



Forth Replacement Crossing

**Employer's Delivery Team
Construction Noise Monitoring Report**

**FIFE ITS Contract
(February 2012)**



An agency of  The Scottish Government



FORTH REPLACEMENT CROSSING

**EMPLOYER'S DELIVERY TEAM
CONSTRUCTION NOISE MONITORING REPORT**

FIFE ITS CONTRACT (FEBRUARY 2012)

Revision Status

Revision	Date	Description	Author	Approved for Use
0	May 2011	Original	DGC	AMM

FORTH REPLACEMENT CROSSING

**EMPLOYER'S DELIVERY TEAM
CONSTRUCTION NOISE MONITORING REPORT**

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1. INTRODUCTION

- 1.1 This report sets out the results of the construction noise monitoring undertaken on the Fife ITS Contract during February 2012 as part of the Forth Replacement Crossing project.

APPENDIX A - CONSTRUCTION NOISE MONITORING REPORTS

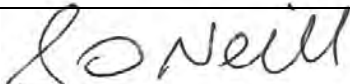
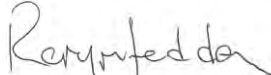


GRAHAM

CONSTRUCTION

FORTH REPLACEMENT CROSSING – FIFE ITS

FRC/FITS/JG/PCNV/CP/0010

NOISE COMPLIANCE MONITORING REPORT FOR EARTHWORKS (FILL EMBANKMENT) AT GANTRY 02F.

Completed by:	Sean O'Neill	Reviewed by:	Rory McFadden		
Signed:		Signed:			
Position:	Site Engineer	Position:	Sub Agent		
Date:	02/02/2012	Date:	29/02/2012		
Comments:			 		
Revision Record					
Revision	Date	By	Summary of Changes	Checked	Approved
Rev No.1	14.05.12	RMcF	Changes following receipt of Compliance Report FRC-FITS-EMP-CR00313	RMcF	RMcF
Rev No.1	18.05.12	RMcF	Changes Made to Graph following correspondence from EDT	RMcF	RMcF

Fife ITS - Embankment Works Compliance Monitoring Gantry Site 02F

Dates: 24/01/2012 - 19/02/2012

Author: Innes Urbanski



Checker: Mark Maclagan MIOA

Approver: Mark Maclagan MIOA



Version: Third Draft

18th May 2012

Introduction

The Brief

Waterman Energy, Environment & Design Limited (hereafter 'Waterman') was instructed by John Graham (Dromore) Limited to undertake an assessment of noise and vibration in support of the on-going Fife Intelligent Transport Scheme (ITS) in line with the Forth Replacement Crossing Code of Construction Practice (the CoCP) and Appendix 1/9 of the Employers Requirements (hereafter 'the Employers Requirements').

A Plan for the Control of Noise and Vibration has been submitted and approved for works to be undertaken during the embankment works (FRC-FITS-JG-PCNV0005) which assessed the potential noise impacts associated with embankment works including excavation, piling and concreting. This document sets out the findings of a compliance monitoring exercise during the earthworks on the southbound hard shoulder at Gantry Site 02F. Works were continuous on the site between 24th January 2012 and 19th February 2012.

In order to ensure compliance with Best Practicable Means (BPM) the approved PCNV, CoCP and the Employers Requirements noise monitoring has been undertaken at the closest location to the works throughout the survey period.

Site Description and Description of Works

The closest NSRs to the works are those located off Park Lea, Rosyth (refer to Table 1).

Table 1 Noise Sensitive Receptors

Noise Sensitive Receptor	Name	Description	Grid Reference	Distance from Works
NSR B	Properties off Park Lea Road	Two story residential dwellings	312410,68 3958	60m

Baseline Conditions and Noise Assessment Criteria

Baseline noise monitoring has been undertaken at a location representative of the closest existing sensitive receptor to the works (see Table 1). The monitoring data is provided in full within the separately submitted baseline noise report (FRC-FITS-JG-NVMP-BMR-0001) and is summarised below. Following completion of the baseline monitoring exercise noise assessment category levels were set in compliance with the CoCP and the Employers Requirements. The assessment category levels in terms of $L_{Aeq,T}$ and L_{Amax} are presented as Table 2.

Table 2 Noise Assessment Category Levels

Period	Monitored Baseline		Assessment Category B	
	$L_{Aeq, 1 \text{ hour}}$	$L_{Amax,F}$	L_{Aeq}	L_{Amax}
Daytime	67	72	70	85

