

Technical design note

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| Project name | Land North of Rectory Farm, Yatton | | |
| Design note title | Response to LLFA Comments dated 15th May 2023 | | |
| Document reference | 23257-HYD-XX-XX-TN-D-0001 | | |
| Author | Richard Hughes | | |
| Revision | P02 | | |
| Date | 9 June 2023 | Approved | ✓ |

1. Introduction

A consultation response dated the 15th May 2023 has been received from North Somerset Council as the Lead Local Flood Authority (LLFA) in connection with planning application reference 23/P/0664/OUT for the above site.

The LLFA has currently raised an objection citing a number of issues. This Technical Note seeks to address the items raised in relation to Drainage Strategy with a view to satisfying the LLFA for the purposes of the Outline Application.

It should be noted that the first three points raised are specifically concerned with the Flood Risk Assessment and the responses to these items will be dealt with in a separate document. The planning officer was updated on the 7th June as to the responses being prepared in reply to flood risk and drainage comments.

A copy of the LLFA response is included in Appendix A of this Technical Note for reference.

2. Responses

2.1 Impact of Land Raising on Flow Routes and Rhyne Network

- 2.1.1 As shown on the Drainage Strategy plan, included in the planning submission, all existing rhyne will be retained with any highway crossing being culverted. This will ensure that flows within the rhyne will be maintained uninterrupted throughout the development area, including those areas that are to be raised.
- 2.1.2 The [Gov.UK](#) surface water mapping indicates that there is no medium or high risk surface flooding within the site or the surrounding areas, other than within the rhyne channels themselves. For the low risk scenario, some minor, (less than 300mm depth), of surface flooding is shown but these are associated with localised depressions rather than flow routes. The proposed development will remove these areas.
- 2.1.3 Similarly, the Gov.UK mapping shows no surface water flow routes entering the site from the existing urban development to the east, with the exception of a potential 'low risk' route entering along Marsh Road.

The point where any flows may enter the site from Marsh Road coincides with an existing IDB viewed rhyne and therefore there will be no interruption to the flow route.

- 2.1.4 Access to the rhyne network has been discussed with the IDB to agree widths and grades to the easement areas.

Points of access will be from existing gates and culvert crossings that are being retained and where the proposed development highways cross the rhyne. These points of access are shown on Hydrock drawing no.23257-HYD-XX-XX-DR-D-2005-P02 which was included with the original planning submission. A copy of the drawing is included in Appendix B of this Technical Note for information.

Access down from the road crossings can be readily achieved and be provided via ramps, the final details of which can be provided at the Reserved Matters stage when final layouts and proposed levels are fixed.

- 2.1.5 All Wessex Water surface water outfall points will be retained. There are no proposals to change the existing ground levels at these outfall points therefore there will no adverse impacts.

- 2.1.6 The proposed Drainage Strategy included with the original planning submission shows proposed diversions to Wessex Water public foul sewers. A copy of Hydrock drawing no. 23257-HYD-XX-XX-DR-D-2001-P05 is included in Appendix B of this Technical Note for information.

A Pre-Development Enquiry was submitted to Wessex Water prior to the planning application and the response was included with the Drainage Strategy report. There were no adverse comments.

Any diversion works will be carried out under Section 185 of the Water Industry Act.

2.2 Land Raising Plan

- 2.2.1 A copy of the EDP Height and Scale Parameter Plan plus extracts for the Design and Access Statement showing typical site cross-sections are attached in Appendix C indicating the extents of the proposed land raising.

2.3 Surface Water Flow Rates

- 2.3.1 The proposed discharge rates have been set by the Internal Drainage Board. These rates are less than the 5 l/s that may be required by an adopting authority.

It should be noted that, as stated in section 3.2.21 of the Drainage Strategy report, it is intended to offer the proposed surface water drainage systems for adoption under a New Appointments and Variations (NAVS) such as IWNL, LEEP or ICOSA which allows developers and large business customers to choose their water and sewerage undertaker for a specific geographic area.

The attenuation basins have been designed on the basis of the lower IDB flow rate figure therefore any increase in discharge rate that may subsequently be agreed will lead to a reduction in the storage volumes required thus the current proposal can be viewed as the 'worst case' scenario.

