STEVENSON ASSOCIATES

WESTFIELD FARM, BARNSLEY ROAD, FLOCKTON

FLOOD RISK AND DRAINAGE STATEMENT

Unit 2, Hillcrest, Monk Fryston, Leeds, LS25 5EX
stevensonassociates@hotmail.co.uk; LS255WZ@btinternet.com; Telephone 01977 682824

TABLE OF CONTENTS

WESTFIELD FARM, BARNSLEY ROAD, FLOCKTON

INTRODUCTION

1. It is proposed to demolish barns and other outbuildings at Westfield Farm in Flockton and redevelop the site with four new houses; the original farmhouse will remain. This report has been commissioned to determine how the development will be drained and if the development will be at risk from flooding or cause flooding elsewhere.

2. This report should be read in conjunction with detailed proposals prepared by M Booth Design and the topographical survey prepared by Haycock and Todd (reduced versions are appended to this report for ease of reference).

LOCATION AND SITE DESCRIPTION

3. Flockton is a small village approximately 10km east of Huddersfield and the site is on the western edge of the village alongside Barnsley Road (A637), the main road through the village. The farm is on the south side of Barnsley Road at the junction with Haigh Lane; the centre of the site being at OS map reference 423400, 414800.

4. The site is regular in shape and measures approximately 53m by 45 metres covering an area of around 0.23 hectares. It falls from Barnsley Road at a level of around 172m AOD towards the southern boundary, typically at a level of 168m, producing a nominal gradient of 9% (1 in 11); the site has negligible cross-fall east to west.

5. To the rear (south) of the site there is an open field which falls away at around 12.5% (1 in 8) towards Flockton Beck, approximately 135 metres away.

6. The general area is farmland but there are residential properties to the north and east of the site and intermittent dwellings along Haigh Lane.

7. The British Geological Survey map shows bedrock in the are to be mudstone and sandstone (Pennine Lower Coal Measures Formation) with no superficial deposits.

EXISTING DRAINAGE

8. There are public sewers in the area: originally shown as combined foul/surface water, but now designated as foul water [Yorkshire Water's attempt to deter the draining of surface water to these sewers]. There are a few minor surface water sewers in the area draining to Flockton Beck but none locally. It is believed that much of the surface water in the area is drained to soakaways or allowed to flow overland or via small drains to the beck.

9. There is a foul sewer shown in Barnsley Road, which might be above the level of the farmyard and explain why the existing farmhouse does not drain to it. Instead foul water from the property drains to a septic tank in the field on the south side. There is a 225mm foul sewer passing through the field to the south of the site, some 75 metres away; although not verified it is likely that the sewer was installed at a later date than the farmhouse's septic tank.

10. At least one rainwater pipe from the farmhouse drains to the septic tank, but most of the guttering and rainwater pipes are allowed to discharge onto the ground or into water-butts for reuse.

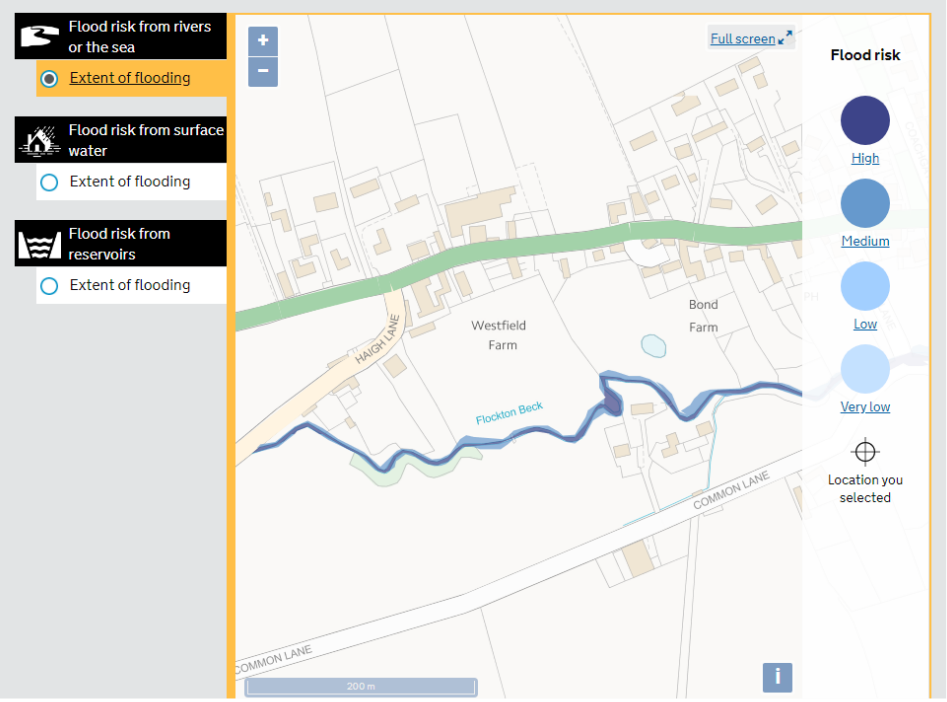
11. The yard between farm buildings is predominantly concrete and surface water will run off onto the field at the rear; in times of heavy rainfall it is said to pond in farm-vehicle ruts close to the field gate before soaking away. Surface water flowing into the field will drain overland or via infiltration to Flockton Beck in the valley below; it is not piped directly.

