



Project Name : Land West of B2132 Bilsham Road, Yapton
Job No : 14-111
Note Title : Flood Risk Assessment & Drainage Strategy – Addendum No.5
Author : NA
Checked : GG
Approved : GG
Date : October 2018

1.0 INTRODUCTION AND BACKGROUND

1.1 Odyssey was commissioned by Gleeson Strategic Land to undertake a Flood Risk Assessment (FRA) and Drainage Strategy in support of a planning application for a proposed residential development in Yapton (report no. 14-111-17B).

1.2 A planning application was submitted to Arun District Council (ADC) in December 2017 (application ref. Y/91/17/OUT) along with the FRA and Drainage Strategy. Further addendums to the FRA and Drainage Strategy have been submitted to ADC to respond to comments made by ADC's Drainage Engineers.

1.3 Meetings between Odyssey, the client and ADC were held on 7th August, 14th August and 2nd October to discuss the proposed surface water drainage strategy and ADC's drainage requirements for the site. ADC's Drainage Engineer requested that until winter testing is carried out at the location and depth of potential infiltration features to prove their viability, then infiltrating Sustainable Drainage System (SuDS) features should be maximised across the site by incorporating further permeable paving, granular trenches, and basins on the illustrative drainage strategy. It was also requested that the drainage strategy be updated in accordance with ADC's requirement for the base of any infiltration structure to provide a freeboard above the maximum recorded groundwater level, this was agreed at the recent meeting at 50mm. Should the winter testing regime (agreed between ADC, the client and Odyssey) prove viable in terms of soakage rates and practical delivery, then the principles contained within the FRA and illustrative drainage strategy can be developed further for submission to ADC at a later stage. The principle is also agreed that should the testing prove that the use of infiltration alone is unviable then an alternative



proposal including attenuation will be developed further for submission to ADC at a later stage. These points are also raised within email correspondence following the meetings, as shown in **Appendix A**.

1.4 This technical note sets out the proposed surface water drainage strategy for the site, which has been updated in accordance with the comments raised by ADC's Drainage Engineer and it should be read in conjunction with the original FRA.

2.0 PROPOSED SURFACE WATER DRAINAGE STRATEGY

2.1 The proposed surface water drainage strategy is shown on Drawing 14-111/103E in **Appendix B**.

2.2 It is proposed that surface water runoff will drain to five basins across the site, via a surface water pipe network. Four of the basins incorporate side infiltration only, as the base of these basins are situated below the highest recorded groundwater level. One basin incorporates both side and base infiltration. **Table 2.1** below sets out the groundwater levels encountered across the site between October 2017 and March 2018. A location plan of the test pits is shown in **Appendix C**, along with the full groundwater monitoring records.

Table 2.1: Groundwater Levels

Borehole Name	Groundwater Level Below Ground Surface (m)				
	25/10/2017	31/10/2017	24/01/2018	22/02/2018	22/03/2018
WS02	2.42	2.52	0.44	0.48	0.56
WS03	2.94	3.03	1.09	1.54	1.54
WS04	3.58	3.63	1.29	1.82	1.84
WS07	1.69	1.70	0.87	1.00	1.12
WS08	1.83	1.88	0.89	1.26	1.27
WS09	1.80	1.84	1.14	1.23	1.24
WS10	2.03	2.08	n/a	1.57	1.57

2.3 Soakage tests were undertaken across the site and the rates recorded ranged from 1.86×10^{-6} m/s to 9.91×10^{-6} m/s. The full test records are also included in **Appendix C**. Should infiltration rates prove insufficient following further detailed testing, flows will be discharged from the basins to the adjacent watercourses at Q_{BAR} rate, as set out in the FRA.



2.4 Infiltrating permeable paving has been included beyond the adoptable highway extents; within all roads, driveways and parking areas across the site.

2.5 Infiltrating granular trenches have been added within gardens for the disposal of roof water.

2.6 The infiltrating SuDS features shown incorporate a 50mm freeboard from the base of the structure to the highest recorded groundwater level.

3.0 ADC RESPONSE

3.1 Following the above updates to the drainage strategy, ADC's Drainage Engineer agreed that the proposed drainage strategy meets their requirements (refer to **Appendix A**).

3.2 It was also accepted that the proposed drainage strategy indicates the infiltration techniques that may be achievable across the site, subject to the results of the agreed and ongoing shallow winter infiltration testing and further winter groundwater monitoring in key locations agreed with the ADC Drainage Engineer. Refer to **Appendix C**.

4.0 CONCLUSION

4.1 Odyssey and Gleeson Strategic Land Ltd has worked closely with Arun District Council's Drainage Engineer to agree an acceptable drainage strategy for outline planning purposes; which will later be refined post approval in light of further winter testing.

APPENDIX A
Email Correspondence

Natalie Anderson

Subject: FW: Yapton, Y/91/17/OUT - Surface Water Drainage Strategy
Attachments: 1b OWC Application Guidance notes_Aug 2017.pdf; Application Form for Ordinary Watercourse Consent_Aug 2017.pdf

From: Laura Gibbons <Laura.Gibbons@arun.gov.uk>
Sent: 03 October 2018 13:39
To: 'Paul Slingo' <pslingo@mjgleeson.com>
Cc: David Easton <David.Easton@arun.gov.uk>; Ryan Saul <ryan.saul@odysseyconsult.co.uk>; Peter Rawlinson <prawlinson@mjgleeson.com>
Subject: RE: Yapton, Y/91/17/OUT - Surface Water Drainage Strategy

Hi Paul,

Thank you for the email and your time yesterday, I am very pleased to see we are now in agreement regarding the strategy.

I agree that the points detailed below are an accurate record of what was stated.

If you could please send the CCTV survey on a disk, our IT department find it easier to deal with this. I think the ownership of this system may cause some debate between us, southern water and the environment agency. There is a culverting connecting the upstream and downstream sections of main river, however southern water records do show a feature here too. Although this may not seem to concern you, it will have a knock on impact upon whom you apply for consent to discharge water to it from. I will pursue clarifying the ownership.

I have attached the land drainage consent form.

Kind Regards,

Laura Gibbons, MEng, GMICE
Engineer (Drainage & Coastal)

[Laura Gibbons](#) | Engineer (Drainage & Coastal), Engineering Services, [Arun District Council](#) | Location: First Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF

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Save the environment - think before you print.

From: Paul Slingo [<mailto:pslingo@mjgleeson.com>]
Sent: 03 October 2018 13:17
To: Laura Gibbons
Cc: David Easton; 'Ryan Saul'; Peter Rawlinson
Subject: RE: Yapton, Y/91/17/OUT - Surface Water Drainage Strategy
Importance: High

Hi Laura,

Thank you for your time yesterday, it was really good to meet you and have the opportunity to run through our updated surface water drainage strategy with you.

I thought it would be useful to list below the points we discussed and subsequently agreed and also attach the slightly updated version of our surface water drainage strategy tabled at our meeting yesterday.

At the start of the meeting we ran through some points of principle to ensure that we were all clear on what the surface water strategy was based on, and I appreciate this was mainly for my benefit, so I apologise that you were asked to repeat things you had already noted.

1. We discussed and agreed that although the Gleeson land and the Landlink land are part of a wider planning allocation, the drainage strategies could be different to reflect any variations in local geology and/or drainage characteristics.
2. It was discussed and agreed that the outline strategy prepared for our scheme is indicative only which demonstrates our shared (Gleeson/ADC) appetite for infiltrations techniques that may be achievable across the site, subject to the results of the ongoing winter monitoring and shallow winter infiltration testing.
3. We agreed that the winter monitoring period was from October to March inclusive. Upon discussing the timing for the shallow winter infiltration tests we agreed that the default position would be that these could be undertaken in February however if we experience a wet October and November, and data from your Barnham borehole indicate we are the peak ground water level we could carry out these tests in December subject to prior agreement with you.
4. We discussed the extent and location of winter monitoring and/or infiltration testing and this was agreed in principle; we committed to provide you with additional information relating to depths of proposed testing in due course.
5. We discussed the depth of the base of infiltration features relative to peak ground water levels and you noted that we could reduce the 300mm freeboard (tabled at the meeting) to 50mm. This has been updated and is shown on the attached drainage strategy drawing.
6. We discussed and agreed that the half drain time for the 1:10yr event should be as ADC policy but a more flexible approach could be applied for the 1:100 + climate change. We agreed that this would be assessed during the detailed submission and not for the outline strategy.

In addition to the above we also discussed and agreed that for any future monitoring of groundwater levels we would provide you with data in both bgl and AOD so this may inform your wider groundwater studies across the district/county. I also noted that we had carried out a CCTV survey of the existing Southern Water, surface water culvert which crosses part of our site, and that this survey has shown that maintenance works are needed to ensure that free flow of surface water. You requested a copy of this which we are more than happy to share so you can discuss this with Southern Water. I will need to send this either via wetransfer or on a disk; can you confirm your preference?

You also, very helpfully, advised us that we would need to apply for an ordinary watercourse consent, for each discharge point, prior to a connection being made and advised us of the current fee charge for this. You agreed to email across a copy of the application form for our records but noted this was not needed for our outline application.

Finally, you were going to discuss with David Easton as to the preference for dealing with the surface water drainage post outline consent (fingers crossed) and whether this would be a reserved matter or condition on the outline consent and we look forward to receiving clarification on that in due course.

We really appreciate you taking the time meet with us again and trust that this accurately reflect the points we discussed and agreed. It would be really helpful if you could confirm that this was as per our discussion and agreement as we would need to update the written FRA to reflect this and resubmit this formally for your review and/or agreement.

In the mean time I have attached the updated drainage strategy drawings together with the associated relevant information.

Regards,

Paul Slingo
Technical Director

Gleeson Strategic Land
Sentinel House
Harvest Crescent
Ancells Business Park
Fleet
GU51 2UZ

Direct Dial: 01252 360335
Mob : 07422 078983

MJGleeson

<http://www.gleesonstrategicland.co.uk/>

From: Laura Gibbons [<mailto:Laura.Gibbons@arun.gov.uk>]
Sent: 20 September 2018 10:12
To: Paul Slingo
Cc: David Easton; 'Ryan Saul'; Peter Rawlinson
Subject: RE: Yapton, Y/91/17/OUT - Surface Water Drainage Strategy

Hi Paul,

Thank you for your email. I am pleased to see that some of my comments are being taken on board.

However, there is still a considerable way to go, with the below points which I have requested previously seemingly still being ignored:

- All driveways/ parking areas should be formed of permeable paving.
- Infiltration trenches should be fully investigated for the disposal of roof water.
- Base infiltration should certainly be possible on basins 2,3 and 4. And possibly 1. No justification has been provided that demonstrates if the wider use of infiltration reduces the pond volumes required and brings them up to a higher level. Furthermore I have even suggested a solution to this problem by relocating basin 1 so it runs east to west rather than north to south.

Please provide revisions and further justification.

The locations for the proposed winter monitoring look okay.

I am available 2-3pm on Tuesday the 2nd October if this suits you for a meeting? By which point I hope you will be able to meet more of my requirements.

Regards,

Laura Gibbons, MEng, GMICE
Engineer (Drainage & Coastal)

Laura Gibbons Engineer (Drainage & Coastal), Engineering Services, Arun District Council Location: First Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF Internal: 37818 External: +44 (0) 1903 737818 Fax: +44 (0) 1903 716018 E-mail: laura.gibbons@arun.gov.uk



From: Paul Slingo [<mailto:pslingo@mjgleeson.com>]
Sent: 18 September 2018 20:36
To: Laura Gibbons
Cc: David Easton; 'Ryan Saul'; Peter Rawlinson
Subject: RE: Yapton, Y/91/17/OUT - Surface Water Drainage Strategy
Importance: High

Dear Laura,

Further to my email below, as promised please see below summary note of the changes (and what we consider to be the improvements) to the current outline application drainage strategy to align with your principle comments; together with the attached drawings for ease of reference.

I set out below the key changes to the strategy and a summary of the additional information attached:

- Please see attached the revised Drainage Strategy 14-111-103 rev C. Beyond the adoptable extent (please see attached drawing 14-111-104 for adoptable extent) I am proposing permeable paving in courtyards / access roads discharging via 100% infiltration – this is a significant increase in both permeable paving and infiltration drainage extent, vs the previous strategy
- Basins nos. 1 – 4 will now offer side infiltration (previously 100% attenuation)
- Basin no. 5 will now offer both side and base infiltration (previously 100% attenuation)
- Basins no. 5 size (footprint) has also increased to offer additional storage/infiltration potential
- I also attach 'Existing and Proposed Geotechnical Information' (SK003) which indicates the location of existing geotechnical information (on which we have based our strategy), together with our future proposed additional groundwater monitoring and shallow infiltration test in the location of the proposed surface water features. We are committed to undertake these additional tests and monitoring during the forthcoming winter months (October – March) to inform any drainage condition which could be dealt with post Outline stage

As noted below, both Ryan and I would welcome the opportunity to meet with you week commencing 1st October to talk through these improvements and the supporting drawings.

I understand you are on annual leave soon, and therefore if possible, I would be grateful for your comments / confirmation of meeting as soon as possible.