The detailed design of the surface water drainage and agreement of discharge rates will be agreed at the Reserved Matters stage.

2.4 Water Quality

- 2.4.1 The requirement for the incorporation of a wetland base to the attenuation bases is noted. This will be included in the detailed design and landscaping proposal which will be addressed at the Reserved matters stage.

2.5 Headwalls

- 2.5.1 The headwall design will be incorporated with the landscaping proposals and in conjunction with the requirements of the IDB and adopting drainage authority/company. Sympathetic, individual designs for headwalls can be prepared at the detailed design stage.

2.6 Rhyne Access Strips and Cross-Sections

- 2.6.1 The relationship between the existing rhyne and the raised development platform was considered during the preparation of the planning application details.

The proposals are based on the assumption that the easement widths are at the same level as the top of rhyne bank with a maximum grade across the width of 1 in 40. From the back of the easement there will be a 1 in 3 bank, or possibly a small retaining structure up to the development platform level. This arrangement has been used in determining the available development area.

A typical cross-section showing the above is included in Appendix C of this Technical Note.

3. Summary

- 3.1 As noted in the Introduction, a number of the points raised by the LLFA refer to Flood Risk matters, and these are being addressed in a separate response.
- 3.2 A number of points relating to the drainage were addressed in the original Drainage Strategy report which formed part of the planning application. Relevant drawings have been attached to this Technical Note for clarification on certain points.
- 3.3 Several of the items raised will be points of detailed design to be addressed when the layout is finalised. These can readily be resolved at the Reserved Matters stage.

END

APPENDIX A

LEAD LOCAL FLOOD AUTHORITY COMMENTS

INTERNAL MEMORANDUM



FROM: Flood Risk Management Team (Lead Local Flood Authority)

Date: 15/05/2023

Application: Outline planning application for the development of up to 190no. homes (including 50% affordable homes), 0.13ha of land reserved for Class E uses, allotments, car parking, earthworks to facilitate sustainable drainage systems, open space and all other ancillary infrastructure and enabling works with means of access from Shiners Elms for consideration. All other matters (means of access from Chescombe Road, internal access, scale, layout, appearance and landscaping) reserved for subsequent approval

Reference Number: 23/P/0664/OUT

Location: Land To North Of Rectory Farm Chescombe Road Yatton

Formal comments regarding the above. The Lead Local Flood Authority have the following comments to make.

The Lead Local Flood Authority objects to the current proposals due to the following reasons:

