

Groundwater Monitoring Letter Report

CLIENT	Berry Farming Ltd c/o John Hall Consulting
SITE ADDRESS	Lower Farm, Walberton, Arundel, BN18 0AS
REPORT REFERENCE	GWPR4084
ENGINEER	Natasha Kearl, Ground and Water Limited.
INVESTIGATION LOCATIONS	Site works were undertaken on 28 th January 2021 and comprised the drilling of 3No. Windowless Sampler Boreholes, 3No. to 3.00m bgl (WS1 - WS3). 3No. combined Groundwater and Ground-gas monitoring standpipes were installed to a depth of 3.00m bgl in WS1, 2.50m bgl in WS2 and 2.00m bgl in WS3.

Combined Ground-gas and Groundwater Monitoring Well Construction				
Trial Hole	Depth of Installation (m bgl)	Thickness of slotted piping with gravel filter pack (m)	Depth of plain piping with bentonite seal (m bgl)	Piping internal diameter (mm)
WS1	3.00	2.00	1.00	50
WS2	2.50	1.50	1.00	50
WS3	2.00	1.00	1.00	50

A trial hole location plan can be viewed within Figure 1.

GROUND CONDITIONS ENCOUNTERED

Summary of Strata Encountered			
Strata	Depth Top (m bgl)	Depth Base (m bgl)	Thickness (m)
TOPSOIL (WS1 - WS3): Generally comprised a dark brown gravelly very clayey fine to coarse SAND. Gravel was sub-angular to sub-rounded, fine to coarse, flint.	GL	0.30 - 0.40	0.30 - 0.40
UNDIFFERENTIATED RIVER TERRACE DEPOSITS (cohesive) (WS1 - WS3): Generally comprised an orangish-brown slightly sandy gravelly CLAY. Sand was fine to coarse. Gravel was sub-angular to subrounded, fine to medium, flint.	0.30 - 1.00	1.15 - 2.00	0.85 - 1.20
UNDIFFERENTIATED RIVER TERRACE DEPOSITS (granular) (WS1 - WS3): Generally comprised an orangish-brown slightly gravelly clayey fine to coarse SAND. Gravel was sub-angular to subrounded, fine to medium, flint.	0.40 - 2.00	1.00 - >3.00	>0.60 - >1.85

Full trial hole logs can be viewed within Appendix B.

ROOTS

No fresh roots were noted within any trial holes. Root traces were noted at 1.50m bgl in WS2.

It must be noted that the chance of determining actual depth of root penetration through a narrow diameter borehole is low. It should be noted that roots may be found to greater depths at other locations on the site, particularly close to trees and/or trees that have been removed both within the site and its close environs.

GROUNDWATER

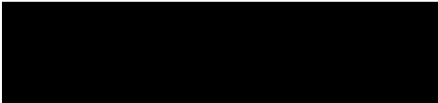
A groundwater strike was noted at 1.50m bgl, falling to 2.00m bgl after 20 minutes in all boreholes. The remaining boreholes did not encounter any groundwater. It should be noted that groundwater strikes may have been obstructed by the drilling process.

4No. return groundwater monitoring visits were undertaken in January - April 2021. A tabulated summary can be seen tabulated below:

Depth of Groundwater Strikes/Standing Groundwater Within Trial Holes			
Trial Hole	Date	Depth of Groundwater (m bgl)	Depth of Standpipe (m bgl)
WS1	30/01/2021	0.91	2.86
	27/02/2021	1.70	2.73
	27/03/2021	1.92	2.65
	20/04/2021	1.60	2.20
WS2	30/01/2021	0.17	2.46
	27/02/2021	0.74	2.14
	27/03/2021	1.03	2.09
	20/04/2021	0.70	2.30
WS3	30/01/2021	0.26	1.89
	27/02/2021	0.84	1.70
	27/03/2021	1.04	1.68
	20/04/2021	1.10	1.70

