

**Former Southgate Service
Station, Long Melford**

SUBADRA

Environmental - Geotechnical - Laboratory - Foundations

13 Triangle Business Park, Stoke Mandeville, HP22 5BL

Tel: 01296 739400 Email: consultants@subadra.com

James May
Willowwalk (Thaxted) Developments Ltd
45 High Street
Haversfordwest
SA61 2BP

17th December 2019

Dear James,

Groundwater Monitoring Results - Southgate Service Station, Sudbury, Suffolk

During 2019 we completed two visits to monitor the quality of the groundwater post excavation works. This letter details the results of our sampling.

During May 2019, we were unable to sample monitoring well MW4. The results of our groundwater monitoring visits are present below. We have highlighted increases in contaminant concentrations in red.

Analyte	Sample Details and Concentration (ug/l)						
	MW1	MW2	MW3	MW4	MW5	MW6	Sump
	2.0m	1.2m	1.6m	Dry	0.9m	0.6m	2.0m
C ₆₋₈ Aliphatic TPH	157	<50	1,760	Unable to obtain sample - well dry	954	2,320	<50
>C ₈₋₁₀ Aliphatic TPH	231	54.1	1,480		2,610	13,400	<50
>C ₁₀₋₁₂ Aliphatic TPH	<50	<50	13,100		98.1	429	<50
>C ₁₂₋₁₆ Aliphatic TPH	<50	<50	11,900		<50	<50	<50
>C ₁₆₋₂₁ Aliphatic TPH	<50	<50	137		<50	<50	<50
>C ₂₁₋₃₅ Aliphatic TPH	<50	<50	<50		<50	<50	<50
C ₆₋₈ Aromatic TPH	75.6	<50	72.5		431	564	<50
>C ₈₋₁₀ Aromatic TPH	212	<50	549		2,540	12,900	<50
>C ₁₀₋₁₂ Aromatic TPH	<50	69.7	2,960		167	705	<50
>C ₁₂₋₁₆ Aromatic TPH	60.9	<50	2,360		<50	82.3	<50
>C ₁₆₋₂₁ Aromatic TPH	<50	<50	<50		<50	<50	<50
>C ₂₁₋₃₅ Aromatic TPH	<50	<50	<50		<50	<50	<50

Table One: Speciated TPH Analysis Results - Groundwater - 23 May 2019

Client: Willowwalk (Thaxted)
Developments Ltd

Subadra Consulting Ltd. Registered in
England No. 4586038
Registered Office 13 Triangle Business
Park, Stoke Mandeville, HP22 5BL

Our Ref	Fi03088 CL 019
Date	December 2019
Page	1

**Former Southgate Service
Station, Long Melford**

SUBADRA

Environmental - Geotechnical - Laboratory - Foundations

13 Triangle Business Park, Stoke Mandeville, HP22 5BL

Tel: 01296 739400 Email: consultants@subadra.com

Analyte	Sample Details and Concentration (ug/l)						
	MW1	MW2	MW3	MW4	MW5	MW6	Sump
	2.0m	1.2m	1.6m	Dry	0.9m	0.6m	2.0m
MTBE	<50	<100	178	Unable to obtain sample - well dry	178	495	<50
Benzene	45.8	<20	52.7		318	44	<10
Toluene	29.8	<20	19.8		113	520	<10
Ethylbenzene	28.4	<20	31.5		378	391	<10
p+m Xylene	68.3	<20	29.5		843	5,140	<10
o Xylene	27.9	<20	16.9		282	1,750	<10