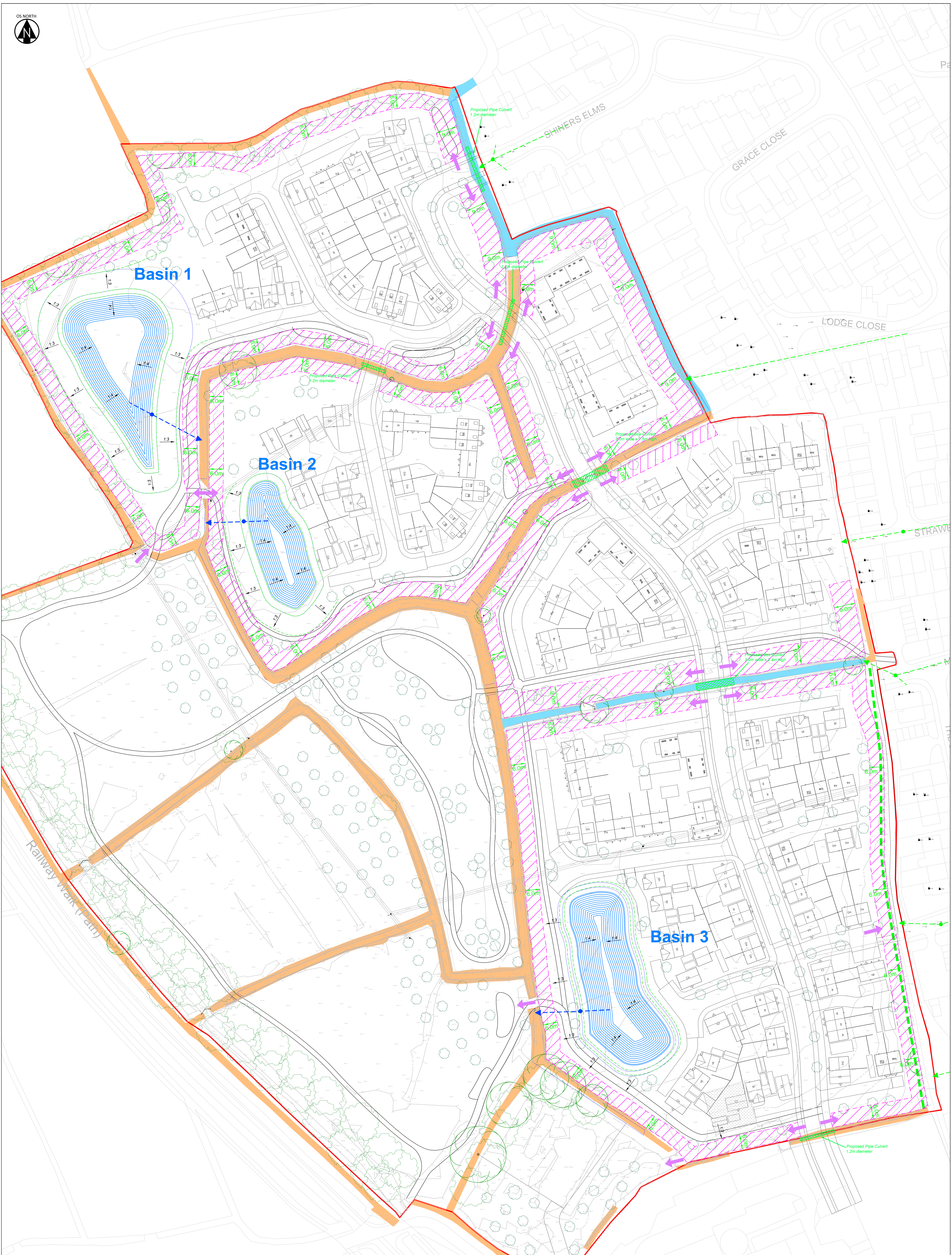
- There appears to have been a misunderstanding that has arisen from a pre-application meeting that was held. The undefended tidal extents associated with the Woodspring Bay model provide the greatest extent of flood risk that should inform both the sequential and exception test if the exception test is passed. However, there was no intention to suggest that should be at the expense of other sources of flood risk or that it was the 'dominant' source of flood risk. It is suggested that the approach to residual risk and making the site safe for the lifetime of the development is discussed and agreed with both the Environment Agency and the LLFA.
- The undefended and defended scenarios would warrant a different level of mitigation based on the relative risk of each. The defended risk warrants land raised to above the design flood event plus climate change and the undefended residual risk managed through a combination of evacuation, internal safe refuges and dry access (if possible).
- Any land raising should not be detrimental to other types of flood risk and the modelling should be used to demonstrate that flood risk is not increased overall. The extent of any areas of compensation should be agreed with the Environment Agency.
- There are concerns regarding the overall land raising that is proposed and the impact that would have on surface water flow routes from the urban extents of Yatton and how that will then impact on the rhyme network, accessibility for maintenance (access down to the rhyme maintenance strip level requires suitable slopes and ramps) and Wessex Water's surface water drainage outfalls and also the impact on Wessex Water's foul drainage network that crosses the site.
- A plan should be provided that shows the proposed land raising. The height and scale parameter plans should also include a relationship to the existing ground levels.

- There are no issues with the overall discharge rate, however Wessex Water may not adopt a flow control structure below 5 l/s. This may impact the basin arrangements. Agreement on the discharge rate should be between the IDB and the adopting authority. Agreement in writing is required to be provided.
- The water quality approach is supported, provided the basins are designed to effectively manage water quality. This would require a wetland base to be provided.
- The design of the headwalls should be sympathetic to the landscape proposed, especially because of the potential number of pre-cast in close proximity. A bespoke approach is required.
- Although maintenance access strips have been provided, they have not considered the raising of the land and safe slopes that are to be provided. The maintenance access strips should be at existing ground level to ensure that the watercourses can be maintained and that the base can be reached without a specialist machine.
- A typical rhyme cross-section should be included.