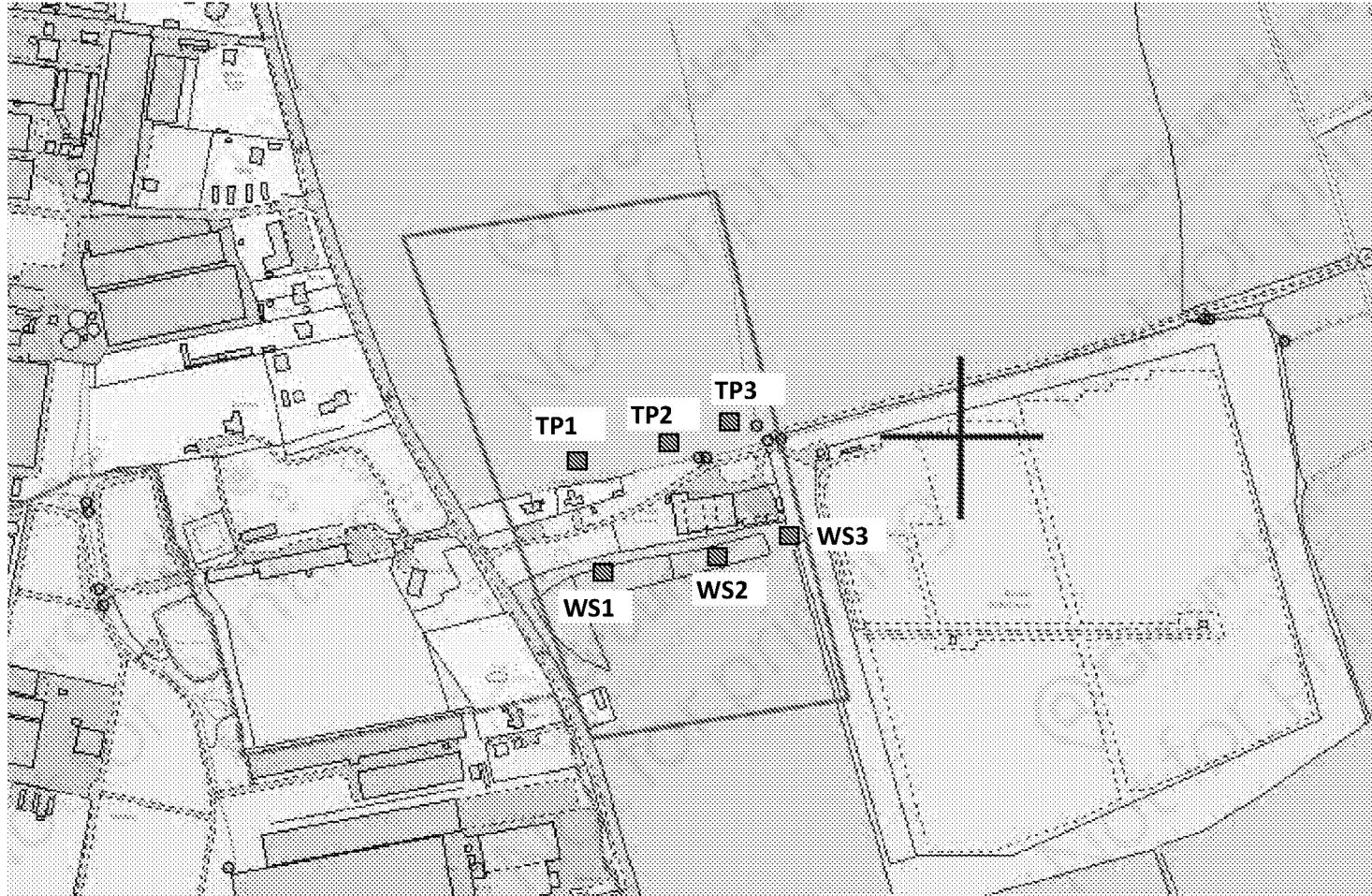
Please feel free to contact us should you have any queries regarding the information enclosed within this letter report.

Yours sincerely,



Natasha Kearl BSc.,
Geotechnical and Geo-environmental Engineer
For and on behalf of Ground and Water Limited

Figure 1 Trial Hole Location Plan
Appendix A Conditions and Limitations
Appendix B Trial Hole Logs



Not To Scale

Project:

Lower Farm, Walberton, Arundel BN18 0AS

Figure 1

Berry Farming Ltd c/o John Hall Consulting

Date:

April 2021

Trial Hole Location Plan

Ref:

GWPR4084



APPENDIX A

Conditions and Limitations

The ground is a product of continuing natural and artificial processes. As a result, the ground will exhibit a variety of characteristics that vary from place to place across a site, and also with time. Whilst a ground investigation will mitigate to a greater or lesser degree against the resulting risk from variation, the risks cannot be eliminated.

The report has been prepared on the basis of information, data and materials which were available at the time of writing. Accordingly, any conclusions, opinions or judgements made in the report should not be regarded as definitive or relied upon to the exclusion of other information, opinions and judgements.

The investigation, interpretations, and recommendations given in this report were prepared for the sole benefit of the client in accordance with their brief; as such these do not necessarily address all aspects of ground behaviour at the site. No liability is accepted for any reliance placed on it by others unless specifically agreed in writing.

Any decisions made by you, or by any organisation, agency or person who has read, received or been provided with information contained in the report ("you" or "the Recipient") are decisions of the Recipient and we will not make, or be deemed to make, any decisions on behalf of any Recipient. We will not be liable for the consequences of any such decisions.

Current regulations and good practice were used in the preparation of this report. An appropriately qualified person must review the recommendations given in this report at the time of preparation of the scheme design to ensure that any recommendations given remain valid in light of changes in regulation and practice, or additional information obtained regarding the site.

Any Recipient must consider any other factors apart from the Report of which they and their experts and advisers are or should be aware. The information, data, conclusions, opinions and judgements set out in the report may relate to certain contexts and may not be suitable in other contexts. It is your responsibility to ensure that you do not use the information we provide in the wrong context.