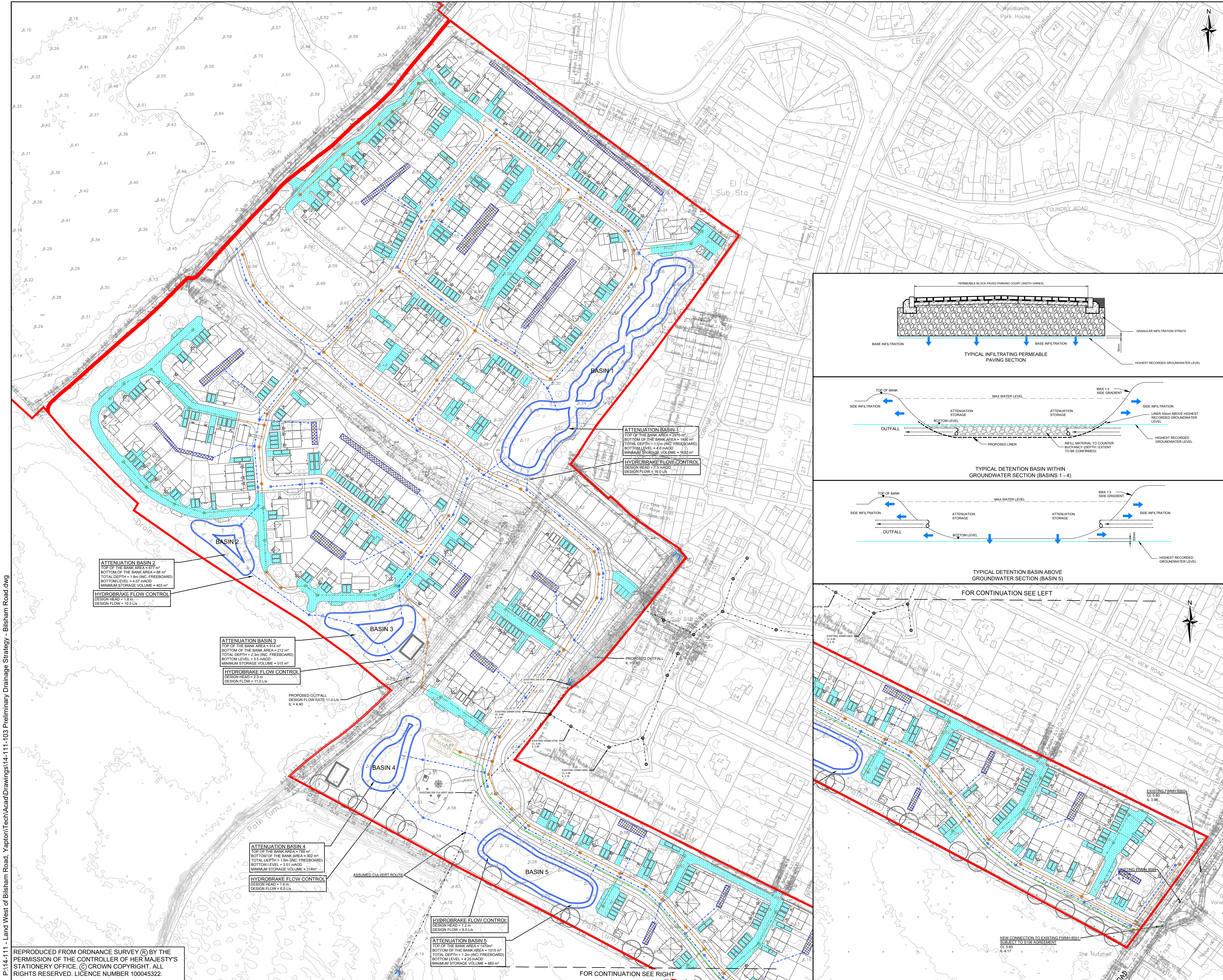
If for whatever reason we do not hear back from you before your leave, I hope you enjoy your break, and I look forward to hearing from you on your return.

Regards,

Paul Slingo
Technical Director

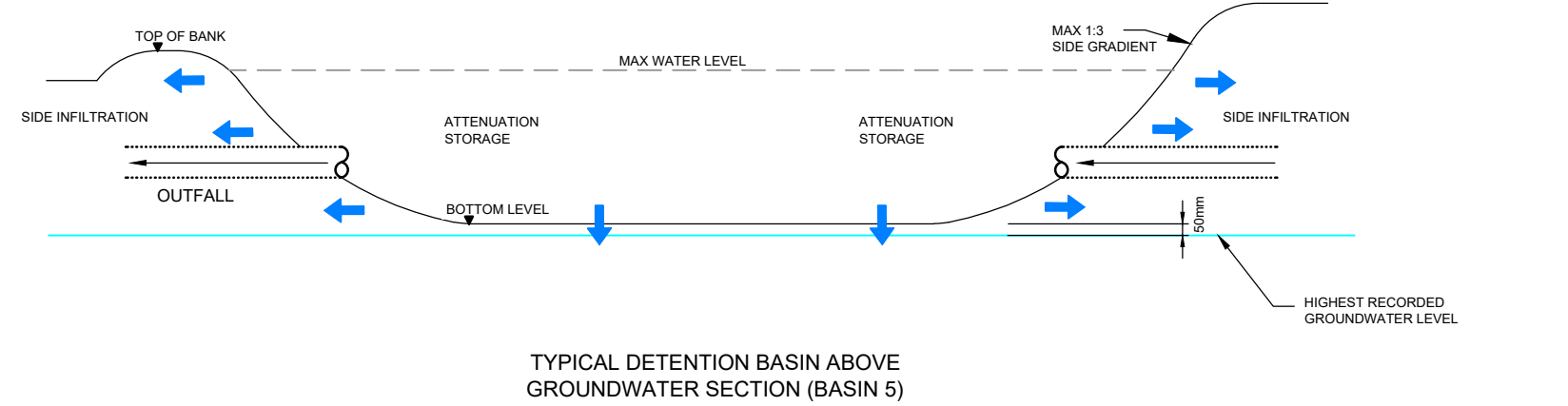
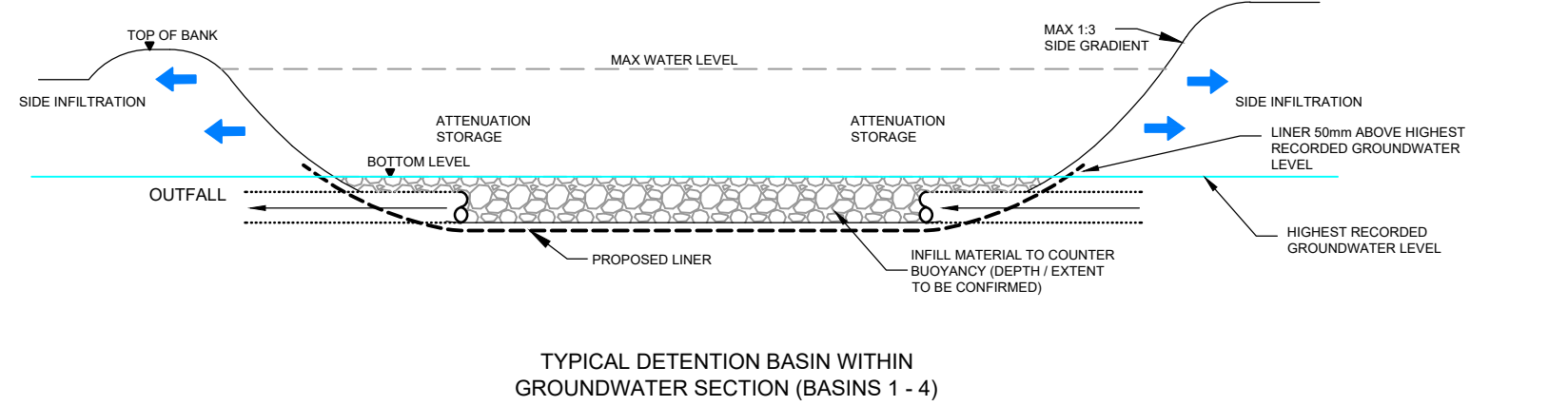
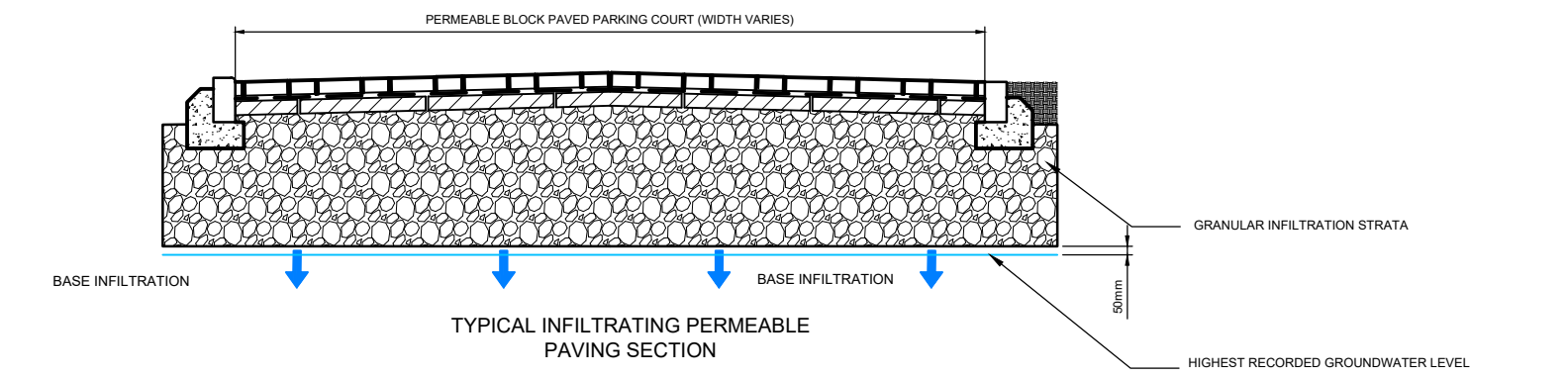
Gleeson Strategic Land
Sentinel House

APPENDIX B
Proposed Surface Water Drainage Strategy

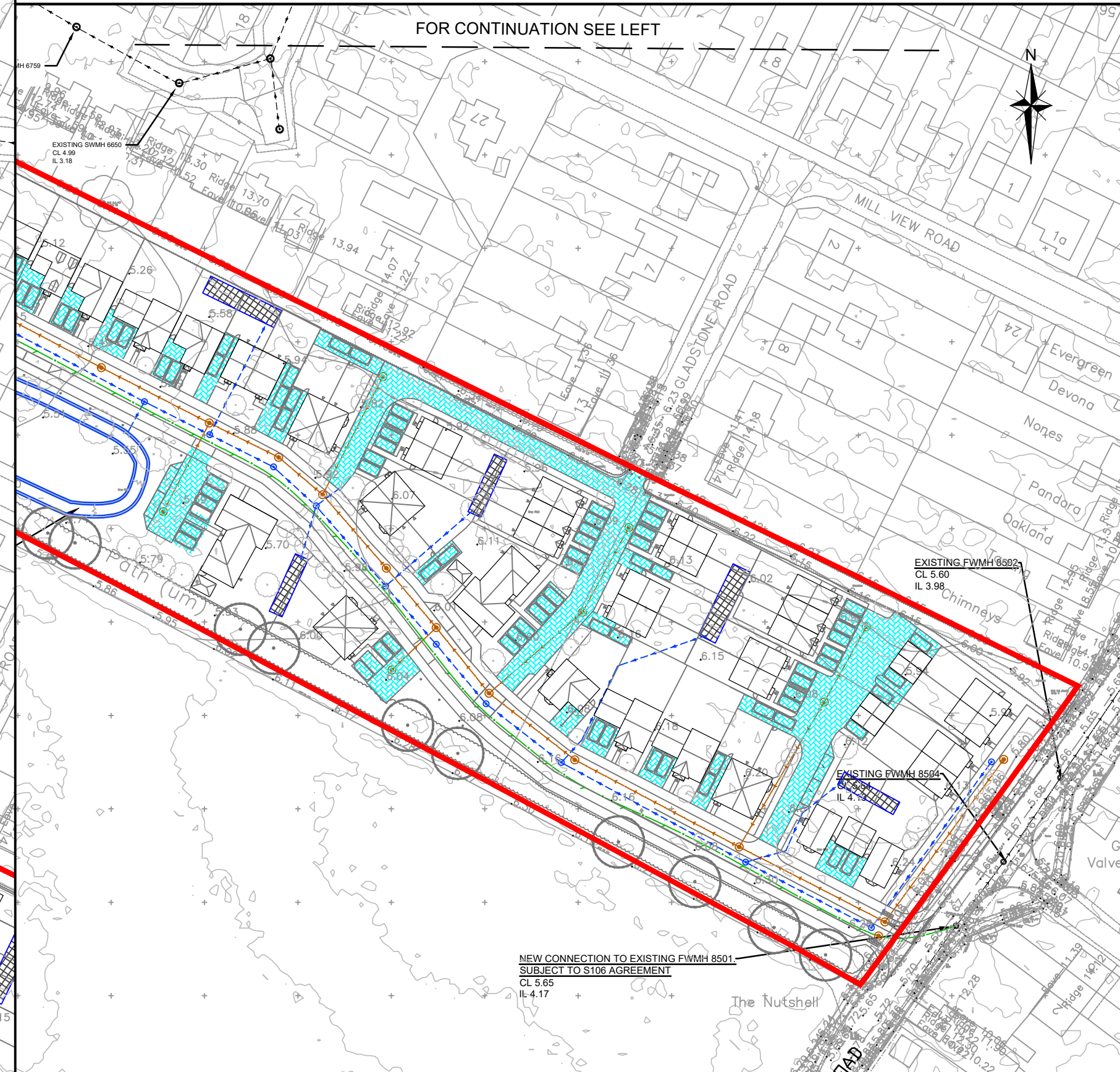


- NOTES
- DO NOT SCALE FROM THIS DRAWING. WORK FROM FIGURED DIMENSIONS ONLY.
 - ALL DIMENSIONS SHOWN IN METRES UNLESS NOTED OTHERWISE.
 - PROPOSED SITE LAYOUT HAS BEEN PROVIDED BY RICHARD URBAN DESIGN
 - SURROUNDING TOPOGRAPHICAL IS EXTRACTED FROM THE TOPOGRAPHICAL SURVEY THAT WAS UNDERTAKEN BY DIGITAL TERRAIN SURVEYS LLP FROM APRIL 2014 - DRAWING REF. DTS240417-Q06.
 - ALL PROPOSED DRAINAGE LEVELS ARE INDICATIVE ONLY.

