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GAS MONITORING REPORT

LAND ADJACENT CASSINI LODGE
58 SEAS END ROAD
MOULTON SEAS END
LINCOLNSHIRE

Report Reference C15356A

On behalf of:-

DMT Developments Limited
Runway Office
Easton Lodge Farm
Old Oundle Road
Wansford
PE8 6NP

August 2021

DMT DEVELOPMENTS LIMITED

ARCHITECTURAL DESIGN SERVICES

GAS MONITORING INVESTIGATION REPORT

FOR

PROPOSED RESIDENTIAL DEVELOPMENT

AT

LAND ADJACENT CASSINI LODGE

MOULTON SEAS END

LINCOLNSHIRE

Report Reference No. C15356A **August 2021**

INTRODUCTION

The client, DMT Developments Limited, is proposing to construct a new residential development at land adjacent Cassini Lodge, 58 Seas End Road, Moulton Seas End, Lincolnshire. The proposed development layout was provided by the architects, which includes five dwellings comprising a bungalow and dormer bungalows, associated gardens and access road.

Ground Engineering Limited was instructed by the client, under the direction of Architectural Design Services, to undertake a ground investigation to determine the ground gas regime and determine if any gas precautions are required. A desk study had previously been undertaken by Ground Engineering Limited, report referenced C15356 dated May 2021, which should be consulted for further details on the site, and extracts are included within this report.

LOCATION, TOPOGRAPHY AND GEOLOGY OF THE SITE

The 0.48hectare site, which is approximately centred on National Grid Reference TF 3205 2698 is located on the western side of Seas End Road (B1357), on the southern side of the village of Moulton Seas End, as shown on the site location plan following this report text. Moulton Seas End is approximately 4km north-west of Holbeach and 8km north-east of Spalding in Lincolnshire.

The irregular shaped site was approximately 30m wide fronting Seas End Road, widening to 60m behind an adjacent bungalow to the south, and extended 110m west. The site was bounded to the north by a dormer bungalow (No.56) fronting Seas End Road, and a new housing development under construction off Hall Lane; a field to the west; a field to the south; and a bungalow (No.60) to the south-east which also fronts Seas End Road.

The site contains Cassini Lodge (No.58), a detached house in the north-eastern part of the site fronting Seas End Road, with a front lawned garden containing trees and rear garden/patio with a summerhouse. The site also contains another grassed area fronting Seas End Road, with a conifer hedge at its rear (west) screening a workshop building which is accessed by a central roadway. The workshop is an operational vehicle servicing business, which was remarkably clean and tidy. There was a small pile of metal scrap to the side of the workshop, and a storage area to the rear included drums of oil. In the central northern part of the site there was a skip on a concrete surfaced area, and two glasshouses containing an assortment of things which included a London Taxi and a boat. The majority of the rear western part of the site is a grassed area, and with an immature orchard alongside the northern boundary. An old trailer is also present adjacent the southern corner of the site. There are hedges and trees including Hawthorn and Cypress along most of the site boundaries.

The site stands at an elevation of approximately 3.5mOD, on level ground within the Lincolnshire Fens.

The geological map for the area, sheet 144 at 1:50,000 scale, shows the site to be underlain by a thick succession of Terrington Beds, more recently identified as Tidal Flat Deposits. These initially clayey, becoming silt and fine sand soils are indicated to rest on the solid geology of the West Walton Formation at depth. Previous work in the vicinity has found Tidal Flat Deposits underlain by Marine Sand to at least 11m depth. Seas End Road to the east and Hall Lane to the north are shown as 'Seabanks', and mark the limit of reclamation of salt marsh between circa 1000AD and 1300AD.

SUMMARY OF HISTORICAL INFORMATION

The Ordnance Survey map of 1887 showed that the site was within the southern part of a field. The site remained undeveloped until the early 1970s when Cassini Lodge, outbuildings and glasshouses were built. Additional glasshouses had been built by the early 1990s, which were subsequently cleared during the 2000s, and the site has remained in this configuration to the present day. A workshop denoted in the central part of the site was an operational vehicle servicing business at the time of the monitoring visits to July 2021.

Off-site, the immediately surrounding area comprised fields, which included a pond 40m north-west of the site (1887), and a small pond 80m south of the site. The pond to the north-west which had been enlarged by 1904, was subsequently infilled by approximately 1999, and this area has now been incorporated within the field to the west of the site. The small pond to the south of the site had been infilled by the 1960s. Dwellings have been built fronting the road adjacent the south and north of the site by 1950 and 1960s respectively. New housing development was under construction to the north of the site in a former field area at the time of the monitoring in May to July 2021.

SUMMARY OF DATABASE INFORMATION

Historical maps did not identify historical land uses on the site, the closest is a disused mill 174m north-east of the site. No historical tanks, energy features, petrol stations or garages are recorded on or within 250m of the site. A historical landfill is shown 5m north-west of the site, however as its address is 'Cow Drove, Malton Seas End' which is suspected to be Red Cow Drove some kilometres north of the site, this seems to be incorrectly positioned. An Environment Agency record for the same landfill refers to the address as 'Fox & Hounds', which as this is not on-site or adjacent suggests it is also incorrectly positioned. There are no Local Authority planning records for historical waste sites on, or within 250m of the site. There are no records of artificial or made ground on or within 250m of the site, however there is an infilled pond 40m north-west of the site.