APPENDIX B

Drawing No. 23257-HYD-XX-XX-DR-D-2005-P02 - Rhyne Access

Drawing No. 23257-HYD-XX-XX-DR-D-2001-P05 - Drainage Strategy



Key

- Existing piped ditch/rhyne
- IDB Viewed Rhyne
- Proposed rhyne crossing culvert
- Ordinary Watercourse
- Proposed attenuation basin
- Proposed rhyne easement strips
- Proposed access points to rhyne easement strips

REVISIONS

| Rev | Date | Description | By | Chk | App |
|-----|----------|----------------------------------|-----|-----|-----|
| R02 | 30/05/23 | Easement width dimensions added. | RJH | | |
| R01 | 12/05/23 | First issue. | RJH | | |

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CLIENT
PERSIMMON HOMES SEVERN VALLEY

PROJECT
LAND AT RECTORY FARM (NORTH)
YATTON, NORTH SOMERSET

TITLE
RHYNE MAINTENANCE STRIPS
AND ACCESS POINTS

HYDROCK PROJECT NO.
23257-IOCB

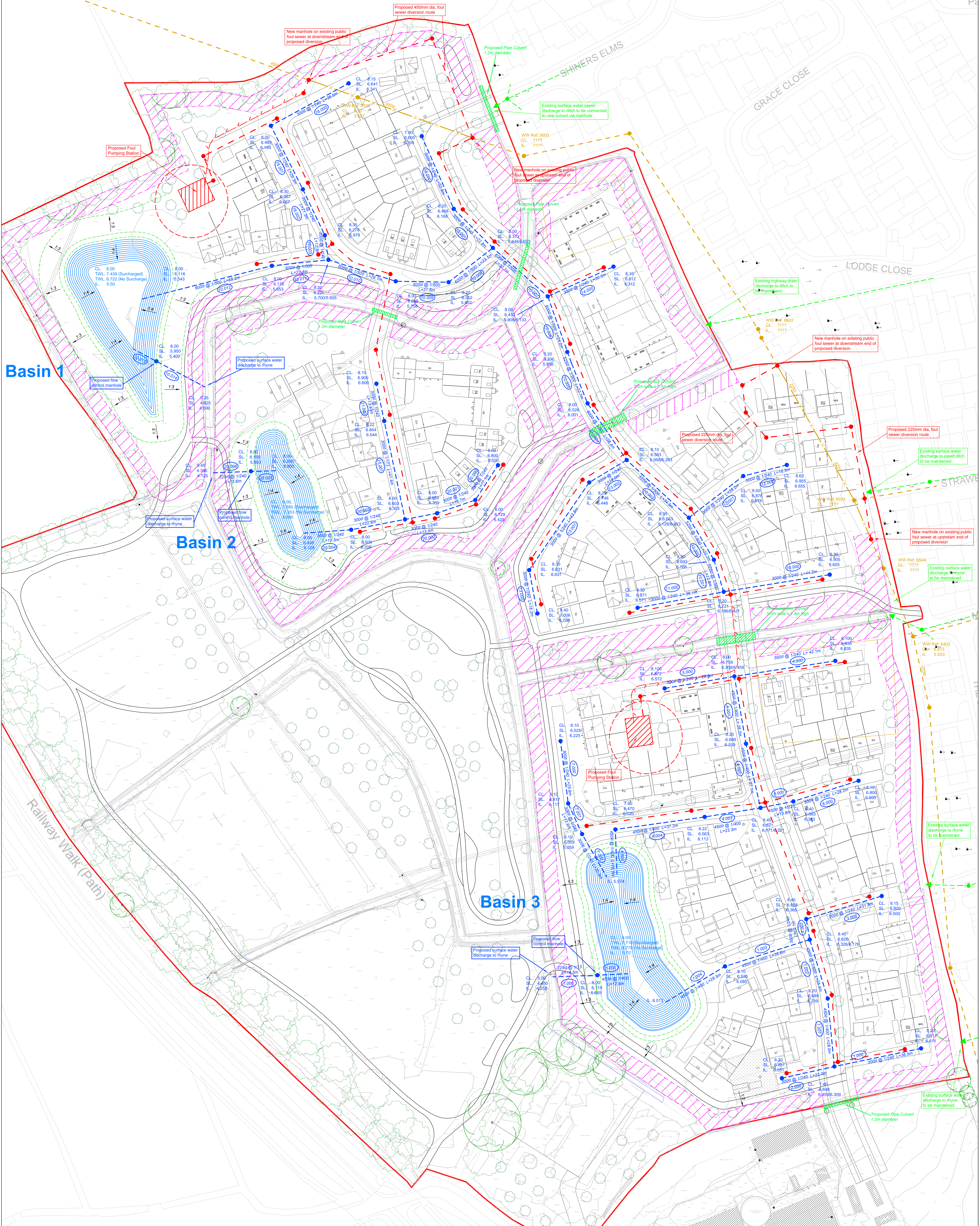
SCALE @ A0
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STATUS/DESCRIPTION
FOR APPROVAL