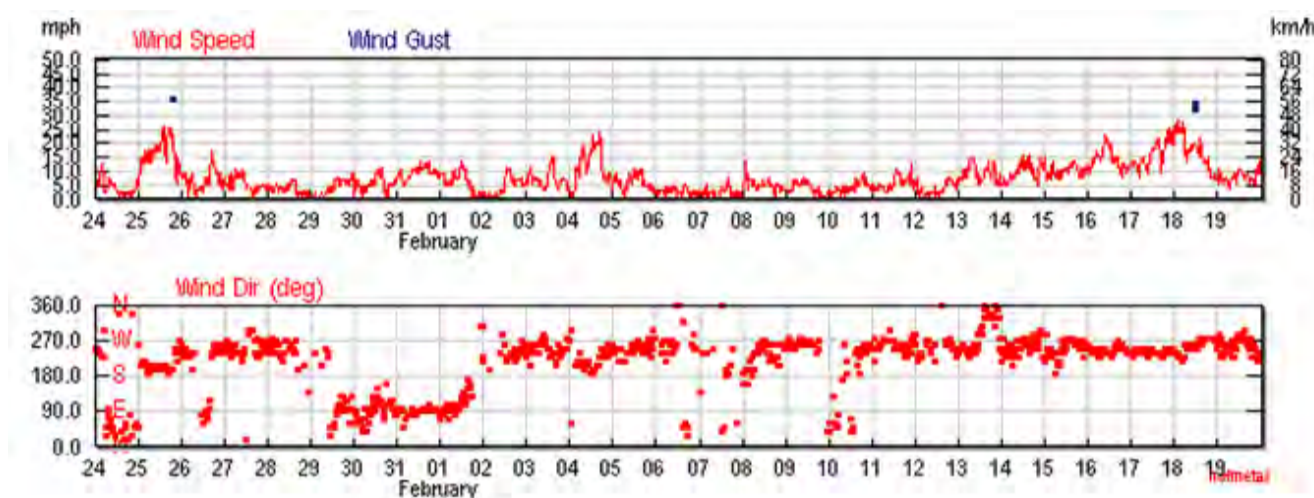
Monitoring Methodology

Unattended noise monitoring was undertaken between Tuesday 24th January 2012 and Sunday 19th February 2012 by trained and competent staff holding corporate membership of the institute of acoustics (IOA). A single monitoring location was selected so as to be representative of the closest sensitive receptors to the works. All measurements were undertaken under free field conditions (i.e. there were no nearby reflecting surfaces, other than the ground). The measurement location is described in Table 1 below. A member of the Waterman Noise and Vibration Team visited the site on a weekly basis so as to change batteries and take site notes.

Table 1: Noise Monitoring Location

Location	Description	Subjective Observations
26 Park Lea	Two storey residential dwellings located approximately 60m from the embankment works. The M90 runs on embankment at this location and is approximately at roof level with the properties. Monitoring location set in free field conditions at a height of 1.5m.	Noise climate dominated by road traffic noise from the adjacent M90

The weather throughout the survey period was noted to be predominantly dry with some periods of snowfall. The wind direction throughout the survey period was noted to be predominantly from the south west with wind speeds of up to 25mph, average wind speeds throughout the survey period were below 10 mph. The average temperature throughout the survey was noted to be 3°C.



The monitoring equipment used during the survey period is described in Table 2. The sound level meters were calibrated both before and after each monitoring period; no significant drift from the reference level of 94 dB was recorded. The sound level meter was also calibrated in the last year to BS EN 60942.

Table 2: Noise Monitoring Equipment

Sound Level Meter	LT1
Meter Mode	Rion NL-32
Serial Number	32403193
Calibrator	
Calibrator Model	NC-74
Serial Number	35173533
Calibration Level at 1000 Hz	94 dB
Microphone	
Microphone Type	UC-53A
Microphone Serial Number	316668

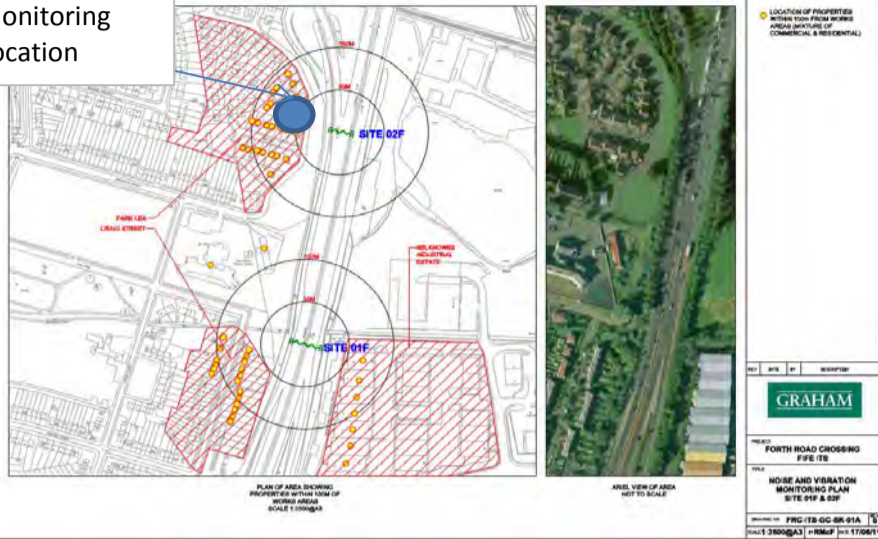
Noise levels were monitored at five minute intervals throughout the survey period. The parameters logged throughout the survey period were L_{Aeq} , L_{Amax} , L_{Amin} , L_{A90} and L_{A10} . The L_{Aeq} level is the equivalent continuous sound pressure level over the measurement period; L_{Amax} is an indicator of the highest sound level during the measurement period; the L_{Amin} is the lowest level during the measurement period; L_{A90} is used as a descriptor of background noise levels and L_{A10} is the noise level which is achieved for 10% of the monitoring period and is often used to describe road traffic noise.