No made ground deposits are recorded beneath the site. The site is underlain by superficial Tidal Flat Deposits, which are classified by the EA as an 'unproductive' stratum. The superficial deposits are underlain by the solid geology West Walton Formation which is also classified by the EA as an 'unproductive' stratum.

SITE WORK

The site work conducted on 7th May 2021 comprised four window sampled boreholes (WS1 to WS4). The positions are shown on the exploratory hole location plan following this report text.

Public utility service drawings were sourced and consulted prior to determining the exploratory hole positions. Prior to excavation, a service scan was made at each position using a CAT (Cable Avoidance Tool) to check for the absence of detectable buried services that may otherwise have been damaged by the investigation.

The exploratory hole records, presented following the plans, give the descriptions and depths of the various strata encountered, details of all samples taken, in-situ tests and the groundwater conditions observed during and on completion of excavation and boring.

Window Sampled Boreholes

The window sampled boreholes were sunk to a depth of 4.00m or 4.45m below ground level. Prior to the start of boring, an inspection pit was dug to 1.20m below ground level using hand tools to ensure the absence of buried services at each location.

Representative small disturbed samples of soil were taken from the starter pits at regular intervals throughout their depth.

The boreholes were formed by a small track mounted window sampling and super heavy dynamic probing rig. The window sampling equipment consisted of drive-in sample tubes of specially constructed and strengthened steel, lined with a plastic core-liner. The barrels were initially of 77mm internal diameter and were reduced in diameter with successive barrels with increasing depth. Upon extraction, a continuous 'undisturbed' profile of the soil was obtained within the plastic liners.

Standard penetration tests (SPT) were undertaken at regular intervals in boreholes WS2 and WS4 in order to give an indication of the density of the material. The tests were made

by driving a 50mm diameter split spoon (S) attachment, into the soil at the base of the borehole by means of an automatic trip hammer weighing 63.50kg falling freely through 750mm. The penetration resistance was determined as the number of blows required to drive the tool the final 300mm of a total penetration of 450mm into the soil ahead of the borehole. The results of these tests are presented on the borehole records.

On completion of all four boreholes, gas and groundwater monitoring standpipes were installed to depths of 3.80m (WS1) and 4.00m (WS2, WS3 & WS4). The pipes were perforated to within 1.00m of ground level and the annulus backfilled with pea gravel. A bentonite seal was placed from ground surface to 1.00m depth and a gas tap fitted. Protective stopcock covers were concreted in place at ground level above the installations.

Gas and Groundwater Monitoring Visits

As part of this investigation six visits were made to site between 17th May and 1st July 2021, when the standpipes installed within boreholes WS1 to WS4 were monitored for standing groundwater level and for landfill type gases. The results of the monitoring visits are presented following the exploratory hole records.

GROUND CONDITIONS

The ground conditions have been plotted as a soil profile in Figure 1. The ground conditions encountered comprised made ground or topsoil to between 0.40m and 1.00m depth, which mantled the expected superficial Tidal Flat Deposits and Marine Sand, with the latter encountered to at least the base of the deepest boreholes at 4.45m below ground level.

Made Ground/Topsoil

From surface brown, dark brown and yellow brown, slightly gravelly, very sandy silt topsoil, varying to silty sand fill, was encountered to between 0.40m and 1.00m depth. The gravel fraction comprised angular to sub-rounded flint, brick, charcoal and shell fragments.

Tidal Flat Deposits/Marine Sand

Beneath the surface made ground at 0.40m (WS4) and 0.50m (WS3) depth, in the eastern part of the site, a 0.25m to 0.35m thick layer of firm, light brown and yellow brown, sandy, silt/clay varying to slightly clayey, sandy silt, was encountered to 0.75m depth. These soils were considered to represent the anticipated Tidal Flat Deposits.

Beneath the topsoil, made ground and locally Tidal Flat Deposits, at between 0.40m and 1.00m depth, loose to medium dense, light brown and orange brown, initially slightly clayey (WS3 & WS4), silty to very silty, fine grained sand was encountered. The sand became fine and medium grained with depth, and locally had a slight organic odour. The soils were considered to represent the anticipated Marine Sand.

Evidence of Contamination

The soils encountered during this investigation were not noted to have olfactory or visual evidence of hydrocarbon contamination. The made ground contained brick and charcoal.

Groundwater

Groundwater was encountered at 2.00m depth, within Marine Sand, and was recorded at between 1.67m and 1.96m depth on completion of the holes. The groundwater levels in the standpipes monitored during May to July 2021, were between 1.15m and 1.70m below ground level.

COMMENTS ON THE GROUND GAS CONDITIONS IN RELATION TO FOUNDATION DESIGN AND CONSTRUCTION

This investigation found topsoil and made ground to between 0.40m and 1.00m depth; locally covering firm Tidal Flat Deposits to 0.75m depth; and Marine Sand to at least 4.45m depth. Groundwater was met as shallow as 1.15m depth during the investigation.

