masoneVans & geo-environmental consultants

Gas and Groundwater Monitoring Results

Project Number:			
Site:	Greyriggs, Falkirk		
Date:	19,2,2013		
Readings taken by:	ND		
	Weather Conditions:		
	(dry/wet):		The second secon
	sure (mB) (start):		
Background Data		A STATE OF THE PROPERTY OF THE	
		A STATE OF THE PARTY OF THE PAR	
		Annie de la company de la comp	
	CH ₁ (%)		25 25 25 25 25 25 25 25 25 25 25 25 25 2
1 1 1 1 1 1 1 1 1 1	N ₂ (Ψα)	Groundwater	Sampling
Time	S(%) - CO (ppm) E1	Flow Wd Dow' B	. S S/
(mm:hh)	pt SS2 Sy SS2 SS2 SS2 SS2 Pt SS2 Pt SS2 SS2 Pt SS2 SS2 SS2 SS2 SS2 SS2 SS2 SS2 SS2 SS	(m) (lbgl)	1
COMP		0:10	
E GMOO		0 0.10 2.17	
Remarks			
Borehole Damage Record/ Installation Record		Ney. 1 – Peak 7 – Crearly state	5 –Purged well volumes
Borehole Condition Statement	We confirm that the boreholes were left sealed correctly by Mason Evans personnel in accordance with good working practices on the above date.	Jepth	6 — Recharge (yes/no) 7 — Sampled (yes/no)
Gas Monitor Model:	Serial No:	Recalibration Due:	e
NOW LINE	6681	5th Sept 2013	
[XC]			

masonevans

Ved

Ports Linea

Gas and Groundwater Monitoring Results

pon Contract Contract

Variety Congressive (mB) (finish): Atmospheric Pressure (mB) (finish): Cold, snow, strong wind: Cold, snow, sn	Project Number:	G2012/356					
11.03.2013 MF	Site:	Greyriggs, Falkirk					the second second second
Weather Conditions: Cold_snow_strong_wind.	Date:	11.03.2013				The second secon	
Wearther Conditions: Colds, snow, strong wind. Frozen <	Readings taken by:						A CONTRACTOR OF THE PERSON AND ADDRESS OF THE PERSON ADDRESS OF THE PERSON AND ADDRESS OF THE PERSON ADDRESS OF THE PERSON AND ADDRESS OF THE PERSON ADDRESS O
Aim Temperature (°C)			trong wind.				
Air Temperature (°C) 4 1 4 1 4 1 4 1 1 1 4 1 1						and the second s	
Atmospheric Pressure (mB) (start): 994 Atmospheric Pressure (mB) (finish): 994 Atmospheric Pressure (mB) (finish): 21.0 O3.(%) 0.0 CH4.(%) CO4.(%) N.(%) CH4.(%) N.(%) CH4.(NIG)							
Atmospheric Pressure (mB) (finish); 994 21.0 21.0 22.0 22.0 22.0 22.0 22.0 22.0 22.0 22.2 22.3 22.2 22.3			The second secon	And the state of t			
O ₂ (%) O ₂ (%) O ₃ (%) O ₄	Background Data			-	And the second s		Annual of the second se
CO ₂ (%) CO ₃ (%) CO ₄	n i		The second secon		A SECURITY OF THE PARTY OF THE		
CH4 (%) CH4		The state of the s	The state of the s	- Andrews			
N2 (70)							
Comp 1: Remove 7.10L next time before sampling. Comp 3: Installation too narrow to remove water with bailer. Comp 1: Remove 7.10L next time before sampling. Comp 3: Installation too narrow to remove water with bailer. Comp 3: Groundwater depth accordance with good working practices on the above date. Comp 3: Installation state Comp 4: Comp 4: Comp 5: Comp 5: Comp 6: Comp 6: Comp 7:				Groun	1dwater	Sam	Sampling
1	S112	CO ₃ (%) H ₂ S (%) CO (27, 27, 27, 27,	, jd	R° S'
20.3	14	SS- P- SS- K		-		4	ON CN
Comp 1: Remove 7.10L next time before sampling. Comp 3: Installation too narrow to remove water with bailer. Boreholes OK. We confirm that the boreholes were left sealed correctly by Mason Evans personnel in a - Serial No; Serial No: Recalibration 3 - Groundwater depth 4 - Depth of well Recalibration 3 - Stockey 300 October	COMP 1	0.0		1	1.0		-
Comp 1: Remove 7.10L next time before sampling. Comp3: Installation too narrow to remove water with baller. Boreholes OK. Boreholes OK. We confirm that the boreholes were left sealed correctly by Mason Evans personnel in a - Steady state accordance with good working practices on the above date. Serial No: Recalibration 3 - Groundwater depth 4 - Depth of well Recalibration	COMP 3	0.0 -	-	-	Z.1.		
Boreholes OK. Boreholes OK. We confirm that the boreholes were left sealed correctly by Mason Evans personnel in a - Steady state accordance with good working practices on the above date. Serial No: Recalibration	Remarks	Comp 1: Remove 7.10L next time before sampling. Comp3: Installation too narrow to remove water with bailer.					
We confirm that the boreholes were left sealed correctly by Mason Evans personnel in 3 – Groundwater depth accordance with good working practices on the above date. Serial No: Recallbration Recallbra	Borehole Damage Record/ Installation Record	Boreholes OK.		Key: 1 – Peak 2 – Steady state		5 -Purged well volumes	dwell
Serial No:	Borehole Condition	We confirm that the boreholes were left sealed correctly by Mason Evans accordance with good working practices on the above date.		3 – Groundwate 4 – Depth of we	r depth	6 – Rech 7 – Samp	6 – Recharge (yes/no) 7 – Sampled (yes/no)
COCC 1	Gas Monitor Model:	Serial No:			Recalibra	tion Due:	
ECTOT	CEM ADD	10309			30th Octo	ber 2013	