Forth Replacement Crossing Fide ITS

Activities: Embankment Works Gantry Site 02F

Surveyors Gavin Spowage, Jon Lee

Noise Monitoring Location



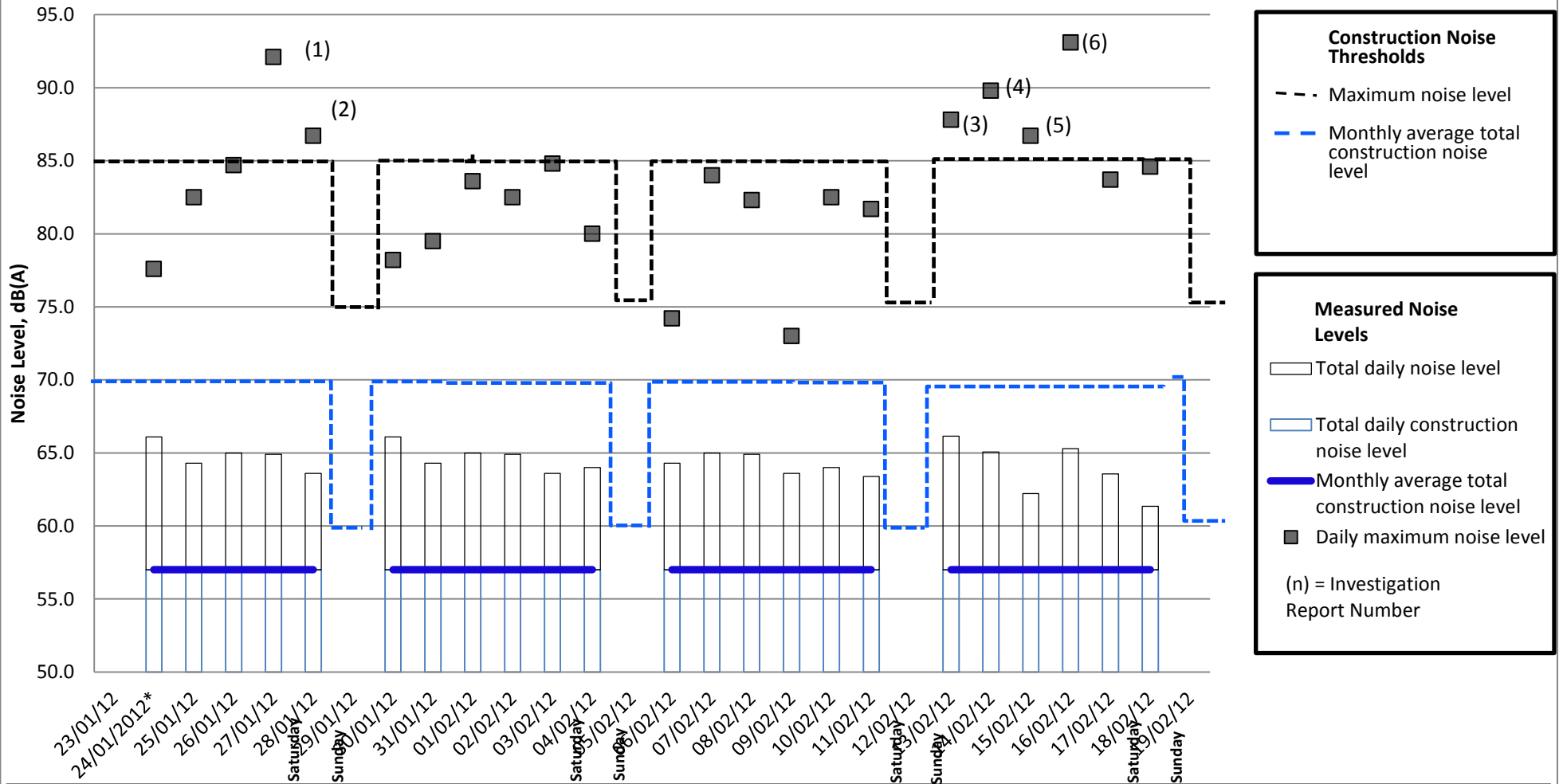
Site Summary Noise Data

Week	Summary Text	Site Indicator
1 (24/01/2012 - 29/01/2012)	Monitored noise levels recorded during this survey period fell consistently below both the construction noise threshold level and the baseline noise level during this survey period. The daily L_{Amax} was exceeded on two occasions (1 and 2 on graph). Further analysis of hourly data however illustrates that the L_{Amax} is predominantly satisfied during the construction works with L_{Amax} exceedences being as a result of activity within the occupants gardens. In view of this it is considered that during the first week of works all activities were completed in accordance with the approved PCNV and as such, no additional action is required.	Green
2 (30/01/2012-05/02/2012)	Monitored noise levels recorded during this survey period fell consistently below both the construction noise threshold level and the baseline noise level during this survey period. In view of this it is considered that all activities were completed in accordance with the approved PCNV and as such, no additional action is required.	Green
3 (06/02/2012-12/02/2012)	Monitored noise levels recorded during this survey period fell consistently below both the construction noise threshold level and the baseline noise level during this survey period. In view of this it is considered that all activities were completed in accordance with the approved PCNV and as such, no additional action is required.	Green
4 (13/02/2012-19/02/2012)	Monitored noise levels recorded during this survey period fell consistently below both the construction noise threshold level and the baseline noise level during this survey period. The daily L_{Amax} was exceeded on four occasions (3 to 6 on graph). Further analysis of hourly data however illustrates that the L_{Amax} is predominantly satisfied during the construction works with L_{Amax} exceedences representing a single event over the survey period in this case as a result of short term works associated with the erection of fencing. Although exceedences were recorded given that these were during the daytime period and single incidences only it is considered unlikely that they would give rise to disturbance. Nonetheless a review of working practices has been undertaken and it was determined that all works were being undertaken in line with BPM	Yellow