The client is proposing to construct a new residential development comprising five dwellings, which includes a bungalow and dormer bungalows, associated gardens and an access road.

Soil Gas Monitoring

The monitoring of soil gasses (methane, carbon dioxide and oxygen) within the standpipes installed within WS1 to WS4 was undertaken between 17th May and 1st July 2021. The results of the monitoring are summarised in Table 1 below.

Table 1: Summary of Gas Monitoring Data

Hole Location	No. Visits	Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Flow (l/hr)	Water Level (mbgl)	Atmospheric Pressure (mb)
WS1	6	<0.1	0.9-2.3	17.8-19.9	<0.1-0.1	1.33-1.50	1006-1022
WS2	6	<0.1	0.1-0.9	19.3-20.5	<0.1-0.1	1.15-1.57	1006-1022
WS3	6	<0.1	1.3-2.2	17.6-19.5	<0.1-0.1	1.28-1.70	1005-1023
WS4	6	<0.1	1.6-2.4	17.0-19.3	<0.1-0.2	1.46-1.70	1006-1022

The results of the soil gas monitoring of the installations indicated less than 0.1% by volume methane and a maximum 2.4% by volume carbon dioxide, recorded during the

monitoring visits. The in-situ measurements recorded gas emission rates of between <0.1l/hr and 0.2l/hr.

Using a flow rate of 0.2l/hr, these in-situ measurements indicate a Gas Screening Value (GSV) of 0.0002l/hr for methane and 0.0048l/hr for carbon dioxide. These results fall into Characteristic Situation 1 as defined by BS8485:2015 'Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings'. These results indicate a very low likelihood of risk, and that no special gas protection measures are necessary.

The site is not in a radon affected area, and no radon protection measures are required for new dwellings on the site.

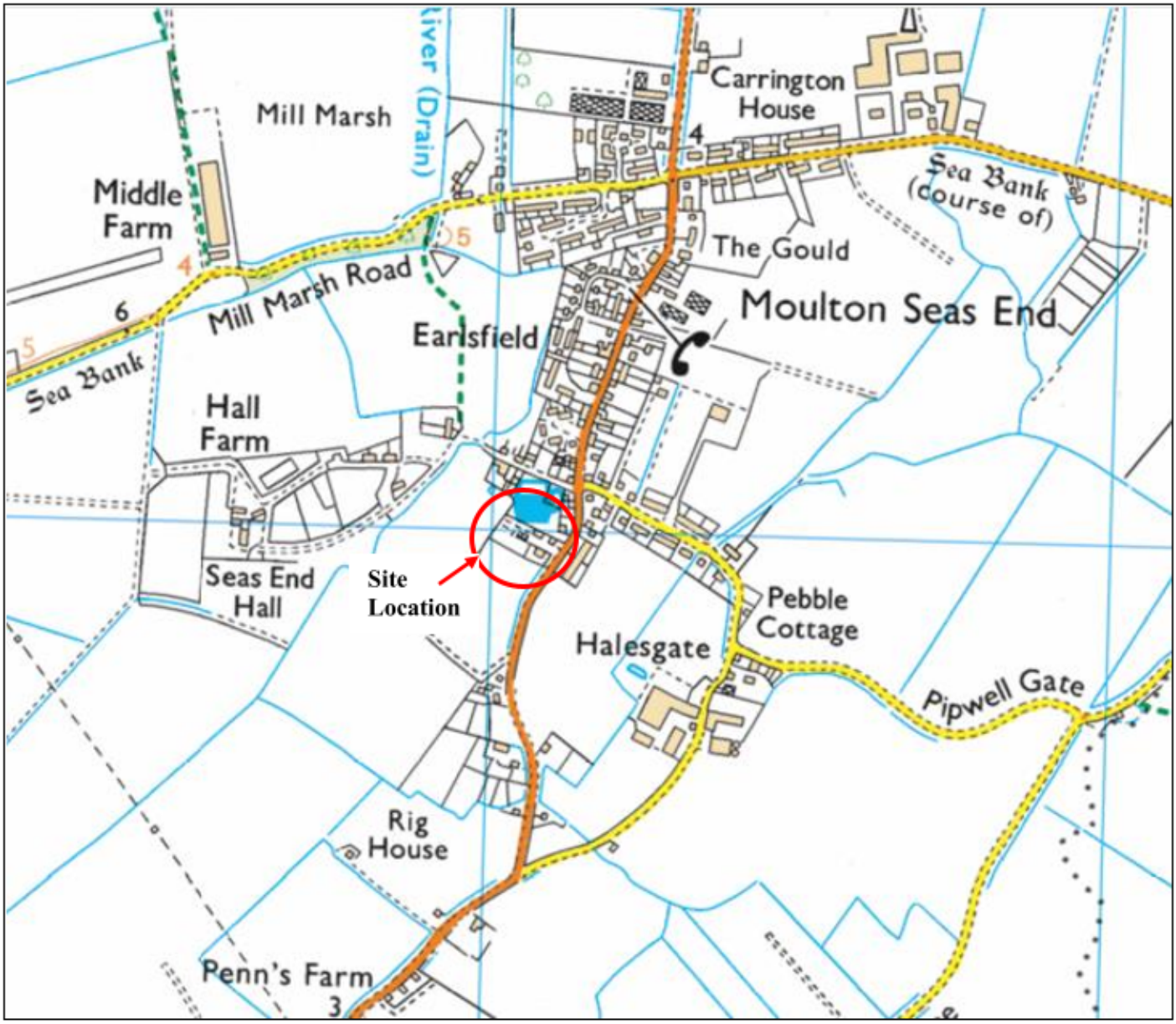
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Site Location Plan

