



# **Forth Replacement Crossing**

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

**Principal Contract and M9J1a Contract  
(February 2012)**

April 2012



An agency of  The Scottish Government



**FORTH REPLACEMENT CROSSING**

**EMPLOYER'S DELIVERY TEAM  
CONSTRUCTION NOISE MONITORING REPORT  
PRINCIPAL CONTRACT AND M9J1A CONTRACT  
(FEBRUARY 2012)**

**Revision Status**

<b>Revision</b>	<b>Date</b>	<b>Description</b>	<b>Author</b>	<b>Approved for Use</b>
0	April 2012	Original	DGC	AMM

---

**FORTH REPLACEMENT CROSSING**

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

**CONTENTS**

1. INTRODUCTION..... 1

2. PRINCIPAL CONTRACT NOISE MONITORING ..... 2

3. M9 J1A CONTRACT NOISE MONITORING ..... 5

**APPENDIX A – PRINCIPAL CONTRACT – CONSTRUCTION NOISE MONITORING  
REPORTS**

**APPENDIX B - M9 J1A CONTRACT – CONSTRUCTION NOISE MONITORING  
REPORTS**

## **1. INTRODUCTION**

1.1 This report sets out the results of the construction noise monitoring undertaken on the Forth Replacement Crossing project.

1.2 The noise monitoring periods covered in this report are as follows:

- Principal Contract: February 2012 – refer to Section 2 of this report.
- M9 Junction 1a Contract: February 2012 – refer to Section 3 of this report.

1.3 Noise monitoring from the Fife ITS Contract carried out during February 2012 will form a separate report once this information is available.

## 2. PRINCIPAL CONTRACT NOISE MONITORING

### NOISE MONITORING LOCATIONS

2.1 Continuous noise monitoring was carried out at the fixed monitor locations in Table 2.1 below. The main construction activities carried out adjacent to the monitor locations are also listed.

<b>Monitoring Location</b>	<b>Monitoring Period</b>	<b>Main Construction Activities</b>
Tigh-Na-Grian (M3)	February 2012	Marine GI, drilling, blasting & excavation at Beamer Rock, haul road, B981 working platform, boundary fencing and landscape planting.
Port Edgar (M6)	February 2012	Marine GI and drilling, blasting & excavation at Beamer Rock.
Butlaw Fisheries (M7)	February 2012	Marine GI and drilling, blasting & excavation at Beamer Rock
Inchgarvie Lodge (M10)	February 2012	Trial grouting, haul road, marine GI and drilling, blasting & excavation at Beamer Rock.
Linn Mill (M11)	February 2012	Trial grouting and haul road.
Clufflat Brae (M13)	February 2012	Trial grouting and haul road.
Springfield (M14)	February 2012	Trial grouting and haul road.
Echline Field (M15)	February 2012	White lining at access.
Dundas Home Farm (M17)	February 2012	Haul route to BP structure, crossing points at BP structure, containment bunds to BP structure and boundary fencing.

**Table 2.1 Principal Contract – Long Term Monitoring Locations**

### NOISE MONITORING RESULTS

2.2 Monitoring results from the Principal contract are contained in Appendix A of this report. The results are presented in a report containing noise charts using the template contained in the Construction Noise Monitoring Information Note which is available on the project website at

[http://www.transportscotland.gov.uk/files/documents/projects/forth-replacement/FRC\\_Construction\\_Noise\\_Monitoring\\_Information\\_Note\\_2\\_.pdf](http://www.transportscotland.gov.uk/files/documents/projects/forth-replacement/FRC_Construction_Noise_Monitoring_Information_Note_2_.pdf).

- 2.3 The results of the construction noise monitoring provided in the Principal Contract reports indicate that all construction activities were carried out in accordance with the thresholds set out in the project Code of Construction Practice.
- 2.4 Some exceedences of the maximum noise level thresholds occurred, although the exceedences are not considered to be due to the construction works being carried out. All monthly average total construction noise levels were within the relevant thresholds, with the exception of Butlaw Fisheries during the night time period, however this exceedance is not considered to be due to Construction works.
- 2.5 Formal exceedance reports were prepared by the contractor for February 2012 and the investigations identified that the exceedances were not due to construction related factors. As a result of the adverse weather conditions experienced in February a large quantity of non-construction related exceedance reports were generated, and as such it was considered inappropriate to include them in this report. However, the exceedance reports are available on request from the FRC Team, contactable via email at [enquiries@forthreplacementcrossing.info](mailto:enquiries@forthreplacementcrossing.info). A summary of the information included in the exceedance reports is provided in Table 2.2 below.

<b>Monitoring Location</b>	<b>Contractor's Exceedance Report Reference</b>	<b>Exceedance</b>
Butlaw Fisheries (M7)	NVIRs 49-62	During February the maximum noise threshold was exceeded on 24 occasions (daytime, 7; evening, 5; night time, 12). Month average noise level exceeded at Butlaw Fisheries (night time). No exceedances were due to construction related activities. The exceedances were attributed to a range of factors, including strong winds, heavy rain and water on the shore, device errors, fireworks and vehicles.
Clufflat Brae (M13)	NVIRs 42-44	During February the maximum noise threshold was exceeded on 32 occasions (daytime, 14; evening, 5; night time, 13). These exceedances were not due to construction activities and were determined to be due to strong winds, animals (birds and dogs) and device maintenance.

<b>Monitoring Location</b>	<b>Contractor's Exceedance Report Reference</b>	<b>Exceedance</b>
Inchgarvie Lodge (M10)	NVIRs 40-59	During February the maximum noise threshold was exceeded on 19 occasions (daytime, 4; evening, 4; night time, 11). The exceedances were not attributable to construction. Investigations found a range of non-construction factors to be the cause of the exceedances, including adverse weather conditions, private vehicles at the property and animals.
Linn Mill (M11)	NVIRs 38-43	During February the maximum noise threshold was exceeded on 20 occasions (daytime, 5; evening, 4; night time, 11). These exceedances were not attributable to construction. Exceedances were factors such as strong winds and fireworks.
Tigh-Na-Grian (M3)	NVIRs 32-42	During February the maximum noise threshold was exceeded on 29 occasions (daytime, 10; night time, 19). Exceedances were not related to construction and were attributed to non-construction noise sources including strong winds and birds.
Dundas Home Farm (M17)	NVIRs 7-14	During February the maximum noise threshold was exceeded on 12 occasions. Exceedances were not attributable to construction works. Exceedances were the result of birds, strong winds, vehicle noises (car horns) and device maintenance.
Echline Field (M15)	NVIRs 11-23	During February the maximum noise threshold was exceeded on 18 occasions. Exceedances were not due to construction activities and were attributed to vehicles passing by on the adjacent road and device error.
Springfield (M14)	NVIRs 1-3	During February the maximum noise threshold was exceeded on 8 occasions. Exceedances were not due to construction activities. Exceedances were attributed to strong winds, animals (dog barking) and a chainsaw which was not related to construction works being undertaken by FCBC.

**Table 2.2 Principal Contract – Summary of Noise Threshold Exceedances**

### 3. M9 J1A CONTRACT NOISE MONITORING

#### NOISE MONITORING LOCATIONS

- 3.1 Continuous noise monitoring was carried out at the fixed monitor locations in Table 3.1 below. The main construction activities carried out adjacent to the monitor locations are also listed.

<b>Monitoring Location</b>	<b>Monitoring Period</b>	<b>Main Construction Activities</b>
93/95 King Edwards Way (CNV02)	February 2012	Site clearance, tree harvesting and piling works.
15-17 Buie Rigg (CNV07)	February 2012	Site clearance, tree harvesting, traffic management on M9 Spur and temporary sheet piling at Newmains Bridge.
8 Kirklands Park Grove (CNV16)	February 2012	Earthworks, piling works, traffic management on M9 Spur, temporary sheet piling at Newmains Bridge.

**Table 3.1 M9 J1a Contract – Long Term Monitoring Locations**

#### NOISE MONITORING RESULTS

- 3.2 Monitoring results from the M9 Junction 1a contract are contained in Appendix B of this report. The results are presented in charts using the template contained in the Construction Noise Monitoring Information Note which is available on the project website at [http://www.transportscotland.gov.uk/files/documents/projects/forth-replacement/FRC\\_Construction\\_Noise\\_Monitoring\\_Information\\_Note\\_2\\_.pdf](http://www.transportscotland.gov.uk/files/documents/projects/forth-replacement/FRC_Construction_Noise_Monitoring_Information_Note_2_.pdf).
- 3.3 The results of the construction noise monitoring provided in the M9 Junction 1a reports indicate that all construction activities were carried out in accordance with the thresholds set out in the project Code of Construction Practice.
- 3.4 Some exceedences of the maximum noise level thresholds occurred, although the exceedences are not considered to be due to the construction works being carried out. Formal exceedance reports were prepared by the contractor for February 2012 and the investigations identified that the exceedences were not due to construction related factors. Summary information regarding the exceedences of the maximum



noise level thresholds is provided In Table 3.2 below. Copies of the exceedance reports are contained in Appendix B to this report.

<b>Monitoring Location</b>	<b>Contractor's Exceedance Report Reference</b>	<b>Exceedance</b>
93/95 King Edwards Way (CNV02)	NERs 20 - 21	Maximum noise level threshold exceeded on three occasions during February 2012. Analysis determined that two of the three exceedances occurred when no construction works were being carried out. The remaining exceedance occurred with works taking place at a distance of 150 metres form the receptor. It is therefore considered unlikely that construction operations resulted in the exceedance recorded.
15-17 Buie Rigg (CNV07)	N/A	No exceedances.
8 Kirklands Park Grove (CNV16)	NERs 22 - 25	Maximum noise level threshold exceeded on six occasions during February 2012. Analysis determined that one of the exceedances occurred when no construction works were being carried out. The remaining exceedances occurred when construction works were being carried out at distances of over 200 metres from the receptors. It is therefore considered unlikely that construction operations resulted in the exceedance recorded and the exceedances have been attributed to the high winds and heavy rain recorded.


**Table 3.2 M9 J1a Contract – Summary of Noise Threshold Exceedances**

**APPENDIX A -**

**PRINCIPAL CONTRACT - CONSTRUCTION  
NOISE MONITORING REPORTS**



Contractor



**Forth Crossing** Bridge Constructors

HOCHTIEF Solutions  
American Bridge International  
DRAGADOS  
Morrison Construction

Project **FORTH REPLACEMENT CROSSING**

Document title

**CONSTRUCTION NOISE MONITORING REPORT:  
FEBRUARY 2012**

Rev	Rev. Date	Purpose of revision	Made	Checked	Reviewed
01	11/04/2012	Change to Noise Level Graphs	ESE		
A	05/03/12	First Revision	ESE		

Document status

**FOR REVIEW**

Made by Ellie Slee  
Initials: ESE

Checked By:  
Initials:

Document number

**FRC-P-FCBC-REP-00000-PW-GEN000-00010**

Rev  
**01**

This document is intellectual property of FCBC Construction JV. Copying, distribution, usage, and information on contents of this are forbidden unless explicitly authorized.

**Distribution**

<b>Name</b>	<b>Email Address</b>	<b>Copy Sent (Y/N)</b>
Carlo Germani	<a href="mailto:Carlo.germani@fbcjv.co.uk">Carlo.germani@fbcjv.co.uk</a>	
Victor Jimenez	<a href="mailto:Victor.jimenez@fbcjv.co.uk">Victor.jimenez@fbcjv.co.uk</a>	
Thomas Nilsson	<a href="mailto:Thomas.nilsson@fbcjv.co.uk">Thomas.nilsson@fbcjv.co.uk</a>	
Scott Chalmers	<a href="mailto:scott.chalmers@fbcjv.co.uk">scott.chalmers@fbcjv.co.uk</a>	
Antonio Vazquez	<a href="mailto:Antonio.vazquez@fbcjv.co.uk">Antonio.vazquez@fbcjv.co.uk</a>	
Jim Watson	<a href="mailto:Jim.Watson@fbcjv.co.uk">Jim.Watson@fbcjv.co.uk</a>	
Meinolf Droste	<a href="mailto:meinolf.droste@fbcjv.co.uk">meinolf.droste@fbcjv.co.uk</a>	
Ruben Casanova	<a href="mailto:Ruben.casanova@fbcjv.co.uk">Ruben.casanova@fbcjv.co.uk</a>	
Carson Carney	<a href="mailto:Carson.carney@fbcjv.co.uk">Carson.carney@fbcjv.co.uk</a>	
Derek Chambers	<a href="mailto:Derek.Chambers@fbcjv.co.uk">Derek.Chambers@fbcjv.co.uk</a>	
Christian Dabringhaus	<a href="mailto:Christian.Dabringhaus@fbcjv.co.uk">Christian.Dabringhaus@fbcjv.co.uk</a>	
Document Control	<a href="mailto:Tracy.odonnell@fbcjv.co.uk">Tracy.odonnell@fbcjv.co.uk</a>	

## **Contents**

- 1. Introduction**
- 2. Noise Monitoring Locations**
- 3. Noise Monitoring Results**

## **1 Introduction**

- 1.1** Monitoring of construction noise is being undertaken by FCBC during the construction of the new Forth Crossing and the associated network. This report covers the month of February 2012. The objective of this report is to detail the monitoring that has been undertaken across the site during this period and to present the construction noise monitoring results acquired for February 2012.
- 1.2** Monitoring of construction noise has been undertaken in accordance with the Code of Construction Practice (CoCP) and the Noise and Vibration Management Plan (NVMP).