Site Indicator

	Classification	Mitigation Working no apparent noise problems
	Description	Noise levels throughout the week are below the adopted threshold level throughout the survey period. No exceedences of L_{Amax} criteria attributable to the works.
	Action	Continue following best practice guidance as outlined in site environment plan
	Classification	Check Mitigation
	Description	Noise levels have increased to approaching the adopted threshold level and/or there have been a small number of exceedences of the L_{Amax} criteria attributable to the works.
	Action	Check mitigation is operating as anticipated and if further measures are appropriate.
	Classification	Further Review of Mitigation
	Description	Noise levels have exceeded the adopted threshold level and/or the L_{Amax} criteria are regularly exceeded during the survey period.
	Action	Review mitigation measures with Environmental Manager or Adviser to ensure current mitigation operating as intended and identify any other practicable mitigation measures

Measured daytime noise levels, Properties off Park Lea Road Measurement period 24th-January 2012 to 19th-February-2012



Note to Contractors: Daily L_{Aeq} values represent L_{Aeq} (10 hour Saturday, 11 hour Weekday) from total noise (construction and existing ambient). Weekly value is the logarithmic average construction noise over the calendar month, assessed against the threshold level. Daily $L_{Amax,F}$ represents the highest single event value over the daytime period, investigative reports into exceedances identify whether or not these values correspond to construction. Sunday data have not been included as no construction works have been conducted during these hours.

Day		L _{Aeq}						L _{Amax}		
		Measured Baseline (NOTE: From ES or if new receptor as measured)	Daytime, L _{Aeq} (11 hour weekday, 10 hour Saturday) (NOTE: As measured during construction)	Inferred construction levels (See note below)	10 [^] Lp/10	Measured - Construction (difference)	Assessment Category Threshold (Daytime)	Weekly Average Construction (Logarithmic)	Daytime Lmax	Lmax Threshold
Monday	23/01/12									
Tuesday	24/01/2012*	67	66.1	57.0	501187.2	9	70	57	77.6	85.0
Wednesday	25/01/12	67	64.3	57.0	501187.2	7	70	57	82.5	85.0
Thursday	26/01/12	67	65.0	57.0	501187.2	8	70	57	84.7	85.0
Friday	27/01/12	67	64.9	57.0	501187.2	8	70	57	92.1	85.0
Saturday	28/01/12	67	63.6	57.0	501187.2	7	70	57	86.7	85.0
Sunday	29/01/12									
Monday	30/01/12	67	66.1	57.0	501187.2	9	70	57	78.2	85.0
Tuesday	31/01/12	67	64.3	57.0	501187.2	7	70	57	79.5	85.0
Wednesday	01/02/12	67	65.0	57.0	501187.2	8	70	57	83.6	85.0
Thursday	02/02/12	67	64.9	57.0	501187.2	8	70	57	82.5	85.0
Friday	03/02/12	67	63.6	57.0	501187.2	7	70	57	84.8	85.0
Saturday	04/02/12	67	64.0	57.0	501187.2	7	70	57	80.0	85.0
Sunday	05/02/12									
Monday	06/02/12	67	64.3	57.0	501187.2	7	70	57	74.2	85.0
Tuesday	07/02/12	67	65.0	57.0	501187.2	8	70	57	84.0	85.0
Wednesday	08/02/12	67	64.9	57.0	501187.2	8	70	57	82.3	85.0
Thursday	09/02/12	67	63.6	57.0	501187.2	7	70	57	73.0	85.0
Friday	10/02/12	67	64.0	57.0	501187.2	7	70	57	82.5	85.0
Saturday	11/02/12	67	63.4	57.0	501187.2	6	70	57	81.7	85.0
Sunday	12/02/12									
Monday	13/02/12	67	66.1	57.0	501187.2	9	70	57	87.8	85.0
Tuesday	14/02/12	67	65.1	57.0	501187.2	8	70	57	89.8	85.0
Wednesday	15/02/12	67	62.2	57.0	501187.2	5	70	57	86.7	85.0
Thursday	16/02/12	67	65.3	57.0	501187.2	8	70	57	93.1	85.0
Friday	17/02/12	67	63.6	57.0	501187.2	7	70	57	83.7	85.0
Saturday	18/02/12	67	61.3	57.0	501187.2	4	70	57	84.6	85.0
Sunday	19/02/12									

