

Project Title: Water Lane, Angmering

Project No/ Document Reference: A290-TN001

Date: 10 September 2020

Author: Shaun Letchford

DRAINAGE – HOLDING OBJECTION

1. Introduction

Further to your email, in response to our clients reserved matters and discharge of conditions application, please find below further information regarding your comments from Laura Gibbons, Engineer, on behalf of Adur & Worthing Councils. This response refers to Application Reference A/109/20/RES. We also refer you to the idom merebrook, Flood Risk Assessment, Ref: FRA-19495-16-139 Rev R2 approved at outline planning (A/99/17/OUT) and which we adhere to throughout.

2. Comments

We have responded to each of your comments below:

The food risk assessment submitted at outline application was not approved from a surface water drainage perspective. A plan showing the pre-development catchment areas is requested, this plan should show the natural catchment delineation within the site and their respective areas.

For clarification the Flood Risk Assessment (FRA) was approved at outline planning in its entirety. The FRA included a drainage strategy drawing, Sth-301-001 A, as well as a whole chapter on surface water drainage. This has formed the basis of our drainage strategy and we have closely followed the surface water drainage strategy drawing approved at outline planning as part of the FRA.

The approved FRA and drainage strategy included information on existing catchments. However, for clarification we have included drawing A290-RM-511 P1, Pre Development Catchment Areas, providing existing catchments and their respective areas.

A plan showing proposed levels and catchments must be provided.

Drawing's A290-RM-401 P2 and 402 P2, Engineering Layouts Sheets 1 and 2, submitted with the RM submission provides all proposed site levels. Drawing's A290-RM-501 P2 and 502 P2, Drainage Layouts Sheets 1 and 2, submitted with the RM submission provides all proposed drainage levels. There are also numerous other drawings relating to levels and drainage.

Catchment plans are also provided in this response as stated above and below.



An impermeable areas plan, clearly identifying areas draining to each surface water drainage area is required. This should also be broken down further to areas draining to pipe numbers.

We have included drawing A290-RM-512 P1, Post Development Catchment Areas and Basins, providing the impermeable area plan. Within the RM submission we included drawings A290-RM-501 P2 and 502 P2, Drainage Layouts Sheets 1 and 2, providing all proposed drainage levels and manhole numbers. In addition, within the submitted Drainage Statement (A290-R007) we included all Micro Drainage calculations including impermeable areas draining to each manhole. Therefore, all information has been previously submitted.

A surcharged outfall must be applied to the network draining to the black ditch. With surcharged levels set to 1 in 100 plus climate change levels for the black ditch in this location.

Drawing A290-RM-501 P2 Drainage Layout Sheet 1 clearly provides an invert level for Attenuation Basin North at 11.80m and the outfall to black ditch (SOUT-North) at an invert level of 11.685.

The site entrance bridge design undertaken by Stantec required agreement with the EA and LPA on flood levels for the black Ditch at the site entrance. Stantec have provided an approved flood level of 11.04m for the 1:100 year plus 45% climate change and 11.09m for the 1:100 year plus 105% climate change.

As the outfall invert level is some 645mm above the 1:100 year plus 45% climate change level of black ditch, with the basin invert level some 760mm above, there is no requirement for a surcharged outfall.

Drainage layout plans need to be provided.

Drawing's A290-RM-501 P2 and 502 P2, Drainage Layouts Sheets 1 and 2, were submitted with the RM submission, showing full drainage layouts. Private drainage will be provided at detailed design following a successful RM submission.

Two perpendicular cross sections per basin are required to verify modelled areas/ volumes.

We have included drawing A290-RM-512 P1, Post Development Catchment Areas and Basins, providing cross sections of both Basin North and South

Layout plans with main river predicted flood extents shown must be supplied to evidence that the basin is located outside of predicted flooding extents.



For clarification the Flood Risk Assessment (FRA) was approved at outline planning in its entirety.