Gas and Groundwater Monitoring Results

Single S	and the second s		The second secon
19,03:2013 MF			
Weather Conditions: Strong winds, snow/sitet. Air Temperature (°C) Strong winds, snow/sitet. Air Temperature (°C) Show. Air Temperature (°C) 0 Atmospheric Pressure (mB) (finish): 975 Atmospheric Pressure (mB) (finish): 975 Co ₂ (%b) 11.4 Co ₂ (%b) 0.0 CH ₁ (%b) CC ₁ (%b) CH ₁ (%b) 1.0 CH ₁ (%b) 1.1 CH ₁ (%b) 1.1 CH ₁ (%b) 1.2 Comp 1: Remove 5: 10t next time before sampling. Comp3: Installation too narrow to remove water with baller. Comp3: Installation too narrow to remove water with baller. Boreholes OK. Accordance with good working practices on the above date. Serial No: Serial No: Serial No: Serial No: Script Pl Script Pl Script Pl Script Pl Script Pl Script Pl Script P			
Weather Conditions: Strong winds, snow/sleet. Ground Conditions (dry/wet): Snow. Air Temperature (°C) Snow. Atmospheric Pressure (mB) (finish): 975 Atmospheric Pressure (mB) (finish): 975 Atmospheric Pressure (mB) (finish): 975 Co ₂ (%) CO ₂ (%) Co ₂ (%) 0.0 Ch ₄ (%) CO ₂ (%) Ch ₁ (%) CO ₂ (%) Ch ₂ (%)		1000 X 10	
Ground Conditions (dry/wet): Snow. Air Temperature (°C) 0 Atmospheric Pressure (mB) (finish): 975 Atmospheric Pressure (mB) (finish): 21.4 O₂ (%) 21.4 CO₂ (%) 21.4 CO₂ (%) 21.4 O₂ (%) 22.4	et		
Air Temperature (°C) 0 Atmospheric Pressure (mB) (finish): 976 Atmospheric Pressure (mB) (finish): 21.4 O ₂ (%) 20.9(%) CO ₂ (%) 21.4 CO ₂ (%) 21.4 O ₃ (%) CO ₄ (%) Pi CO ₇ (%) CO ₂ (%) CH ₂ (%) Pi SS ² Pi SS ² Pi SS ² Pi SS ² Pi CO Pi 0.0 0.0 0.0 0.0 0.0 0.0 Comp3: finishalition too narrow to remove water with baller. Annual states on the above date. Boreholes OK. We confirm that the boreholes were left sealed correctly by Mason Evans personnel in accordance with good working practices on the above date. Serial No:			
Atmospheric Pressure (mB) (finish): 976 Atmospheric Pressure (mB) (finish): 975 O₂ (%) 21.4 CO₂ (%) 0.0 CH4 (%) 0.0 N₂ (%) CH₂ (%) N₂ (%) N₂ (%) N₂ (%) N₂ (%) Comp 1: Remove 5:10L next time before sampling. Comp 1: Remove 5:10L next time before sampling. Comp3: finishallation too narrow to remove water with baller. Boreholes OK. Boreholes OK. Serial No: Se	600 (10)		
Atmospheric Pressure (mB) (finlsh): 975 O₂ (%) 21.4 CO₂ (%) 0.0 CH, (%) 0.0 N₂ (%) CH, (%) N₂ (%) P¹ (SS²) Pi² (SS²) P¹ (SS²) Pi² (SS²) P¹ (SS²) Pi² (SS²) P¹ (SS²) Pi² (SS²) P¹ (SS²) Comp 1: Remove 5.10L next time before sampling. Comp 3: finstallation too narrow to remove water with baller. Boreholes OK. Boreholes OK. Serial No:			
O2 (%) O.0			
CH4 (%) CO3 (%) CO3 (%) CH3 (%) CO4 (%) CO3 (%) CO3 (%) CO4 (%) CO4 (%) CO4 (%) CO5			
Comp 1: Remove 5:10L next time before sampling. Comp 3: The boreholes were left sealed correctly by Mason Evans personnel in accordance with good working practices on the above date.			
O ₂ (96) CO ₃ (96) CH ₃ (96) H ₃ S (96) CO ₃ (ppm) LE ₁ (I/J P ₁ SS ² P ¹ SS ² P ¹	Grou	Groundwater	Sampling
P1 SS ² P1 SS ² P2 P2 SS ² P2 P2 P2 P2 P2 P2 P2	10 (A) 10 (A) 10 (A)	_ boW⁴	Pr Re S
21.1 0.1 0.0 - 0.0 - 0.0 - 0.0 - 0.0 0	(101)	1	1
Comp 1: Remove 5:10L next time before sampling. Comp3: Installation too narrow to remove water with baller. Boreholes OK. We confirm that the boreholes were left sealed correctly by Mason Evans personnel in accordance with good working practices on the above date. Serial No:			ON
Comp 1: Remove 5.10L next time before sampling. Comp3: Installation too narrow to remove water with baller. Boreholes OK. We confirm that the boreholes were left sealed correctly by Mason Evans personnel in accordance with good working practices on the above date. Serial No:	0.05	2.17	0N - 0
Boreholes OK. We confirm that the boreholes were left sealed correctly by Mason Evans personnel in accordance with good working practices on the above date. Serial No:			
We confirm that the boreholes were left sealed correctly by Mason Evans personnel in accordance with good working practices on the above date. Serial No:	Key: 1 – Peak 7 – Steady state		5 –Purged well volumes
	164	er depth ell	6 – Recharge (yes/no) 7 – Sampled (yes/no)
		Recalibration Due:	n Due!
D0201-		30th October 2013	- 2013