Monthly construction noise (Logarithmic) 57.00

* - L_{Aeq,9h}

Exceedance Number	Description
1	An exceedance of the L_{max} threshold level of 85dB was recorded on the 27/01/2012. A monitored noise level of 92.1dB Lamax was recorded during this period. A review of the SLMa audio files for this period indicated that the exceedance of the Lamax criteria did not occur as a result of the works but rather as a result of the single noisy event within the occupants garden. In light of the above no additional action was considered necessary.
2	An exceedance of the Lamax threshold level of 85dB was recorded on the 28/01/2012. A monitored noise level of 86.7dB Lamax was recorded during this period. A review of the SLMa audio files for this period indicated that the exceedance of the Lamax criteria did not occur as a result of the works but rather as a result of the single noisy event within the occupants garden. In light of the above no additional action was considered necessary.
3	An exceedance of the Lamax threshold level of 85dB was recorded on the 13/02/2012. A monitored noise level of 87.8dB Lamax was recorded during this period. A review of the SLMa audio files for this period indicated that the exceedance of the Lamax criteria did not occur as a result of the works but rather as a result of the single noisy event within the occupants garden. In light of the above no additional action was considered necessary.
4	An exceedance of the Lamax threshold level of 85dB was recorded on the 14/02/2012. A monitored noise level of 89.8dB Lamax was recorded during this period. A review of the SLMa audio files for this period indicated that the exceedance of the Lamax criteria did not occur as a result of the works but rather as a result of the single noisy event within the occupants garden. In light of the above no additional action was considered necessary.
5	An exceedance of the Lamax threshold level of 85dB was recorded on the 15/02/2012. A monitored noise level of 86.7dB Lamax was recorded during this period. A review of the SLMa audio files for this period indicated that the exceedance of the Lamax criteria did not occur as a result of the works but rather as a result of the single noisy event within the occupants garden. In light of the above no additional action was considered necessary.
6	An exceedance of the Lamax threshold level of 85dB was recorded on the 16/02/2012. A monitored noise level of 93.1dB Lamax was recorded during this period. A review of the SLMa audio files for this period indicated that the exceedance arose as a result of activity associated with the erection of fencing associated with the scheme. Given that the recorded exceedance was singular and occurred during the daytime period only it is considered unlikely to give rise to disturbance. Nonetheless a review of working practices was undertaken and it was determined that all works were being undertaken in line with BPM.

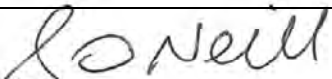
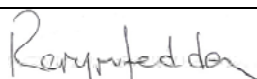


GRAHAM

CONSTRUCTION

FORTH REPLACEMENT CROSSING – FIFE ITS

FRC/FITS/JG/PCNV/CP/0011

NOISE COMPLIANCE MONITORING REPORT FOR MINEWORKING CONSOLIDATION AT SITE G20F

Completed by:	Sean O'Neill	Reviewed by:	Rory McFadden		
Signed:		Signed:			
Position:	Site Engineer	Position:	Sub Agent		
Date:	29/02/2012	Date:	29/02/2012		
Comments:		 			
Revision Record					
Revision	Date	By	Summary of Changes	Checked	Approved
Rev 1	15/05/12	RMcF	Changes as per Compliance Report CR00314	RMcF	RMcF

Fife ITS - Mineworking Compliance Monitoring Gantry Site 20F

Dates: 30/01/2012 - 19/02/2012

Author: Jon Lee MIOA



Checker: Mark Maclagan MIOA



Approve: Mark Maclagan MIOA



Version: Second
Issue

15th May 2012

Introduction

The Brief

Waterman Energy, Environment & Design Limited (hereafter 'Waterman') was instructed by John Graham (Dromore) Limited to undertake an assessment of noise and vibration in support of the on-going Fife Intelligent Transport Scheme (ITS) in line with the Forth Replacement Crossing Code of Construction Practice (the CoCP) and Appendix 1/9 of the Employers Requirements (hereafter 'the Employers Requirements').

A Plan for the Control of Noise and Vibration has been submitted and approved for works to be undertaken during the grouting of mine works (FRC-FITS-JG-PCNV0007) which assessed the potential noise impacts associated with mine workings including borehole drilling and grouting. This document sets out the findings of a compliance monitoring exercise during the grouting of mine workings adjacent to Gantry Site 20F. Works were continuous on the site between 30th January 2012 and 19th February 2012.

In order to ensure compliance with Best Practicable Means (BPM) the approved PCNV, CoCP and the Employers Requirements noise monitoring has been undertaken at the closest location to the works throughout the survey period.

Site Description and Description of Works

The closest NSRs to the works are those located off Alice Grove, Crossgates (refer to Table 1). During the works a number of boreholes were drilled and a grout mixture pumped into the hole in order to stabilise existing mine workings.

Table 1 Noise Sensitive Receptors

Noise Sensitive Receptor	Name	Description	Grid Reference	Distance from Works
NSR A	Properties on Alice Grove	Two story residential dwellings	314050,688 988	50m

Baseline Conditions and Noise Assessment Criteria

Baseline noise monitoring has been undertaken at a location representative of the closest existing sensitive receptor to the works (see Table 1). The monitoring data is provided in full within the separately submitted baseline noise report (FRC-FITS-JG-NVMP-BMR-0001) and is summarised below. Following completion of the baseline monitoring exercise noise assessment category levels were set in compliance with the CoCP and the Employers Requirements. The assessment category levels in terms of $L_{Aeq,T}$ and L_{Amax} are presented as Table 2.