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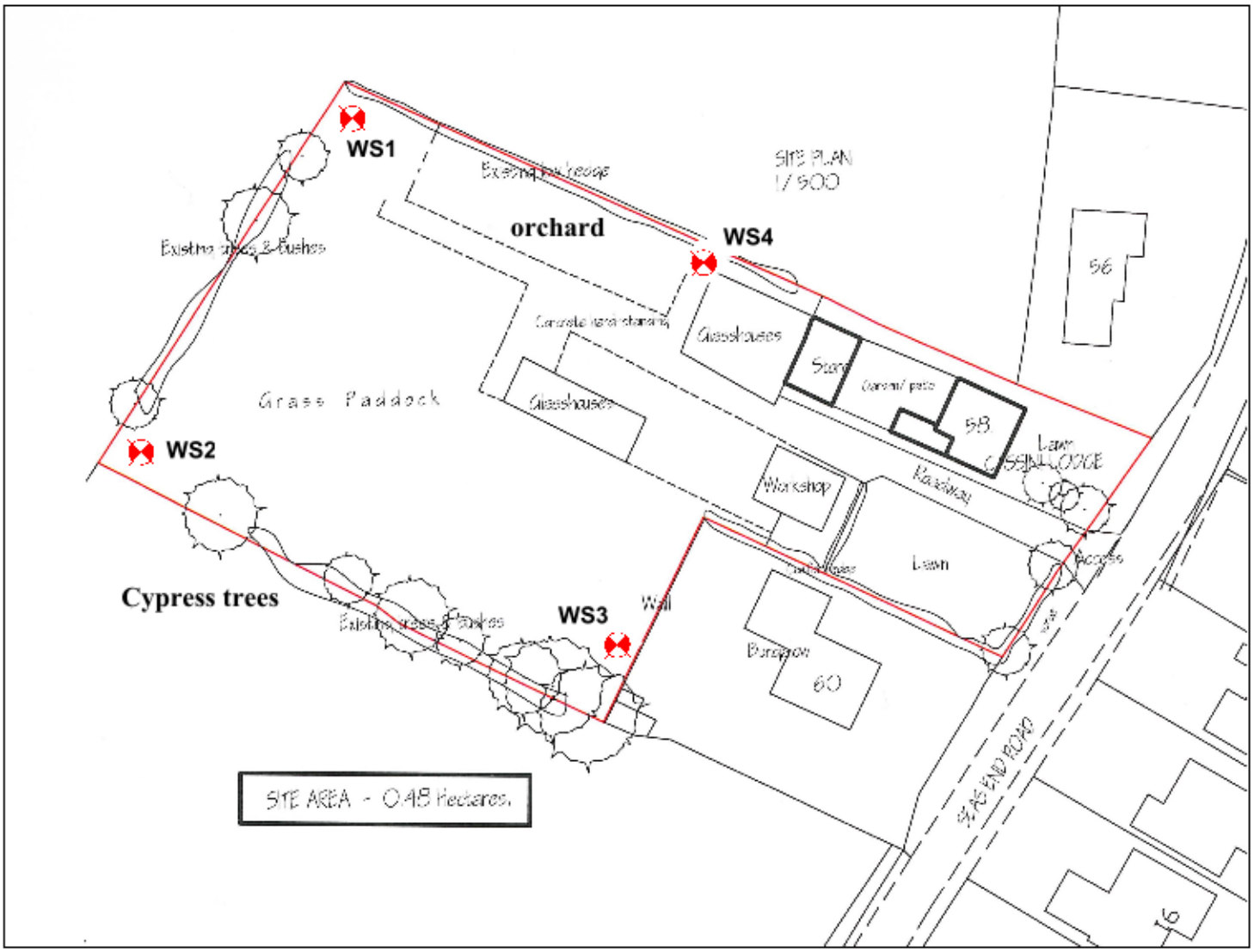


Not To Scale

Project : Land adjacent Cassini Lodge, 58 Seas End Road, Moulton Seas End, Lincolnshire **Client :** DMT Developments Limited	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** **C15356A**

Exploratory Hole Location Plan

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Project : Land adjacent Cassini Lodge, 58 Seas End Road, Moulton Seas End, Lincolnshire **Client :** DMT Developments Limited	**GROUND ENGINEERING LIMITED** Peterborough Tel : 01733 566566	**Project No.** C15356A