- LEGEND
- SITE BOUNDARY
 - PROPOSED SURFACE WATER SEWER & MANHOLE
 - EXISTING SURFACE WATER SEWER
 - PROPOSED HYDROBRAKE FLOW CONTROL CHAMBER
 - PROPOSED SURFACE WATER CATCHPIT WITH 300MM MIN SUMP
 - PROPOSED BASIN WITH 1:3 SIDE GRADIENT AND SIDE AND BASE INFILTRATION
 - PROPOSED FOUL SEWER & MANHOLE
 - EXISTING FOUL SEWER & MANHOLE
 - PROPOSED FOUL WATER RISING MAIN
 - LIDAR DTM 250MM CONTOUR
 - PROPOSED INFILTRATING PERMEABLE PAVING
 - PROPOSED GRANULAR TRENCH



FOR CONTINUATION SEE LEFT



DRAFT

E	UPDATED TO SUIT LATEST SITE LAYOUT	LP	GG	GG	05.10.18
D	UPDATED TO SUIT COUNCIL COMMENTS	LP	RS	RS	03.10.18
C	UPDATED TO SUIT COUNCIL COMMENTS	LP	RS	RS	18.09.18
B	PERMEABLE PAVING ADDED	LP	NA	GG	06.07.18
A	PONDS UPDATED	LP	NA	GG	15.06.18
Rev	Amendments	Drm	Chk	App	Date

ODYSSEY

Tuscany House
White Hart Lane
Basingstoke
Hampshire RG21 4AF

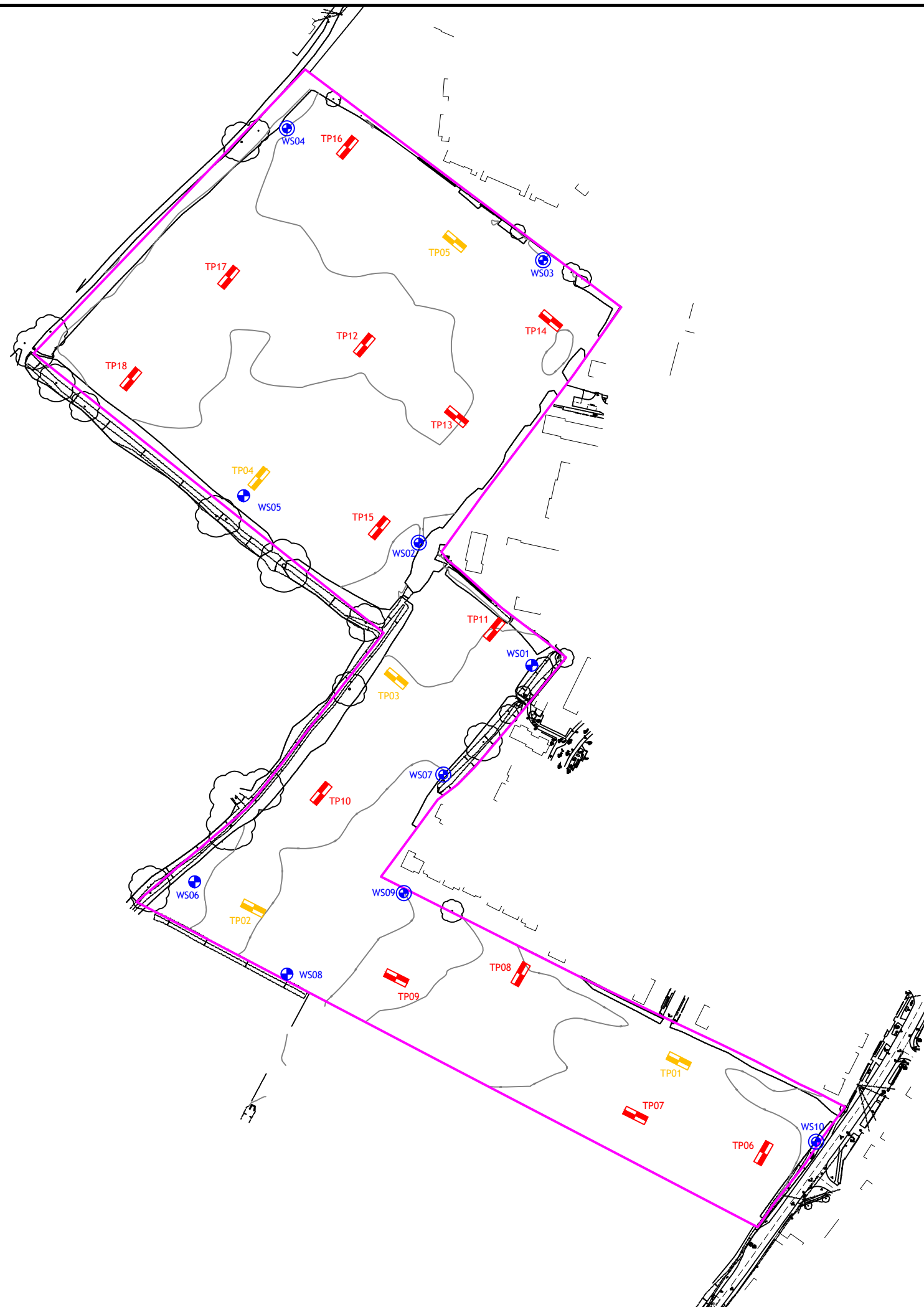
Telephone: 01256 331144
Fax: 01256 331154
E: info@odysseyconsult.co.uk
W: www.odysseyconsult.co.uk

Job Title	BILSHAM ROAD YAPTON, WEST SUSSEX		
Drawing Title	PRELIMINARY DRAINAGE STRATEGY		
Client	GLEESON		
Scale	1:1000 @A1	Date	NOV 17
Drawn	CF	Checked	JH
Job No	14-111	Drawing No	14-111/103
Rev	E	Designed	GG
		Approved	GG

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APPENDIX C
Groundwater Monitoring, Infiltration Testing Records, and Proposed Future Testing



KEY:

-  BRD Windowless Sample Borehole (GPS Position)
-  BRD Windowless Sample Borehole with Install (GPS Position)
-  BRD Trial Pit (GPS Position)
-  BRD Soakage Test Pit (GPS Position)
-  Site Boundary (Approximate Position)

Drawing reproduced from Digital Terrain Surveys LLP 'Site Survey', Drawing ref. DTS170415-7Q0, Dated. April 2014.

Revision	Date	Description	Drawn	Approved
Drawing title				
EXPLORATORY POINT PLAN				
Project title				
LAND AT BILSHAM ROAD, YAPTON				
Client				
GLEESON DEVELOPMENTS				
Scale	Original drg. size/colour	Date		
1:2500	A3 / C	03/11/2017		
Drawn	Checked	Approved		
HKA	AP	BD		
Drawing Number				Rev
BRD2693-OD1				A



BRD Environmental Ltd

01295 272244
info@brduk.com
www.brduk.com



Groundwater Monitoring Record

Project: Land at Bilsham Road, Yapton
Client: Gleeson Developments
Project No: BRD2693

Borehole name	Date	Monitored by (initials)	Borehole depth (m)	Qty free product detected (mm)	Groundwater level below ground surface (m)	Groundwater level below top of standpipe (m)	Amount purged (l)	Post purge groundwater level below top of standpipe (m)	Comments
WS02	22/02/2018	NK	3.96	n/a	0.48	0.37	n/a	n/a	No odour noted on retrieval of interface meter.
WS03	22/02/2018	NK	4.02	n/a	1.54	1.38	n/a	n/a	No odour noted on retrieval of interface meter.
WS04	22/02/2018	NK	3.97	n/a	1.82	1.69	n/a	n/a	No odour noted on retrieval of interface meter.
WS07	22/02/2018	NK	3.83	n/a	1.00	0.87	n/a	n/a	No odour noted on retrieval of interface meter.
WS08	22/02/2018	NK	3.83	n/a	1.26	1.14	n/a	n/a	No odour noted on retrieval of interface meter.
WS09	22/02/2018	NK	3.98	n/a	1.23	1.09	n/a	n/a	No odour noted on retrieval of interface meter.
WS10	22/02/2018	NK	3.87	n/a	1.57	1.41	n/a	n/a	No odour noted on retrieval of interface meter.



Groundwater Monitoring Record

Project: Land at Bilsham Road, Yapton
Client: Gleeson Developments
Project No: BRD2693

Borehole name	Date	Monitored by (initials)	Borehole depth (m)	Qty free product detected (mm)	Groundwater level below ground surface (m)	Groundwater level below top of standpipe (m)	Amount purged (l)	Post purge groundwater level below top of standpipe (m)	Comments
WS04	25/10/2017	AN	3.98	0.00	3.58	3.44	n/a	n/a	No odour noted on retrieval of interface meter.
WS03	25/10/2017	AN	4.01	0.00	2.94	2.79	n/a	n/a	No odour noted on retrieval of interface meter.
WS02	25/10/2017	AN	3.96	0.00	2.42	2.30	n/a	n/a	No odour noted on retrieval of interface meter.
WS07	25/10/2017	AN	3.89	0.00	1.69	1.54	n/a	n/a	No odour noted on retrieval of interface meter.
WS08	25/10/2017	AN	3.89	0.00	1.83	1.71	n/a	n/a	No odour noted on retrieval of interface meter. Borehole located immediately next to a dry ditch.
WS09	25/10/2017	AN	3.99	0.00	1.80	1.66	n/a	n/a	No odour noted on retrieval of interface meter.
WS10	25/10/2017	AN	3.00	0.00	2.03	1.88	n/a	n/a	No odour noted on retrieval of interface meter.