This report is based on readily available geological records, the recorded physical investigation, the strata observed in the works, together with the results of completed site and laboratory tests. Whilst skill and care has been taken to interpret these conditions likely between or below investigation points, the possibility of other characteristics not revealed cannot be discounted, for which no liability can be accepted. The impact of our assessment on other aspects of the development required evaluation by other involved parties.

The opinions expressed cannot be absolute due to the limitations of time and resources within the context of the agreed brief and the possibility of unrecorded previous in ground activities. The ground conditions have been sampled or monitored in recorded locations and tests for some of the more common chemicals generally expected. Other concentrations of types of chemicals may exist. It was not part of the scope of this report to comment on environment/contaminated land considerations.

The conclusions and recommendations relate to Lower Farm, Walberton, Arundel, BN18 0AS.

Trial hole is a generic term used to describe a method of direct investigation. The term trial pit, borehole or window sampler borehole implies the specific technique used to produce a trial hole.

The depth to roots and/or of desiccation may vary from that found during the investigation. The client is responsible for establishing the depth to roots and/or of desiccation on a plot-by-plot basis prior to the construction of foundations. Where trees are mentioned in the text this means existing trees, recently removed trees (approximately 15 years to full recovery on cohesive soils) and those planned as part of the site landscaping.

Ownership of copyright of all printed material including reports, laboratory test results, trial pit and borehole log sheets, including drillers log sheets, remain with Ground and Water Limited. Licence is for the sole use of the client and may not be assigned, transferred or given to a third party.

Only our client may rely on this report and should this report or any information contained in it be provided to any third party we accept no responsibility to the third party for the contents of this report save to the extent expressly outlined by us in writing in a reliance letter addressed from us to the third party.

Recipients are not permitted to publish this report outside of their organisation without our express written consent.

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APPENDIX B
Trial Hole Logs



Percussion Drilling Log

Project Name: Lower Farm, Walberton, Arundel BN18 0AS		Client: Berry Farming Ltd c/o John Hall Consulting		Date: 28/01/2021	
Location: Lower Farm, Walberton, Arundel BN18 0AS		Contractor:			
Project No. : GWPR4084		Crew Name:		Drilling Equipment:	
Borehole Number WS1	Hole Type WLS	Level	Logged By NK	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	D		0.30			TOPSOIL: Dark brown gravelly very clayey fine to coarse SAND. Gravel is sub-angular to sub-rounded, fine to coarse, flint.	
		0.50	D					Orangish-brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular to sub-rounded, fine to medium, flint	
		0.80	D					(UNDIFFERENTIATED RIVER TERRACE DEPOSITS).	1
		1.00	D		1.15			Orangish-brown slightly gravelly clayey fine to coarse SAND. Gravel is sub-angular to sub-rounded, fine to medium, flint	
		1.50	D					(UNDIFFERENTIATED RIVER TERRACE DEPOSITS).	2
		2.00	D						
		2.50	D						
		3.00	D		3.00				3
								End of Borehole at 3.000m	
									4
									5
									6
									7
									8
									9
									10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks No roots noted. A groundwater strike was noted at 1.50m bgl, rising to 2.00m bgl after 20 minutes.	
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Percussion Drilling Log

Project Name: Lower Farm, Walberton, Arundel BN18 0AS		Client: Berry Farming Ltd c/o John Hall Consulting		Date: 28/01/2021	
Location: Lower Farm, Walberton, Arundel BN18 0AS		Contractor:			
Project No. : GWPR4084		Crew Name:		Drilling Equipment:	
Borehole Number WS2	Hole Type WLS	Level	Logged By NK	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.30	D		0.30			TOPSOIL: Dark brown gravelly clayey fine to coarse SAND. Gravel is sub-angular to sub-rounded, fine to coarse, flint.	1
		0.50	D					Orangish-brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular to angular, fine to coarse, flint (UNDIFFERENTIATED RIVER TERRACE DEPOSITS).	
		0.80	D						
		1.00	D						
		1.50	D		1.50				
		2.00	D					Orangish-brown slightly gravelly clayey fine to coarse SAND. Gravel is sub-angular to angular, fine to medium, flint (UNDIFFERENTIATED RIVER TERRACE DEPOSITS).	2
		2.50	D						
		3.00	D		3.00			End of Borehole at 3.000m	3
									4
									5
									6
									7
									8
									9
									10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks										
No fresh roots noted but traces of roots noted at 1.50m bgl. A groundwater strike was noted at 1.50m bgl, falling to 2.00m bgl after 20 minutes.										
COUNCIL WA/24/21/DOC										



Date: 28/01/2021

Contractor:

Drilling Equipment:

Page Number
Sheet 1 of 1

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

No roots noted.
A groundwater strike was noted at 1.50m bgl, falling to 2.00m bgl after 20 minutes.