Proposed Development Plan

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GROUND ENGINEERING LIMITED

Tel: 01733-566566
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Site: LAND ADJ. CASSINI LODGE, 58 SEAS END ROAD, MOULTON SEAS END

WINDOW SAMPLE
WS1

Date: 07/05/21

Hole Size: 77mm dia to 2.00m
67mm dia to 3.00m
57mm dia to 4.00m

Ground Level:

Samples and In-situ Tests			(Date) Water	Inst.	Description of Strata	Legend	Depth m	O.D. Level m
Depth m	Type	Result						
0.30	D1				TOPSOIL – Dark brown, slightly gravelly, sandy SILT. Sand is fine grained. Gravel is fine and medium, angular to sub-rounded flint.		0.40	
0.60	D2				Brown, light brown and orange brown, very silty, fine SAND.			
0.90	D3							
1.20	D4				(MARINE SAND)			
1.20–2.00	U1		▼s					
			▼s					
			▼					
2.00–3.00	U2		▼				2.00	
					Light brown and orange brown, silty SAND. Sand is fine and medium grained.			
3.00–4.00	U3				(MARINE SAND)			
							4.00	
					Hole completed at 4.00m depth			

BENTONITE INSTALLATION

REMARKS
1. Starter pit excavated from 0.00m to 1.20m depth
2. Live roots observed to 0.30m depth
3. Gas monitoring standpipe installed to 3.80m depth
4. 24/06/21 water stood at 1.44m depth in standpipe
5. 01/07/21 water stood at 1.50m depth in standpipe

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KEY
D - Disturbed Sample
B - Bulk Sample
U - Undisturbed Sample
W - Water Sample
▽ Water Strike
▼c Depth to Water on completion
J - Jar Sample
MP - Mackintosh Probe
V - Vane Shear Test Cohesion ( ) kPa
P( ) - Hand Penetrometer Cohesion ( ) kPa
▼s Standpipe Level

Groundwater Strikes

No	Struck (Depth m)	Rose to (Depth m)	Rate	Cased	Sealed
1	2.00	1.82			not

Groundwater Observations

Date	Depth m Hole	Depth m Casing	Depth m Water
07/05/21	4.00		1.82
17/05/21	3.80	1.00	1.33
25/05/21	3.80	1.00	1.40
03/06/21	3.80	1.00	1.40
10/06/21	3.80	1.00	1.40

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Site: LAND ADJ. CASSINI LODGE, 58 SEAS END ROAD, MOULTON SEAS END

WINDOW SAMPLE
WS2

Date: 07/05/21

Hole Size: 77mm dia to 2.00m
67mm dia to 3.00m
57mm dia to 4.45m

Ground Level:

Samples and In-situ Tests			(Date) Water	Inst.	Description of Strata	Legend	Depth m	O.D. Level m
Depth m	Type	Result						
					TOPSOIL - Brown and dark brown, slightly gravelly, very sandy SILT. Sand is fine grained. Gravel is fine and medium, sub-rounded flint.			
0.30	D1						0.40	
					MADE GROUND - Brown and dark brown, very silty, fine SAND with rare charcoal.			
0.60	D2						0.80	
0.90	D3				MADE GROUND - Brown, slightly gravelly, silty, fine SAND. Gravel is angular to sub-rounded brick, flint, charcoal and shell fragments.		1.00	
1.20	D4				Loose, brown and orange brown, very silty SAND with a slight organic odour. Sand is fine and medium grained.			
1.20-2.00	U1							
1.35-1.65	S	N6						
2.00	D5				(MARINE SAND)			
2.00-3.00	U2							
2.15-2.45	S	N5					2.30	
					Loose, grey, silty SAND with a slight organic odour. Sand is fine and medium grained.			
3.00	D6							
3.00-4.00	U3							
3.15-3.45	S	N7			(MARINE SAND)			
4.00	D7				...Becomes slightly silty and medium dense below 4.00m depth			
4.15-4.45	S	N18					4.45	
					Hole completed at 4.45m depth			

REMARKS
1. Starter pit excavated from 0.00m to 1.20m depth
2. Live roots observed to 0.60m depth
3. Gas monitoring standpipe installed to 4.00m depth
4. 24/06/21 water stood at 1.31m depth in standpipe
5. 01/07/21 water stood at 1.47m depth in standpipe

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P( ) - Hand Penetrometer Cohesion ( ) kPa
▼s Standpipe Level

Groundwater Strikes

No	Depth m Struck	Rose to	Rate	Cased	Sealed
1	2.00	1.67			not

Groundwater Observations

Date	Depth m Hole	Casing	Water
07/05/21	4.45		1.67
17/05/21	4.00	1.00	1.15
25/05/21	4.00	1.00	1.28
03/06/21	4.00	1.00	1.46
10/06/21	4.00	1.00	1.57

GROUND ENGINEERING LIMITED

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Site: LAND ADJ. CASSINI LODGE, 58 SEAS END ROAD, MOULTON SEAS END