12. There is a garden adjacent to the farmhouse which is approximately 280 square metres in size. Rainwater falling on that area will soak into the ground but the remainder of the site (0.20ha) will drain to the field. Typically, at 50mm/hr (1 in 1-year storm) flows to the field will be around 28 litres per second, which in turn will be reduced as it flows to the beck at a rate estimated to be around 1 litre per second [5 litres per second/hectare].

FLOOD ISSUES

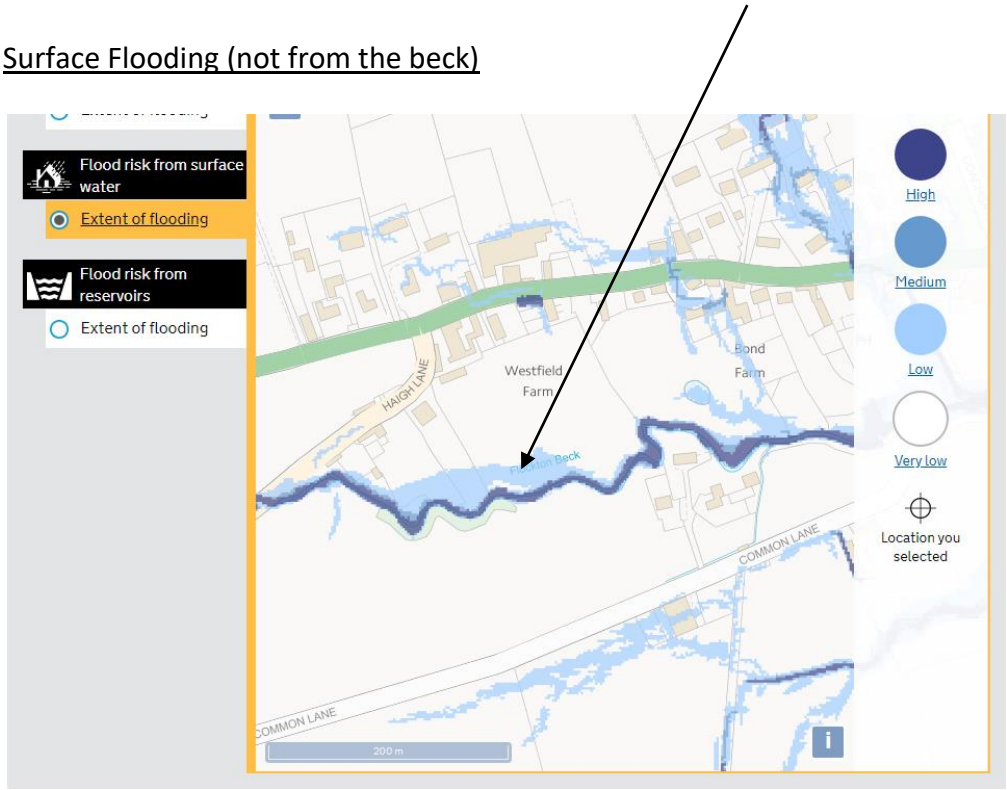
13. The Environment Agency's Flood Zone Map shows a small area alongside Flockton Beck to flood but the site and other local areas of the village are not affected.

Flooding from the beck



14. The Environment Agency's Map also shows areas that flood from excess surface water – most commonly during high rainfall where water is not drained adequately or takes longer to soak away; there is one such area between the site and Flockton Beck

Surface Flooding (not from the beck)



PROPOSALS

15. It is proposed to demolish farm buildings and build four new dwellings plus a garage for the existing farmhouse. The development will be served from a new access on Haigh Lane.