STATUS
S2

REVISION
P02

DRAWING NO. (PROJECT CODE-ORIGINATOR-DWG LEVEL-TYPE-ROLE-NO/NO)
23257-HYD-XX-DR-D-2005



Key

- Existing public foul water sewer
- Existing public surface water sewer
- Proposed surface water sewer
- Proposed foul water sewer
- Proposed foul rising main
- Proposed rhyme crossing culvert
- Proposed foul pumping station with 15m standoff zone
- Existing public foul water sewer to be abandoned and diverted
- Proposed attenuation basin
- Proposed rhyme easement strips

REVISIONS

| Rev | Date | Description | By | Out | App |
|-----|----------|--|----|-----|-----|
| PO5 | 15/03/23 | Redrawn. | RH | JAC | JAC |
| PO4 | 23/02/23 | Redrawn. | RH | JAC | JAC |
| PO3 | 26/02/23 | Redrawn. | RH | JAC | JAC |
| PO2 | 27/04/22 | Catchment 1 basin relocated. Foul diversion added. | RH | JAC | JAC |
| PO1 | 22/04/22 | First Issue. | RH | JAC | JAC |

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PROJECT
**LAND AT RECTORY FARM (NORTH)
YATTON, NORTH SOMERSET**

TITLE
**PROPOSED FOUL & SURFACE WATER
DRAINAGE STRATEGY PLAN**