## **2 Noise Monitoring Locations**

- 2.1** During February 2012, construction noise was monitored using permanent, continuous noise monitoring devices at the locations listed in Table 1. The monitors were installed throughout November and December 2011. During February 2012, two additional monitors were installed at Scotstoun Park (Arup's Office) and at Newton. Monitoring results for these locations will be reported from 1<sup>st</sup> March 2012 following final installation.
- 2.2** At some monitoring locations, the noise monitoring devices are accompanied by an associated weather station. Weather stations are present at Echline Field, Tigh-Na-Grian, Clufflat Brae, Dundas Home Farm, Butlaw Fisheries and Linn Mill. The weather station at Linn Mill was installed during February 2012. All other weather stations were installed during November and December 2011.
- 2.3** Various construction works were undertaken across the site during February. The main construction activities undertaken in the locality of each of the noise meters during the period have been listed in Table 1.

**Table 1: Monitoring Locations**

<b>Ref.</b>	<b>Monitoring Location</b>	<b>Main Construction Activities During February 2012</b>
M3	Tigh-Na-Grian	Drilling, blasting and excavation at Beamer Rock Haul route B981 working platform Fencing Early Planting
M6	Port Edgar	Drilling, blasting and excavation at Beamer Rock
M7	Butlaw Fisheries	Drilling, blasting and excavation at Beamer Rock
M10	Inchgarvie Lodge	Trial Grouting Haul Road Drilling, blasting and excavation at Beamer Rock
M11	Linn Mill	Trial Grouting Haul Road
M13	Clufflat Brae	Trial Grouting Haul Road
M14	Springfield	Trial Grouting Haul Road  N.B. No evening, night time or Sunday daytime construction in vicinity.
M15	Echline Field	White lining at access  N.B. No evening, night time or Sunday daytime construction in vicinity.
M17	Dundas Home Farm	Haul route to BP structure Crossing points at BP structure Containment bunds to BP structure LMA fencing  N.B. No evening, night time or Sunday daytime construction in vicinity.



### 3 Noise Monitoring Results

3.1 All noise monitoring results for construction days have been presented in charts using the template provided in the Construction Noise Monitoring Information Note, as available on the project website ([http://www.transportscotland.gov.uk/files/documents/projects/forth-replacement/FRC\\_Construction\\_Noise\\_Monitoring\\_Information\\_Note\\_2\\_.pdf](http://www.transportscotland.gov.uk/files/documents/projects/forth-replacement/FRC_Construction_Noise_Monitoring_Information_Note_2_.pdf)). All charts can be found in the appendices of this report.

3.2 With regard to the noise monitoring results charts, the following should be noted:

- Noise data for days, evening and nights on which no construction works were conducted have been excluded from the monthly average results presented in the graph. However, noise results ( $L_{Aeq}$  and  $L_{Amax, F}$ ) for any days, evenings and nights on which no construction works have been conducted have been presented in the graphs in greyed out areas.
- As set out in the CoCP, the assessment time for evening and nights is 1 hour periods. To present the construction noise results for these periods, therefore, the maximum  $L_{Amax, F}$  (fast time response) and maximum  $L_{Aeq}$  within the overall evening/night time period has been taken.
- Where noise data is missing for days, evening or nights during which construction works were conducted, this has been indicated. Missing data is a result of device error. Device errors have typically been a result of the following:
  - Adverse weather conditions causing physical damage to the monitoring equipment;
  - Continually high noise levels (such as during high winds) causing the monitors to repeatedly trigger noise recordings and the memory becoming full, leading to a failure to record further noise data;
  - Other software issues.

3.3 During this period, the device software was updated. It is hoped that this software update will reduce the number of device errors experienced and thus, as a result, the number of missing noise results. It should be noted, however, that in order to update some of the devices they had to be taken down, resulting in some additional missing data during this period.

- 3.4** Results demonstrate that the monthly average total construction noise threshold was within the threshold limits for all monitoring locations during daytime, evening or night time periods throughout February 2012, with the exception of Butlaw Fisheries during night-time. However, the exceedance of the monthly average total construction noise at Butlaw Fisheries is not attributable to construction works. The monthly average at this location was affected by a spell of adverse weather conditions towards the end of February (including strong winds, rain and increased noise levels of the water on the shore), which resulted in the background noise levels being significantly higher than normal.
- 3.5** During February 2012, some exceedances of the maximum noise thresholds did also occur. Each exceedance of the threshold was investigated using live calls to the device, triggered audio recordings, records of construction works (i.e. site diaries and daily marine reports) and analysis of weather station data. Where the wind speed was found to be greater than 5 meters per second (m/s), this was deemed to be a contributing factor to noise level threshold exceedances. Noise and Vibration Investigative Reports (NVIRs) have been produced for each exceedance, detailing the results of the investigation.
- 3.6** All of the exceedances of the maximum noise level thresholds, however, are considered to have occurred as a result of non-construction related noise. Adverse weather conditions, in particular wind, were found to be a significant contributor to maximum noise level exceedances, particularly towards the end of February when winds in excess of 15 m/s were recorded at several monitoring locations. A number of the exceedances were also attributed to animals, such as birds close to the monitors and dogs barking. Additionally, at some locations, notably Echline Field, existing traffic noise had an effect on maximum noise levels during the period covered in this report. This impact was exacerbated during periods of wet weather when the road surface was wet, thus increasing noise levels of passing traffic. A summary of the findings for exceedances occurring at each of the locations can be found in Table 2.

**Table 2: Summary of Exceedances at Monitoring Locations**

<b>Monitoring Location</b>	<b>Associated NVIR Numbers</b>	<b>Summary of Exceedance Details</b>
Butlaw Fisheries	B.63 – B.86	During February the maximum noise threshold was exceeded on 24 occasions (daytime, 7; evening, 5; night time, 12). No exceedances were due to construction related activities. The exceedances were attributed to a range of factors, including strong winds, heavy rain and water on the shore, device errors, fireworks and vehicles.
Clufflat Brae	C.45 – C.76	During February the maximum noise threshold was exceeded on 32 occasions (daytime, 14; evening, 5; night time, 13). These exceedances were not due to construction activities and were determined to be due to strong winds, animals (birds and dogs) and device maintenance.
Inchgarvie Lodge	I.61 – I.78	During February the maximum noise threshold was exceeded on 19 occasions (daytime, 4; evening, 4; night time, 11). The exceedances were not attributable to construction. Investigations found a range of non-construction factors to be the cause of the exceedances, including adverse weather conditions, private vehicles at the property and animals.
Linn Mill	L.44 – L.63	During February the maximum noise threshold was exceeded on 20 occasions (daytime, 5; evening, 4; night time, 11). These exceedances were not attributable to construction. Exceedances were factors such as strong winds and fireworks.
Tigh-Na-Grian	T.50 – T.70	During February the maximum noise threshold was exceeded on 29 occasions (daytime, 10; night time, 19). Exceedances were not related to construction and were attributed to non-construction noise sources including strong winds and birds.
Dundas Home Farm	D.15 – D.26	During February the maximum noise threshold was exceeded on 12 occasions. Exceedances were not attributable to construction works. Exceedances were the result of birds, strong winds, vehicle noises (car horns) and device maintenance.
Echline Field	E.25 – E.42	During February the maximum noise threshold was exceeded on 18 occasions. Exceedances were not due to construction activities and were attributed to vehicles passing by on the adjacent road and device error.
Springfield	S.4 – S.11	During February the maximum noise threshold was exceeded on 8 occasions. Exceedances were not due to construction activities. Exceedances were attributed to strong winds, animals (dog barking) and a chainsaw which



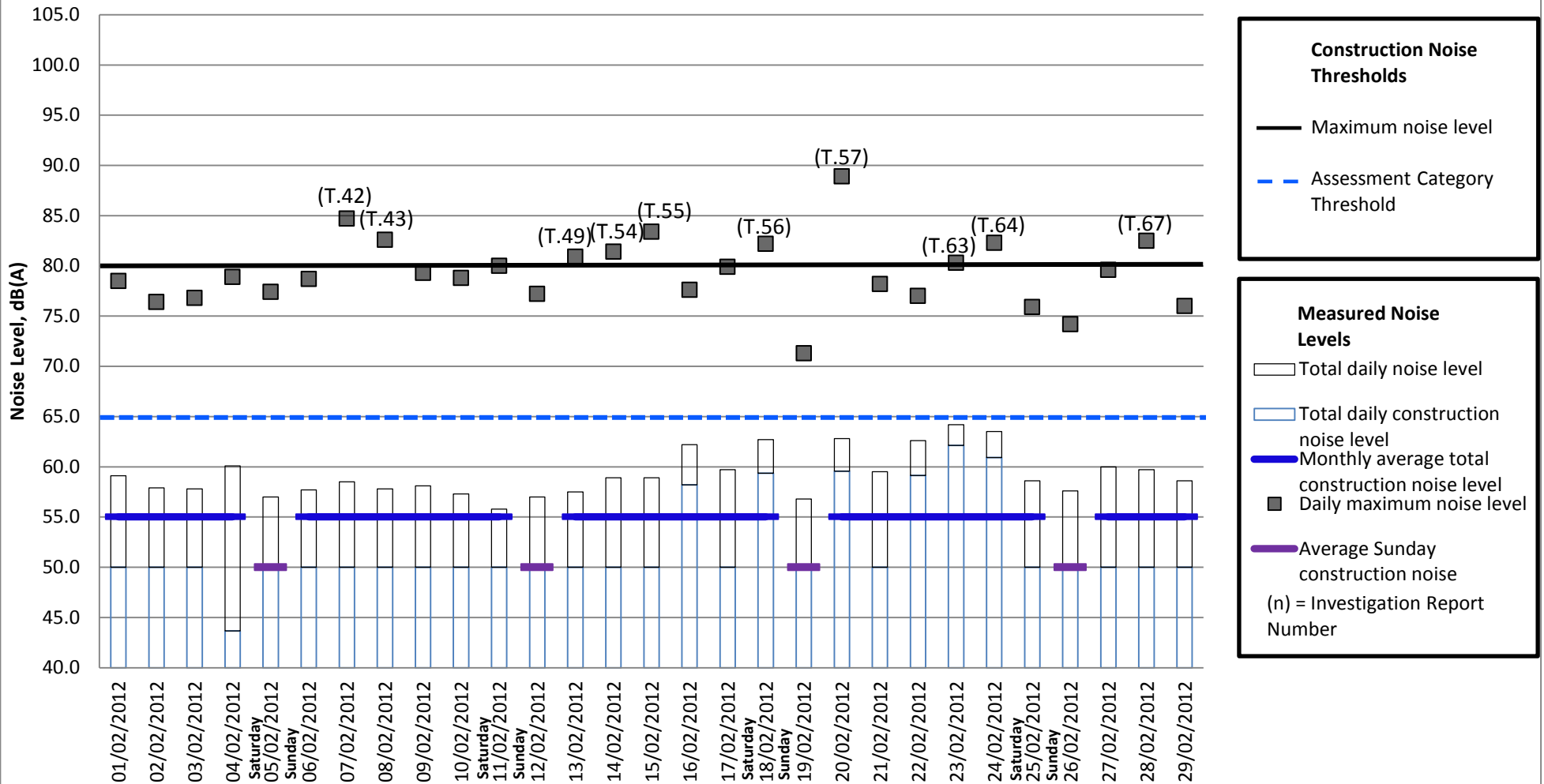
**Forth Crossing** Bridge Constructors

HOCHTIEF Solutions  
American Bridge International  
DRAGADOS  
Morrison Construction

