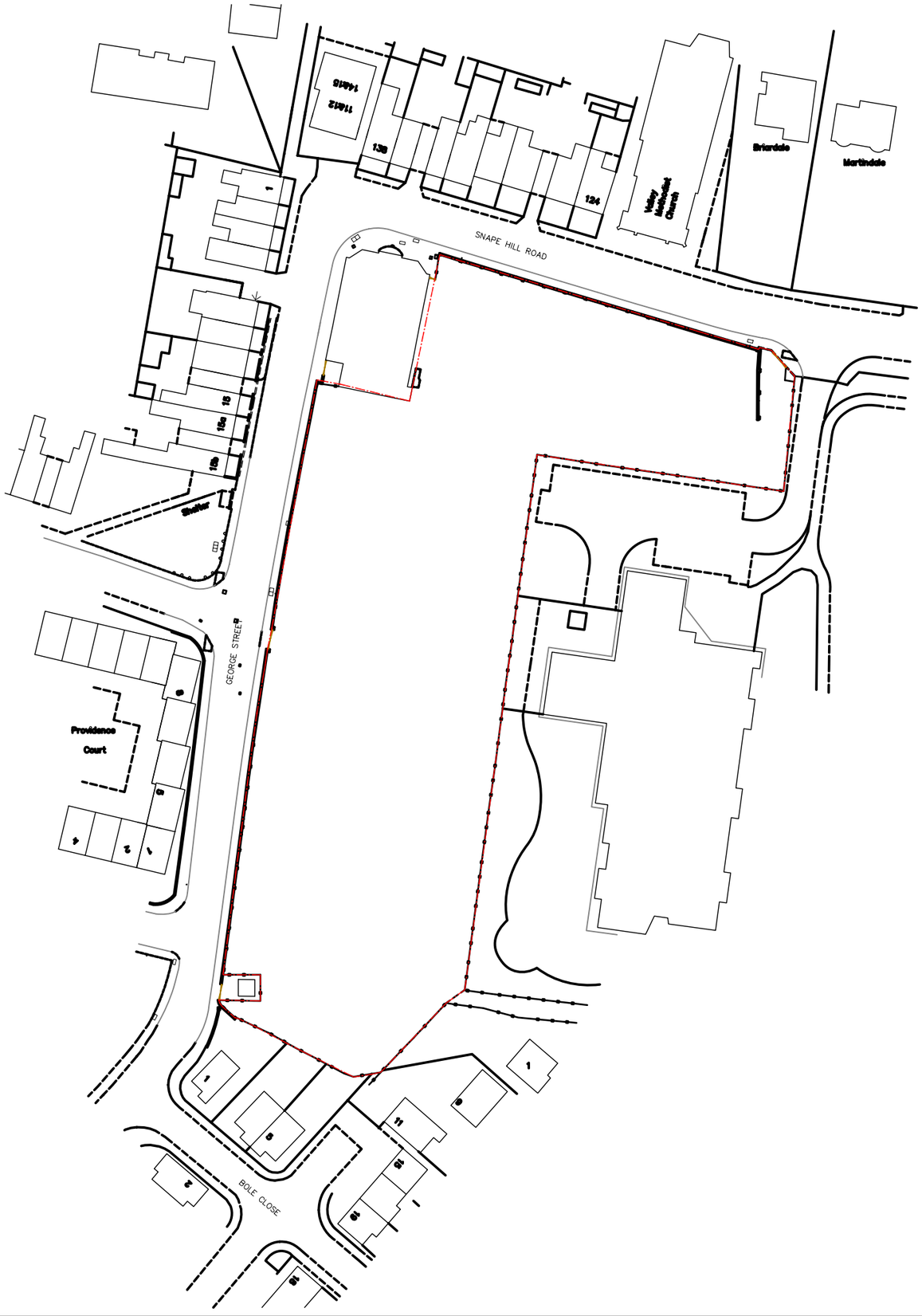
For and on behalf of Billinghurst George & Partners