Table Two: BTEX Analysis Results - Groundwater - 23 May 2019

Analyte	Sample Details and Concentration (ug/l)						
	MW1	MW2	MW3	MW4	MW5	MW6	Sump
	1.7m	1.0m	1.3m	0.4m	0.7m	0.6m	1.6m
C ₆₋₈ Aliphatic TPH	<50	58.5	<50	<50	<50	459	<50
>C ₈₋₁₀ Aliphatic TPH	<50	<50	<50	<50	<50	2,100	<50
>C ₁₀₋₁₂ Aliphatic TPH	<50	<50	<50	<50	<50	99.7	<50
>C ₁₂₋₁₆ Aliphatic TPH	<50	<50	<50	<50	<50	<50	<50
>C ₁₆₋₂₁ Aliphatic TPH	<50	<50	<50	<50	<50	<50	<50
>C ₂₁₋₃₅ Aliphatic TPH	<50	<50	<50	<50	<50	<50	<50
C ₆₋₈ Aromatic TPH	<50	86.5	<50	132	78.9	551	<50
>C ₈₋₁₀ Aromatic TPH	<50	101	<50	600	69	17,300	<50
>C ₁₀₋₁₂ Aromatic TPH	<50	<50	<50	<50	<50	160	<50
>C ₁₂₋₁₆ Aromatic TPH	<50	<50	<50	<50	<50	<50	<50
>C ₁₆₋₂₁ Aromatic TPH	<50	<50	<50	<50	<50	<50	<50
>C ₂₁₋₃₅ Aromatic TPH	<50	<50	<50	<50	<50	<50	<50

Table Three: Speciated TPH Analysis Results - Groundwater - 7 November 2019

Client: Willowwalk (Thaxted) Developments Ltd	Groundwater Monitoring Results	Report	Fi03088 CL 019
		Date	December 2019
		Page	2

**Former Southgate Service
Station, Long Melford**

SUBADRA

Environmental - Geotechnical - Laboratory - Foundations

13 Triangle Business Park, Stoke Mandeville, HP22 5BL

Tel: 01296 739400 Email: consultants@subadra.com

Analyte	Sample Details and Concentration (ug/l)						
	MW1	MW2	MW3	MW4	MW5	MW6	Sump
	1.7m	1.0m	1.3m	0.4m	0.7m	0.6m	1.6m
MTBE	<50	<50	<50	51.3	<50	<50	<50
Benzene	<10	83.8	<10	127	55.5	43.6	<10
Toluene	<10	<10	<10	<10	20.7	485	<10
Ethylbenzene	<10	37.7	<10	84.2	<10	1,930	<10
p+m Xylene	<10	<10	<10	181	18	8,030	<10
o Xylene	<10	<10	<10	19.9	15.4	3,280	<10

Table Four: BTEX Analysis Results - Groundwater - 7 November 2019

I trust the enclosed groundwater monitoring results and comments are of interest. If you have any further queries please do not hesitate to contact me directly.

Yours sincerely

Tom Petzing

Subadra Consulting Ltd



Email: petzingt@subadra.com

Mob: 07538 535529

Attachments:

Attachment One: Notice to Interested Parties

Attachment Two: Chemical Analysis Results

Client: Willowwalk (Thaxted) Developments Ltd	Groundwater Monitoring Results	Report	Fi03088 CL 019
		Date	December 2019
		Page	3

Southgate Service Station

SUBADRA

Environmental - Geotechnical - Laboratory - Foundations

13 Triangle Business Park, Wendover Road
Stoke Mandeville, Bucks HP22 5BL

Tel. 01296 739400 Email: consultants@subadra.com

**ATTACHMENT ONE:
NOTICE TO INTERESTED PARTIES**

Client: Willowwalk (Thaxted)
Developments Ltd

Report

FI03088 CL 019

Date

December 2019

Page

Attachment One - 1

Southgate Service Station

SUBADRA

Environmental - Geotechnical - Laboratory - Foundations

13 Triangle Business Park, Wendover Road
Stoke Mandeville, Bucks HP22 5BL

Tel. 01296 739400 Email: consultants@subadra.com

NOTICE TO INTERESTED PARTIES

The purpose of our work is to provide general information on the environmental and/or geotechnical conditions existing at the site and related to soil and/or groundwater. The Client or others specified the scope of the investigation and the validity of our conclusions is limited by the scope of work specified. We are not responsible for any such limitations or omissions.

