

TECHNICAL NOTE – DRAINAGE COMPLETION REPORT (38 UNITS)

Project Name : Land at Stakers Farm, North End Road, Yapton

Job No : 19-156

Report Reference : 19-156-08

Note Title : Drainage Completion Report (38 Units)

Checked : RS

Approved : RS

Date : April 2022

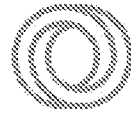
1.0 INTRODUCTION

1.1.1 Odyssey (Basingstoke) has been instructed by Dandara Ltd to prepare this Sustainable Drainage (SuDS) Verification Report to address Planning Condition No.17 (reproduced below) of the Planning Permission No. Y/88/18/OUT for the above site.

Condition (17)

Immediately following implementation of the approved surface water drainage system and prior to occupation of any part of the development, the developer/applicant shall provide the local planning authority with as-built drawings of the implemented scheme together with a completion report prepared by an independent engineer that confirms that the scheme was built in accordance with the approved drawing/s and is fit for purpose. The scheme shall thereafter be maintained in perpetuity.

Reason: To ensure that the proposed development is satisfactorily drained in accordance with policies W DM2 and W DM3 of the Arun Local Plan.



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1.1.2 This report follows further as-built information provided from the client / contractor and detailed modelling of the as-built permeable paving roads. .

1.1.3 It is understood that the type, principle and main function of the agreed SuDS features must be implemented on site as per the approved drainage scheme whilst minor adjustments i.e. pipe layout, local invert levels, chamber size and its location are allowed on site to suit specific site conditions and / or buildability. Such adjustments are outside of the scope of this report as these do not relate directly to the functionality of the SuDS implemented.

1.1.4 The approved list of drawings is presented below:

YAP-130-028-C1 "Pervious System Network (38 Units)";

YAP-130-081-C5 Drainage Layout "Plots 1-23 & 33-38 38 Unit Site Sheet 1 of 6";

YAP-130-082-C5 Drainage Layout "Plots 24-32 38 Unit Site Sheet 2 of 6";

YAP-140-001-C1 "Private Drainage Manhole Schedules";

YAP-150-071-C2 "External Works Layout 38 Unit Site Sheet 1 of 3";

YAP-180-030-C2 "Drainage Construction Details (Sheet 1 of 2)";

YAP-180-031-C3 "Drainage Construction Details (Sheet 2 of 2)";

YAP-180-035-C2 "Highway Construction Details (Sheet 1 of 2)"; and

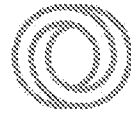
YAP-180-036-C1 "Highway Construction Details (Sheet 2 of 2)".

1.1.5 The list of drawings used by the contractor for the construction of the scheme is provided in **Appendix A**. Drawings having later revision - to the ones approved at drainage condition discharge - have been amended to suit minor site alterations, address client's comments, etc., however the principle of the approved drainage scheme was not materially altered.

2.0 AS-BUILT INFORMATION

2.1.1 The as-built information used in preparation of this report has been supplied by the client or their contractor via e-mails, documents and site photographs. Odyssey assumes no responsibility for the correctness of such information however trust it to be true and accurate.

2.1.2 Odyssey did visit the site (on 9th March 2022) and gathered photographic evidence of some structures and such photographs are presented in **Appendix B**.



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2.1.3 Below is a summary of main drainage and SuDS components that were approved and should be installed;

- Pervious pavement;
- Pervious pavement weirs (check dams);
- Pervious pavement geocellular storage;
- Infiltration blankets;
- drainage runs; and
- silt traps (catchpits).

2.2 Pervious Pavement

2.2.1 During the site visit Odyssey was shown the asphalt concrete base course (of the permeable paving) to be core drilled for certain areas. Other areas had permeable paving blocks already installed but the contractor and client confirmed that similar core drilling took place for these areas.