This included evidence of flood plain extents for all forms including fluvial and pluvial flooding, with the drainage strategy drawing showing flood extents of the black ditch. We confirm all development, including SuDS, is located in Flood Zone 1 as stated in the FRA and Drainage Statement.

As stated above the site entrance bridge design undertaken by Stantec required agreement with the EA and LPA on flood levels for the black Ditch at the site entrance. Stantec have provided an approved flood level of 11.04m for the 1:100 year plus 45% climate change and 11.09m for the 1:100 year plus 105% climate change.

Drawing's A290-RM-401 P2 and 402 P2, Engineering Layouts Sheets 1 and 2, submitted with the RM submission provides all proposed site levels. Drawing's A290-RM-501 P2 and 502 P2, Drainage Layouts Sheets 1 and 2, submitted with the RM submission provides all proposed drainage levels.

These drawings clearly show all development to be way in excess of the approved flood levels, including, the basin which has proposed and existing levels on it.

It is noted that a pump is included within one of the calculation printouts, pumping must not occur, it is not sustainable and drainage should be designed to follow natural topography. Please remove this.

You are correct that a pump is included in the Micro Drainage calculations. However, pumping does not occur, and you will note there is not one located or stated on the drawings. All drainage is designed to follow natural topography and no pumping is required.

The western catchment drains entirely to infiltration through cellular storage and a swale. The recommended method of modelling this within Micro Drainage, as stated by the software manufacturers and included within the software's 'How to model an Outfall to an Infiltration Structure' guidance is to, and we quote, "Design an online pump in the final manhole before the dummy pipe. The flow rate should be left blank, the only outflow from the manhole should be through infiltration. This will prevent any continuation flow along the dummy pipe".

Therefore, the whole design is modelled to industry standard and we cannot remove the pump in the modelling.

Please remove the proposed trees from within basin extents, especially the attenuation basin.

There are no trees shown on any of our drawings.