WINDOW SAMPLE
WS3

Date: 07/05/21

Hole Size: 77mm dia to 2.00m
67mm dia to 3.00m
57mm dia to 4.00m

Ground Level:

Samples and in-situ Tests			(Date) Water	Inst.	Description of Strata	Legend	Depth m	O.D. Level m
Depth m	Type	Result						
0.30	D1				MADE GROUND - Brown and yellow brown, silty SAND with rare brick fragments.		0.50	
0.60	D2				Brown and yellow brown, slightly clayey, sandy SILT. Sand is fine grained. (TIDAL FLAT DEPOSIT)		0.75	
0.90	D3				Brown and yellow brown, slightly clayey, very silty, fine SAND. (MARINE SAND)		1.10	
1.20 1.20-2.00	D4 U1		▼s ▼s		Orange brown, silty SAND. Sand is fine and medium grained.			
			▼s					
			▼s		(MARINE SAND)			
			▼c					
2.00-3.00	U2		▽		Grey, silty SAND. Sand is fine and medium grained.		2.00	
3.00-4.00	U3				(MARINE SAND)			
							4.00	
					Hole completed at 4.00m depth			

REMARKS
1. Starter pit excavated from 0.00m to 1.20m depth
2. Live roots observed to 1.20m depth
3. Gas monitoring standpipe installed to 4.00m depth
4. 24/06/21 water stood at 1.46m depth in standpipe
5. 01/07/21 water stood at 1.55m depth in standpipe

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V - Vane Shear Test Cohesion ( ) kPa
P( ) - Hand Penetrometer Cohesion ( ) kPa
▼s Standpipe Level

Groundwater Strikes

No	Struck	Rose to	Rate	Cased	Sealed
	Depth m				
1	2.00	1.83			not

Groundwater Observations

Date	Depth m Hole	Depth m Casing	Depth m Water
07/05/21	4.00		1.83
17/05/21	4.00	1.00	1.28
25/05/21	4.00	1.00	1.36
03/06/21	4.00	1.00	1.55
10/06/21	4.00	1.00	1.70

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Site: LAND ADJ, CASSINI LODGE, 58 SEAS END ROAD, MOULTON SEAS END

WINDOW SAMPLE
WS4

Date: 07/05/21

Hole Size: 77mm dia to 2.00m
67mm dia to 3.00m
57mm dia to 4.45m

Ground Level:

Samples and in-situ Tests			(Date) Water	Inst.	Description of Strata	Legend	Depth m	O.D. Level m
Depth m	Type	Result						
0.30	D1				MADE GROUND - Dark brown and brown, slightly gravelly, silty, fine SAND. Gravel is sub-angular brick fragments.		0.40	
0.60	D2				Firm, light brown and yellow brown, sandy SILT/ CLAY. Sand is fine grained. (TIDAL FLAT DEPOSIT)		0.75	
0.90	D3				Light brown and yellow brown, slightly clayey, very silty, fine SAND. (MARINE SAND)		1.10	
1.20	D4				Medium dense, light brown and yellow brown, silty, fine SAND.			
1.20-2.00	U1							
1.35-1.65	S	N10	▼s					
			▼s		(MARINE SAND)			
			▼s					
			▼s				1.80	
2.00	D5		1 ▼		Loose, brown, slightly silty SAND. Sand is fine and medium grained.			
2.00-3.00	U2							
2.15-2.45	S	N6						
3.00	D6							
3.00-4.00	U3							
3.15-3.45	S	N4			(MARINE SAND)			
4.00	D7				...Becoming medium dense below 4.00m depth			
4.15-4.45	S	N17					4.45	
					Hole completed at 4.45m depth			

REMARKS
1. Starter pit excavated from 0.00m to 1.20m depth
2. Live roots observed to 1.20m depth
3. Gas monitoring standpipe installed to 4.00m depth
4. 24/06/21 water stood at 1.57m depth in standpipe
5. 01/07/21 water stood at 1.70m depth in standpipe

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P( ) - Hand Penetrometer Cohesion ( ) kPa
▼s Standpipe Level

Groundwater Strikes

No	Struck	Rose to	Rate	Cased	Sealed
	Depth m	Depth m			
1	2.00	1.96			not

Groundwater Observations

Date	Depth m Hole	Depth m Casing	Depth m Water
07/05/21	4.45		1.96
17/05/21	4.00	1.00	1.46
25/05/21	4.00	1.00	1.52
03/06/21	4.00	1.00	1.70
10/06/21	4.00	1.00	1.65

Groundwater & Gas Monitoring Record

Site **Land adjacent Cassini Lodge, 58 Seas End Road, Moulton Seas End, Lincolnshire**