HYDROCK PROJECT NO.
23257-IOCB

SCALE @ A0
1: 500

STATUS/DESCRIPTION
FOR APPROVAL

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23257-HYD-XX-XX-DR-D-2001

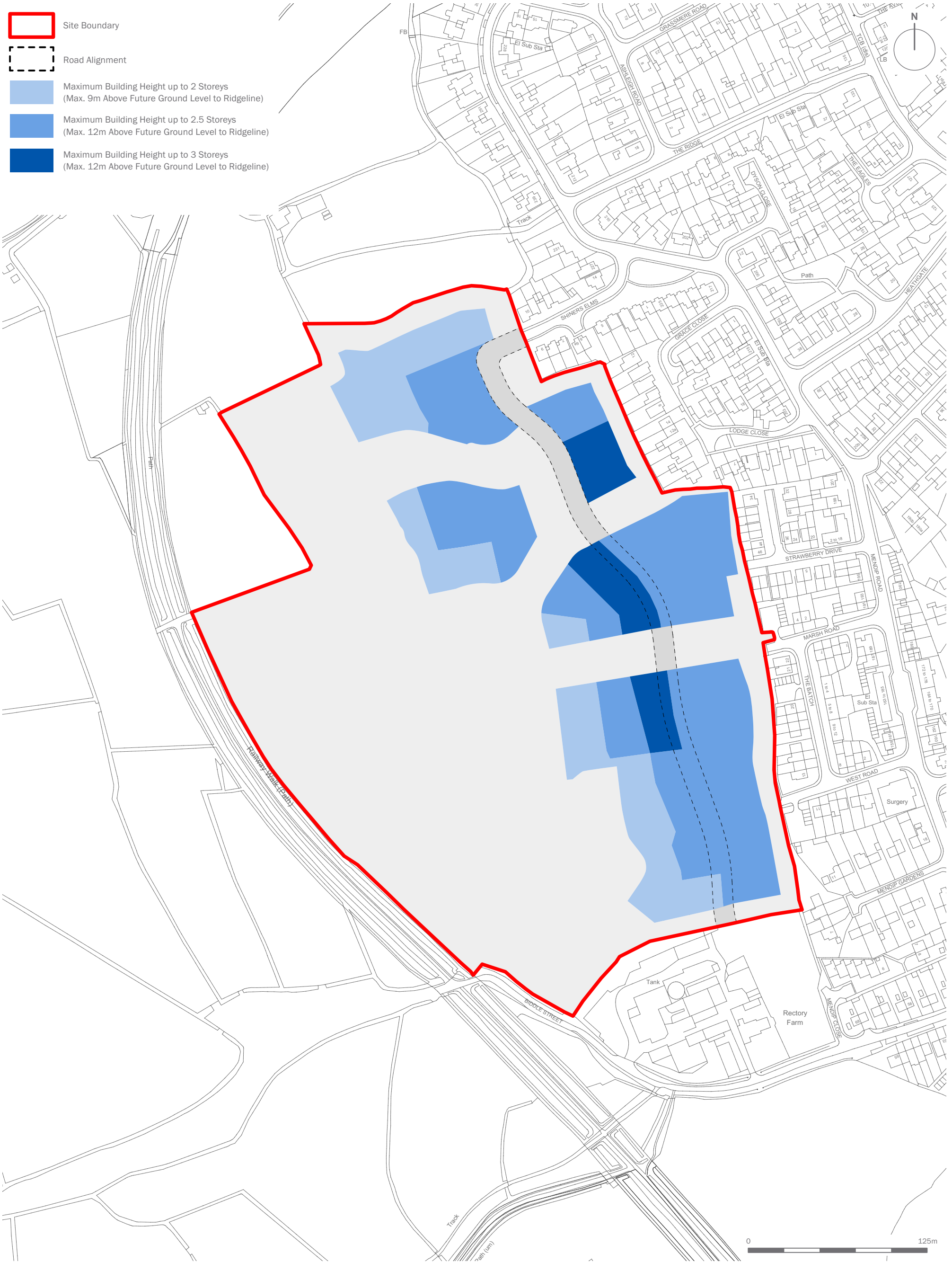
STATUS
S2

REVISION
PO5

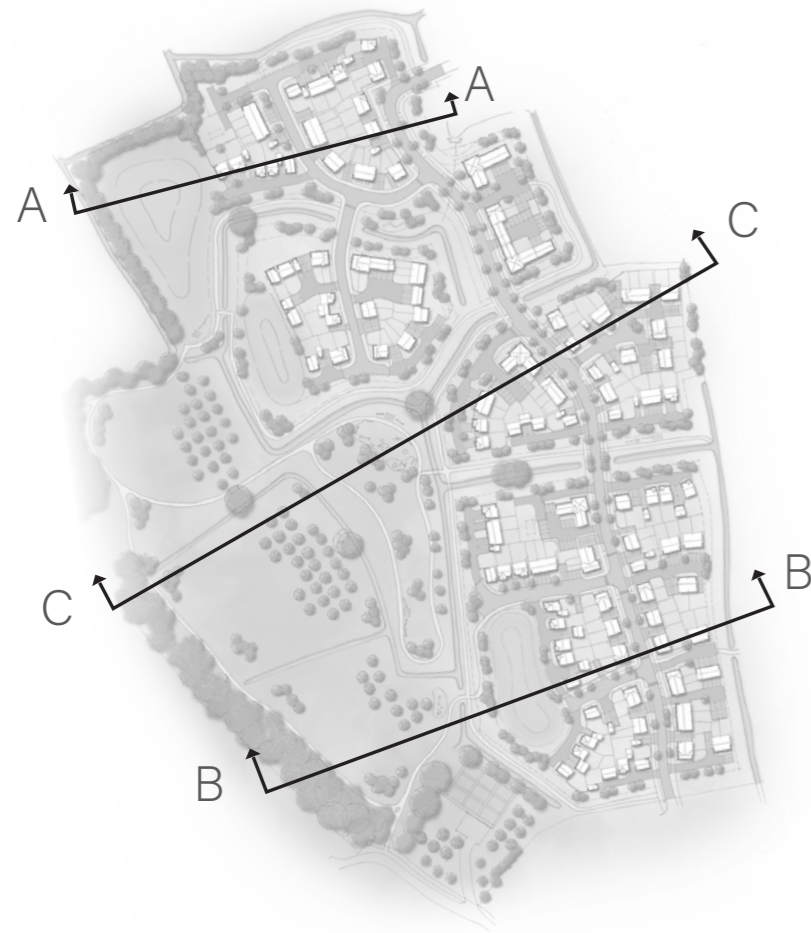
APPENDIX C

Edp7842_d006c - Height and Scale Parameter Plan

Extracts for Design and Access Statement - Typical Site Sections



5.09 ILLUSTRATIVE SITE SECTIONS



The illustrative site sections show how the proposed development relates to the existing built form, rhynes and landscape. The design incorporates raised areas for the development to ensure that the finished floor levels of the new homes are above any potential flooding in line with both local and national policy.

The section also shows how the design responds to the existing settlement edge and how the significant public open space and multi-functional GI network of spaces provides an appropriate relationship between the development and the Strawberry Line.