Prepared by: G. Phillips
Date: 09.10.2012

Checked by: J. Conway
Date: 10.10.2012

Report No: 12T671 / FRA001
Report Title: New Development, Darfield, Barnsley

Appendix A – Site Location Plan



NORTH

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PROPOSED RESIDENTIAL DEVELOPMENT AT

GEORGE STREET, DARFIELD

SITE LOCATION PLAN

Drawn: RS **Scale:** 1:1250 @ A4

Date: 04/07/12 **Checked:** RS

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Appendix B - Topographical Survey

NORTH

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GEORGE STREET

PROVIDENCE STREET

PIT STREET

SNAPE HILL ROAD

ELECTRIC SUB STATION

Shelter

28.2m

29.9m

30.7m

1

3

5

7

8

15b

15a

15

11&12

14&15

13B

124

Valley Methodist Church

002 B

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PROPOSED RESIDENTIAL DEVELOPMENT AT

GEORGE STREET, DARFIELD

EXISTING SITE LAYOUT

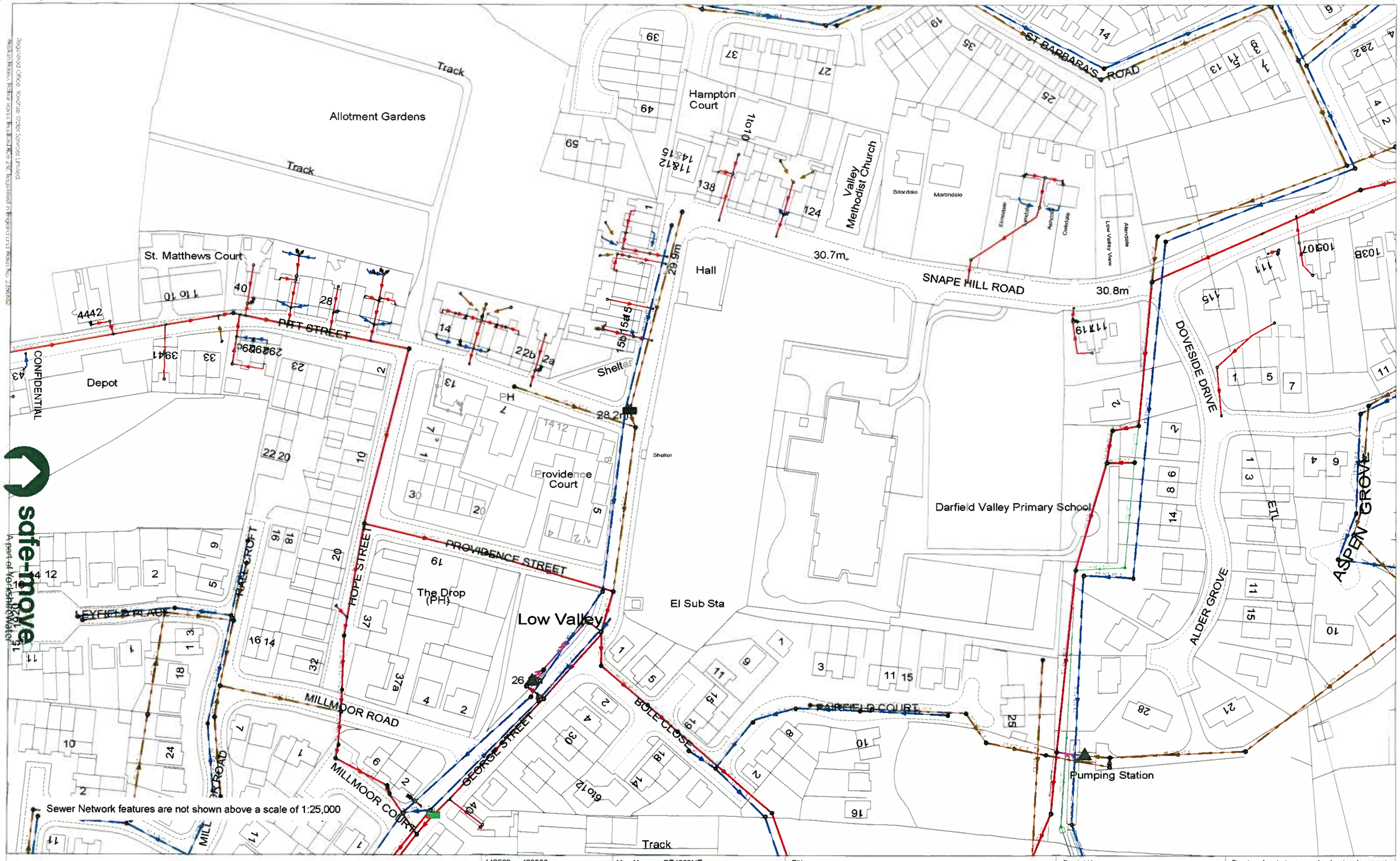
Drawn: RS **Scale:** 1:500 @ A3

Date: 04/07/12 **Checked:** MH

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Appendix C – YWL sewer Records



safe-move

A part of Yorkshire Water

Registered Office: Yorkshire Water Services Limited, Western Power, Processing Road, Bradford, BD8 0AA. Registered in England and Wales No. 2366682

440562 : 403866	Map Name : SE4003NE	Title	Partial Key
	Yorkshire Water, PO Box 500, Halifax Road, Bradford BD6 2LZ Contact Name : Ms H Webster Contact Tel :	Notes	Foul Sewer = F Combined Sewer = C Surface Water Sewer = SW Trade Sewer = TD Partially Separate = PS
		(Ody) COPYRIGHT STATEMENTS: Reproduced by permission of Ordnance Survey on behalf of HMSO © Crown copyright and database 2004. All rights reserved Ordnance Survey Licence number 100019559	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
			Date Req : 02/08/2012, 15:55:44 — Date Gen : 02/08/2012, 15:55:46
			Source : Sewer Network Enquiry