Report Ref: **C15356A**

Date	Borehole No.	Methane (% v/v)		Carbon Dioxide (% v/v)		Oxygen (% v/v)		Flow Rate (l/hr)	Atmospheric Pressure (mb)	Depth of Well (mbgl)	Depth to Groundwater (mbgl)	Comments
		Peak	Steady	Peak	Steady	Min.	Max.					
17/5/21	WS1	<0.1	<0.1	0.9	0.9	19.9	19.9	<0.1	1006	3.80	1.33	Partly silted up
17/5/21	WS2	<0.1	<0.1	0.5	0.5	20.3	20.3	<0.1	1006	4.00	1.15	Partly silted up
17/5/21	WS3	<0.1	<0.1	1.3	1.3	19.5	19.5	<0.1	1005	4.00	1.28	Partly silted up
17/5/21	WS4	<0.1	<0.1	1.6	1.6	19.3	19.3	<0.1	1006	4.00	1.46	Partly silted up

LEL – Lower Explosive Limit

Groundwater & Gas Monitoring Record

Site **Land adjacent Cassini Lodge, 58 Seas End Road, Moulton Seas End, Lincolnshire**

Report Ref: **C15356A**

Date	Borehole No.	Methane (% v/v)		Carbon Dioxide (% v/v)		Oxygen (% v/v)		Flow Rate (l/hr)	Atmosph. Pressure (mb)	Depth of Well (mbgl)	Depth to Groundwater (mbgl)	Comments
		Peak	Steady	Peak	Steady	Min.	Max.					
25/5/21	WS1	<0.1	<0.1	1.3	1.3	18.7	18.7	<0.1	1013	3.80	1.40	Partly silted up
25/5/21	WS2	<0.1	<0.1	0.1	0.1	20.3	20.3	<0.1	1013	4.00	1.28	Partly silted up
25/5/21	WS3	<0.1	<0.1	1.3	1.3	18.3	18.3	<0.1	1013	4.00	1.36	Partly silted up
25/5/21	WS4	<0.1	<0.1	1.7	1.7	18.1	18.1	<0.1	1013	4.00	1.52	Partly silted up

LEL – Lower Explosive Limit

Groundwater & Gas Monitoring Record

Site **Land adjacent Cassini Lodge, 58 Seas End Road, Moulton Seas End, Lincolnshire**

Report Ref: **C15356A**

Date	Borehole No.	Methane (% v/v)		Carbon Dioxide (% v/v)		Oxygen (% v/v)		Flow Rate (l/hr)	Atmosph. Pressure (mb)	Depth of Well (mbgl)	Depth to Groundwater (mbgl)	Comments
		Peak	Steady	Peak	Steady	Min.	Max.					
03/6/21	WS1	<0.1	<0.1	1.3	1.3	18.7	18.7	<0.1	1018	3.80	Dry (1.40)	Partly silted up
03/6/21	WS2	<0.1	<0.1	0.4	0.4	20.3	20.3	<0.1	1018	4.00	1.46	Partly silted up
03/6/21	WS3	<0.1	<0.1	1.5	1.5	18.8	18.8	<0.1	1018	4.00	1.55	Partly silted up
03/6/21	WS4	<0.1	<0.1	1.8	1.8	17.7	17.7	<0.1	1019	4.00	1.70	Partly silted up

LEL – Lower Explosive Limit

Groundwater & Gas Monitoring Record

Site **Land adjacent Cassini Lodge, 58 Seas End Road, Moulton Seas End, Lincolnshire**

Report Ref: **C15356A**

Date	Borehole No.	Methane (% v/v)		Carbon Dioxide (% v/v)		Oxygen (% v/v)		Flow Rate (l/hr)	Atmosph. Pressure (mb)	Depth of Well (mbgl)	Depth to Groundwater (mbgl)	Comments
		Peak	Steady	Peak	Steady	Min.	Max.					
10/6/21	WS1	<0.1	<0.1	1.4	1.4	19.4	19.4	0.1	1020	3.80	Dry (1.40)	Partly silted up
10/6/21	WS2	<0.1	<0.1	0.9	0.3	20.5	20.5	0.1	1020	4.00	1.57	Partly silted up
10/6/21	WS3	<0.1	<0.1	2.2	2.2	18.4	18.4	0.1	1020	4.00	Dry (1.70)	Partly silted up
10/6/21	WS4	<0.1	<0.1	1.7	1.7	19.1	19.1	0.2	1020	4.00	1.65	Partly silted up

LEL – Lower Explosive Limit

Groundwater & Gas Monitoring Record

Site **Land adjacent Cassini Lodge, 58 Seas End Road, Moulton Seas End, Lincolnshire**

Report Ref: **C15356A**

Date	Borehole No.	Methane (% v/v)		Carbon Dioxide (% v/v)		Oxygen (% v/v)		Flow Rate (l/hr)	Atmosph. Pressure (mb)	Depth of Well (mbgl)	Depth to Groundwater (mbgl)	Comments
		Peak	Steady	Peak	Steady	Min.	Max.					
24/6/21	WS1	<0.1	<0.1	1.9	1.9	18.0	18.0	<0.1	1022	3.80	1.44	Partly silted up
24/6/21	WS2	<0.1	<0.1	0.8	0.8	19.3	19.3	<0.1	1022	4.00	1.31	Partly silted up
24/6/21	WS3	<0.1	<0.1	1.7	1.7	17.6	17.6	<0.1	1023	4.00	1.46	Partly silted up
24/6/21	WS4	<0.1	<0.1	2.4	2.4	17.0	17.0	<0.1	1022	4.00	1.57	Partly silted up