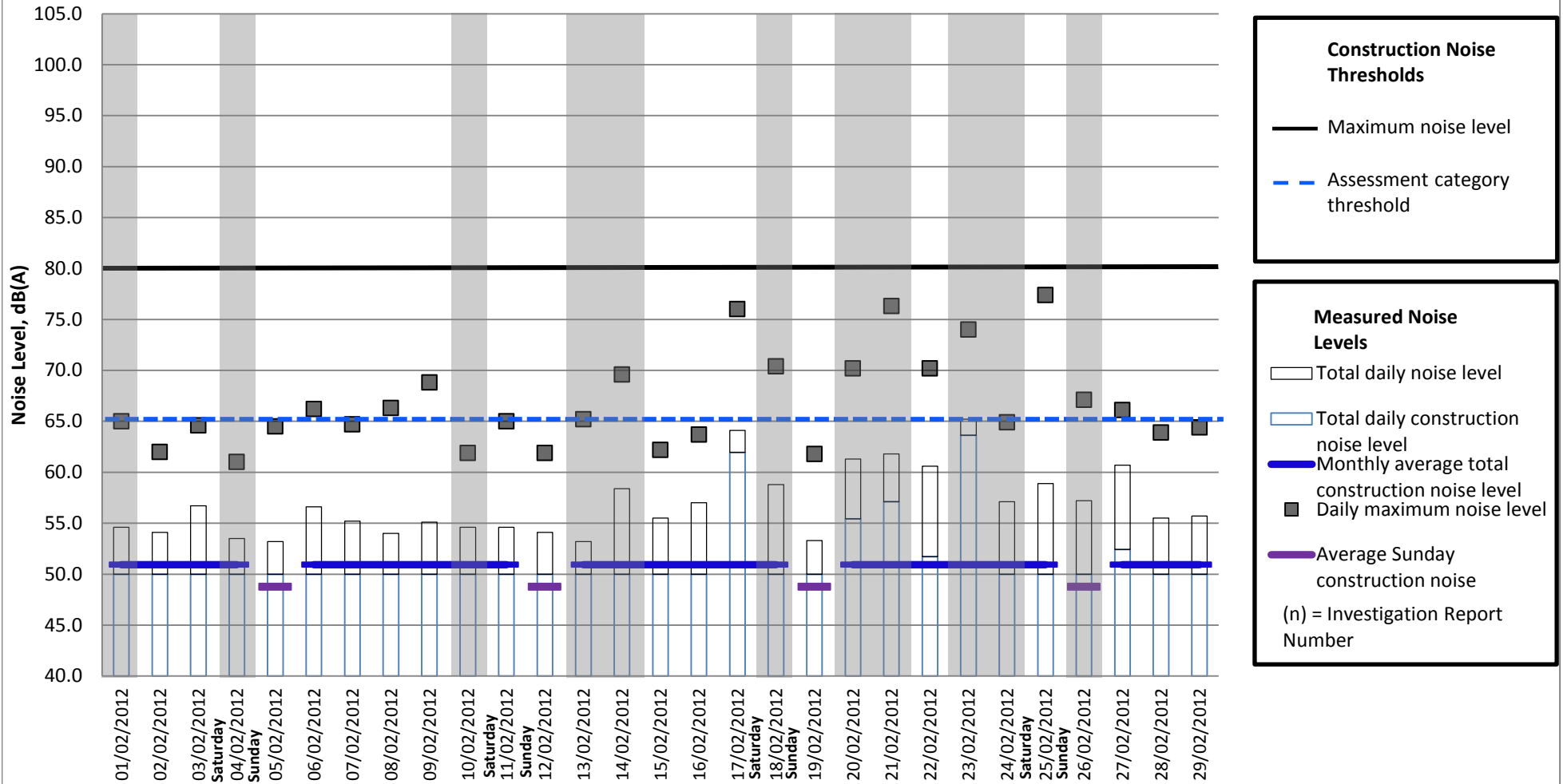
		was not related to construction works being undertaken by FCBC.
--	--	---

# Measured Daytime Noise Levels at Tigh-Na-Grian

## Measurement period: February 2012

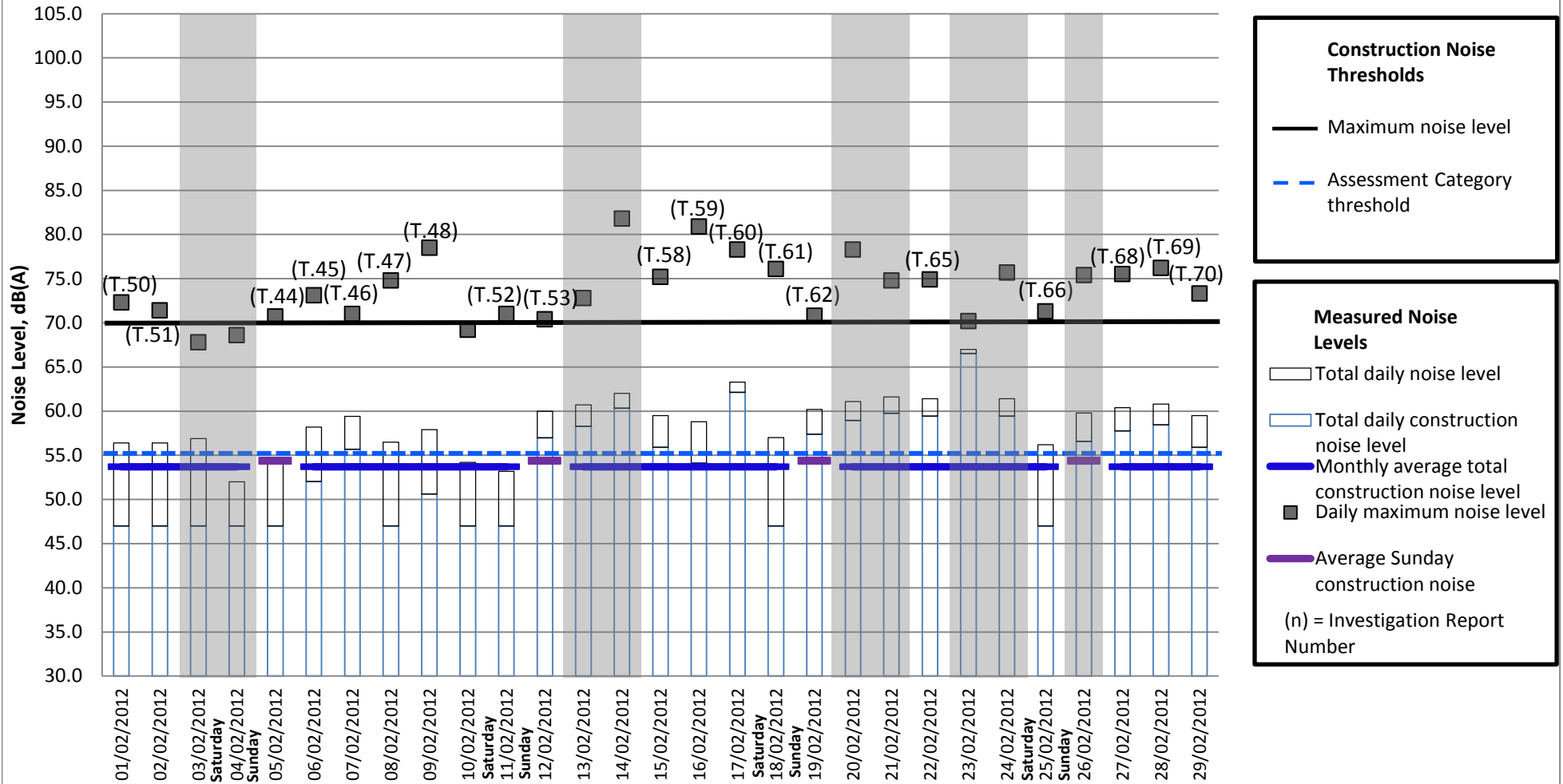


## Measured Evening Noise Levels at Tigh-Na-Grian Measurement period: February 2012



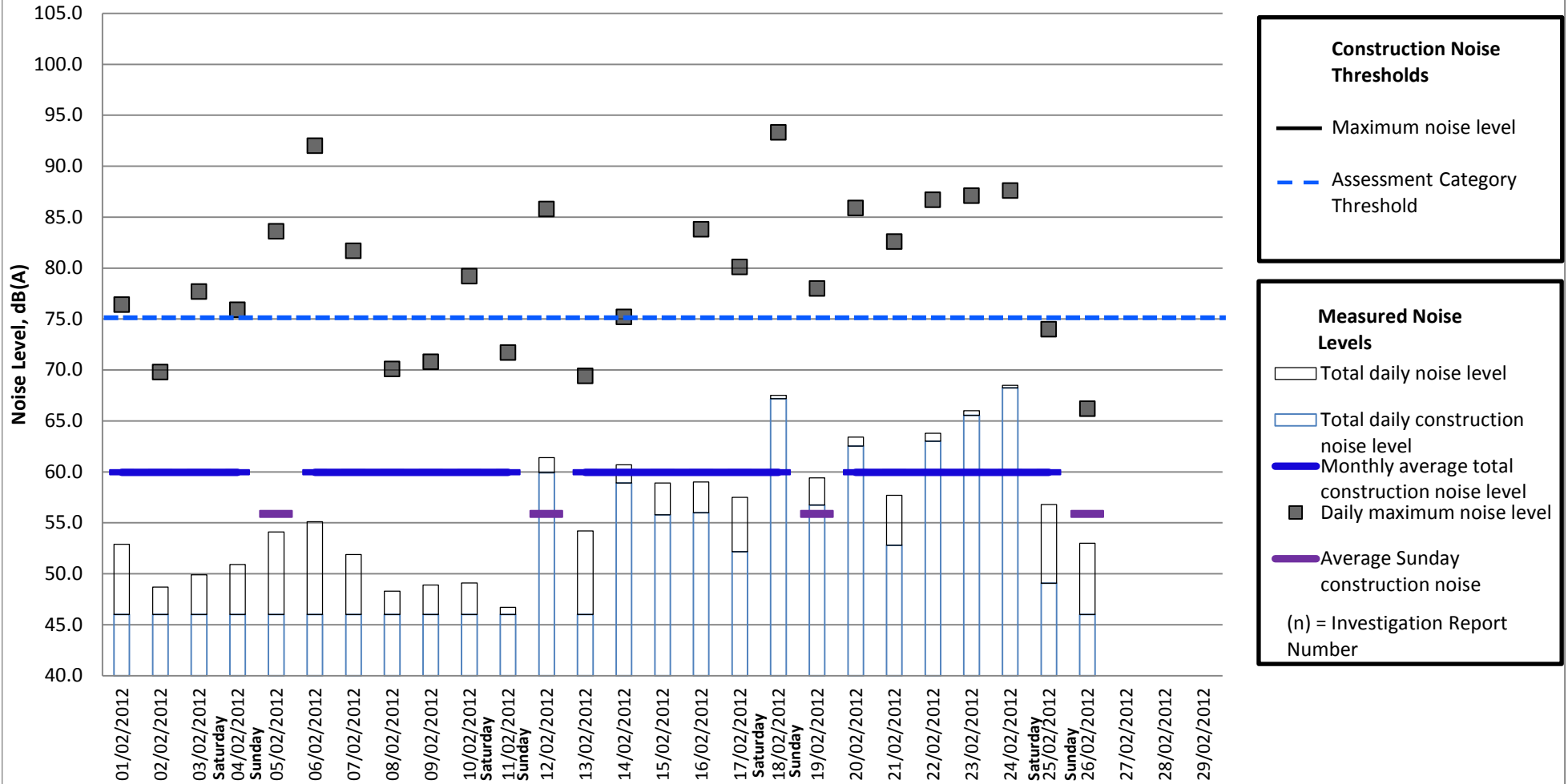
**Note:** The grey areas of the chart represent days on which no construction works have been conducted; no evening construction works have been undertaken on 01/02/12, 04/02/12, 10/02/12, 13/02/12, 14/02/12, 18/02/12, 20/02/12, 21/02/12, 23/02/12, 24/02/12 and 26/02/12.

## Measured Night-time Noise Levels at Tigh-Na-Grian Measurement period: February 2012



**Note:** The grey areas of the chart represent days on which no construction works have been conducted; no night time construction works have been conducted on 03/02/12, 04/02/12, 13/02/12, 14/02/12, 20/02/12, 21/02/12, 23/02/12, 24/02/12 and 26/02/12.