Figure 41: Section A-A

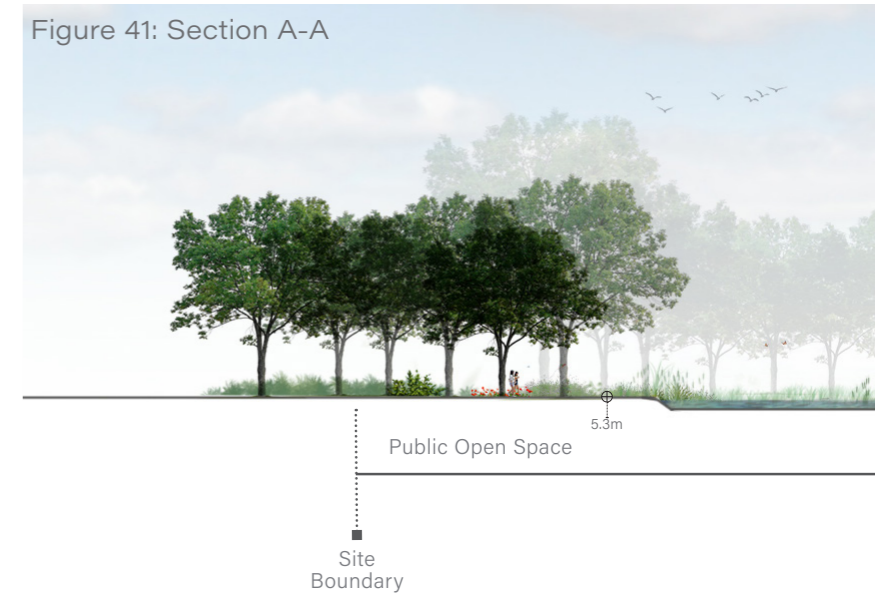
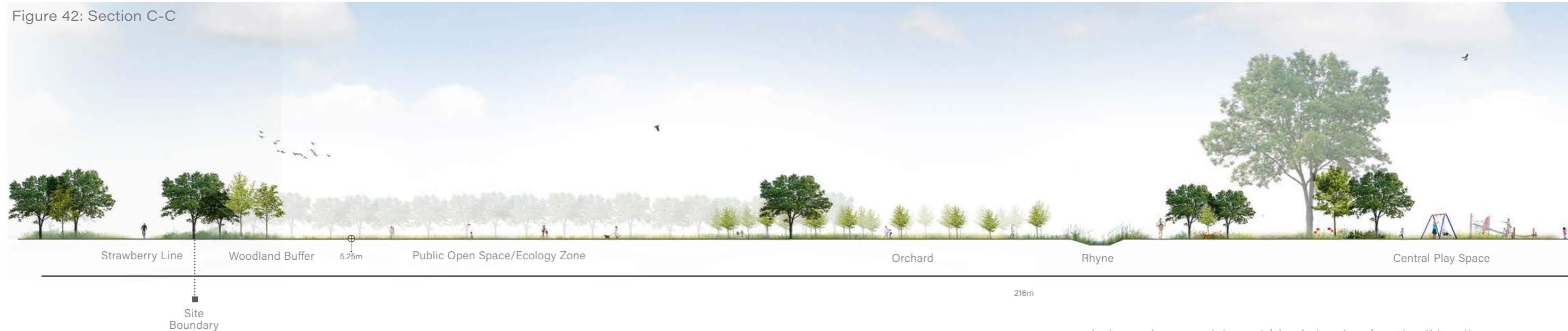
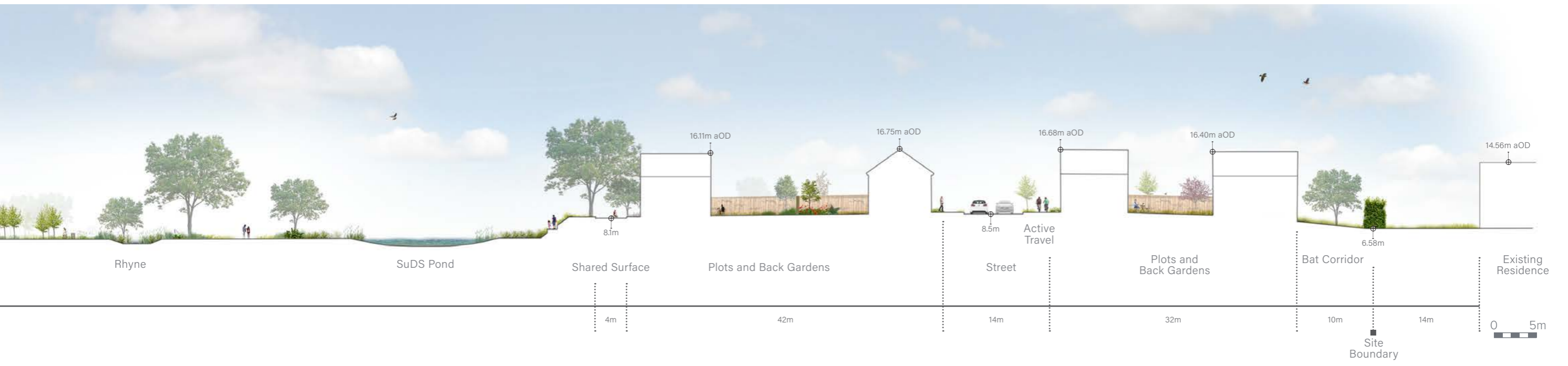