16. The site will drain via separate foul and surface water drainage systems.

Foul Water

17. The existing septic tank will be removed a foul water from the new properties and the farmhouse will drain to the public sewer crossing the field south of the site.

Surface Water

18. Overall, impermeable area will be reduced from around 88% of the site to approximately 51% [houses 650m2; roads and drives 530m2 = 1180m2].

19. Surface water from the roofs and drives etc will drain to a trench soakaway in the field to the rear – running approximately the full width of the site along the contour. The sizing of the soakaway will be undertaken in line with the latest edition of BRE Digest 365 – i.e. For 1 in 100-year storms with allowances for climate changes (currently recommended as 30% increase in rainfall intensity).

20. Garden areas for the new houses will be removed of all surfacing and reinstated with a good depth of topsoil. Rainwater falling on those areas will be allowed to soak into the ground at source.

SUMMARY

21. It is proposed to redevelop Westfield Farm in Flockton.

22. The site will be developed with separate foul and surface water drainage systems and foul water will be drained to a public sewer.

23. Surface water will be put to ground via a new soakaway and not drained directly into Flockton Beck. The sizing and construction of the soakaways will be to the latest edition of BRE Digest 365 – for 1 in 100-year storms adjusted for climate change (30% increase in rainfall) to prevent flooding on or off site.

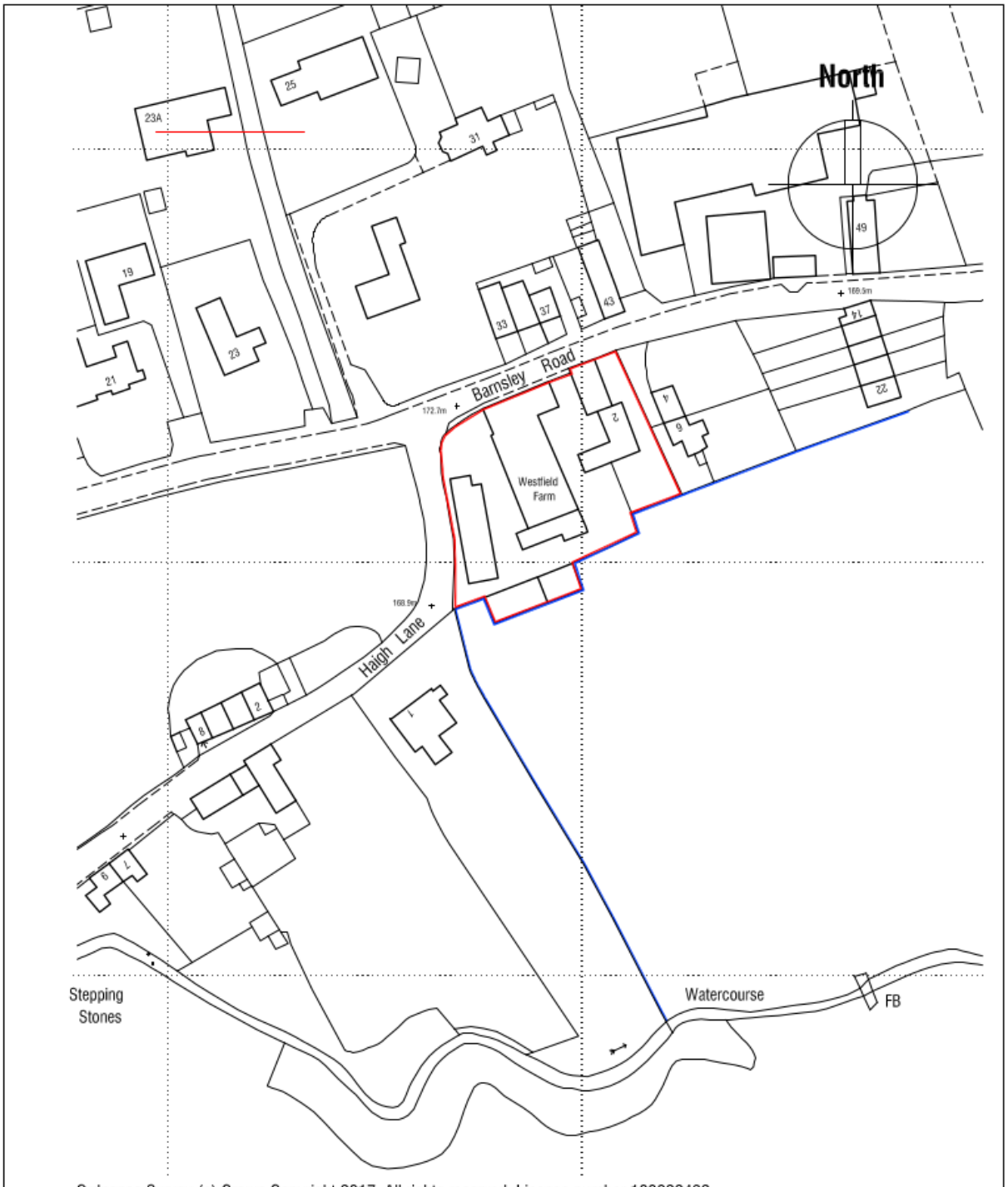
24. The site is not in or close to areas designated Flood Zone 2 or 3 and does not flood.