Where stated in this report, we have used information supplied by third parties. While we have evaluated as far as possible the validity of this information, we cannot guarantee its accuracy in any way whatsoever.

No investigation technique is capable of completely identifying all of the contaminants that might be present in the soil or groundwater under a site. Where specified in our report, we have examined the ground by constructing a number of boreholes and/or trial pits. We recovered samples of soil and/or groundwater from available exposures.

The depth and spacing of our Sampling locations were selected to ensure with a reasonable probability that they would be representative of the actual conditions across the whole site. However, safety considerations relating to existing site infrastructure may have restricted our ability to investigate all potential contaminant sources. Specifically, we were unable to investigate the soil and groundwater condition immediately adjacent to the underground structures and/or buried services. These limitations must be borne in mind when considering the conclusions reached in this report.

Soil is intrinsically variable and the spread of contaminants within the soil is therefore subject to a degree of non-uniformity. For these reasons no sampling technique can completely eliminate the possibility of obtaining samples that are not representative of the actual conditions. Our sampling techniques are intended to reduce the possibility to an acceptable level, within the limits imposed by the scope of the investigation.

Groundwater levels and soil vapour levels that we report were accurate at the time of the investigation. Groundwater and soil vapour levels are variable. Long term monitoring may be required to ensure that the levels recorded during our investigation are representative of long term and possible 'worst case' conditions. In accepting our recommendations and/or conclusions the Client acknowledges that further, more detailed investigation would allow a more accurate assessment of site conditions to be made and that this would reduce any consequential risk to the Client.

Our investigation was carried out to assess the significance of contamination resulting from use of the site as identified in this report. Unless we have indicated otherwise, no assessment of the potential impact of any other previous uses has been made. No investigation was carried out to determine whether or not any deleterious or hazardous materials (such as asbestos) have been used in the construction of the buildings present on the site. Unless otherwise stated no investigation or assessment has been made of the presence or otherwise of invasive plant species including but not limited to Japanese Knotweed.

Unless specifically stated otherwise, we have not assessed the effect of any proposed future construction activities on existing structures on or near to the site. Nor, unless stated otherwise, have we assessed the likely effect of trees on existing or proposed structures on or near the site.

We do not accept any responsibility for the cost of remedial works or other costs incurred in whatever way whatsoever as a result of any omissions, errors or other shortcomings in this report unless we have been given reasonable opportunity to verify ourselves that such faults exist and we have been given a reasonable opportunity to carry out works to remedy such faults ourselves using the most practicable means available to us. We do not accept liability for any consequential losses incurred by you while either we or others carry out any remedial works we deem necessary.

This report has been prepared for the Client, as specified on the cover page of this report. In accepting our recommendations and/or conclusions the Client accepts that the terms of our appointment were as detailed in the Proposal, or Proposals, that we provided to the Client before being appointed and that these terms supersede any other terms and/or conditions set out in any contracts agreed between ourselves and the Client, regardless of when such terms and/or conditions were agreed to by us and/or signed by us.

Use of, and reliance on, this report by other third parties will be at such third parties own risk, and we do not accept any liability or responsibility to them.

Neither the whole nor any part of this report, or any reference to it, may be included in any published document circular or statement or published in any way without our prior written approval.

This report and its contents, together with any supporting correspondence or other documentation, remain the property of Subadra Consulting Limited until paid for in full. The copyright to this report remains vested in Subadra Consulting Ltd at all times.