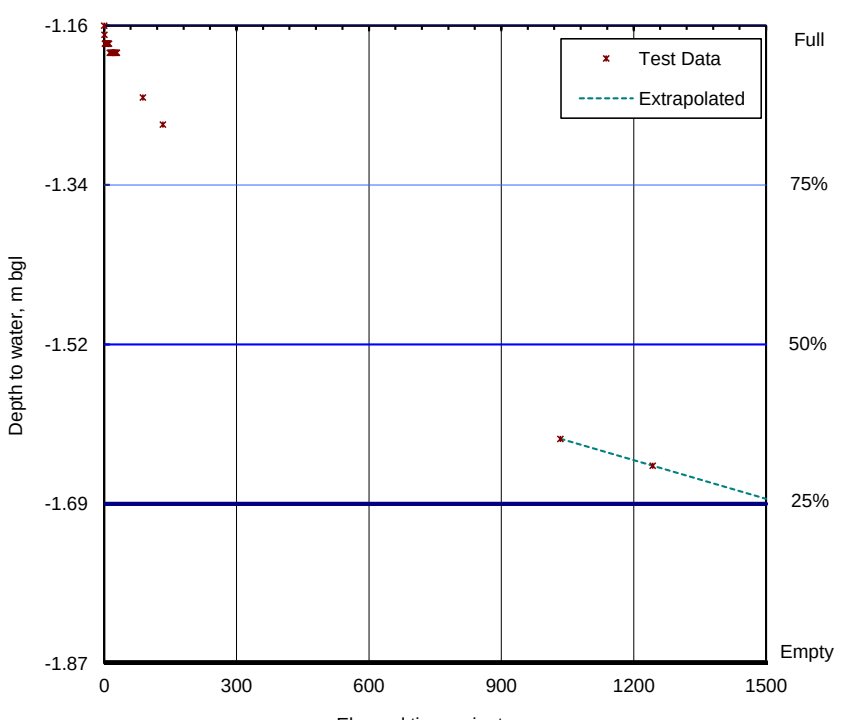


Groundwater Monitoring Record

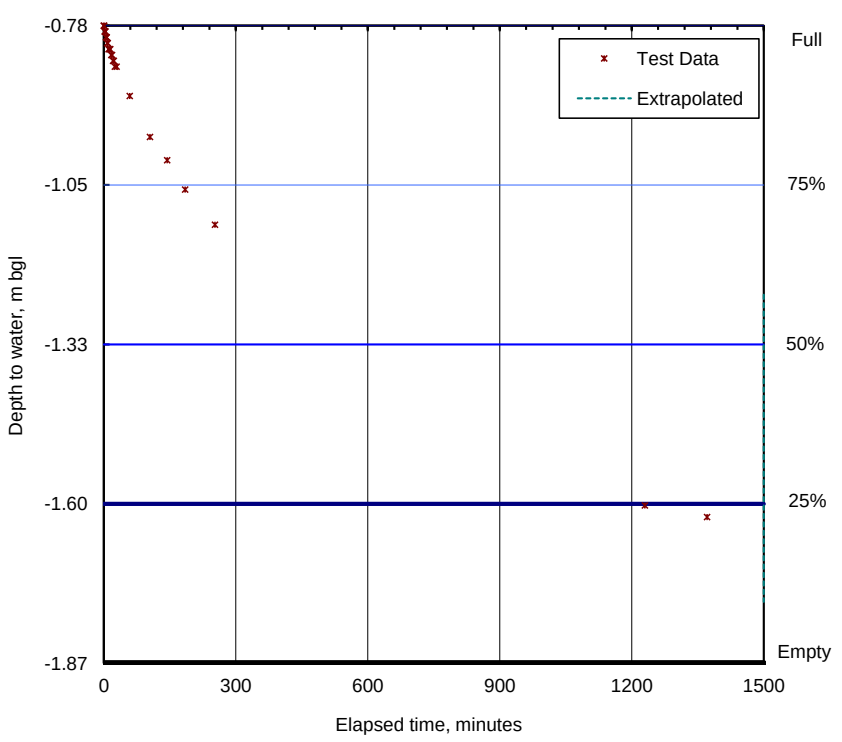
Project: Land at Bilsham Road, Yapton
Client: Gleeson Developments
Project No: BRD2693

Borehole name	Date	Monitored by (initials)	Borehole depth (m)	Qty free product detected (mm)	Groundwater level below ground surface (m)	Groundwater level below top of standpipe (m)	Amount purged (l)	Post purge groundwater level below top of standpipe (m)	Comments
WS04	31/10/2017	AN	3.97	0.00	3.63	3.51	n/a	n/a	No odour noted on retrieval of interface meter.
WS03	31/10/2017	AN	4.00	0.00	3.03	2.87	n/a	n/a	No odour noted on retrieval of interface meter.
WS02	31/10/2017	AN	3.95	0.00	2.52	2.40	n/a	n/a	No odour noted on retrieval of interface meter.
WS07	31/10/2017	AN	3.85	0.00	1.70	1.56	n/a	n/a	No odour noted on retrieval of interface meter.
WS08	31/10/2017	AN	3.89	0.00	1.88	1.75	n/a	n/a	No odour noted on retrieval of interface meter. Borehole located immediately next to a dry ditch.
WS09	31/10/2017	AN	3.99	0.00	1.84	1.71	n/a	n/a	No odour noted on retrieval of interface meter.
WS10	31/10/2017	AN	3.97	0.00	2.08	1.93	n/a	n/a	No odour noted on retrieval of interface meter.

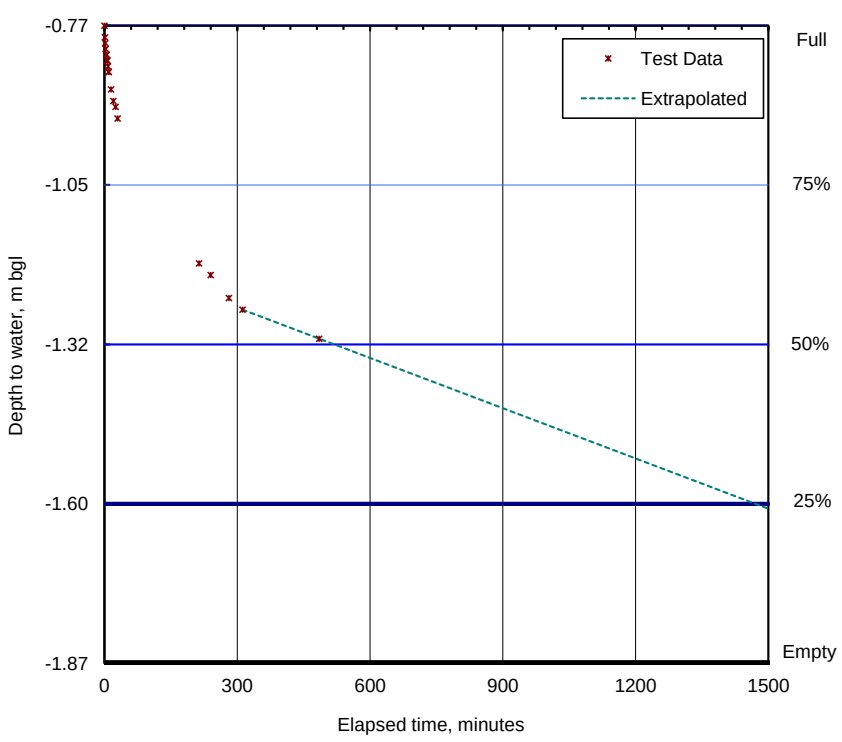
SOAKAGE TEST RECORD

SOIL INFILTRATION RATE (BRE Digest 365 : Soakaway Test)		
Client: Gleeson Developments Project Title: Land at Bilsham Road, Yapton Project No.: BRD2693		
Test Details		
Trial Pit Number Test Number Pit Depth Pit Length Pit Width Depth to groundwater prior to test Date of Test Logged by Description of Soil under Test	TP01 1 1.87 2.10 0.65 Dry 18/10/2017 S Raymundo	m m m m Firm, brown mottled orange brown, slightly sandy, silty CLAY. Sand is fine-sized.
Test Record		
Elapsed Time min	Depth to Water m	Plot of water level against elapsed time 
0 1 2 3 4 5 6 7 8 9 11 13 15 17 19 21 23 25 27 29 88 133 1034 1243	1.16 1.17 1.18 1.18 1.18 1.18 1.18 1.18 1.18 1.18 1.19 1.19 1.19 1.19 1.19 1.19 1.19 1.19 1.19 1.19 1.24 1.27 1.62 1.65	
Summary of Calculations and Result		
Soil infiltration rate, f, is calculated from the time taken for the water to fall from 75% to 25% effective storage depth in the pit. $f = (V_{75}-V_{25})/A_{50}(T_{75}-T_{25})$ where, T_{75} (307 mins) is the time for the water level to fall to 75% effective depth (1.34m bgl) and T_{25} (1539* mins) is the time for the water level to fall to 25% effective depth (1.69m bgl) thus, $T_{75}-T_{25}$ is the time for the water level to fall from 75% to 25% effective depth: $T_{75}-T_{25} = 1232$ mins $V_{75}-V_{25}$ is the effective storage volume in the trial pit between 75% and 25% effective depth: $V_{75}-V_{25} = 0.48 \text{ m}^3$ and A_{50} is the internal surface area of the trial pit up to 50% effective depth and including the base area: $A_{50} = 3.32 \text{ m}^2$ Soil Infiltration Rate $f = 1.98 \times 10^{-6} \text{ m/s}$		
Comments Calculation based on extrapolated results. Use as a guide only.		

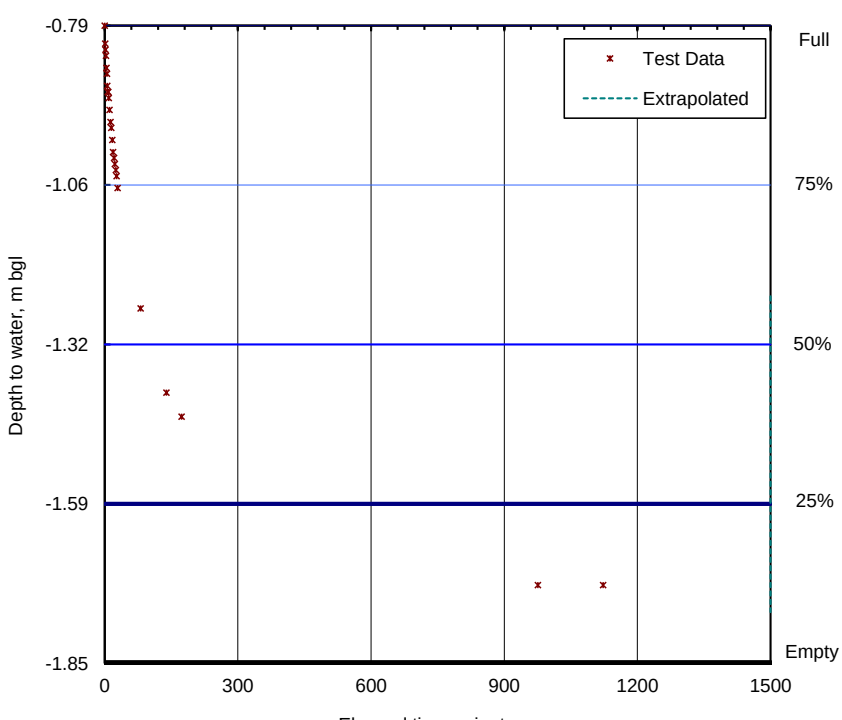
SOAKAGE TEST RECORD

SOIL INFILTRATION RATE (BRE Digest 365 : Soakaway Test)		
Client: Gleeson Developments Project Title: Land at Bilsham Road, Yapton Project No.: BRD2693		
Test Details		
Trial Pit Number Test Number Pit Depth Pit Length Pit Width Depth to groundwater prior to test Date of Test Logged by Description of Soil under Test	TP01 2 1.87 2.10 0.65 1.65 19/10/2017 S Raymundo	m m m m Firm, brown mottled orange brown, slightly sandy, silty CLAY. Sand is fine-sized.
Test Record		
Elapsed Time min	Depth to Water m	Plot of water level against elapsed time 
0 1 2 3 4 5 6 7 8 9 11 13 15 17 19 21 23 25 29 59 105 144 185 253 1230 1371	0.78 0.78 0.79 0.79 0.79 0.80 0.80 0.80 0.81 0.81 0.82 0.82 0.82 0.83 0.83 0.84 0.84 0.85 0.85 0.90 0.97 1.01 1.06 1.12 1.60 1.62	
Summary of Calculations and Result		
Soil infiltration rate, f, is calculated from the time taken for the water to fall from 75% to 25% effective storage depth in the pit. $f = (V_{75}-V_{25})/A_{50}(T_{75}-T_{25})$ where, T_{75} (179 mins) is the time for the water level to fall to 75% effective depth (1.05m bgl) and T_{25} (1225 mins) is the time for the water level to fall to 25% effective depth (1.60m bgl) thus, $T_{75}-T_{25}$ is the time for the water level to fall from 75% to 25% effective depth: $T_{75}-T_{25} = 1046$ mins $V_{75}-V_{25}$ is the effective storage volume in the trial pit between 75% and 25% effective depth: $V_{75}-V_{25} = 0.74 \text{ m}^3$ and A_{50} is the internal surface area of the trial pit up to 50% effective depth and including the base area: $A_{50} = 4.36 \text{ m}^2$ Soil Infiltration Rate $f = 2.72 \times 10^{-6} \text{ m/s}$		
Comments		