M. Stevenson

Michael Stevenson

20th February 2019

APPENDIX 1 – LOCATION PLAN



Westfield Farm
Barnsley Road
Flockton

LOCATION PLAN

Scale 1:1250

Date July 17

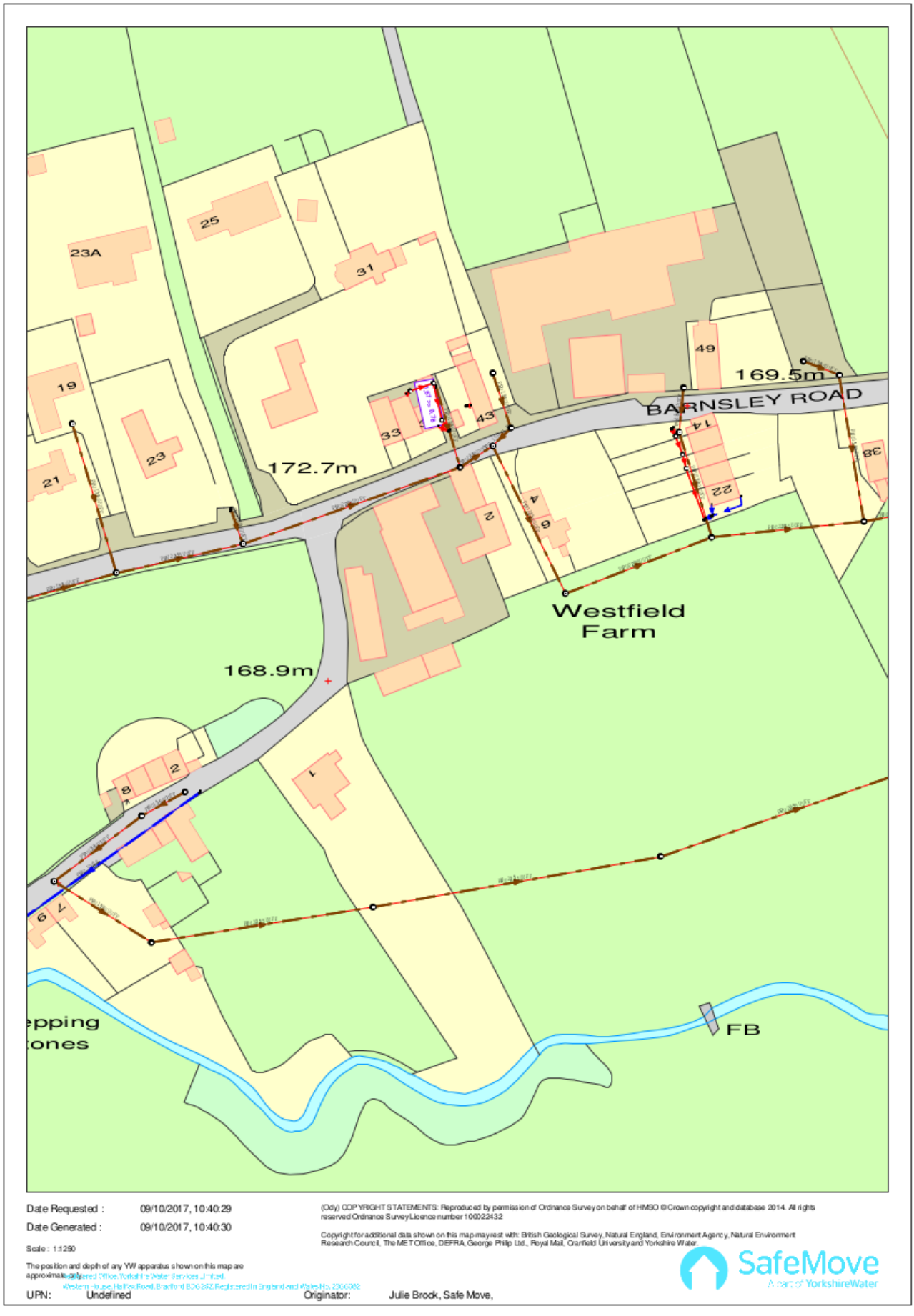
Ref 17.12

Drwg No OS1

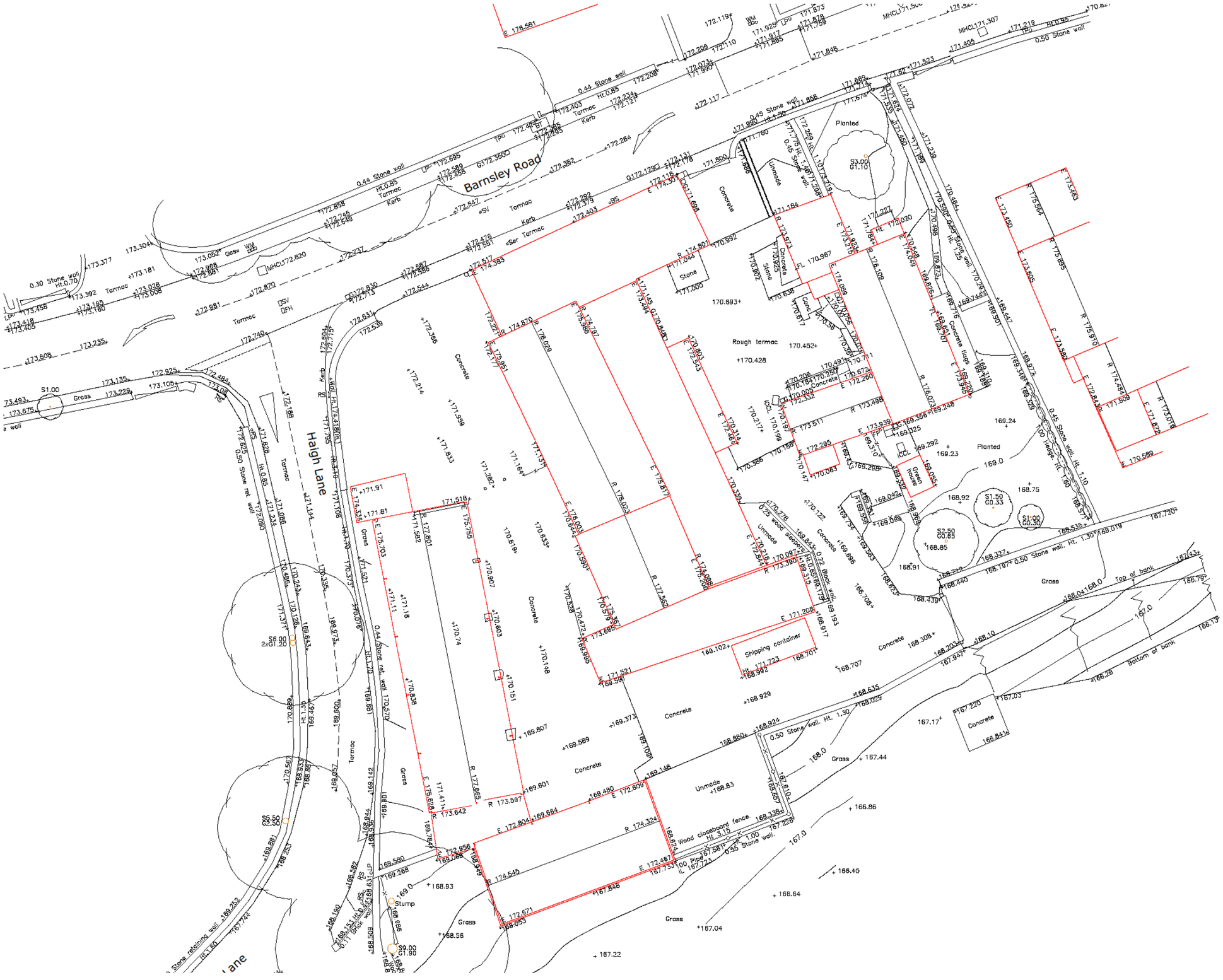
mboothdesign
architectural design and building consultants