UPN: Undefined Originator: H Webster, Safe Move

Appendix D – Proposed Site Plan



NORTH

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ACCOMMODATION SCHEDULE

TYPE	NO.	AREA
A - 2B/4P	12	71.5m²
B - 3B/5P	8	89.0m²
C - 3B/5P	5	95.5m²
D - 4B/6P	2	114.1m²
E - 2B/3P BUNGALOW	1	68.0m²
F - 2B/4P	1	83.7m²
TOTAL	29	

SITE AREA - 7,120m² / 0.71ha

Key

- Site boundary
- Existing buildings demolished/ features removed
- Existing buildings
- D.O.T. type standard tarmac carriageway & pavement with 100mm high kerb (also to driveways)
- Grassed areas
- Saxon Paving slab to house pathways and patio areas
- Block paved shared surface court to adoptable standards with 700mm service margin (contrasting block paving)
- Low-level hardy shrubbery maintained at max. 800mm high to maintain visibility across the site.
- New tree (species TBC)
- Existing tree/ bush retained
- Existing tree/bush removed
- New dwelling
- 1.8m high close boarded timber fencing/privacy screen (1.5m high between gardens)
- 1.2m high hoop-top galvanised fence
- +31.60 Spot-level
- Domestic refuse bin store (general & recycling)
- Secure garden shed
- A / 004 Site section reference / Drawing reference (15/124 (02) 004)

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PROPOSED RESIDENTIAL DEVELOPMENT

GEORGE STREET, DARFIELD

PROPOSED SITE LAYOUT

Drawn: RS **Scale:** 1:500 @ A2

Date: 04/07/12 **Checked:**

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Dwg No: 15/124(02)003 #

Appendix E – BMBC Preliminary Flood Risk Assessment



BARNSLEY PRELIMINARY FLOOD RISK ASSESMENT
Appendices 2 - Record of Past Floods
Annex 1 - Areas Affected by Surface Water Flooding
Ref 10 - Pitt Street Area - Darfield

BARNSLEY
Metropolitan Borough Council

Operational Services
Assistant Director: D.A.Richardson,BSc,M.C.I.O.B,M.I.H.T
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