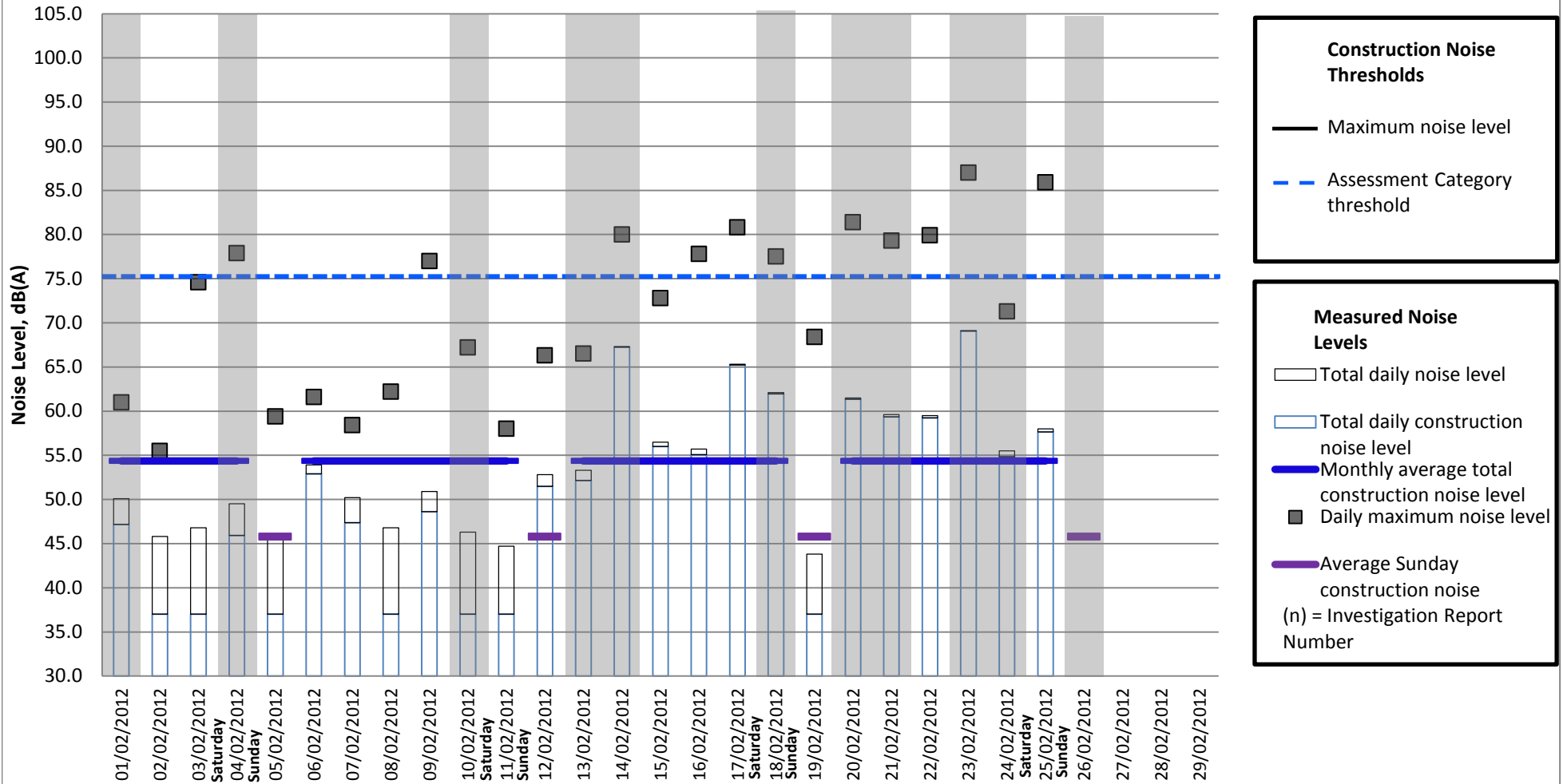
## Measured Daytime Noise Levels at Port Edgar Measurement period: February 2012



**Note:** Maximum noise level data is missing for 15/02/12 due to device error. Daytime noise data is missing for the period 27/02/12 to 29/02/12 due to a failure of the power supply to the device.

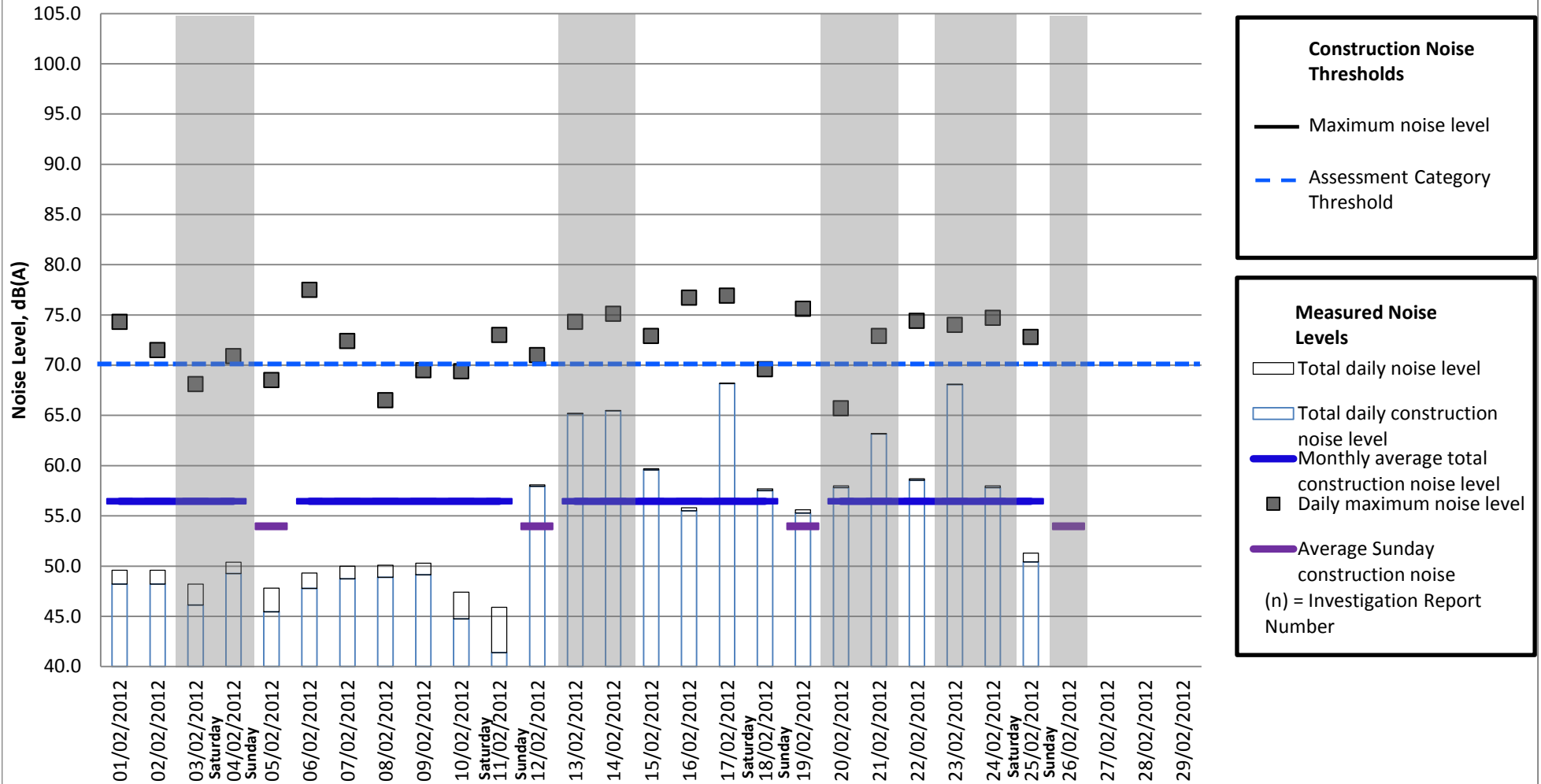


## Measured Evening Noise Levels at Port Edgar Measurement period: February 2012



**Note:** The grey areas of the chart represent days on which no construction works have been conducted; no evening construction works were conducted on 01/02/12, 04/02/12, 10/02/12, 13/02/12, 14/02/12, 18/02/12, 20/02/12, 21/02/12, 23/02/12, 24/02/12, 26/02/12. Evening noise data is missing for the period 26/02/12 to 29/02/12 due to a failure of the power supply to the device.

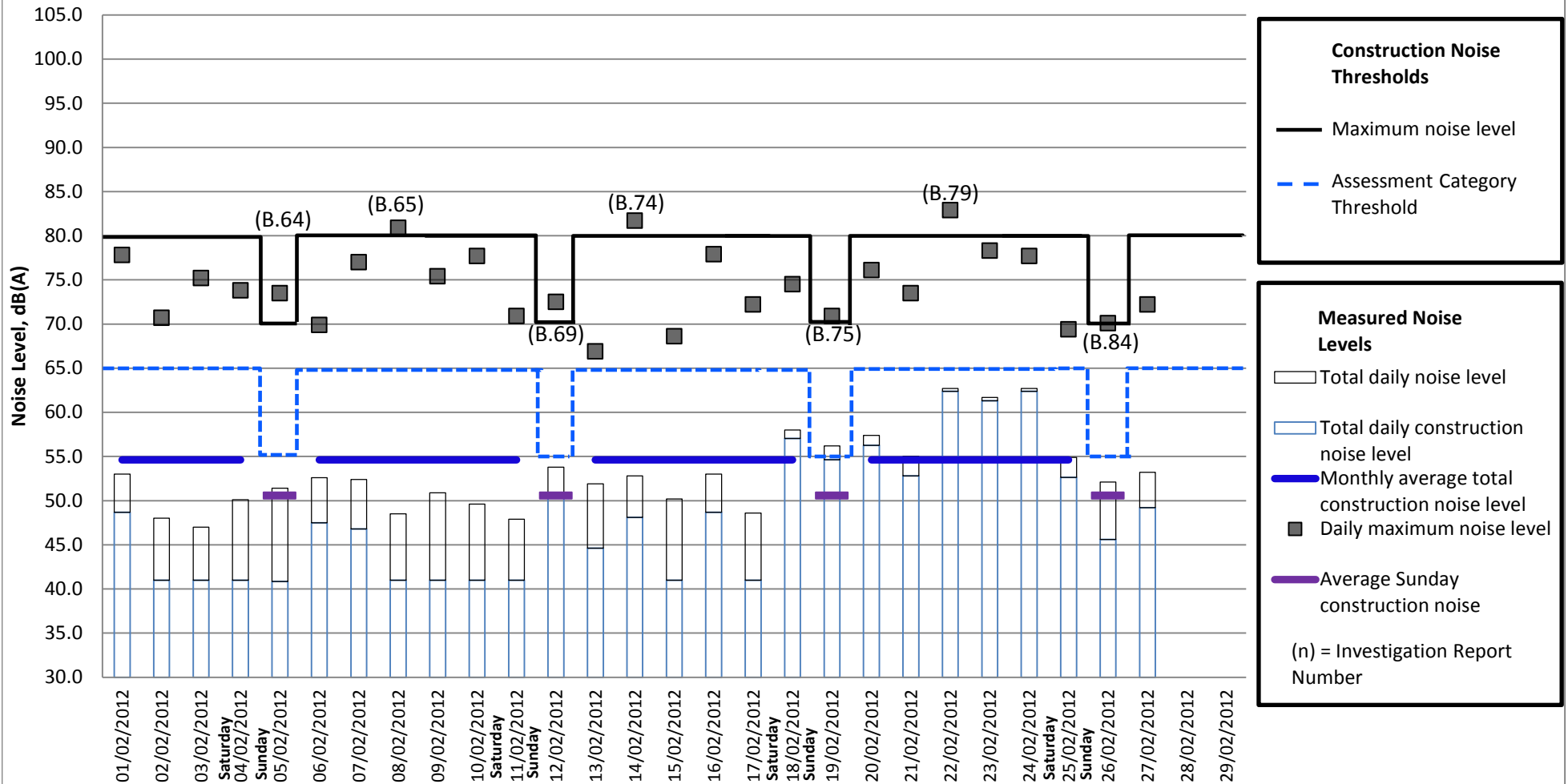
## Measured Night-time Noise Levels at Port Edgar Measurement period: February 2012



**Note:** The grey areas of the chart represent days on which no construction works have been conducted; no night time construction works were conducted on 03/02/12, 04/02/12, 13/02/12, 14/02/12, 20/02/12, 21/02/12, 23/02/12, 24/02/12 and 26/02/12. Night time data is missing for the period 26/02/12 to 29/02/12 due to a failure of the power supply to the device.