Client: Willowwalk (Thaxted)
Developments Ltd

Report	FI03088 CL 019
Date	December 2019
Page	Attachment One - 2

Southgate Service Station

SUBADRA

Environmental - Geotechnical - Laboratory - Foundations

13 Triangle Business Park, Wendover Road
Stoke Mandeville, Bucks HP22 5BL

Tel. 01296 739400 Email: consultants@subadra.com

**ATTACHMENT TWO:
CHEMICAL ANALYSIS RESULTS**

Client: Willowwalk (Thaxted)
Developments Ltd

Report

FI03088 CL 019

Date

December 2019

Page

Attachment Two - 1

Report No 06987



E: lab@fastanalysis.co.uk T: 01296 739 423
13 Triangle Business Park, Stoke Mandeville, HP22 5BL

Project	FI03088 Southgate Service Station	Sampled	23rd May 2019
Client	Subadra Consulting Ltd	Report Approved By	<i>Katherine Cook</i> Duty Reporting Manager
Sample Type	Water		

Water - TPH CWG - 23rd May 2019

Analyte	Unit	Method Detection Limit	Sample Details											
			MW1	MW2	MW3	MW5	MW6	Sump						
			2.04m	1.20m	1.61m	0.94m	0.55m	1.99m						
C6-8 Aliphatic TPH ²	ug/l	50	157	<50	1760	954	2320	<50						
>C8-10 Aliphatic TPH ²	ug/l	50	231	54.1	1480	2610	13400	<50						
>C10-12 Aliphatic TPH ²	ug/l	50	<50	<50	13100	98.1	429	<50						
>C12-16 Aliphatic TPH ²	ug/l	50	<50	<50	11900	<50	<50	<50						
>C16-21 Aliphatic TPH ²	ug/l	50	<50	<50	137	<50	<50	<50						
>C21-35 Aliphatic TPH ²	ug/l	50	<50	<50	<50	<50	<50	<50						
C6-8 Aromatic TPH ²	ug/l	50	75.6	<50	72.5	431	564	<50						
>C8-10 Aromatic TPH ²	ug/l	50	212	<50	549	2540	12900	<50						
>C10-12 Aromatic TPH ²	ug/l	50	<50	69.7	2960	167	705	<50						
>C12-16 Aromatic TPH ²	ug/l	50	60.9	<50	2360	<50	82.3	<50						
>C16-21 Aromatic TPH ²	ug/l	50	<50	<50	<50	<50	<50	<50						
>C21-35 Aromatic TPH ²	ug/l	50	<50	<50	<50	<50	<50	<50						

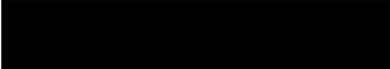


Method: ; IH QM:E9.4 based on US EPA 5021 by HS-GC-FID; IH QM:E9.5 based on TNRCC 1005 by followed by separation into aliphatic and aromatic fractions using SPE and analysis by GC-FID

2. UKAS 17025

	Chain of Custody	19027	Analysed	RC 05/06/19
	Received	RC 03/06/19	Reported	KC 06/06/19
	Prepared	RC 05/06/19	Page	One of One

Report No 06982

Project	FI03088 Southgate Service Station	Sampled	23rd May 2019
Client	Subadra Consulting Ltd	Report Approved By	
Sample Type	Water	Duty Reporting Manager	


Water - BTEX and MTBE - 23rd May 2019

Analyte	Unit	Method Detection Limit	Sample Details													
			MW1	MW2	MW3	MW5	MW6	Sump								
			2.04m	1.20m	1.61m	0.94m	0.55m	1.99m								
MTBE ²	ug/l	50	<50	<100	178	178	495	<50								
Benzene ²	ug/l	10	45.8	<20	52.7	318	44	<10								
Toluene ²	ug/l	10	29.8	<20	19.8	113	520	<10								
Ethylbenzene ²	ug/l	10	28.4	<20	31.5	378	391	<10								
p+m Xylene ²	ug/l	10	68.3	<20	29.5	843	5140	<10								
o Xylene ²	ug/l	10	27.9	<20	16.9	282	1750	<10								