LEL – Lower Explosive Limit

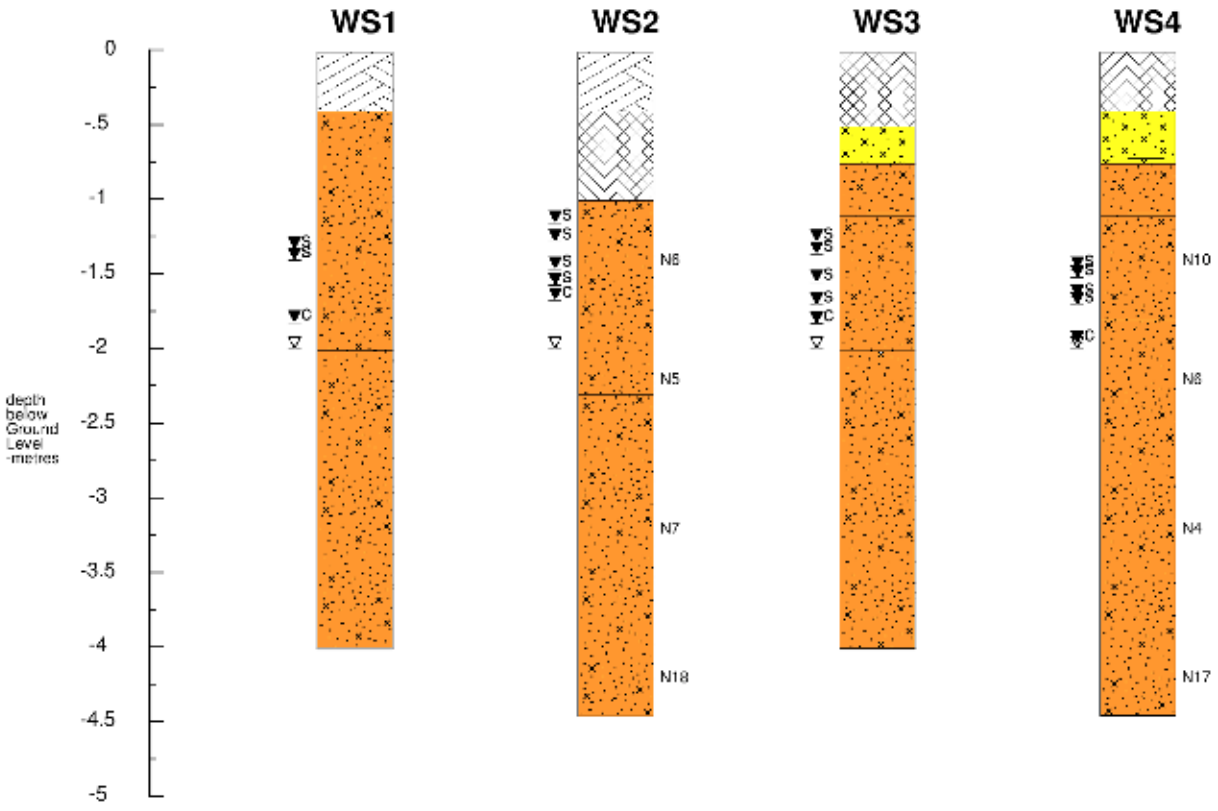
Groundwater & Gas Monitoring Record

Site **Land adjacent Cassini Lodge, 58 Seas End Road, Moulton Seas End, Lincolnshire**

Report Ref: **C15356A**

Date	Borehole No.	Methane (% v/v)		Carbon Dioxide (% v/v)		Oxygen (% v/v)		Flow Rate (l/hr)	Atmosph. Pressure (mb)	Depth of Well (mbgl)	Depth to Groundwater (mbgl)	Comments
		Peak	Steady	Peak	Steady	Min.	Max.					
01/7/21	WS1	<0.1	<0.1	2.3	2.3	17.8	17.8	<0.1	1021	3.80	Dry (1.50)	Partly silted up
01/7/21	WS2	<0.1	<0.1	0.7	0.7	19.5	19.5	<0.1	1021	4.00	1.47	Partly silted up
01/7/21	WS3	<0.1	<0.1	2.0	2.0	17.9	17.9	<0.1	1021	4.00	1.55	Partly silted up
01/7/21	WS4	<0.1	<0.1	2.4	2.4	17.7	17.7	<0.1	1021	4.00	1.70	Partly silted up

LEL – Lower Explosive Limit



KEY TO LEGENDS

MADE GROUND

TOPSOIL

TIDAL FLAT DEPOSIT

MARINE SAND

Groundwater Encountered

Groundwater Rise

Level on Completion

Level Casing Withdrawn

Standpipe Level

Project : Land Adj. Cassini Lodge, 58 Seas End Road, Moulton Seas End **Client : DMT Developments Limited**	**GROUND ENGINEERING LIMITED** Tel : 01733 566566	**Soil Profile**	**Project No C15356A**
		Fig No. 1	**Vertical Scale 1:50**