# Measured Daytime Noise Levels at Butlaw Fisheries

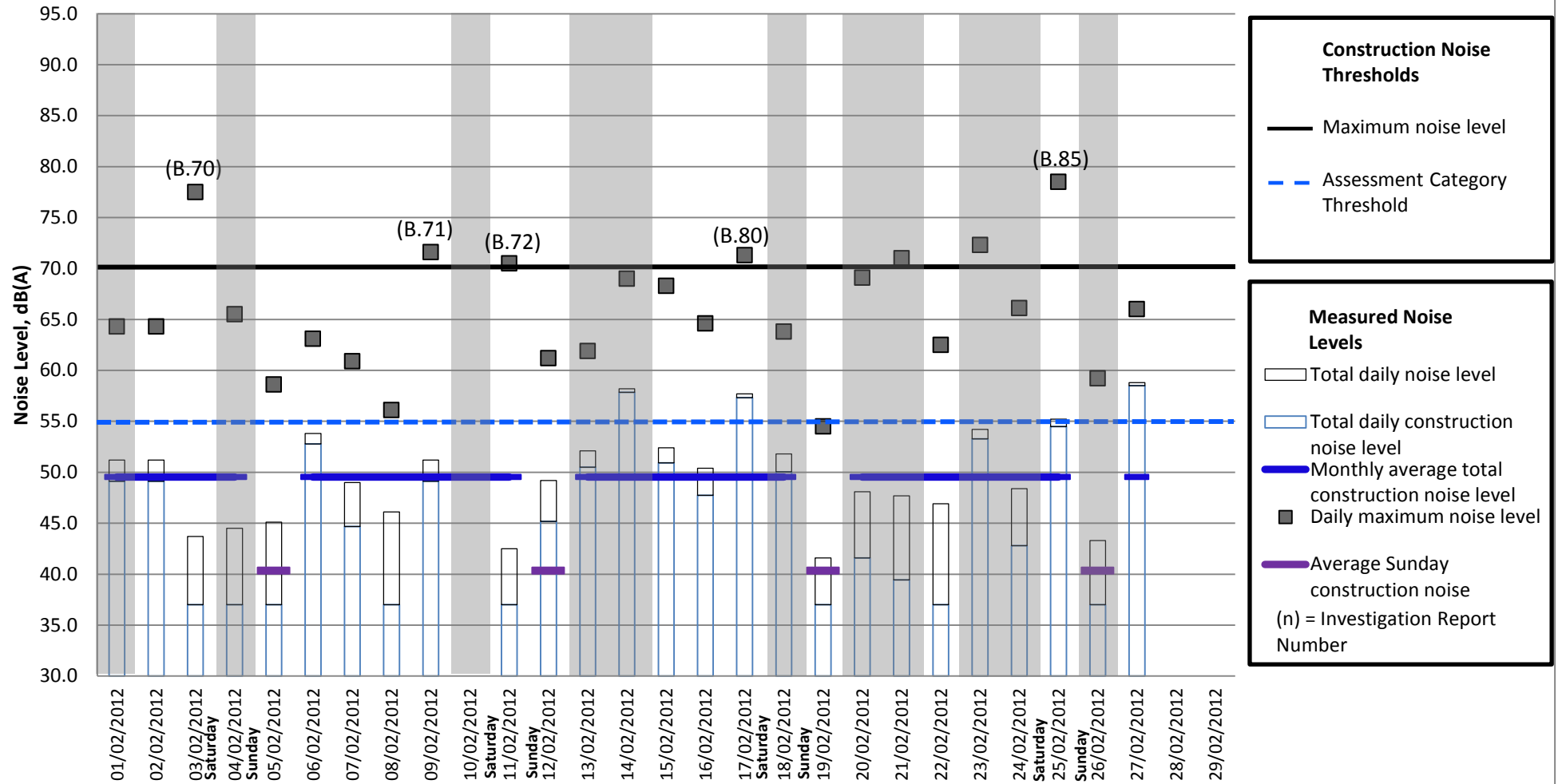
## Measurement period: February 2012



**Note:** Daytime noise data is missing for 28/02/12 and 29/02/12 due to device error.

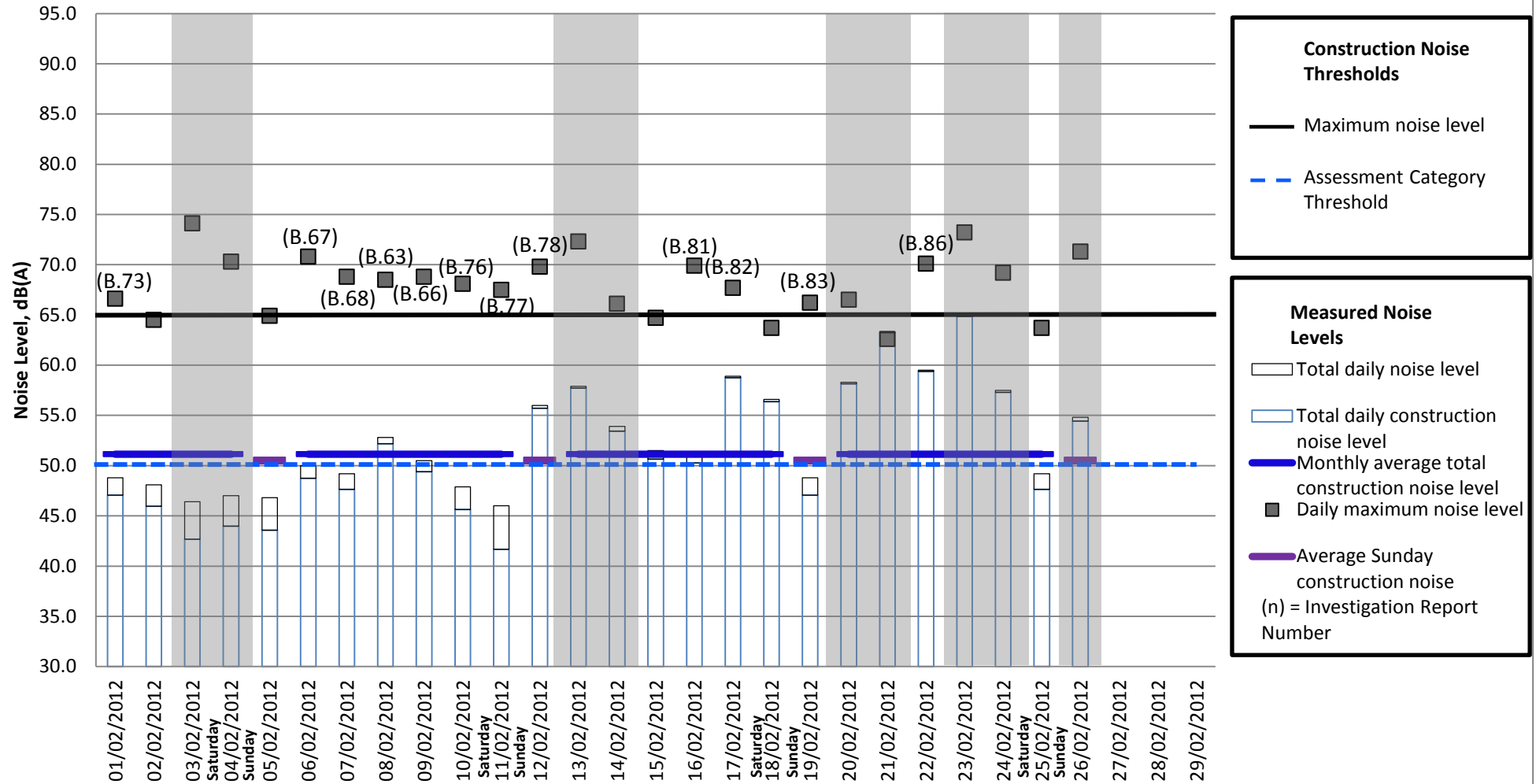
## Measured Evening Noise Levels at Butlaw Fisheries

### Measurement period: February 2012



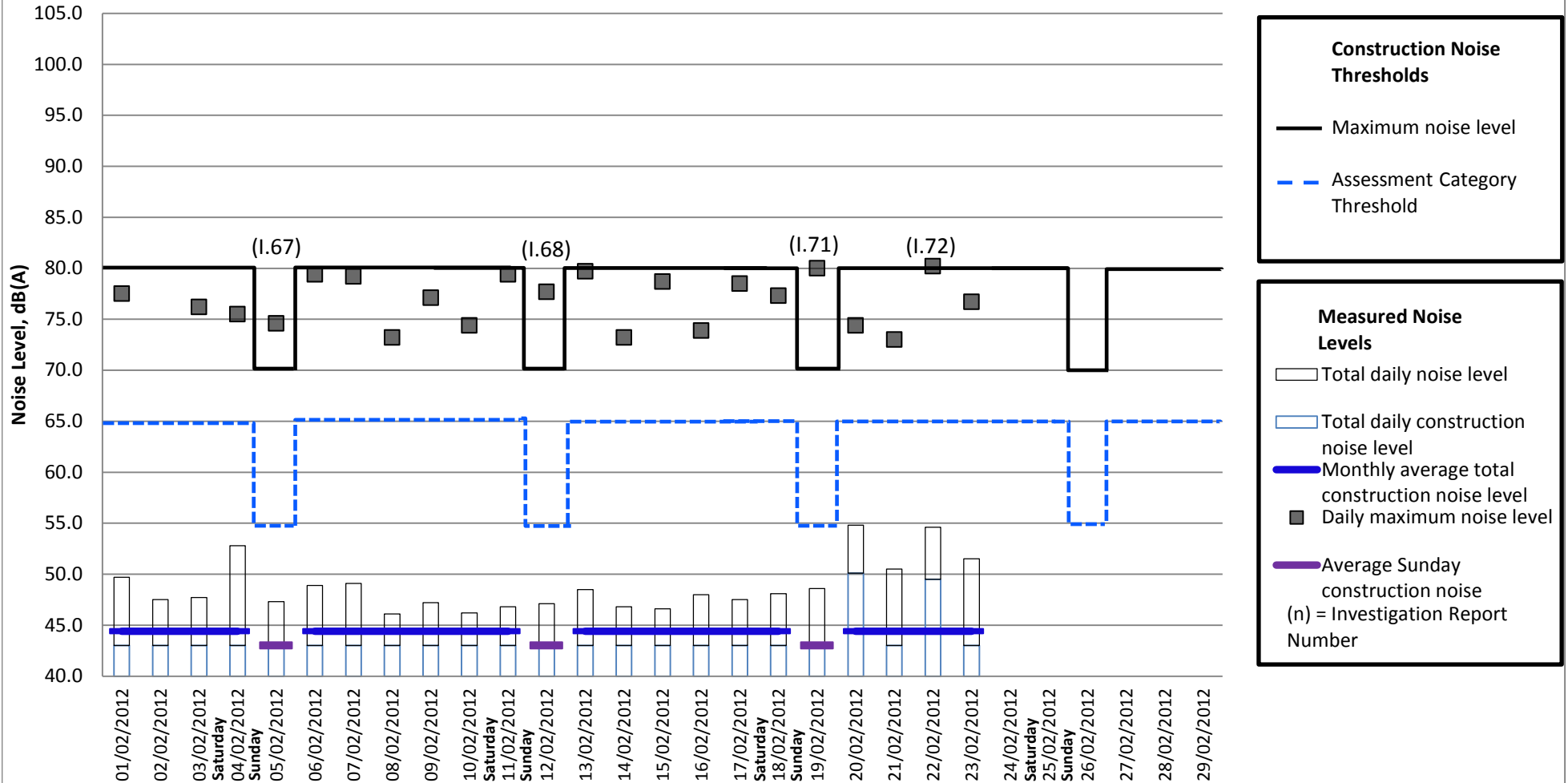
**Note:** The grey areas of the chart represent days on which no construction works have been conducted; no evening construction works have been undertaken on 01/02/12, 04/02/12, 10/02/12, 13/02/12, 14/02/12, 18/02/12, 20/02/12, 21/02/12, 23/02/12, 24/02/12, 26/02/12. Data is missing for 28/02/12 and 29/02/12 due to device error.

## Measured Night time Noise Levels at Butlaw Fisheries Measurement period: February 2012



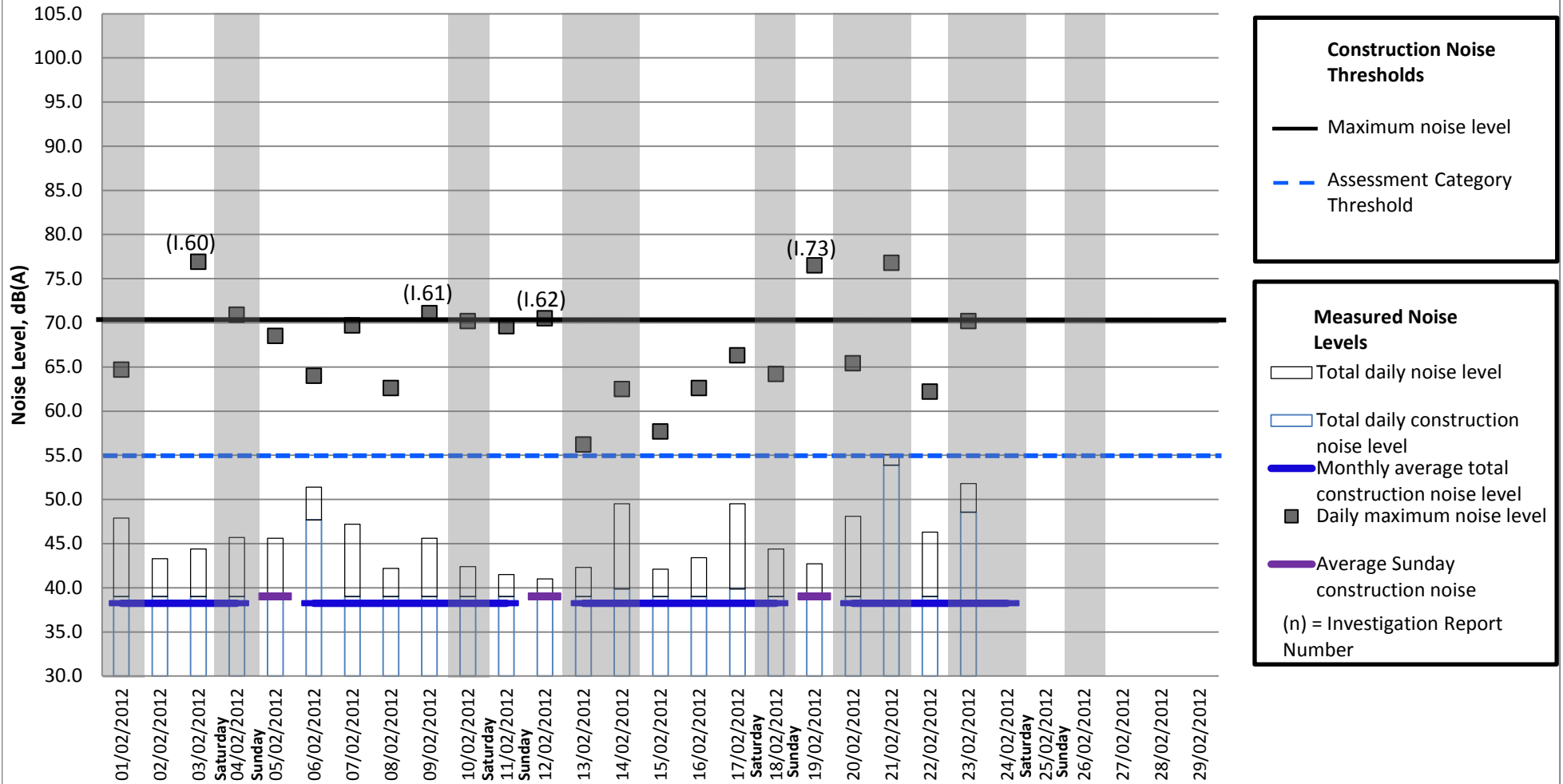
**Note:** The grey areas of the chart represent days on which no construction works have been conducted; no night time construction works have been conducted on 03/02/12, 04/02/12, 13/02/12, 14/02/12, 20/02/12, 21/02/12, 23/02/12, 24/02/12 and 26/02/12. Night-time noise data is missing for the period 27/02/12 to 29/02/12 due to device error.