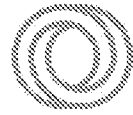
2.2.2 The as-built sub-base material complies with the design requirement to provide sufficient void ratio for water storage purposes. Please refer to an example of delivery ticket in **Appendix B**.

2.2.3 The sub-grade levels of the installed permeable paving are presented on the drawing YAP-130-SK008 in **Appendix C**. Most of the as-built sub-grade levels are constructed to within a +/- 50mm tolerance (green clouded areas) with two areas where tolerance exceeds +/- 50mm (red clouded areas).

2.2.4 The as-built permeable paving areas were re-calculated to check their performance for the design storm of 1 in 100 year (+40% climate change). Calculations are presented in **Appendix C** together with the supporting drawing YAP-130-SK009.

2.2.5 The hydraulic calculations show that the as-built pervious systems will perform satisfactorily during the design storm and will not flood off-site. Odyssey confirms therefore that pervious pavements should function as per approved designs.

2.2.6 As-built documents and photographs of the as-built pervious pavements are presented in **Appendix B**.



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2.3 Pervious Pavement Weirs (check dams)

2.3.1 The site installed weirs (check dams). As-built documents and photographs of these are presented in **Appendix D**.

2.3.2 The available as-built information indicates that weirs were generally constructed to within a +/- 50mm height tolerance of the design height, with single weir (No. 2) height being 100mm lower than the design height.

2.3.3 Calculations of pervious pavement incorporating weirs are presented in **Appendix C** together with the supporting drawing YAP-130-SK009.

2.3.4 Odyssey confirms that weirs should function as per approved designs.

2.4 Pervious Pavement Geocellular Storage (Roads 2 and 3)

2.4.1 The design was based on the use of Permavoid product, however other products could be used if these would offer the same characteristics (i.e. volumes and structural strength).

2.4.2 The site used product called GEOLight from SDS company. The thickness of this product is 250 mm as per confirmation e-mail in **Appendix E**.

2.4.3 The letter from SDS in **Appendix E** states that units should be structurally capable for the given application and that total combined storage equals to 148.67m³. (Note: the total combined design storage within the geocellular units of the sub-base of roads 2 and 3 was 142.3m³).

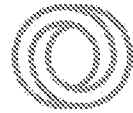
2.4.4 Odyssey confirms that pervious pavement geocellular storage should function as per approved designs.

2.5 Infiltration Blankets

2.5.1 Infiltration blankets installation pictures and as-built levels are presented in **Appendix F**.

2.5.2 The available as-built information indicates that infiltration blankets were generally constructed to within a +/- 15mm level tolerance of the design invert / soffit levels.

2.5.3 Odyssey confirms therefore that infiltration blankets are therefore installed and will function as per approved designs.



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2.6 *Drainage Runs*

2.6.1 The letter from contractor confirms that all drainage runs were installed as per approved design drawings. Please refer to **Appendix A** for the letter.

2.7 *Silt Traps*

2.7.1 Contractor provided photographic evidence of the installed silt traps. Please refer to **Appendix G** for photographs.

3.0 VERIFICATION

3.1.1 Odyssey did not have a site presence during construction to be able to verify that the SuDS elements of the drainage scheme were installed as per the approved design. However, the contractor has certified that they built the drainage system in accordance with the approved design provided by Odyssey, and with no material deviation to the design. The letter is included in **Appendix A**.

3.1.2 Based on the information / evidence supplied and undertaken calculations it is verified and concluded that the SuDS elements of the drainage system have been generally constructed as per the approved designs and therefore should function as per the approved scheme.

APPENDIX A

As-Built Contractor Letter

APPENDIX B

Pervious Pavement Evidence

Contractor / Client's evidence

Odyssey evidence

APPENDIX C

Pervious Pavement Calculations

APPENDIX D

Pervious Pavement Weirs Evidence

Appendix E

Pervious Pavement Geocellular Storage Evidence

Appendix F
Infiltration Blankets Evidence

Appendix G
Silt Traps Evidence

Contractor / Client's evidence

Odyssey evidence