Method: IH QM:E9.4 based on US EPA 5021 by HS-GC-FID

2. UKAS 17025

	Chain of Custody	19028	Analysed	RC 03/06/19
	Received	RC 03/06/19	Reported	KC 03/06/19
	Prepared	RC 03/06/19	Page	One of One

Report No 08132

Project	FI03088 Southgate Service Station	Sampled	7th November 2019
Client	Subadra Consulting Ltd	Report Approved By	
Sample Type	Water	Duty Reporting Manager	


Water - TPH CWG - 7th November 2019

Analyte	Unit	Method Detection Limit	Sample Details									
			MW1	MW2	MW3	MW4	MW5	MW6	Sump			
			1.71m	0.97m	1.33m	0.39m	0.70m	0.57m	1.60m			
C6-8 Aliphatic TPH ²	ug/l	50	<50	133	<50	157	98.4	921	<50			
>C8-10 Aliphatic TPH ²	ug/l	50	<50	98.5	<50	583	73.5	17400	<50			
>C10-12 Aliphatic TPH ²	ug/l	50	<50	<50	<50	<50	<50	99.7	<50			
>C12-16 Aliphatic TPH ²	ug/l	50	<50	<50	<50	<50	<50	<50	<50			
>C16-21 Aliphatic TPH ²	ug/l	50	<50	<50	<50	<50	<50	<50	<50			
>C21-35 Aliphatic TPH ²	ug/l	50	<50	<50	<50	<50	<50	<50	<50			
C6-8 Aromatic TPH ²	ug/l	50	<50	83.8	<50	127	76.2	529	<50			
>C8-10 Aromatic TPH ²	ug/l	50	<50	93.2	<50	558	64.6	16400	<50			
>C10-12 Aromatic TPH ²	ug/l	50	<50	<50	<50	<50	<50	160	<50			
>C12-16 Aromatic TPH ²	ug/l	50	<50	<50	<50	<50	<50	<50	<50			
>C16-21 Aromatic TPH ²	ug/l	50	<50	<50	<50	<50	<50	<50	<50			
>C21-35 Aromatic TPH ²	ug/l	50	<50	<50	<50	<50	<50	<50	<50			




Method: ; IH QM:E9.4 based on US EPA 5021 by HS-GC-FID; IH QM:E9.5 based on TNRCC 1005 by followed by separation into aliphatic and aromatic fractions using SPE and analysis by GC-FID

2. UKAS 17025

	Chain of Custody	20231	Analysed	KC 08/11/19
	Received	KC 08/11/19	Reported	KC 15/11/19
	Prepared	KC 08/11/19	Page	One of One

Report No 08122

Project	FI03088 Southgate Service Station	Sampled	7th November 2019
Client	Subadra Consulting Ltd	Report Approved By	
Sample Type	Water	Duty Reporting Manager	


Water - BTEX and MTBE - 7th November 2019

Analyte	Unit	Method Detection Limit	Sample Details									
			MW1	MW2	MW3	MW4	MW5	MW6	Sump			
			1.71m	0.97m	1.33m	0.39m	0.70m	0.57m	1.60m			
MTBE ²	ug/l	50	<50	<50	<50	51.3	<50	<50	<50			
Benzene ²	ug/l	10	<10	83.8	<10	127	55.5	43.6	<10			
Toluene ²	ug/l	10	<10	<10	<10	<10	20.7	485	<10			
Ethylbenzene ²	ug/l	10	<10	37.7	<10	84.2	<10	1930	<10			
p+m Xylene ²	ug/l	10	<10	<10	<10	181	18	8030	<10			
o Xylene ²	ug/l	10	<10	<10	<10	19.9	15.4	3280	<10			



Method: IH QM:E9.4 based on US EPA 5021 by HS-GC-FID

2. UKAS 17025

	Chain of Custody	20230	Analysed	KC 08/11/19
	Received	KC 08/11/19	Reported	KC 13/11/19
	Prepared	KC 08/11/19	Page	One of One