50.4

Las

Gas and Groundwater Monitoring Results

volumes 6 – Recharge (yes/no) 7 - Sampled (yes/no) ໃນ 2 Sampling 5 -Purged well R. 9 Recalibration Due: 30th October 2013 7 DoW⁴ 1 – Peak 2 – Steady state 3 – Groundwater depth Groundwater (mbgl) 0.30 0.80 4 - Depth of well _€PM Flow ((/hr) 0.0 0.0 We confirm that the boreholes were left sealed correctly by Mason Evans personnel in accordance with good working practices on the above date. 冒 CO (ppm) Sunny, very cold Snow/ice 989 987 21.5 0.0 0:0 H₂S (%) . SS Comp1: Ready to sample next time. Comp3; Installation too narrow to remove water with bailer. Gas Serial No: 10309 (%) .: :: Atmospheric Pressure (mB) (start): Atmospheric Pressure (mB) (finish) CH Ground Conditions (dry/wet): . SS₂ 0.0 Air Temperature (°C) Weather Conditions 10 Greyriggs, Falkirk geo-environmental consultants .2S Bareholes OK. 62012/356 28.03,2013 21.7 02 (%) Pt SS² CH4 (%) CO: (%) 0, (%) $N_2(\%)$ (hh:mm) Borehole Damage Record/ Installation Record Time Gas Monitor Model: **Borehole Condition Background Data** Statement Readings taken by: Remarks GFM 400 Project Number: Borehole No. COMP 1 Date: Site:

masonevans & geo-environmental consultants

Gas and Groundwater Monitoring Results

Project Number:	G2012/356		
Site	Greyriggs, Falkirk		
Date:	10:04:2013		
Readings taken by:	HM		
	Weather Conditions: Overcast, rainy, cold		
	Ground Conditions (dry/wet):		
Background Data	Atmospheric Pressure (mB) (finish):	lines.	
	0.(%)		
	CH*(%)		
	-\(\frac{1}{2}\)		
が出てきないのではない。 ・ 一般のでは、 ・ 一般のでは、 ・ できない。 ・ で	. Cas	Groundwater	Sampling
Borehole No. (hh:mm)	O ₂ (%) CO ₂ (%) CH ₄ (%) H ₂ S (Nois Tan	Re S
		S CHAIN (1800) CHILD	
COMP 1 13:45 to		0.50	2
COMP 3 14:15	- 0:00	0.0 2.30 0.0	
Remarks	Comp3: Installation too narrow to remove water with baller.		
Borehole Damage Record/ Installation Record	Boreholes O.K.	Key: 5 – 1 1 – Peak 5 – 1 2 – Stoark deste	5Purged well volumes
Borehole Condition Statement	We confirm that the boreholes were left sealed correctly by Mason Evans personnel in accordance with good working practices on the above date.	3 – Groundwater depth 4 – Depth of well	6 – Recharge (yes/no) 7 – Sampled (yes/no)
Gas Monitor Model:	serial No.	Recalibration Due:	:8
LMSXI	5681	3 rd September 2013	

13.0 CONCLUSIONS AND RECOMMENDATIONS

- 13.1 GENERAL
- 13.1.1 Mason Evans Partnership Limited has performed an intrusive investigation to identify ground risks that have potential to impact on future development at the site.
- 13.1.2 The ground conditions encountered during the investigation were generally consistent with the anticipated ground conditions as shown on published geological maps
- 13.2 CHEMICAL CONTAMINATION AND GAS EMISSIONS
- 13.2.1 Based on chemical analysis and assessment to determine risks to the proposed development it is concluded no remedial measures are required with respect to chemical contamination.
- 13.2.2 Risks associated with ground gas are considered to be present and gas protection measures are recommended.
- 13.3 GEOTECHNICAL CONCLUSIONS AND RECOMMENDATIONS
- Based on our interpretation of the ground conditions identified, it is recommended the foundations are placed at depths of approximately 1m to 2.5m below existing ground level where a bearing capacity of 75kN/m² to 100kN/m² could be achieved.
- 13.4 MINING
- 13.4.1 It is concluded the site is subject to potential surface instability due to shallow abandoned mineworkings in the Lower Drumgray Coal. Stabilisation of the mineworkings is recommended by means of drilling and pressure grouting.
- 13.5 CONSULTATIONS WITH PUBLIC AUTHORITIES
- 13.5.1 It should be noted that various local authority departments may become involved in the review of the site conditions, including the issues of contaminated land. While measures proposed are consistent with conventional practice we would advise that before design works are advanced to any considerable stage appropriate approvals are received from the relevant Council departments. We would be pleased to liaise with the Council's representatives in this regard.

We trust that this will meet with your current requirements. However, should you require any further information, please do not hesitate to contact us.

Neil M Thomson BSc FGS

Director



26/07/2013

Livingstone Design

SCOTTISH WATER
Development Connec

Development Connections Team Customer Connections 419 Balmore Road Glasgow G22 6NU

Central Support Team
T: 0141 355 5511
F: 0141 355 5386 / 5386
W: www.scottishwater.co.uk
E: DCT@scottishwater.co.uk

Dear Grant Livingstone

Falkirk Greyrigg Reservoirs
Development Enquiry Application
Our Ref: 630087

Please quote our reference in all future correspondence

Thank you for your DIA Form regarding the above proposed development. Following an assessment of our assets I can now confirm that at this present time:

Water: There is sufficient capacity in the Carron Valley Water Treatment Works and also the local network to service the demands from your development.

Scottish Water's current minimum level of service for water pressure is 1.0 bar or 10m head in the public main. Any property which cannot be adequately serviced using this pressure may require private pumping arrangements installed, subject to compliance with the current water byelaws.

Wastewater: Unfortunately there are no Waste Water Treatment Works within the vicinity of your site. Private arrangements must be sought for discharging Foul and Surface Water drainage. Please liaise with SEPA when assessing your proposals.

However, it is important to note that Scottish Water is <u>unable</u> to reserve capacity and connections to the water & wastewater networks can only be granted on a first come first served basis. For this reason we <u>may</u> have to review our ability to serve the development on receipt of an application to connect.