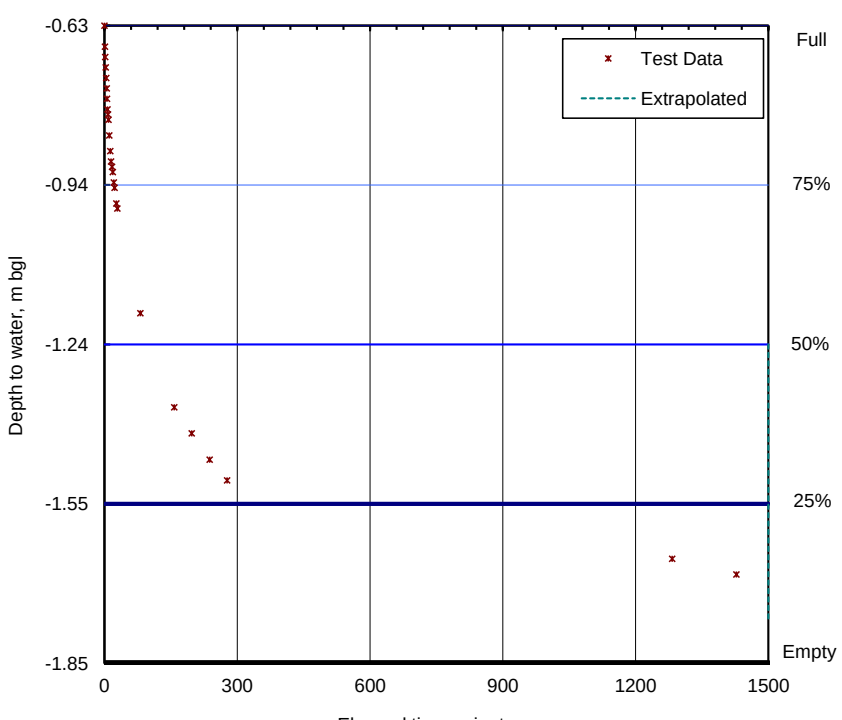
SOAKAGE TEST RECORD

SOIL INFILTRATION RATE (BRE Digest 365 : Soakaway Test)		
Client: Gleeson Developments Project Title: Land at Bilsham Road, Yapton Project No.: BRD2693		
Test Details		
Trial Pit Number Test Number Pit Depth Pit Length Pit Width Depth to groundwater prior to test Date of Test Logged by Description of Soil under Test	TP01 3 1.87 2.10 0.65 Dry 31/10/2017 S Raymundo	m m m m Firm, brown mottled orange brown, slightly sandy, silty CLAY. Sand is fine-sized.
Test Record		
Elapsed Time min	Depth to Water m	Plot of water level against elapsed time 
0 1 2 3 4 5 6 7 8 9 10 15 20 25 30 214 240 281 312 485	0.77 0.79 0.80 0.81 0.82 0.82 0.83 0.83 0.84 0.85 0.85 0.88 0.90 0.91 0.93 1.18 1.20 1.24 1.26 1.31	
Summary of Calculations and Result		
Soil infiltration rate, f, is calculated from the time taken for the water to fall from 75% to 25% effective storage depth in the pit. $f = (V_{75}-V_{25})/A_{50}(T_{75}-T_{25})$ where, T_{75} (115 mins) is the time for the water level to fall to 75% effective depth (1.05m bgl) and T_{25} (1471* mins) is the time for the water level to fall to 25% effective depth (1.60m bgl) thus, $T_{75}-T_{25}$ is the time for the water level to fall from 75% to 25% effective depth: $T_{75}-T_{25} = 1356$ mins $V_{75}-V_{25}$ is the effective storage volume in the trial pit between 75% and 25% effective depth: $V_{75}-V_{25} = 0.75 \text{ m}^3$ and A_{50} is the internal surface area of the trial pit up to 50% effective depth and including the base area: $A_{50} = 4.39 \text{ m}^2$ Soil Infiltration Rate $f = 2.10 \times 10^{-6} \text{ m/s}$		
Comments Calculation based on extrapolated results. Use as a guide only.		

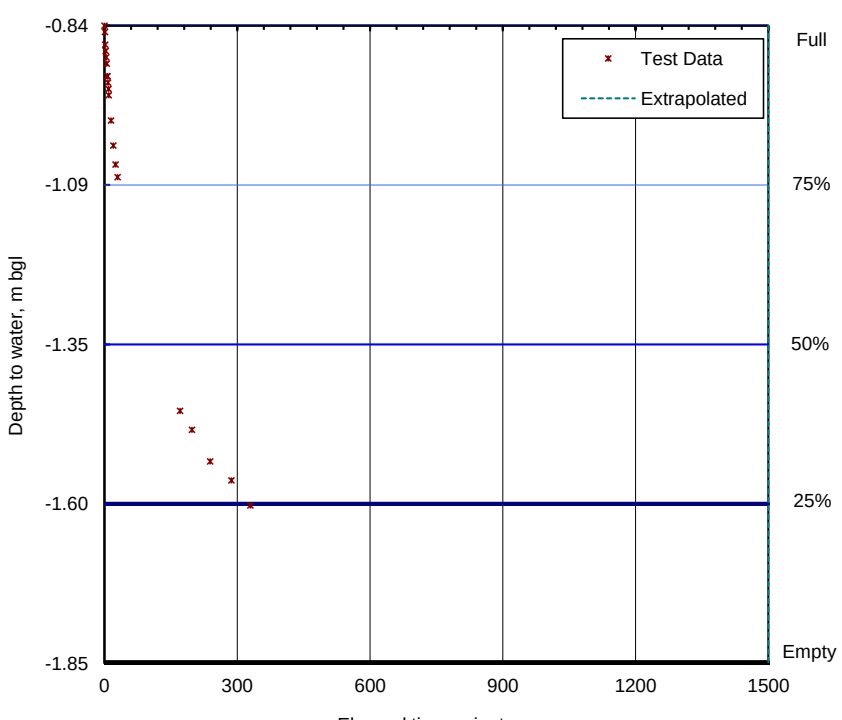
SOAKAGE TEST RECORD

SOIL INFILTRATION RATE (BRE Digest 365 : Soakaway Test)		
Client: Gleeson Developments Project Title: Land at Bilsham Road, Yapton Project No.: BRD2693		
Test Details		
Trial Pit Number Test Number Pit Depth Pit Length Pit Width Depth to groundwater prior to test Date of Test Logged by Description of Soil under Test	TP02 1 1.85 2.90 0.65 Dry 18/10/2017 S Raymundo	m m m m Firm, stiff, brown, light brown, slightly gravelly, slightly sandy, silty CLAY. Gravel is subrounded, fine-sized flint.
Test Record		
Elapsed Time min	Depth to Water m	Plot of water level against elapsed time 
0 1 2 3 4 5 6 7 8 9 11 13 15 17 19 21 23 25 27 29 81 139 173 976 1123	0.79 0.82 0.83 0.84 0.86 0.87 0.89 0.90 0.91 0.93 0.95 0.96 0.98 1.00 1.01 1.02 1.03 1.04 1.06 1.26 1.40 1.44 1.72 1.72	
Summary of Calculations and Result		
Soil infiltration rate, f, is calculated from the time taken for the water to fall from 75% to 25% effective storage depth in the pit. $f = (V_{75}-V_{25})/A_{50}(T_{75}-T_{25})$ where, T_{75} (29 mins) is the time for the water level to fall to 75% effective depth (1.06m bgl) and T_{25} (589 mins) is the time for the water level to fall to 25% effective depth (1.59m bgl) thus, $T_{75}-T_{25}$ is the time for the water level to fall from 75% to 25% effective depth: $T_{75}-T_{25} = 560$ mins $V_{75}-V_{25}$ is the effective storage volume in the trial pit between 75% and 25% effective depth: $V_{75}-V_{25} = 1.00 \text{ m}^3$ and A_{50} is the internal surface area of the trial pit up to 50% effective depth and including the base area: $A_{50} = 5.65 \text{ m}^2$ Soil Infiltration Rate $f = 5.26 \times 10^{-6} \text{ m/s}$		
Comments		

SOAKAGE TEST RECORD

SOIL INFILTRATION RATE (BRE Digest 365 : Soakaway Test)		
Client: Gleeson Developments Project Title: Land at Bilsham Road, Yapton Project No.: BRD2693		
Test Details		
Trial Pit Number Test Number Pit Depth Pit Length Pit Width Depth to groundwater prior to test Date of Test Logged by Description of Soil under Test	TP02 2 1.85 2.90 0.65 1.72 19/10/2017 S Raymundo Firm, stiff, brown, light brown, slightly gravelly, slightly sandy, silty CLAY. Gravel is subrounded, fine-sized flint.	m m m m
Test Record		
Elapsed Time min	Depth to Water m	Plot of water level against elapsed time 
0 1 2 3 4 5 6 7 8 9 11 13 15 17 19 21 23 27 29 81 158 197 238 277 1283 1428	0.63 0.67 0.69 0.71 0.73 0.75 0.77 0.79 0.80 0.81 0.84 0.87 0.89 0.90 0.91 0.93 0.94 0.97 0.98 1.18 1.36 1.41 1.46 1.50 1.65 1.68	
Summary of Calculations and Result		
Soil infiltration rate, f , is calculated from the time taken for the water to fall from 75% to 25% effective storage depth in the pit. $f = (V_{75}-V_{25})/A_{50}(T_{75}-T_{25})$ where, T_{75} (22 mins) is the time for the water level to fall to 75% effective depth (0.94m bgl) and T_{25} (579 mins) is the time for the water level to fall to 25% effective depth (1.55m bgl) thus, $T_{75}-T_{25}$ is the time for the water level to fall from 75% to 25% effective depth: $T_{75}-T_{25} = 557$ mins $V_{75}-V_{25}$ is the effective storage volume in the trial pit between 75% and 25% effective depth: $V_{75}-V_{25} = 1.15 \text{ m}^3$ and A_{50} is the internal surface area of the trial pit up to 50% effective depth and including the base area: $A_{50} = 6.22 \text{ m}^2$ Soil Infiltration Rate $f = 5.54 \times 10^{-6} \text{ m/s}$		
Comments		

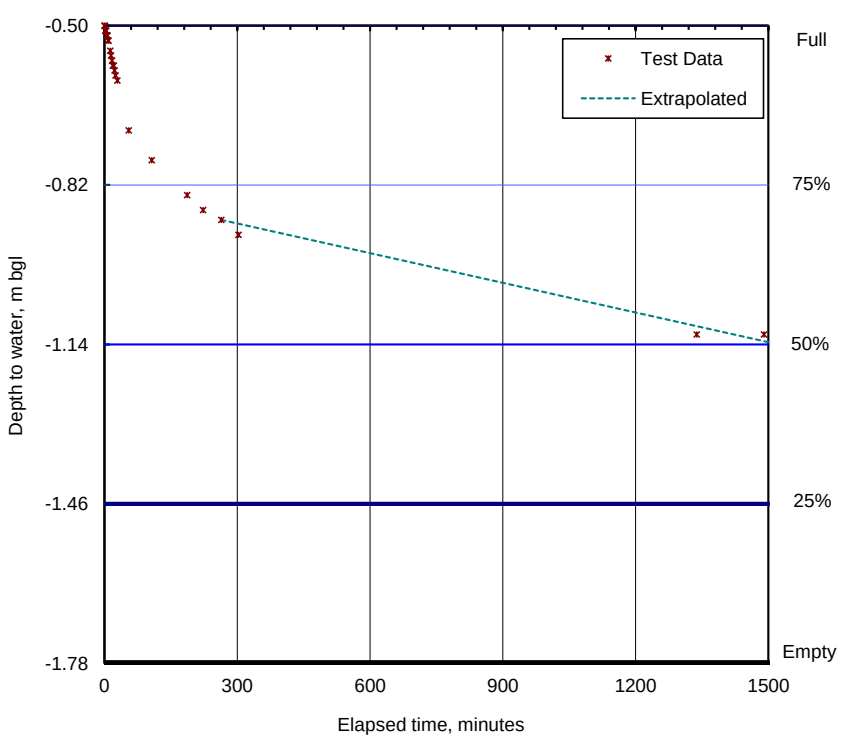
SOAKAGE TEST RECORD

SOIL INFILTRATION RATE (BRE Digest 365 : Soakaway Test)		
Client: Gleeson Developments Project Title: Land at Bilsham Road, Yapton Project No.: BRD2693		
Test Details		
Trial Pit Number Test Number Pit Depth Pit Length Pit Width Depth to groundwater prior to test Date of Test Logged by Description of Soil under Test	TP02 3 1.85 2.90 0.65 Dry 31/10/2017 S Raymundo	m m m m Firm, stiff, brown, light brown, slightly gravelly, slightly sandy, silty CLAY. Gravel is subrounded, fine-sized flint.
Test Record		
Elapsed Time min	Depth to Water m	Plot of water level against elapsed time 
0 1 2 3 4 5 6 7 8 9 10 15 20 25 30 171 198 239 287 330	0.84 0.85 0.87 0.88 0.89 0.90 0.92 0.92 0.93 0.94 0.95 0.99 1.03 1.06 1.08 1.45 1.48 1.53 1.56 1.60	
Summary of Calculations and Result		
Soil infiltration rate, f , is calculated from the time taken for the water to fall from 75% to 25% effective storage depth in the pit. $f = (V_{75}-V_{25})/A_{50}(T_{75}-T_{25})$ where, T_{75} (35 mins) is the time for the water level to fall to 75% effective depth (1.09m bgl) and T_{25} (327 mins) is the time for the water level to fall to 25% effective depth (1.60m bgl) thus, $T_{75}-T_{25}$ is the time for the water level to fall from 75% to 25% effective depth: $T_{75}-T_{25} = 293 \text{ mins}$ $V_{75}-V_{25} \text{ is the effective storage volume in the trial pit between 75\% and 25\% effective depth:}$ $V_{75}-V_{25} = 0.95 \text{ m}^3$ and A_{50} is the internal surface area of the trial pit up to 50% effective depth and including the base area: $A_{50} = 5.47 \text{ m}^2$ Soil Infiltration Rate f = <u>9.91×10^{-6}</u> m/s		
Comments		