Table 2 Noise Assessment Category Levels

Period	Monitored Baseline		Assessment Category	
	$L_{Aeq, 1\text{ hour}}$	$L_{Amax,F}$	L_{Aeq}	L_{Amax}
Daytime	61	71	65	80

Monitoring Methodology

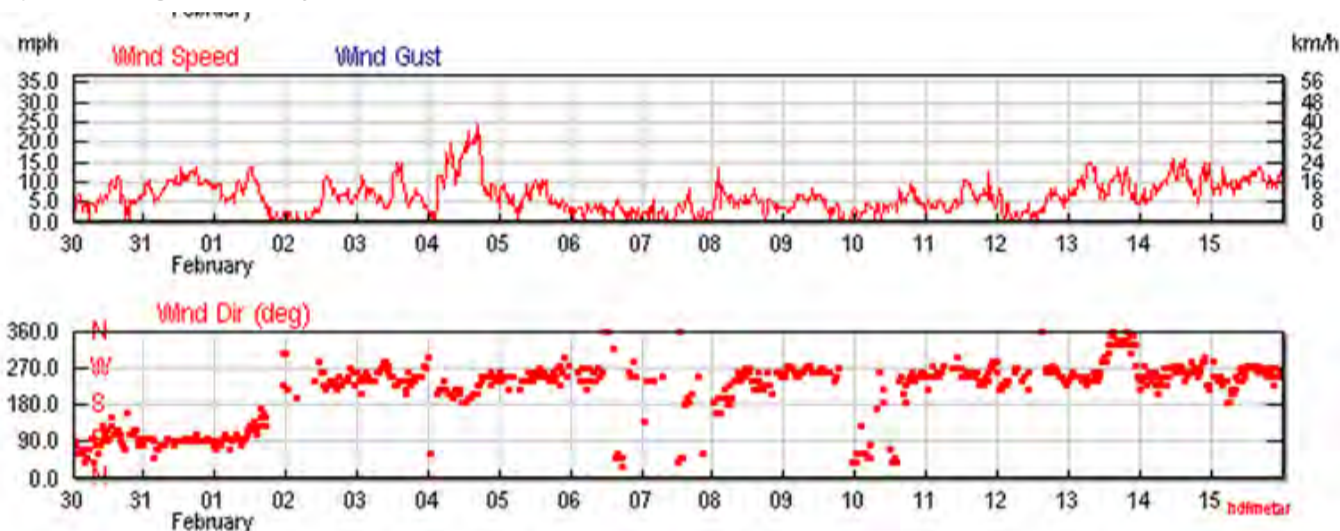
Noise monitoring was undertaken throughout mine grouting works at Gantry Site 20F. The monitoring was undertaken in line with the guidance provided in BS 4142:1997 and the approved PCNV (FRC-FITS-JG-PCNV-0007).

Unattended noise monitoring was undertaken between the 30th January 2012 and 19th February 2012 by trained and competent staff holding corporate membership of the institute of acoustics (IOA). A single monitoring location was selected so as to be representative of the closest sensitive receptors to the works. All measurements were undertaken under free field conditions (i.e. there were no nearby reflecting surfaces, other than the ground). The measurement location is described in Table 1 below. A member of the Waterman Noise and Vibration Team visited the site on a weekly basis so as to change batteries and take site notes.

Table 1: Noise Monitoring Location

Location	Description	Subjective Observations
18 Alice Grove	Residential dwellings located approximately 50m from grouting works. Monitoring location set in free field conditions at a height of 1.5m.	Noise climate dominated by road traffic noise

The weather throughout the survey period was noted to be predominantly dry. The wind direction throughout the survey period was noted to be predominantly from the west with wind speeds of up to 25mph, average wind speeds throughout the survey period were 10mph. The average temperature throughout the survey was noted to be 3°C.



The monitoring equipment used during the survey period is described in Table 2. The sound level meters were calibrated both before and after each monitoring period; no significant drift from the reference level of 94 dB was recorded. The sound level meter was also calibrated in the last year to BS EN 60942.

Table 2: Noise Monitoring Equipment

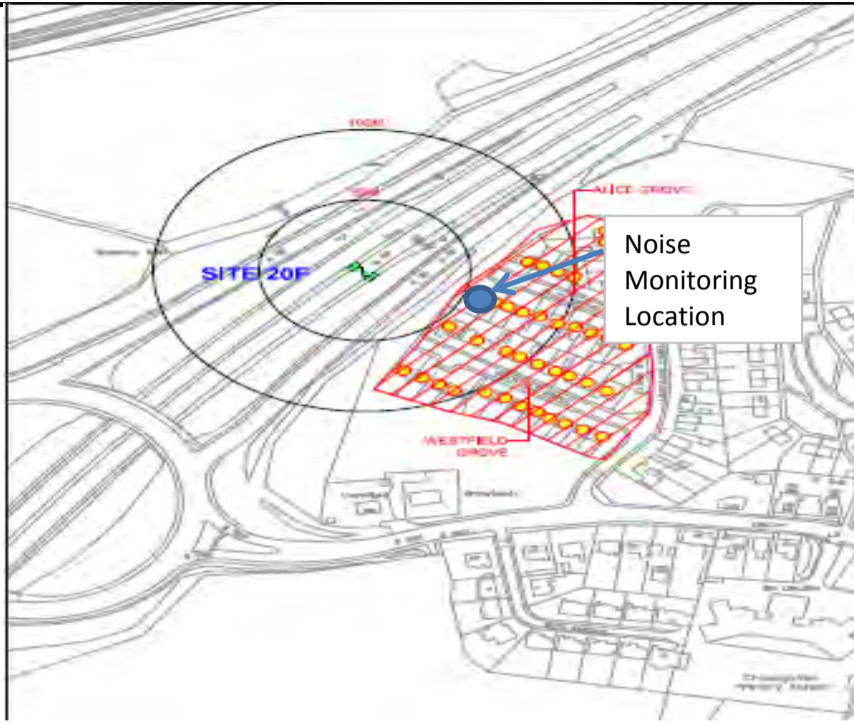
Sound Level Meter	LT1
Meter Mode	Rion NL-32
Serial Number	00503293
Calibrator	
Calibrator Model	NC-74
Serial Number	35196845
Calibration Level at 1000 Hz	94 dB
Microphone	
Microphone Type	UC-53A
Microphone Serial Number	399988