You will be required to seek technical approval for your water & wastewater infrastructure from our technical design team. The relevant application/connection forms are available on our website at www.scottishwater.co.uk, please complete them and return to the above address together with all relevant documentation. You will also find many useful guides on Scottish Water processes including a step by step guide to filling out the necessary forms.

I trust that the above is acceptable however, if you have any questions relating to the above do not hesitate to contact me at the above address.

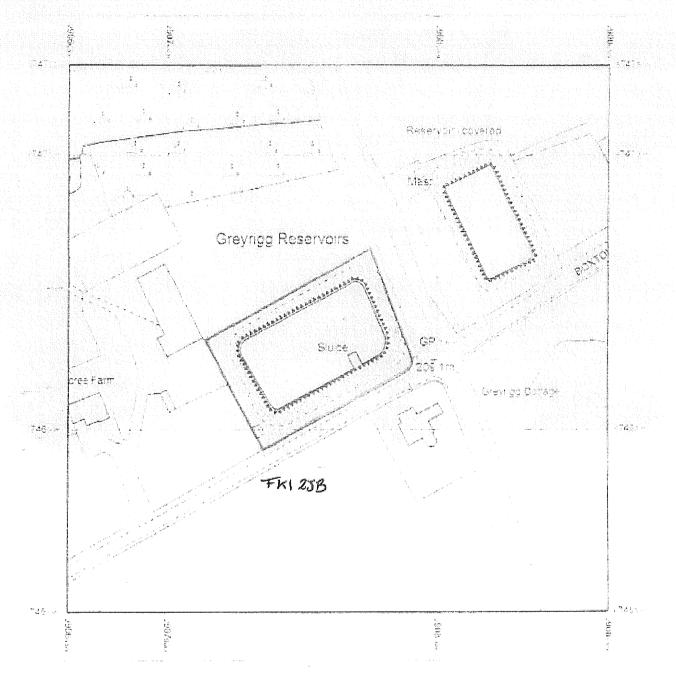
Yours sincerely

John Neeson
Customer Connections Administrator
Tel: 0141 355 5169
John.Neeson@scottishwater.co.uk.





OS Sitemap®



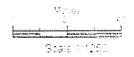
Produced 63 in 2005 from the Ordinance Survey National Geographic Gardinals and viscoustaving in rule, no service and labre at this bato in Ordinan Gosynahr (1909

ාදිවක සිටියකිනින් ව මෙරිට්ම සිටි එමෙන් මේ ආ එම සිට්මර් එ (සිට පාරාසි සිට සිට යිවි සිටි මිණුදින් සිටි සිටිට් එක්සම් කියල්වලි.

បាលកម្មភាព និស្សកម្ម បាន ប៉ុន្តិ និងការប្រជាជន ប៉ុន្តិ និងការប្រជាជន របស់ អេយុ ស្ថិត ខ្មុំ វាងជំនុំការប្រជាជន (ប៉ុន្តិប្រជាជនកុខ ស៊ី, ប្រាប់ ប្រជាជនការប្រជាជ ការប្រជាជន ជន្លឺ និស្សកម្មការប្រជាជនការប្រជាជនការប្រជាជនការប្រជាជនការប្រជាជនការប្រជាជនការប្រជាជនការប្រជាជនការប

್ರಿಕ್ ಸಂಪರ್ಣಿಕಾಣಕ್ಕೆ ಕ್ರಾರ್ಥಿಕರು ಕ್ಷಾಕ್ಷಿತ್ರ ಕೃತ್ವ- ೧೯೮೪ ಕ್ರಾರ್ಥ ೧೯೮೪ ಆಸ್ತರ್ವಾಧಿಕಾಣಕ್ಕೆ ಕ್ರಾರ್ಥಿಕರು ಅತ್ಯಾ

. වියාගත අද අත්තියේ බීති මියස්තියකු වෙමොළතුමක් ගමන සාමයේ ඉද අ. . ද. විසිට ස්වාගම් දිග තත්තේ ක්රේක රෝගම ගමු මෙම සම ග්රී දිවේම ග්රී වෙන ... එහිරීම්ව



Section is Mailboxes Etc Stirling So a county interest of Control of the control

Puritial intermetion dan tielt und de the Guinerlands frühmer in Hen dicht e intermente betrech wift sitz wird unter duscht und hin. FALKIRK COUNCIL DEVELOPMENT SERVICES CI

RECEIVED

0 2 NOV 2009

APPLICATION NUMBER

F/09/0790/PPP