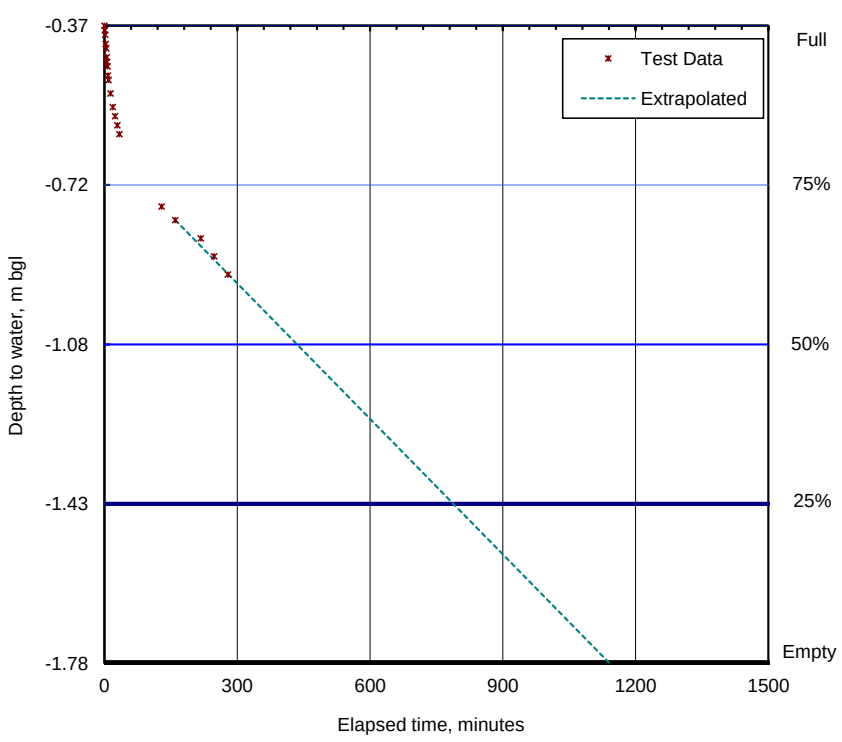
SOAKAGE TEST RECORD

SOIL INFILTRATION RATE (BRE Digest 365 : Soakaway Test)		
Client: Gleeson Developments Project Title: Land at Bilsham Road, Yapton Project No.: BRD2693		
Test Details		
Trial Pit Number Test Number Pit Depth Pit Length Pit Width Depth to groundwater prior to test Date of Test Logged by Description of Soil under Test	TP03 1 1.78 2.00 0.65 Dry 18/10/2017 S Raymundo	m m m m Firm, stiff, light brown and orange brown, slightly sandy, slightly gravelly, silty CLAY. Gravel is fine-sized, subangular to subrounded flint.
Test Record		
Elapsed Time min	Depth to Water m	Plot of water level against elapsed time
0 1 2 3 4 5 6 7 8 9 11 13 15 17 19 21 23 25 27 29 137 198 220 1272 1367	0.75 0.75 0.75 0.76 0.76 0.76 0.76 0.76 0.77 0.77 0.77 0.78 0.78 0.78 0.79 0.79 0.80 0.80 0.80 0.81 0.93 0.97 0.98 1.35 1.37	
Summary of Calculations and Result		
Soil infiltration rate, f, is calculated from the time taken for the water to fall from 75% to 25% effective storage depth in the pit. $f = (V_{75}-V_{25})/A_{50}(T_{75}-T_{25})$ where, T_{75} (298 mins) is the time for the water level to fall to 75% effective depth (1.01m bgl) and T_{25} (1789* mins) is the time for the water level to fall to 25% effective depth (1.52m bgl) thus, $T_{75}-T_{25}$ is the time for the water level to fall from 75% to 25% effective depth: $T_{75}-T_{25} = 1491$ mins $V_{75}-V_{25}$ is the effective storage volume in the trial pit between 75% and 25% effective depth: $V_{75}-V_{25} = 0.67 \text{ m}^3$ and A_{50} is the internal surface area of the trial pit up to 50% effective depth and including the base area: $A_{50} = 4.03 \text{ m}^2$ Soil Infiltration Rate $f = 1.86 \times 10^{-6} \text{ m/s}$		
Comments Calculation based on extrapolated results. Use as a guide only.		

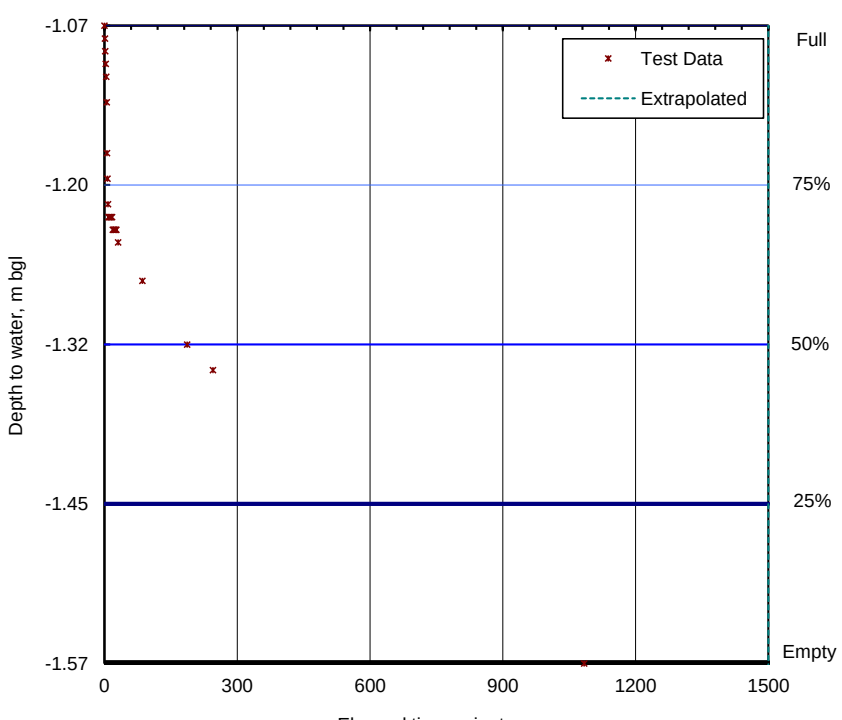
SOAKAGE TEST RECORD

SOIL INFILTRATION RATE (BRE Digest 365 : Soakaway Test)		
Client: Gleeson Developments Project Title: Land at Bilsham Road, Yapton Project No.: BRD2693		
Test Details		
Trial Pit Number Test Number Pit Depth Pit Length Pit Width Depth to groundwater prior to test Date of Test Logged by Description of Soil under Test	TP03 2 1.78 2.00 0.65 1.56 19/10/2017 S Raymundo	m m m m Firm, stiff, light brown and orange brown, slightly sandy, slightly gravelly, silty CLAY. Gravel is fine-sized, subangular to subrounded flint.
Test Record		
Elapsed Time min	Depth to Water m	Plot of water level against elapsed time 
0 1 2 3 4 5 6 7 8 9 13 15 17 19 21 23 25 29 55 107 187 223 264 303 1338 1490	0.50 0.50 0.51 0.51 0.51 0.52 0.52 0.52 0.53 0.53 0.55 0.56 0.57 0.58 0.58 0.59 0.60 0.61 0.71 0.77 0.84 0.87 0.89 0.92 1.12 1.12	
Summary of Calculations and Result		
RESULT COULD NOT BE CALCULATED AS TEST PIT WOULD NOT REACH HALF EMPTY WITHIN 24 HOURS		
Comments		

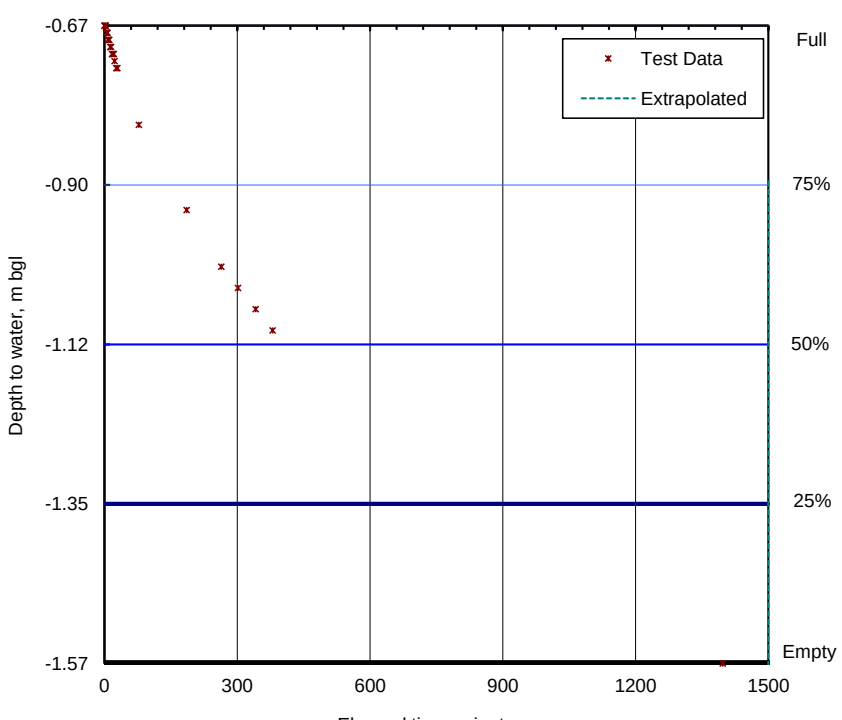
SOAKAGE TEST RECORD

SOIL INFILTRATION RATE (BRE Digest 365 : Soakaway Test)		
Client: Gleeson Developments Project Title: Land at Bilsham Road, Yapton Project No.: BRD2693		
Test Details		
Trial Pit Number Test Number Pit Depth Pit Length Pit Width Depth to groundwater prior to test Date of Test Logged by Description of Soil under Test	TP03 3 1.78 2.00 0.65 Dry 31/10/2017 S Raymundo	m m m m Firm, stiff, light brown and orange brown, slightly sandy, slightly gravelly, silty CLAY. Gravel is fine-sized, subangular to subrounded flint.
Test Record		
Elapsed Time min	Depth to Water m	Plot of water level against elapsed time 
0 1 2 3 4 5 6 7 8 9 14 19 24 29 34 129 160 218 248 279	0.37 0.38 0.39 0.41 0.42 0.44 0.45 0.46 0.48 0.49 0.52 0.55 0.57 0.59 0.61 0.77 0.80 0.84 0.88 0.92	
Summary of Calculations and Result		
Soil infiltration rate, f, is calculated from the time taken for the water to fall from 75% to 25% effective storage depth in the pit. $f = (V_{75}-V_{25})/A_{50}(T_{75}-T_{25})$ where, T_{75} (101 mins) is the time for the water level to fall to 75% effective depth (0.72m bgl) and T_{25} (788* mins) is the time for the water level to fall to 25% effective depth (1.43m bgl) thus, $T_{75}-T_{25}$ is the time for the water level to fall from 75% to 25% effective depth: $T_{75}-T_{25} = 688$ mins $V_{75}-V_{25}$ is the effective storage volume in the trial pit between 75% and 25% effective depth: $V_{75}-V_{25} = 0.92 \text{ m}^3$ and A_{50} is the internal surface area of the trial pit up to 50% effective depth and including the base area: $A_{50} = 5.04 \text{ m}^2$ Soil Infiltration Rate $f = 4.41 \times 10^{-6} \text{ m/s}$		
Comments Calculation based on extrapolated results. Use as a guide only.		