Noise levels were monitored at five minute intervals throughout the survey period. The parameters logged throughout the survey period were L_{Aeq} , L_{Amax} , L_{Amin} , L_{A90} and L_{A10} . The L_{Aeq} level is the equivalent continuous sound pressure level over the measurement period; L_{Amax} is an indicator of the highest sound level during the measurement period; the L_{Amin} is the lowest level during the measurement period; L_{A90} is used as a descriptor of background noise levels and L_{A10} is the noise level which is achieved for 10% of the monitoring period and is often used to describe road traffic noise.

Forth Replacement Crossing Fide ITS

Activities: Mine Workings Gantry Site 20F

Surveyors Gavin Spowage, Jon Lee



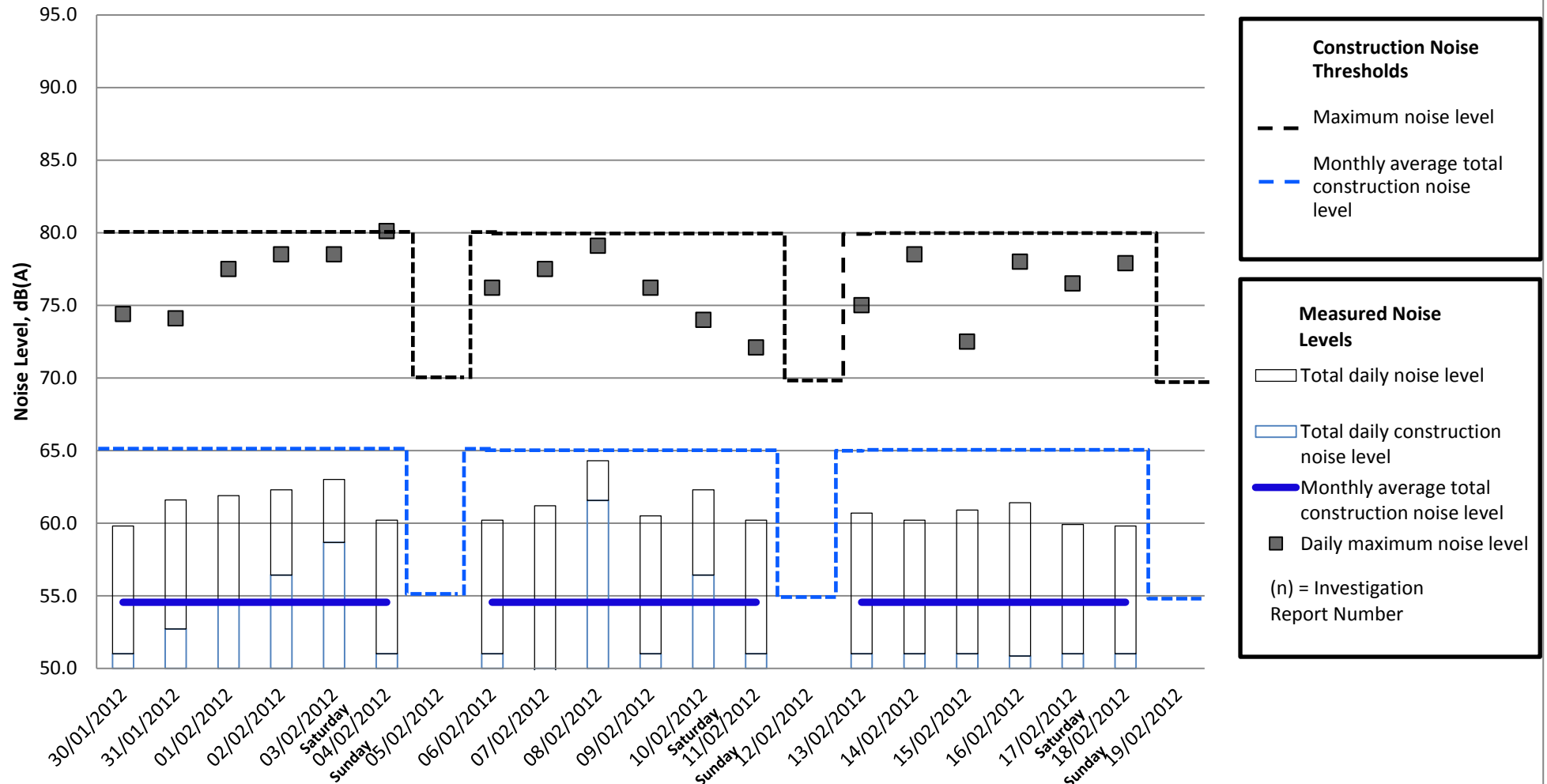
Site Summary Noise Data

Week	Summary Text	Site Indicator
1	Monitored noise levels recorded during this survey period fell consistently below both the construction noise threshold level and the baseline noise level during this survey period. Furthermore no exceedences of the L _{Amax} limit criteria where recorded. As such, it is considered that during the first week of works all activities where completed in accordance with the approved PCNV and as such, no additional action is required.	Green
2	Monitored noise levels recorded during this survey period fell consistently below both the construction noise threshold level and the baseline noise level during this survey period. Furthermore no exceedences of the L _{Amax} limit criteria where recorded. As such, it is considered that during the second week of works all activities where completed in accordance with the approved PCNV and as such, no additional action is required.	Green
3	Monitored noise levels recorded during this survey period fell consistently below both the construction noise threshold level and the baseline noise level during this survey period. Furthermore no exceedences of the L _{Amax} limit criteria where recorded. As such, it is considered that during the third week of works all activities where completed in accordance with the approved PCNV and as such, no additional action is required.	Green

Site Indicator

	Classification	Mitigation Working no apparent noise problems
	Description	Noise levels throughout the week are below the adopted threshold level throughout the survey period. No exceedences of L _{Amax} criteria attributable to the works.
	Action	Continue following best practice guidance as outlined in site environment plan
	Classification	Check Mitigation
	Description	Noise levels have increased to approaching the adopted threshold level and/or there have been a small number of exceedences of the L _{Amax} criteria attributable to the works.