## Measured Daytime Noise Levels at Inchgarvie Measurement period: February 2012



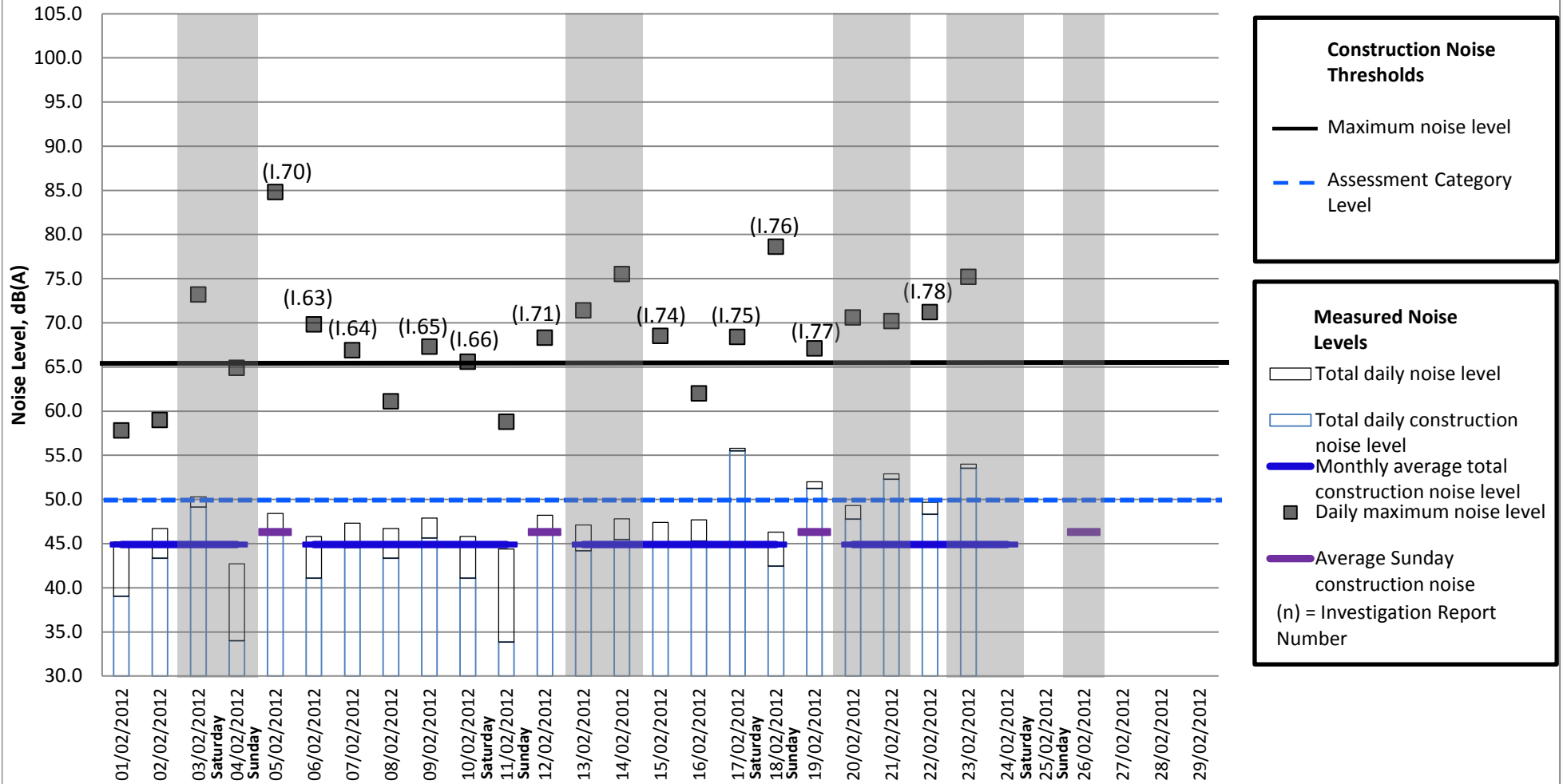
**Note:** Daily maximum noise level data is missing for 02/02/12 due to device error. Daytime noise data is missing for the period 24/02/12 to 29/02/12 due to device error and device maintenance.

## Measured Evening Noise Levels at Inchgarvie Measurement period: January 2012



**Note:** The grey areas of the chart represent days on which no construction works have been conducted; no evening construction works have been undertaken on 01/02/12, 04/02/12, 10/02/12, 13/02/12, 14/02/12, 18/02/12, 20/02/12, 21/02/12, 23/02/12, 24/02/12 and 26/02/12. Evening noise data is missing for the period 24/02/12 to 29/02/12 due to device error and device maintenance.

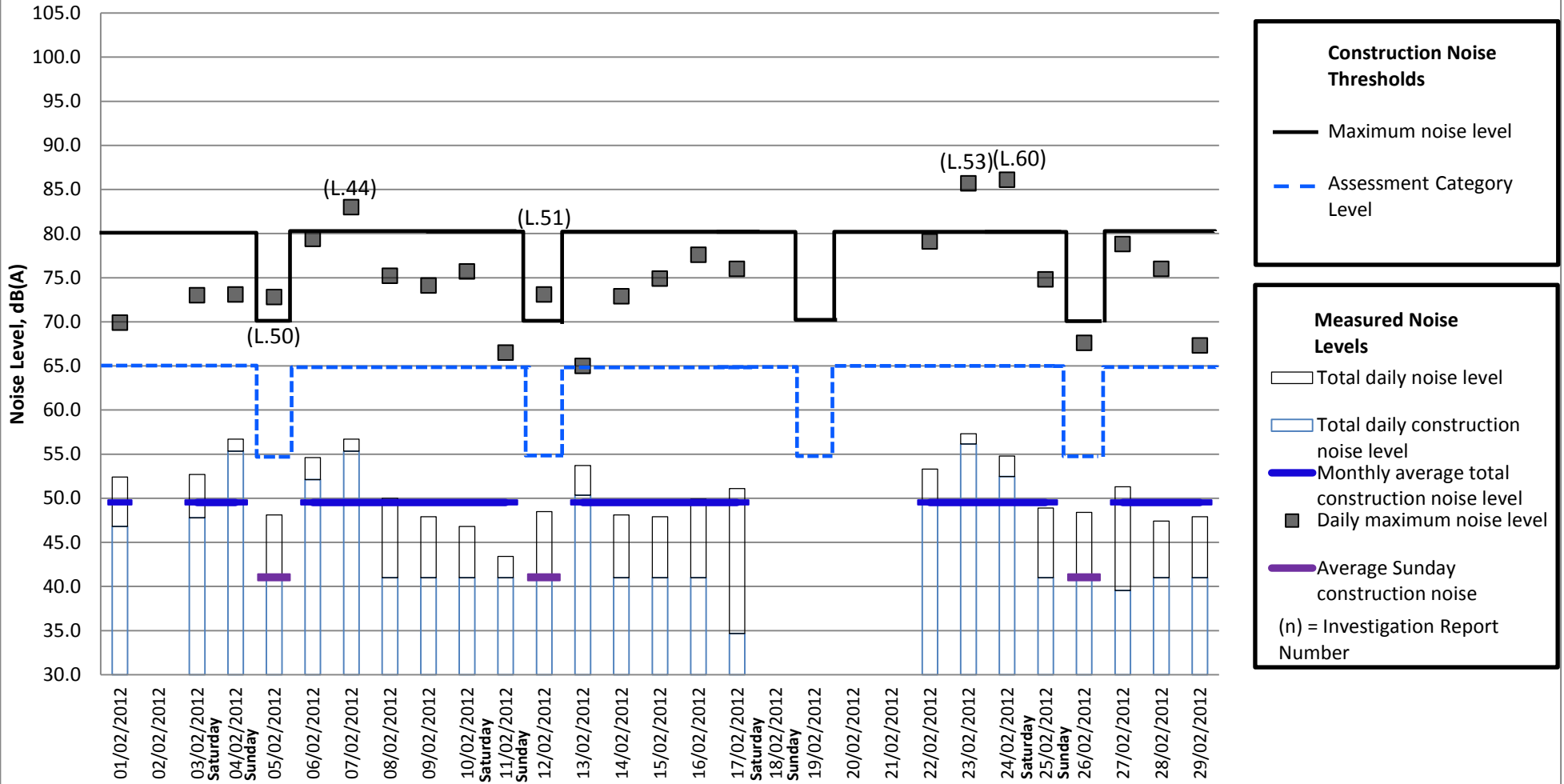
## Measured Night time Noise Levels at Inchgarvie Measurement period: February 2012



**Note:** The grey areas of the chart represent days on which no construction works have been conducted; no night time construction works have been conducted on 03/02/12, 04/02/12, 13/02/12, 14/02/12, 20/02/12, 21/02/12, 23/02/12, 24/02/12 and 26/02/12. Night time noise data is missing for the period 24/02/12 to 29/02/12 due to device error and device maintenance.