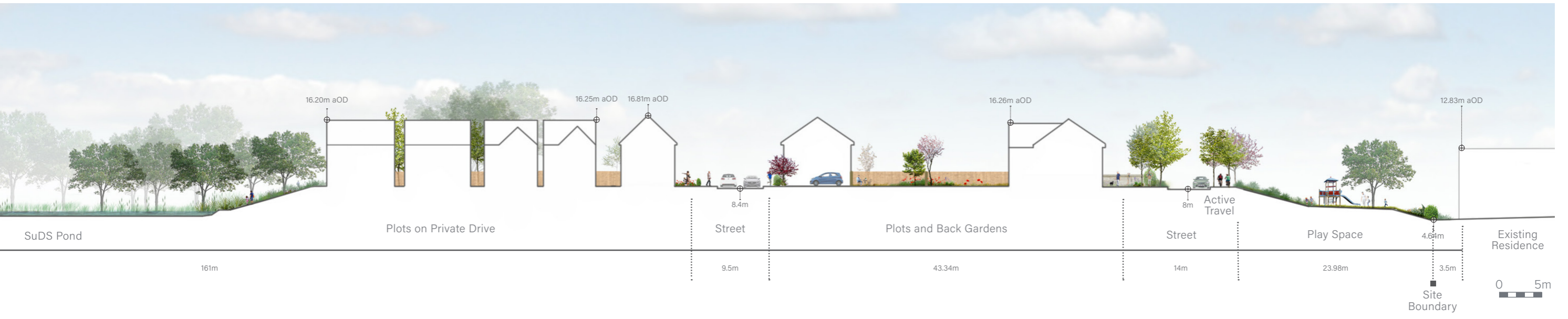


Figure 43: Section B-B



Figure 42: Section C-C





APPENDIX D

Typical Rhyne Cross-Section