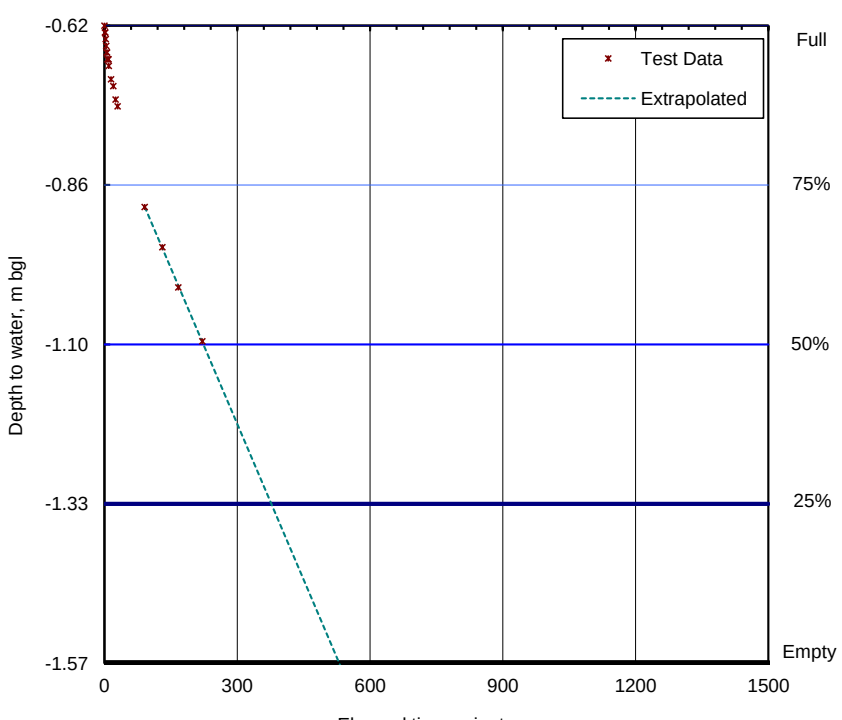
SOAKAGE TEST RECORD

SOIL INFILTRATION RATE (BRE Digest 365 : Soakaway Test)		
Client: Gleeson Developments Project Title: Land at Bilsham Road, Yapton Project No.: BRD2693		
Test Details		
Trial Pit Number Test Number Pit Depth Pit Length Pit Width Depth to groundwater prior to test Date of Test Logged by Description of Soil under Test	TP04 1 1.57 2.80 0.65 Dry 18/10/2017 S Raymundo	m m m m Firm, stiff, brown, orange brown, slightly sandy, silty CLAY. Sand is fine-sized.
Test Record		
Elapsed Time min	Depth to Water m	Plot of water level against elapsed time 
0 1 2 3 4 5 6 7 8 9 11 13 15 17 19 21 23 25 27 31 86 187 245 1084	1.07 1.08 1.09 1.10 1.11 1.13 1.17 1.19 1.21 1.22 1.22 1.22 1.22 1.23 1.23 1.23 1.23 1.23 1.23 1.24 1.27 1.32 1.34 1.57	
Summary of Calculations and Result		
Soil infiltration rate, f , is calculated from the time taken for the water to fall from 75% to 25% effective storage depth in the pit. $f = (V_{75}-V_{25})/A_{50}(T_{75}-T_{25})$ where, T_{75} (7.3 mins) is the time for the water level to fall to 75% effective depth (1.20m bgl) and T_{25} (628 mins) is the time for the water level to fall to 25% effective depth (1.45m bgl) thus, $T_{75}-T_{25}$ is the time for the water level to fall from 75% to 25% effective depth: $T_{75}-T_{25} = 621 \text{ mins}$ $V_{75}-V_{25} \text{ is the effective storage volume in the trial pit between 75\% and 25\% effective depth:}$ $V_{75}-V_{25} = 0.46 \text{ m}^3$ and A_{50} is the internal surface area of the trial pit up to 50% effective depth and including the base area: $A_{50} = 3.55 \text{ m}^2$ Soil Infiltration Rate f = $3.45 \times 10^{-6} \text{ m/s}$		
Comments		

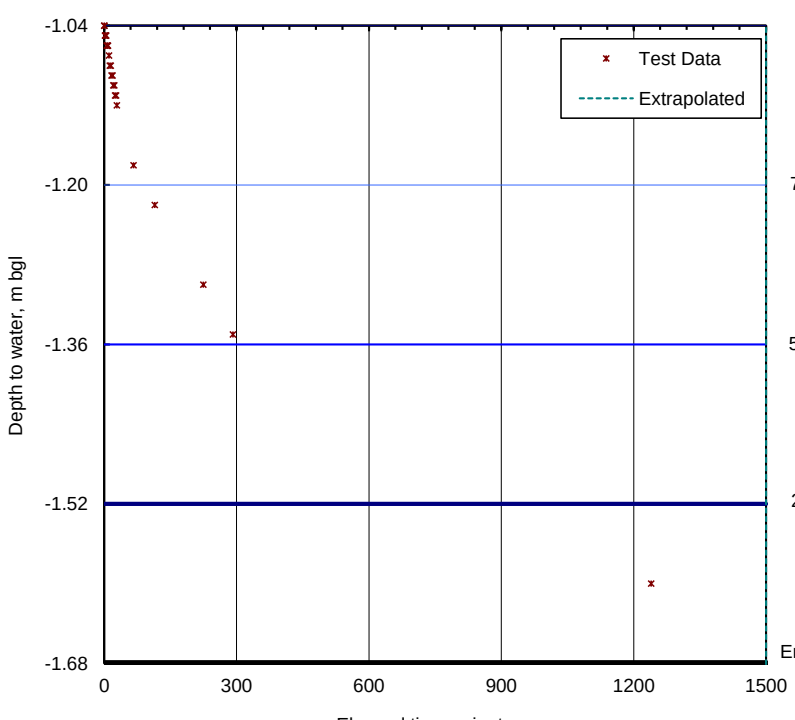
SOAKAGE TEST RECORD

SOIL INFILTRATION RATE (BRE Digest 365 : Soakaway Test)		
Client: Gleeson Developments Project Title: Land at Bilsham Road, Yapton Project No.: BRD2693		
Test Details		
Trial Pit Number Test Number Pit Depth Pit Length Pit Width Depth to groundwater prior to test Date of Test Logged by Description of Soil under Test	TP04 2 1.57 2.80 0.65 Dry 19/10/2017 S Raymundo	m m m m
Firm, stiff, brown, orange brown, slightly sandy, silty CLAY. Sand is fine-sized.		
Test Record		
Elapsed Time min	Depth to Water m	Plot of water level against elapsed time
0 1 2 3 4 5 6 7 8 9 11 13 15 17 19 21 23 27 29 78 186 264 302 342 380 1397	0.67 0.67 0.67 0.67 0.68 0.68 0.68 0.68 0.69 0.69 0.69 0.70 0.70 0.71 0.71 0.71 0.72 0.73 0.73 0.73 0.81 0.93 1.01 1.04 1.07 1.10 1.57	
Summary of Calculations and Result		
Soil infiltration rate, f, is calculated from the time taken for the water to fall from 75% to 25% effective storage depth in the pit. $f = (V_{75}-V_{25})/A_{50}(T_{75}-T_{25})$ where, T_{75} (155 mins) is the time for the water level to fall to 75% effective depth (0.90m bgl) and T_{25} (910 mins) is the time for the water level to fall to 25% effective depth (1.35m bgl) thus, $T_{75}-T_{25}$ is the time for the water level to fall from 75% to 25% effective depth: $T_{75}-T_{25} = 756$ mins $V_{75}-V_{25}$ is the effective storage volume in the trial pit between 75% and 25% effective depth: $V_{75}-V_{25} = 0.82 \text{ m}^3$ and A_{50} is the internal surface area of the trial pit up to 50% effective depth and including the base area: $A_{50} = 4.93 \text{ m}^2$ Soil Infiltration Rate $f = 3.67 \times 10^{-6} \text{ m/s}$		
Comments		

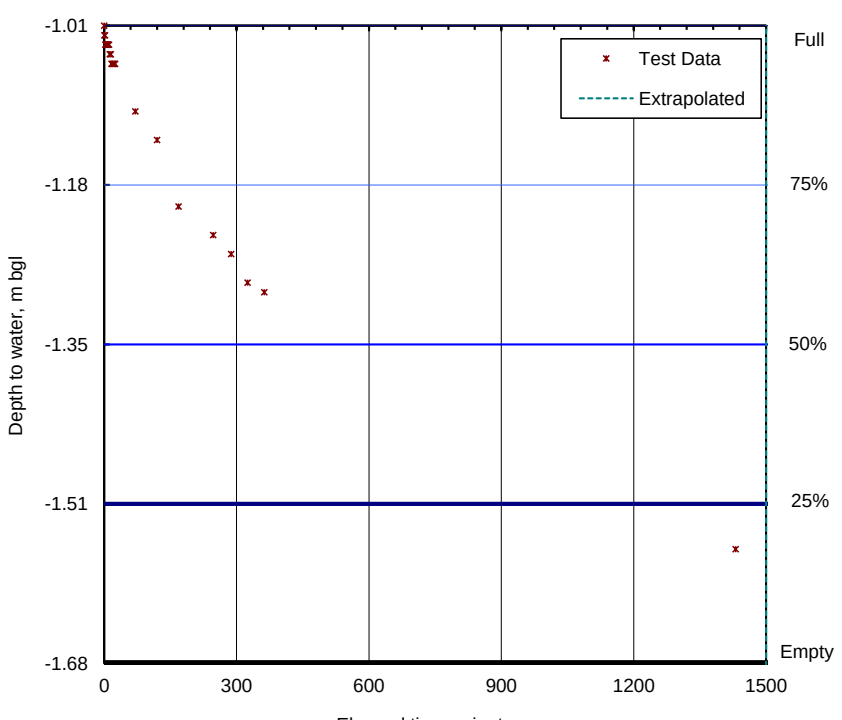
SOAKAGE TEST RECORD

SOIL INFILTRATION RATE (BRE Digest 365 : Soakaway Test)		
Client: Gleeson Developments Project Title: Land at Bilsham Road, Yapton Project No.: BRD2693		
Test Details		
Trial Pit Number Test Number Pit Depth Pit Length Pit Width Depth to groundwater prior to test Date of Test Logged by Description of Soil under Test	TP04 3 1.57 2.80 0.65 Dry 31/10/2017 S Raymundo	m m m m Firm, stiff, brown, orange brown, slightly sandy, silty CLAY. Sand is fine-sized.
Test Record		
Elapsed Time min	Depth to Water m	Plot of water level against elapsed time
0 1 2 3 4 5 6 7 8 9 10 15 20 25 30 91 131 167 221	0.62 0.63 0.63 0.64 0.65 0.66 0.66 0.67 0.67 0.67 0.68 0.70 0.71 0.73 0.74 0.89 0.95 1.01 1.09	
Summary of Calculations and Result		
Soil infiltration rate, f, is calculated from the time taken for the water to fall from 75% to 25% effective storage depth in the pit. $f = (V_{75}-V_{25})/A_{50}(T_{75}-T_{25})$ where, T_{75} (78 mins) is the time for the water level to fall to 75% effective depth (0.86m bgl) and T_{25} (377* mins) is the time for the water level to fall to 25% effective depth (1.33m bgl) thus, $T_{75}-T_{25}$ is the time for the water level to fall from 75% to 25% effective depth: $T_{75}-T_{25} = 299$ mins $V_{75}-V_{25}$ is the effective storage volume in the trial pit between 75% and 25% effective depth: $V_{75}-V_{25} = 0.86 \text{ m}^3$ and A_{50} is the internal surface area of the trial pit up to 50% effective depth and including the base area: $A_{50} = 5.10 \text{ m}^2$ Soil Infiltration Rate $f = 9.44 \times 10^{-6} \text{ m/s}$		
Comments Calculation based on extrapolated results. Use as a guide only.		

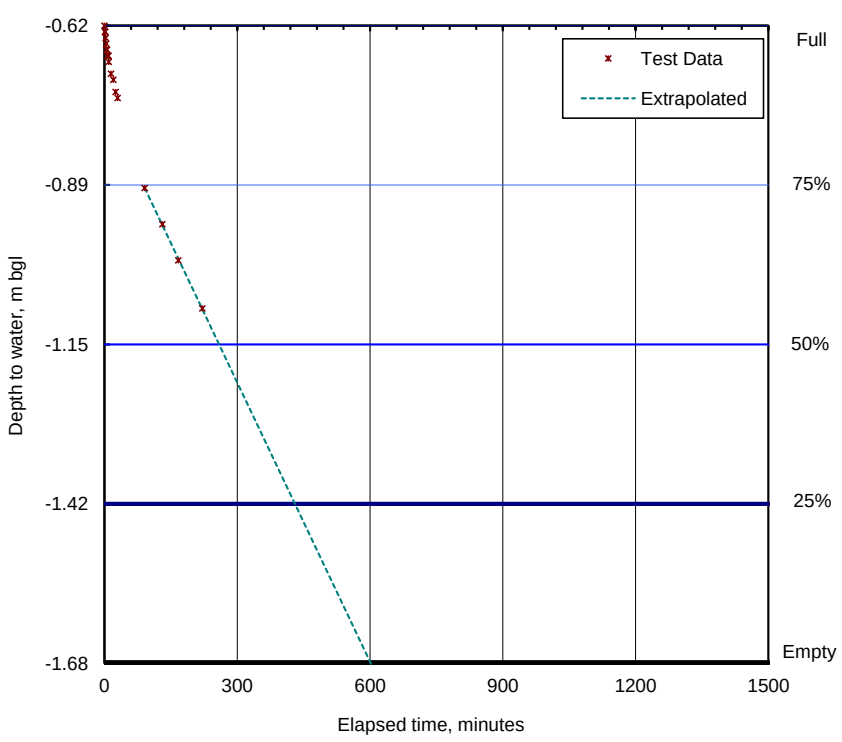
SOAKAGE TEST RECORD

SOIL INFILTRATION RATE (BRE Digest 365 : Soakaway Test)		
Client: Gleeson Developments Project Title: Land at Bilsham Road, Yapton Project No.: BRD2693		
Test Details		
Trial Pit Number Test Number Pit Depth Pit Length Pit Width Depth to groundwater prior to test Date of Test Logged by Description of Soil under Test	TP05 1 1.68 2.30 0.65 Dry 18/10/2017 S Raymundo	m m m m Firm, stiff, orange brown and mottled light brown and brown, silty CLAY.
Test Record		
Elapsed Time min	Depth to Water m	Plot of water level against elapsed time 
0 1 2 3 4 5 6 7 8 9 11 13 15 17 19 21 23 25 27 29 67 115 225 292 1240	1.04 1.04 1.05 1.05 1.05 1.06 1.06 1.06 1.06 1.07 1.08 1.08 1.09 1.09 1.10 1.10 1.11 1.11 1.12 1.18 1.22 1.30 1.35 1.60	
Summary of Calculations and Result		
Soil infiltration rate, f, is calculated from the time taken for the water to fall from 75% to 25% effective storage depth in the pit. $f = (V_{75}-V_{25})/A_{50}(T_{75}-T_{25})$ where, T_{75} (91 mins) is the time for the water level to fall to 75% effective depth (1.20m bgl) and T_{25} (937 mins) is the time for the water level to fall to 25% effective depth (1.52m bgl) thus, $T_{75}-T_{25}$ is the time for the water level to fall from 75% to 25% effective depth: $T_{75}-T_{25} = 846$ mins $V_{75}-V_{25}$ is the effective storage volume in the trial pit between 75% and 25% effective depth: $V_{75}-V_{25} = 0.48 \text{ m}^3$ and A_{50} is the internal surface area of the trial pit up to 50% effective depth and including the base area: $A_{50} = 3.38 \text{ m}^2$ Soil Infiltration Rate $f = 2.79 \times 10^{-6} \text{ m/s}$		
Comments		