	Action	Check mitigation is operating as anticipated and if further measures are appropriate.
	Classification	Further Review of Mitigation
	Description	Noise levels have exceeded the adopted threshold level and/or the L _{Amax} criteria are regularly exceeded during the survey period.
	Action	Review mitigation measures with Environmental Manager or Adviser to ensure current mitigation operating as intended and identify any other practicable mitigation measures

Measured daytime noise levels, Properties 18 Alice Grove Measurement period 30th January 2012 to 19th-February 2012



Note to Contractors: Daily L_{Aeq} values represent L_{Aeq} (10 hour Saturday, 11 hour Weekday) from total noise (construction and existing ambient). Monthly value is the logarithmic average construction noise over the calendar month, assessed against the threshold level. Daily $L_{Amax,F}$ represents the highest single event value over the daytime period, investigative reports into exceedances identify whether or not these values correspond to construction noise. Assessment category lines should be amended for each location. Sunday data have not been included as no construction works have been conducted during these hours.

Day		L _{Aeq}						L _{Amax}		
		Measured Baseline (NOTE: From ES or if new receptor as measured)	Daytime, L _{Aeq} (11 hour weekday, 10 hour Saturday) (NOTE: As measured during construction)	Inferred construction levels (See note below)	10 [^] Lp/10	Measured - Construction (difference)	Assessment Category Threshold (Daytime)	Monthly Average Construction (Logarithmic)	Daytime Lmax	Lmax Threshold
Monday	30/01/12	61	59.8	51.0	125892.5	9	65	55	74.4	80.0
Tuesday	31/01/12	61	61.6	52.7	186514.4	9	65	55	74.1	80.0
Wednesday	01/02/12	61	61.9	54.6	289891.2	7	65	55	77.5	80.0
Thursday	02/02/12	61	62.3	56.4	439318.2	6	65	55	78.5	80.0
Friday	03/02/12	61	63.0	58.7	736336.9	4	65	55	78.5	80.0
Saturday	04/02/12	61	60.2	51.0	125892.5	9	65	55	80.1	80.0
Sunday	05/02/12									
Monday	06/02/12	61	60.2	51.0	125892.5	9	65	55	76.2	80.0
Tuesday	07/02/12	61	61.2	47.7	59331.3	13	65	55	77.5	80.0
Wednesday	08/02/12	61	64.3	61.6	1432609.4	3	65	55	79.1	80.0
Thursday	09/02/12	61	60.5	51.0	125892.5	10	65	55	76.2	80.0
Friday	10/02/12	61	62.3	56.4	439318.2	6	65	55	74.0	80.0
Saturday	11/02/12	61	60.2	51.0	125892.5	9	65	55	72.1	80.0
Sunday	12/02/12									
Monday	13/02/12	61	60.7	51.0	125892.5	10	65	55	75.0	80.0
Tuesday	14/02/12	61	60.2	51.0	125892.5	9	65	55	78.5	80.0
Wednesday	15/02/12	61	60.9	51.0	125892.5	10	65	55	72.5	80.0
Thursday	16/02/12	61	61.4	50.8	121458.9	11	65	55	78.0	80.0
Friday	17/02/12	61	59.9	51.0	125892.5	9	65	55	76.5	80.0
Saturday	18/02/12	61	59.8	51.0	125892.5	9	65	55	77.9	80.0
Sunday	19/02/12									

Average monthly construction noise (Logarithmic) 54.55