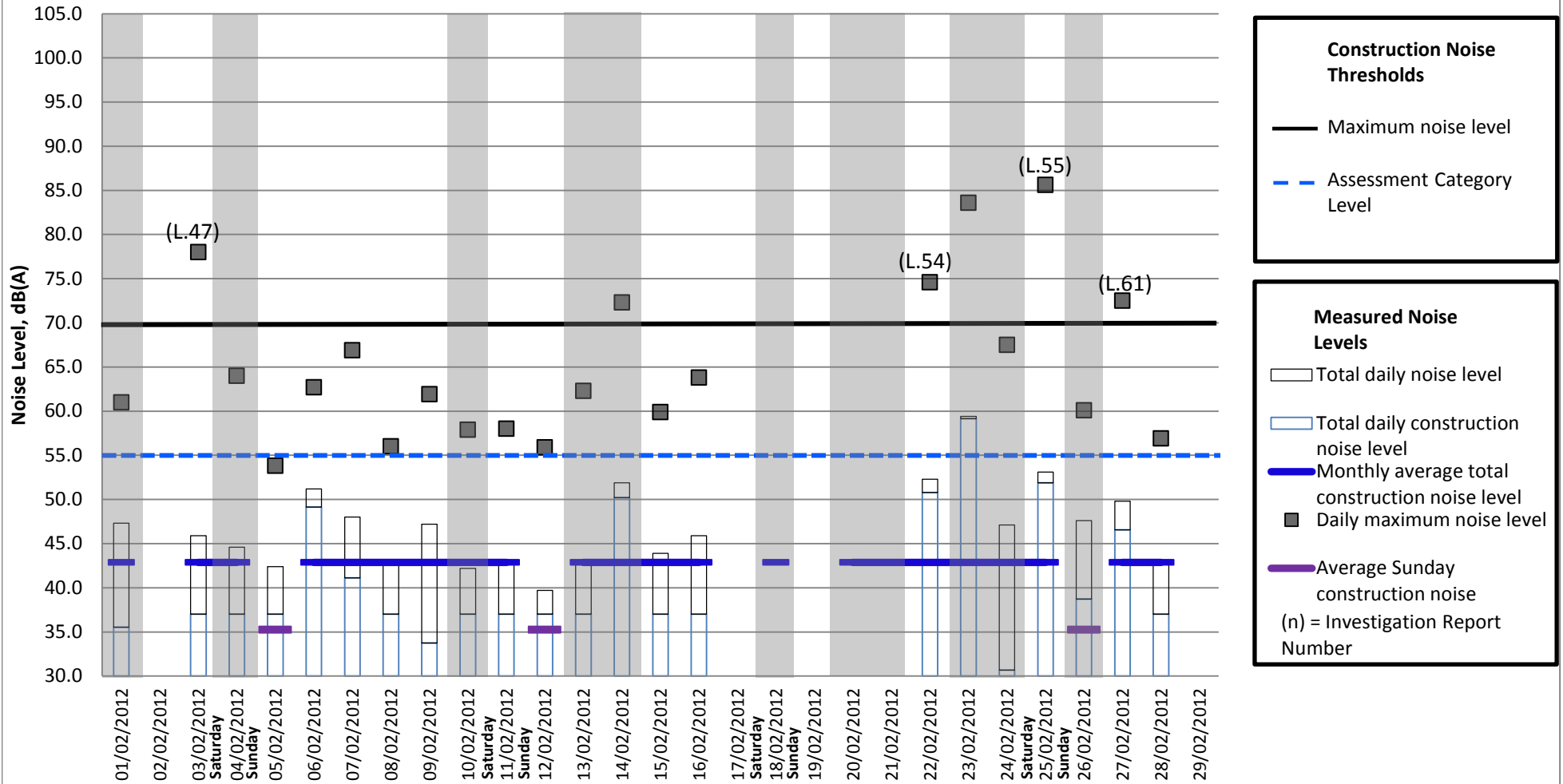


## Measured Daytime Noise levels at Linn Mill Measurement period: February 2012



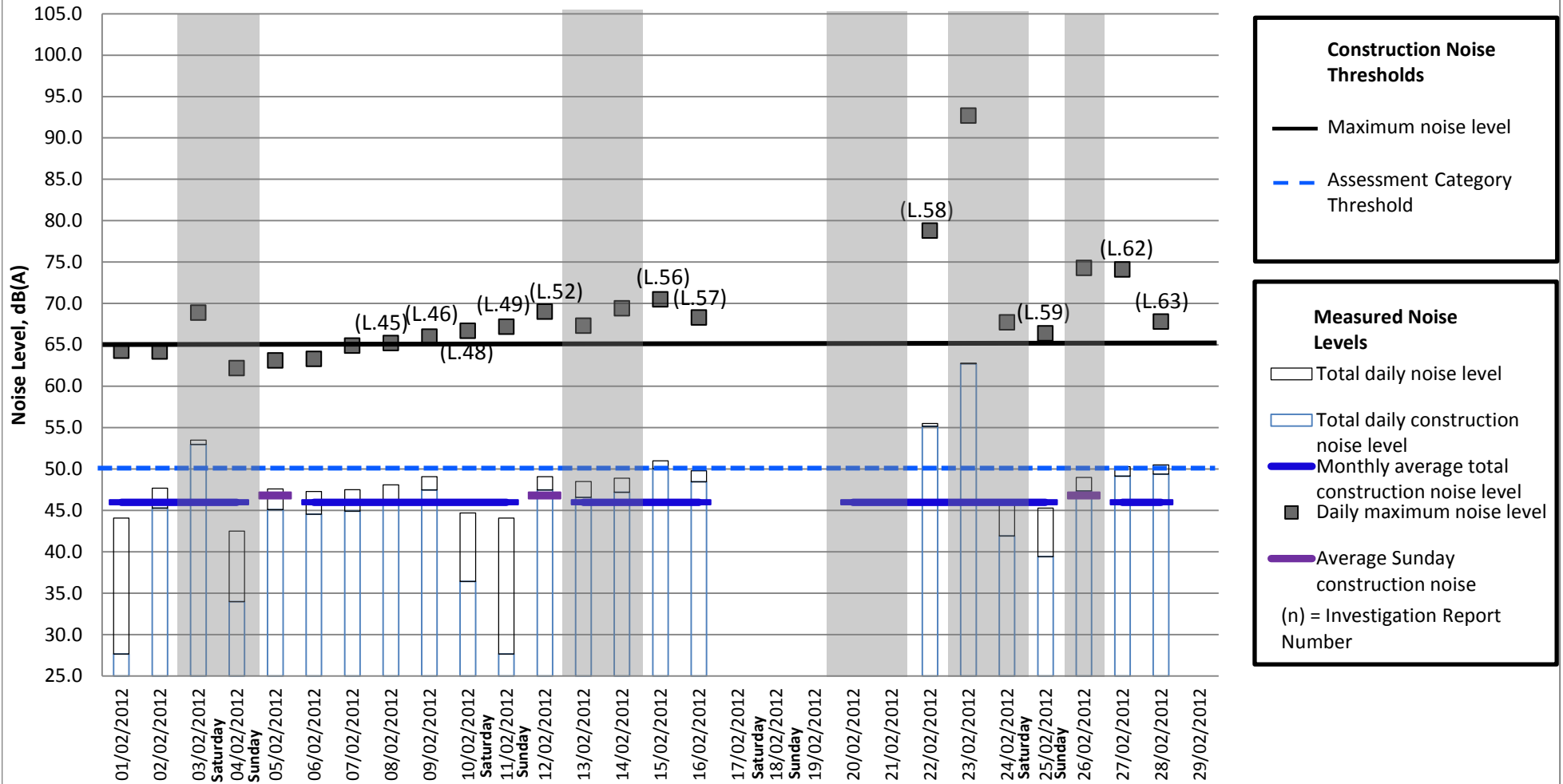
**Note:** Daytime noise data is missing for 02/02/12 and for the period 18/02/12 to 21/01/12 due to device error.

## Measured Evening Noise Levels at Linn Mill Measurement period: February 2012



**Note:** The grey areas of the chart represent days on which no construction works have been conducted; no evening construction works were conducted on 01/02/12, 04/02/12, 10/02/12, 13/02/12, 14/02/12, 18/02/12, 20/02/12, 21/02/12, 23/02/12, 24/02/12, 26/02/12. Evening noise data is missing for the period 17/02/12 to 21/02/12 due to device error and for the 29/02/12 due to device maintenance.

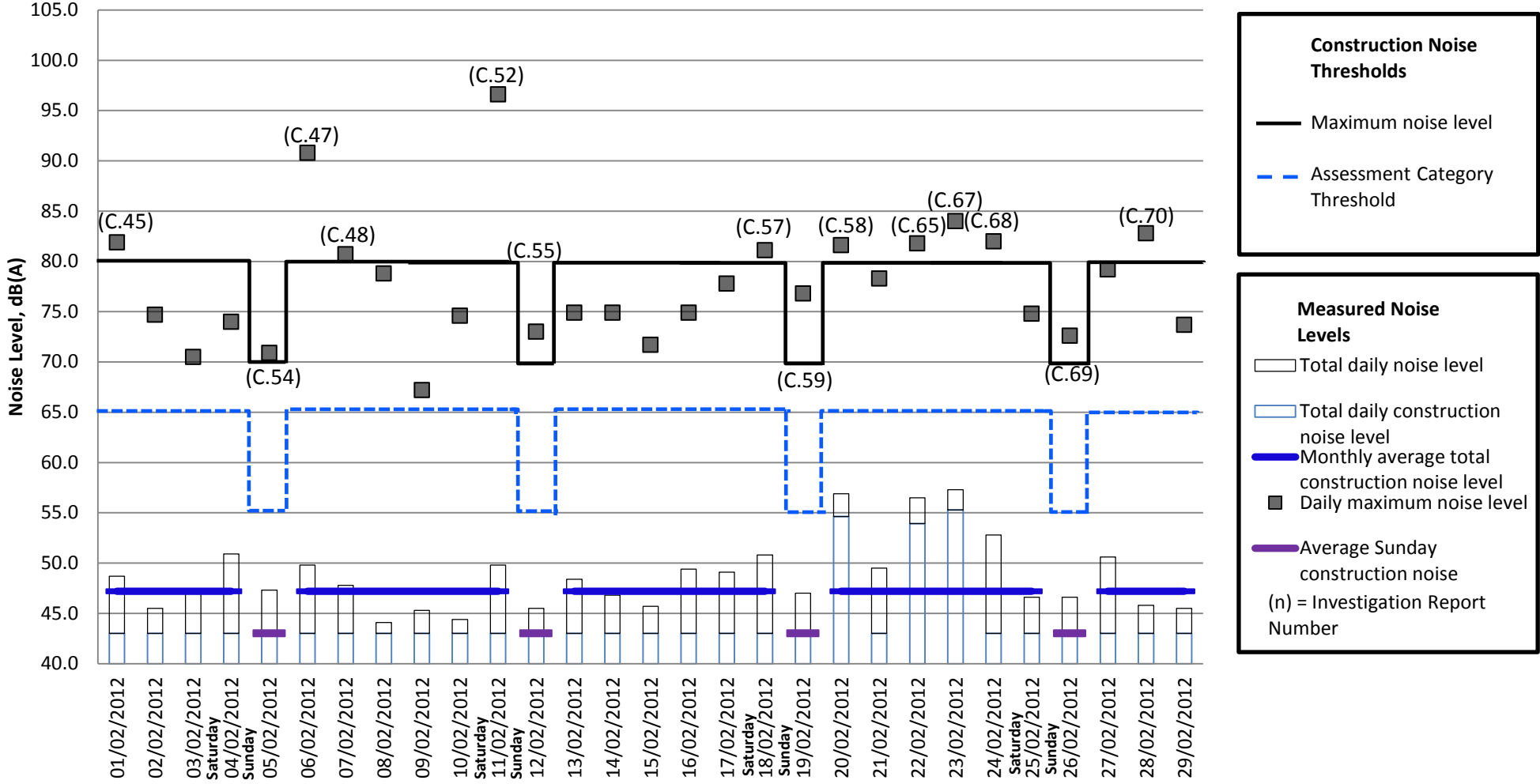
## Measured Night-time Noise Levels at Linn Mill Measurement period: February 2012



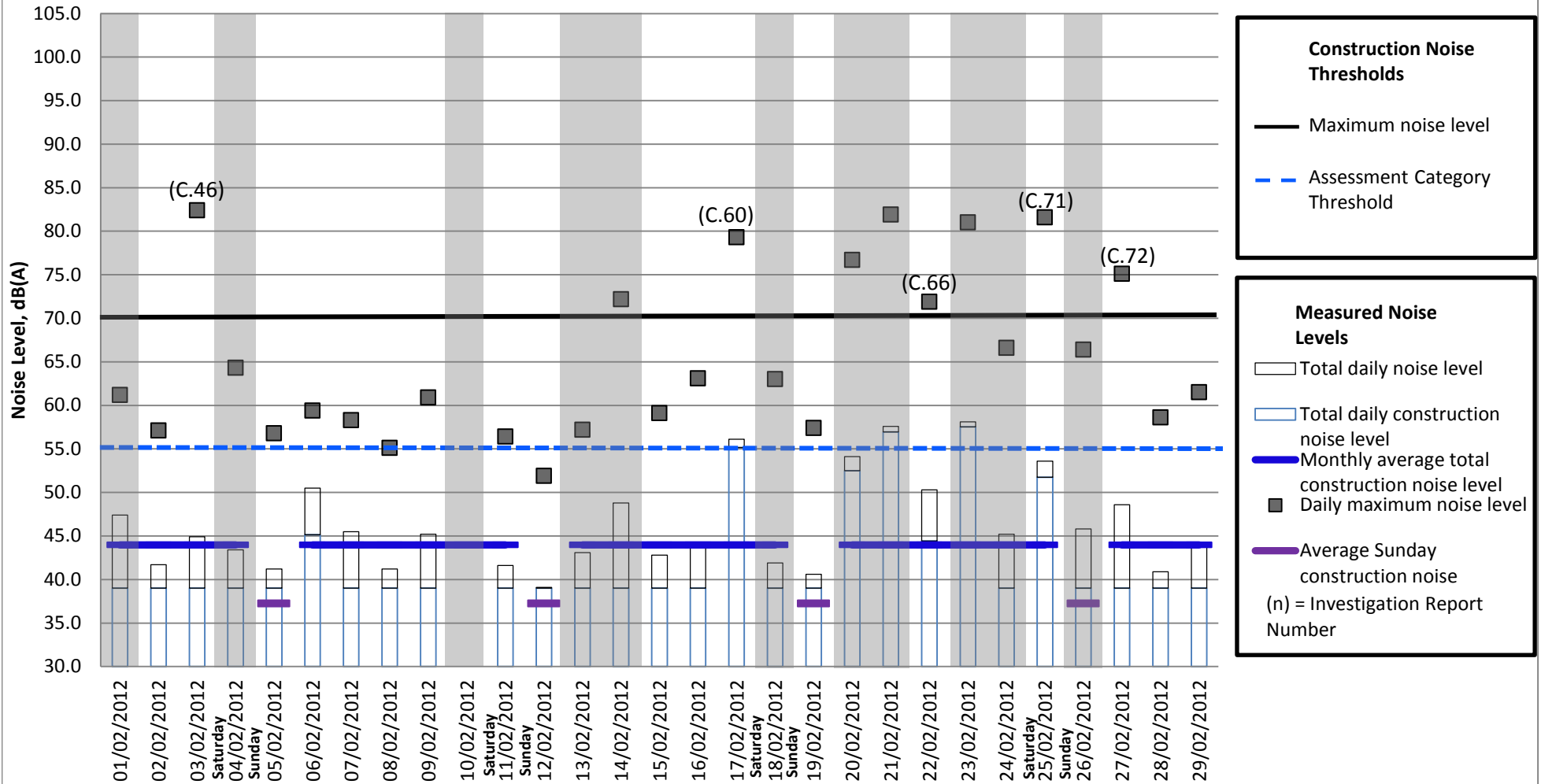
**Note:** The grey areas of the chart represent days on which no construction works have been conducted; no night time construction works were conducted on 03/02/12, 04/02/12, 13/02/12, 14/02/12, 20/02/12, 21/02/12, 23/02/12, 24/02/12 and 26/02/12. Night time noise data is missing for the period 17/02/12 to 21/02/12 due to device error and for 29/02/12 due to device maintenance.