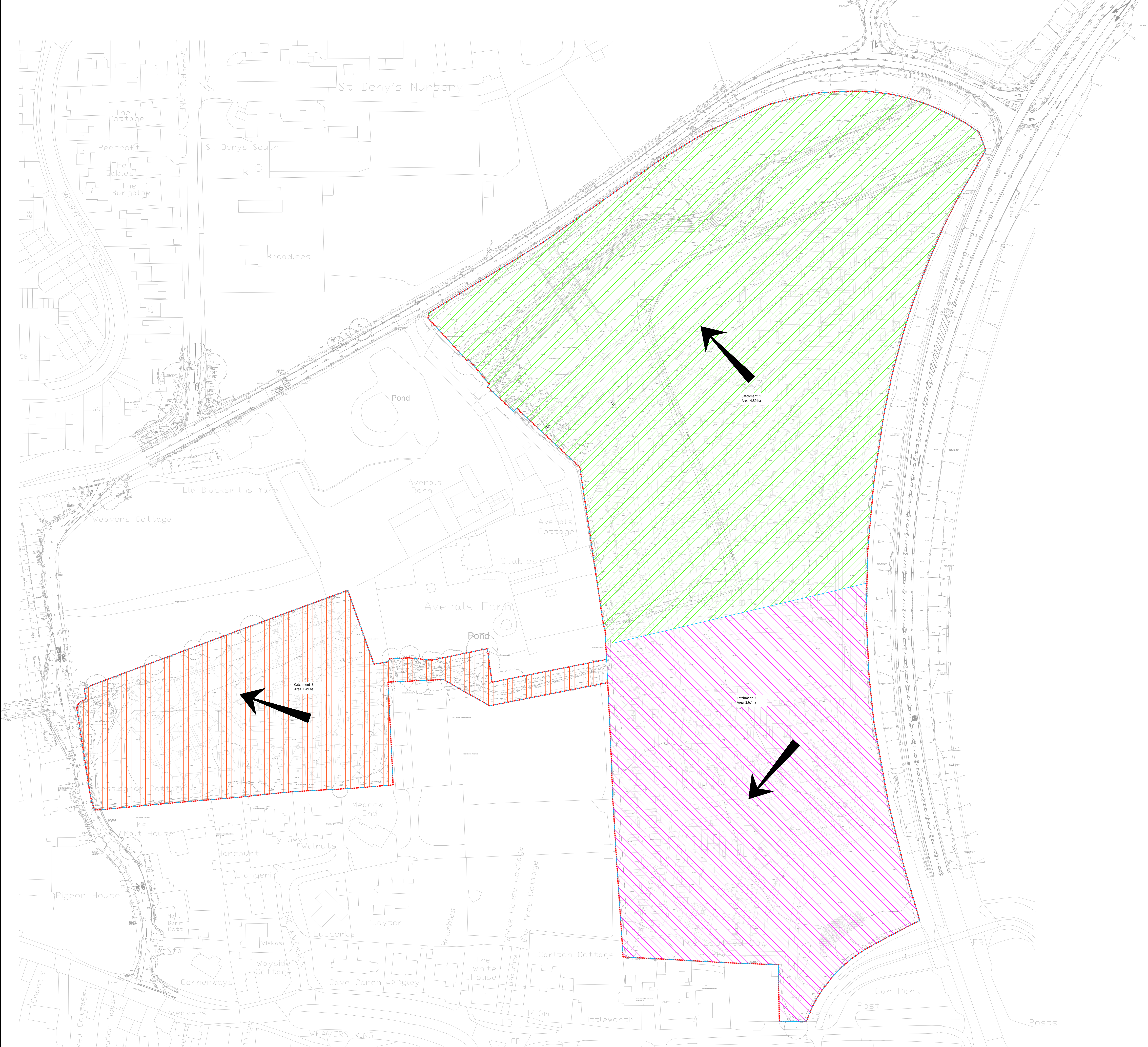


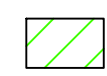
A plan is required showing that a clear 3m buffer is provided around all attenuation and infiltration basins to facilitate future maintenance.

We confirm that adequate space, 3m minimum from top of water level, plus 300mm freeboard, and/or basin cover level, around all attenuation and infiltration basins, in line with Ciria guidance, has been allowed for in the design



Appendix 1 - Drawings



-  Catchment 1
-  Catchment 2
-  Catchment 3
-  General Direction of Overland Flow

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DRAINAGE NOTES:
1. Do not scale.
2. Refer to all other Project Drawings and supporting notes.

P1 09/20 First Issue		JS	SL
 3 Tealgate, Charnham Park Hungerford, Berkshire RG17 0YT www.alpce.co.uk Tel: 01488 684390			
Client BARRATT DAVID WILSON HOMES			
Project WATER LANE ANGMERING			
Title PRE-DEVELOPMENT CATCHMENT AREAS			
Status FOR INFORMATION			
Drawn NTS @ AD	Date SEPT '20	Checked JS	SL
Drawing No. A290-RM-511			Revision P1