SOAKAGE TEST RECORD

SOIL INFILTRATION RATE (BRE Digest 365 : Soakaway Test)		
Client: Gleeson Developments Project Title: Land at Bilsham Road, Yapton Project No.: BRD2693		
Test Details		
Trial Pit Number Test Number Pit Depth Pit Length Pit Width Depth to groundwater prior to test Date of Test Logged by Description of Soil under Test	TP05 2 1.68 2.30 0.65 1.60 19/10/2017 S Raymundo	 m m m m Firm, stiff, orange brown and mottled light brown and brown, silty CLAY.
Test Record		
Elapsed Time min	Depth to Water m	Plot of water level against elapsed time 
0 1 2 3 4 5 6 7 8 9 11 13 15 17 19 21 23 25 71 120 169 247 288 325 363 1431 1584	1.01 1.02 1.02 1.03 1.03 1.03 1.03 1.03 1.03 1.03 1.04 1.04 1.05 1.05 1.05 1.05 1.10 1.13 1.20 1.23 1.25 1.28 1.29 1.56 1.58	
Summary of Calculations and Result		
Soil infiltration rate, f, is calculated from the time taken for the water to fall from 75% to 25% effective storage depth in the pit. $f = (V_{75}-V_{25})/A_{50}(T_{75}-T_{25})$ where, T_{75} (153 mins) is the time for the water level to fall to 75% effective depth (1.18m bgl) and T_{25} (1243 mins) is the time for the water level to fall to 25% effective depth (1.51m bgl) thus, $T_{75}-T_{25}$ is the time for the water level to fall from 75% to 25% effective depth: $T_{75}-T_{25} = 1090$ mins $V_{75}-V_{25}$ is the effective storage volume in the trial pit between 75% and 25% effective depth: $V_{75}-V_{25} = 0.50 \text{ m}^3$ and A_{50} is the internal surface area of the trial pit up to 50% effective depth and including the base area: $A_{50} = 3.47 \text{ m}^2$ Soil Infiltration Rate $f = 2.21 \times 10^{-6} \text{ m/s}$		
Comments		

SOAKAGE TEST RECORD

SOIL INFILTRATION RATE (BRE Digest 365 : Soakaway Test)		
Client: Gleeson Developments Project Title: Land at Bilsham Road, Yapton Project No.: BRD2693		
Test Details		
Trial Pit Number Test Number Pit Depth Pit Length Pit Width Depth to groundwater prior to test Date of Test Logged by Description of Soil under Test	TP05 3 1.68 2.30 0.65 Dry 31/10/2017 S Raymundo	m m m m Firm, stiff, orange brown and mottled light brown and brown, silty CLAY.
Test Record		
Elapsed Time min	Depth to Water m	Plot of water level against elapsed time 
0 1 2 3 4 5 6 7 8 9 10 15 20 25 30 91 131 167 221	0.62 0.63 0.63 0.64 0.65 0.66 0.66 0.67 0.67 0.67 0.68 0.70 0.71 0.73 0.74 0.89 0.95 1.01 1.09	
Summary of Calculations and Result		
Soil infiltration rate, f, is calculated from the time taken for the water to fall from 75% to 25% effective storage depth in the pit. $f = (V_{75}-V_{25})/A_{50}(T_{75}-T_{25})$ where, T_{75} (89 mins) is the time for the water level to fall to 75% effective depth (0.89m bgl) and T_{25} (430* mins) is the time for the water level to fall to 25% effective depth (1.42m bgl) thus, $T_{75}-T_{25}$ is the time for the water level to fall from 75% to 25% effective depth: $T_{75}-T_{25} = 341$ mins $V_{75}-V_{25}$ is the effective storage volume in the trial pit between 75% and 25% effective depth: $V_{75}-V_{25} = 0.79 \text{ m}^3$ and A_{50} is the internal surface area of the trial pit up to 50% effective depth and including the base area: $A_{50} = 4.62 \text{ m}^2$ Soil Infiltration Rate $f = 8.37 \times 10^{-6} \text{ m/s}$		
Comments Calculation based on extrapolated results. Use as a guide only.		



Groundwater Monitoring Record

Project: Land at Bilsham Road, Yapton
Client: Gleeson Developments
Project No: BRD2693

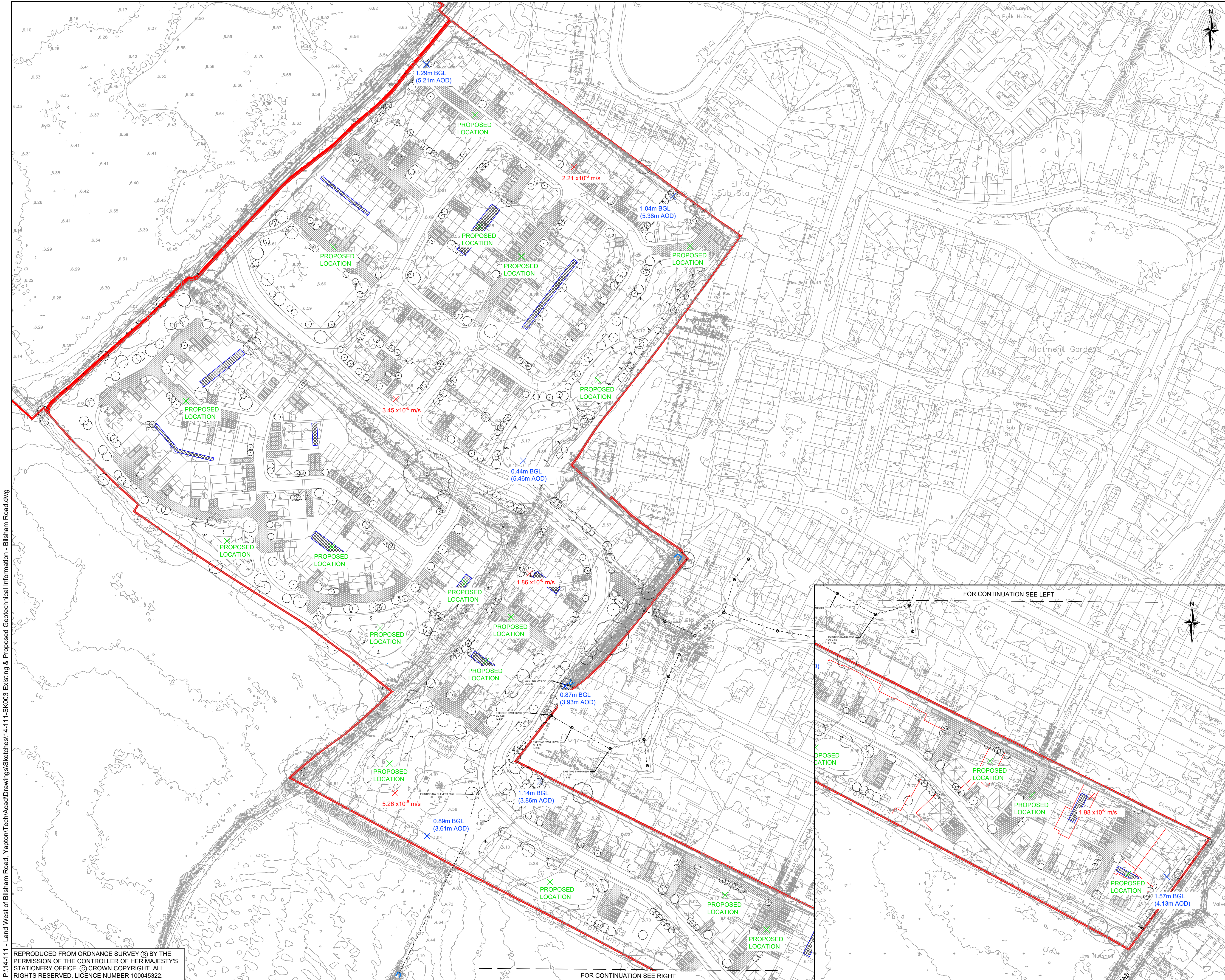
Borehole name	Date	Monitored by (initials)	Borehole depth (m)	Qty free product detected (mm)	Groundwater level below ground surface (m)	Groundwater level below top of standpipe (m)	Amount purged (l)	Post purge groundwater level below top of standpipe (m)	Comments
WS02	24/01/2018	NK	3.95	n/a	0.44	0.33	n/a	n/a	No odour noted on retrieval of interface meter.
WS03	24/01/2018	NK	4.01	n/a	1.09	0.93	n/a	n/a	No odour noted on retrieval of interface meter.
WS04	24/01/2018	NK	3.97	n/a	1.29	1.17	n/a	n/a	No odour noted on retrieval of interface meter.
WS07	24/01/2018	NK	3.83	n/a	0.87	0.74	n/a	n/a	No odour noted on retrieval of interface meter.
WS08	24/01/2018	NK	3.83	n/a	0.89	0.77	n/a	n/a	No odour noted on retrieval of interface meter.
WS09	24/01/2018	NK	3.98	n/a	1.14	1.00	n/a	n/a	No odour noted on retrieval of interface meter.
WS10	24/01/2018	NK	n/a	n/a	n/a	n/a	n/a	n/a	Under a large puddle so was unable to get measurements.



Groundwater Monitoring Record

Project: Land at Bilsham Road, Yapton
Client: Gleeson Developments
Project No: BRD2693

Borehole name	Date	Monitored by (initials)	Borehole depth (m)	Qty free product detected (mm)	Groundwater level below ground surface (m)	Groundwater level below top of standpipe (m)	Amount purged (l)	Post purge groundwater level below top of standpipe (m)	Comments
WS02	22/03/2018	NK	3.95	n/a	0.56	0.45	n/a	n/a	
WS03	22/03/2018	NK	4.02	n/a	1.54	1.38	n/a	n/a	
WS04	22/03/2018	NK	3.97	n/a	1.84	1.71	n/a	n/a	
WS07	22/03/2018	NK	3.82	n/a	1.12	0.98	n/a	n/a	
WS08	22/03/2018	NK	3.83	n/a	1.27	1.15	n/a	n/a	
WS09	22/03/2018	NK	3.98	n/a	1.24	1.11	n/a	n/a	
WS10	22/03/2018	NK	3.87	n/a	1.57	1.41	n/a	n/a	



1. DO NOT SCALE FROM THIS DRAWING. WORK FROM FIGURED DIMENSIONS ONLY.

2. ALL DIMENSIONS SHOWN IN METRES UNLESS NOTED OTHERWISE.

3. PROPOSED SITE LAYOUT HAS BEEN PROVIDED BY RICHARD URBAN DESIGN (DRAWING NUMBER: 1244G.05 - DATED 13.10.2017).

4. SURROUNDING TOPOGRAPHICAL IS EXTRACTED FROM THE TOPOGRAPHICAL SURVEY THAT WAS UNDERTAKEN BY DIGITAL TERRAIN SURVEYS LLP FROM APRIL 2014 - DRAWING REF. DTS240417-Q08.

LEGEND

SITE BOUNDARY

PROPOSED BASIN WITH 1:3 SIDE GRADIENT

PROPOSED INFILTRATING PERMEABLE PAVING

PROPOSED GRANULAR TRENCH

1.04m BGL
(5.38m AOD)

HIGHEST RECORDED GROUNDWATER

2.21 x 10⁻⁶ m/s

MOST CONSERVATIVE SOAKAGE RATE

X

PROPOSED LOCATION

PROPOSED LOCATION FOR SHALLOW INFILTRATION AND GROUNDWATER TESTING

FOR CONTINUATION SEE LEFT

FOR CONTINUATION SEE RIGHT

Rev	Amendments	Dm	Chk	App	Date

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Job Title

BILSHAM ROAD
YAPTON, WEST SUSSEX

Drawing Title

EXISTING AND PROPOSED
GEOTECHNICAL INFORMATION

Client

GLEESON

Scale	Date	Designed
1:1000 @A1	SEP 2018	

Drawn	Checked	Approved
LP	RS	RS

Job No	Drawing No	Rev
14-111	14-111/SK003	

ARUN DISTRICT COUNCIL V9B21001T