Fairfield House
Berneslai Close Barnsley
S70 2FL
T: 01226 286256
M: 07881898300
E: mark@mboothdesign.co.uk

APPENDIX 2 – PUBLIC SEWERS

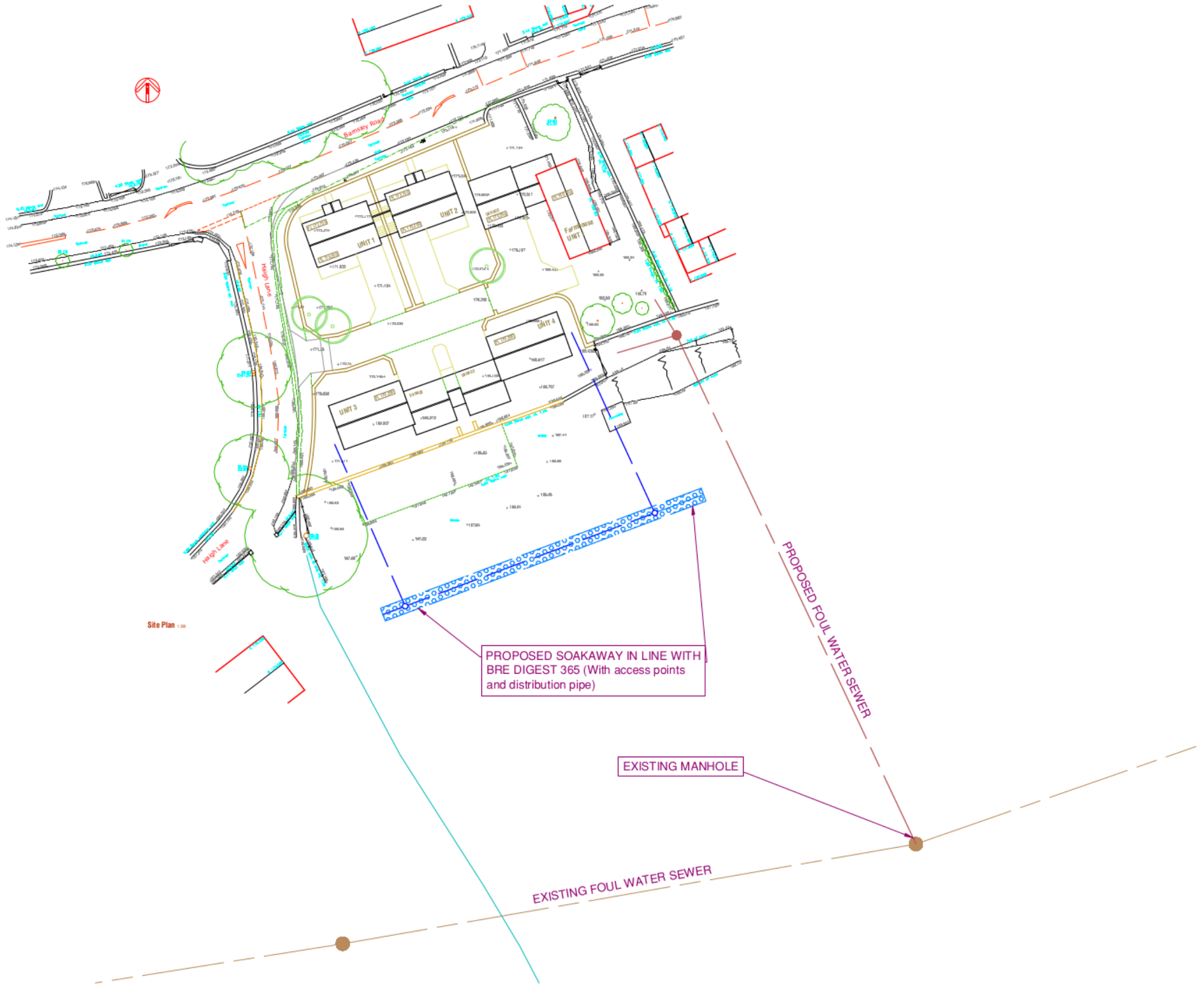


APPENDIX 3 – SURVEY



APPENDIX 4 – PROPOSED LAYOUT

APPENDIX 5 – OFF-SITE DRAINAGE



APPENDIX 6 - FLOOD ZONE MAP