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Northern Basin

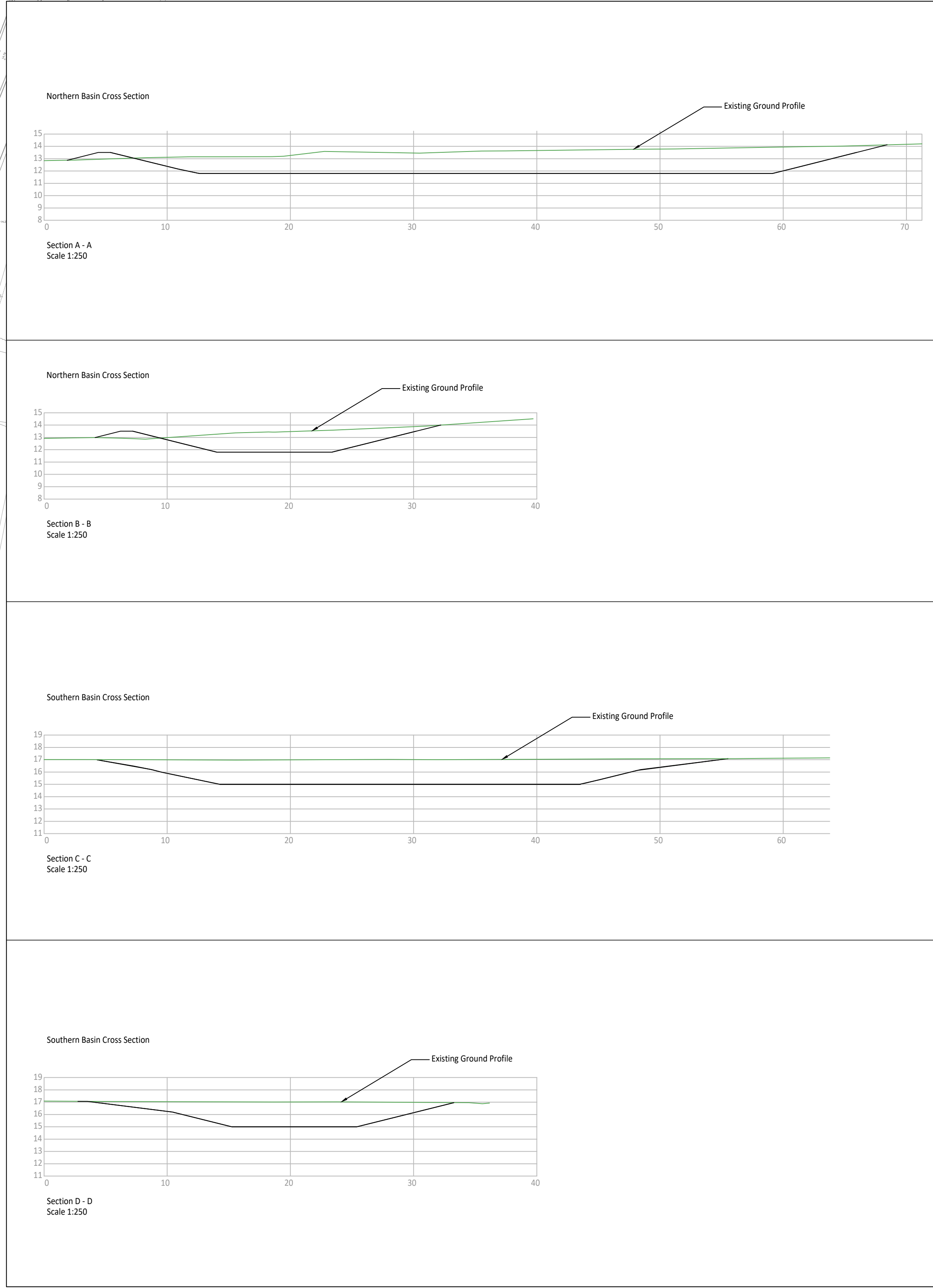
Southern Basin

Western Attenuation

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DRAINAGE NOTES:

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AL ABLE LETCHFORD PARTNERSHIP Consulting Engineers			
3 Tealgate, Charnham Park, Hungerford, Berkshire RG17 0YT www.alpc.co.uk Tel: 01488 684390			
Client: BARRATT DAVID WILSON HOMES			
Project: WATER LANE ANGMERING			
Title: POST-DEVELOPMENT CATCHMENT AREAS & BASIN CROSS SECTIONS			
Status: FOR INFORMATION			
Drawn: NTS @ AD	Date: SEPT '20	Checked: JS	SL
Drawn by: A290-RM-512		Revised:	P1

development planning
infrastructure design
transport HIGHWAYS
drainage
CIVIL ENGINEERING
site appraisal
flood risk assessment
travel plans
masterplanning

ABLEY LETCHFORD PARTNERSHIP LTD
3 Tealgate • Charnham Park • Hungerford • RG17 0YT
T: 01488 684 390 E: contact@alpce.co.uk W: www.alpce.co.uk