# Measured Daytime Noise Levels at Clufflat Brae

## Measurement period: February 2012

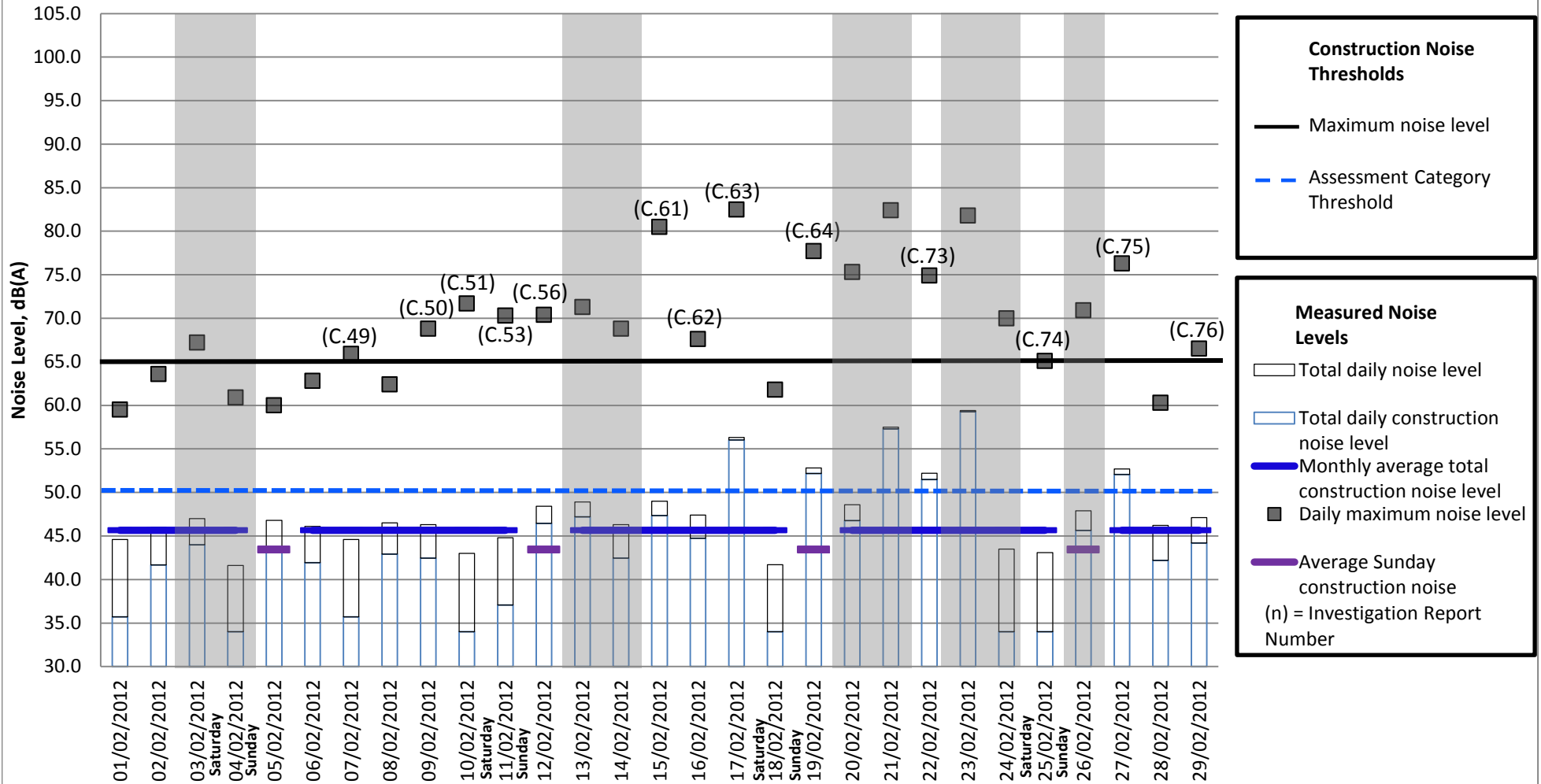


## Measured Evening Noise Levels at Clufflat Brae Measurement period: February 2012



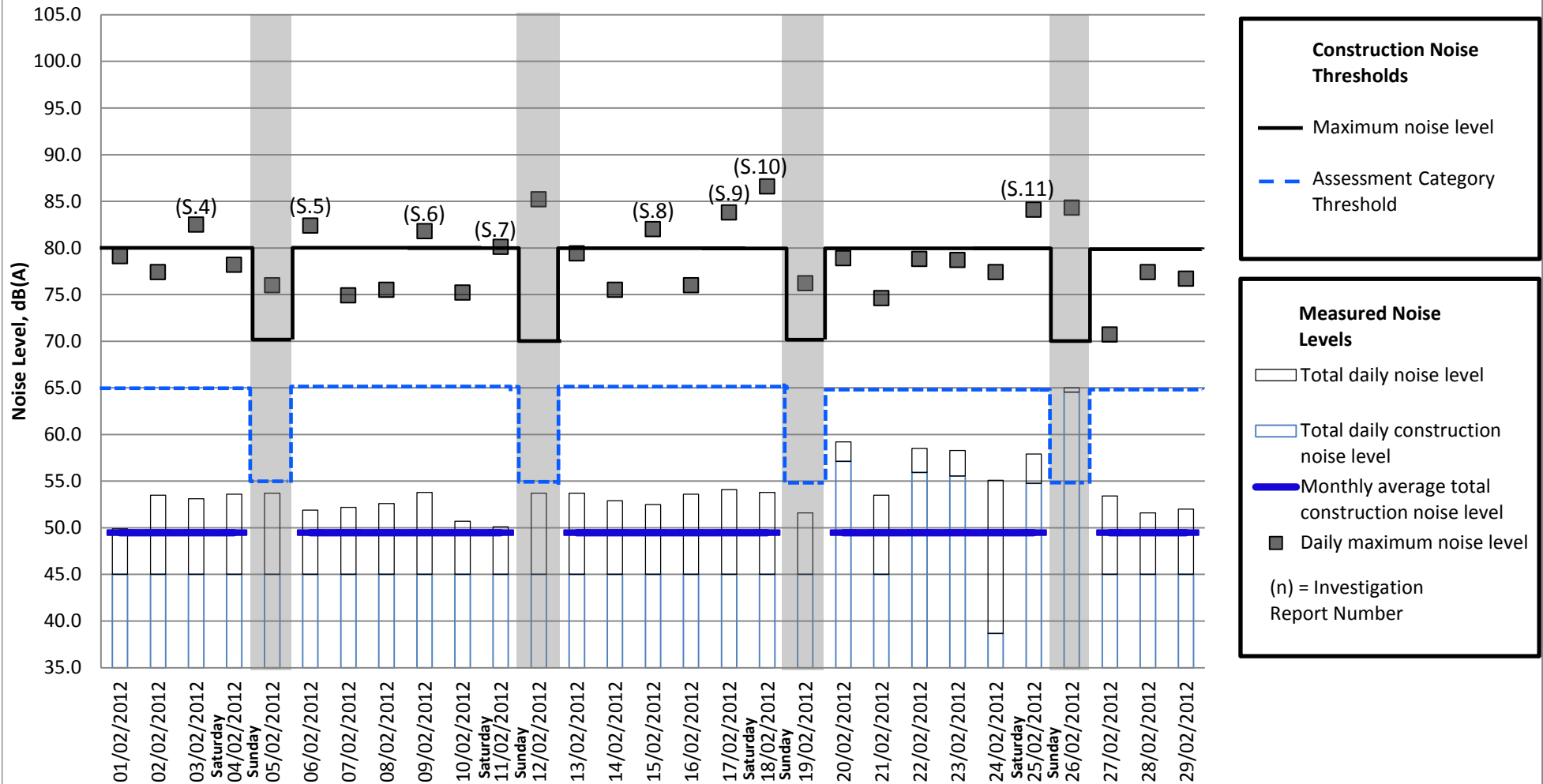
**Note:** The grey areas of the chart represent days on which no construction works have been conducted; no evening construction works have been undertaken on 01/02/12, 04/02/12, 10/02/12, 13/02/12, 14/02/12, 18/02/12, 20/02/12, 21/02/12, 23/02/12, 24/02/12 and 26/02/12. Evening noise data is missing for 10/02/12 due to device error.

## Measured Night-time Noise Levels at Clufflat Brae Measurement period: February 2012



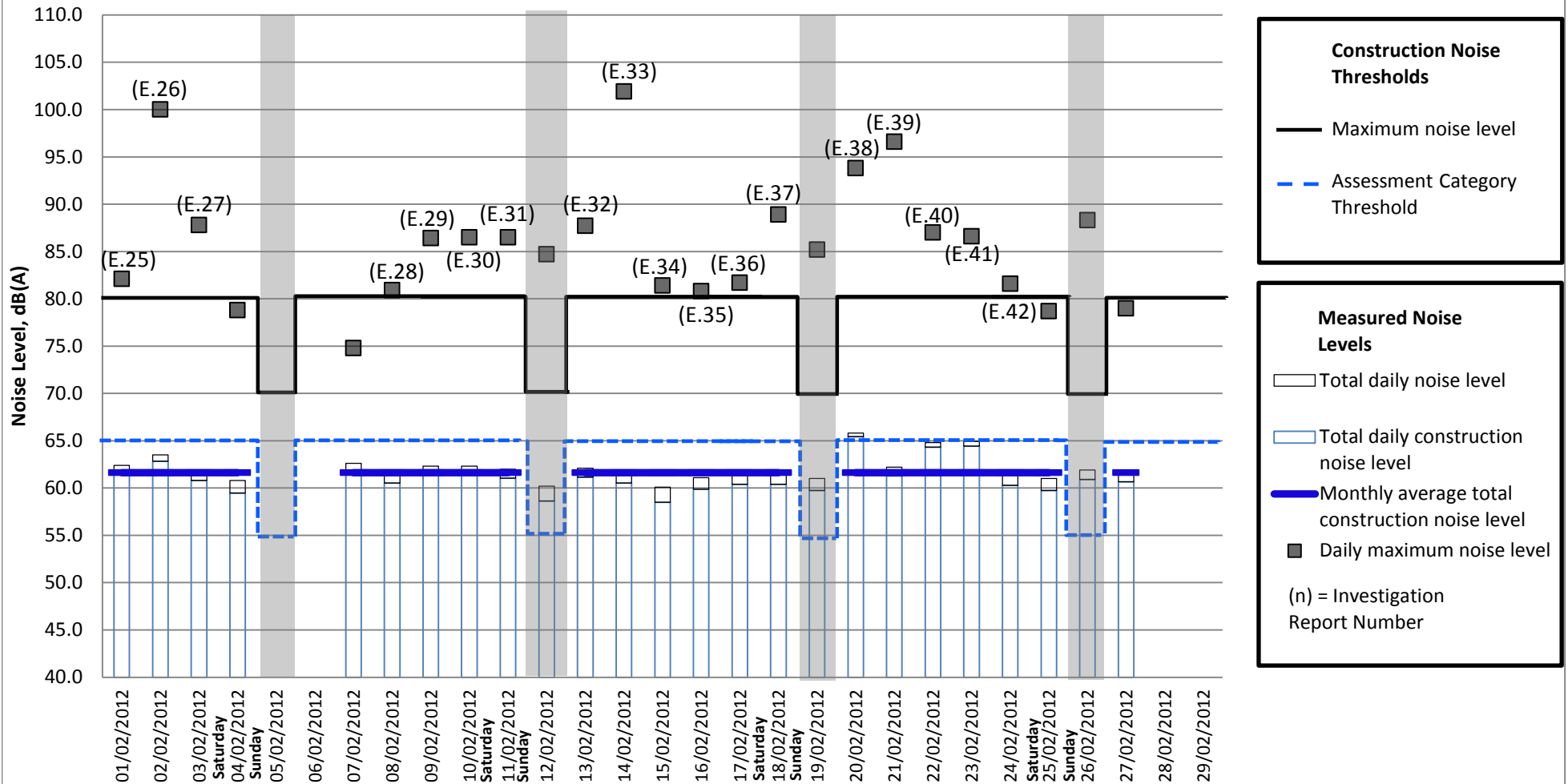
**Note:** The grey areas of the chart represent days on which no construction works have been conducted; no night time construction works have been conducted on 03/02/12, 04/02/12, 13/02/12, 14/02/12, 20/02/12, 21/02/12, 23/02/12, 24/02/12 and 26/02/12.

## Measured Daytime Noise Levels at Springfield Measurement period: February 2012



**Note:** The grey areas of the chart represent days on which no construction works have been conducted; no Sunday construction works have been conducted at this location. As no construction works have been undertaken on Sundays, an average for Sunday construction noise has not been included.

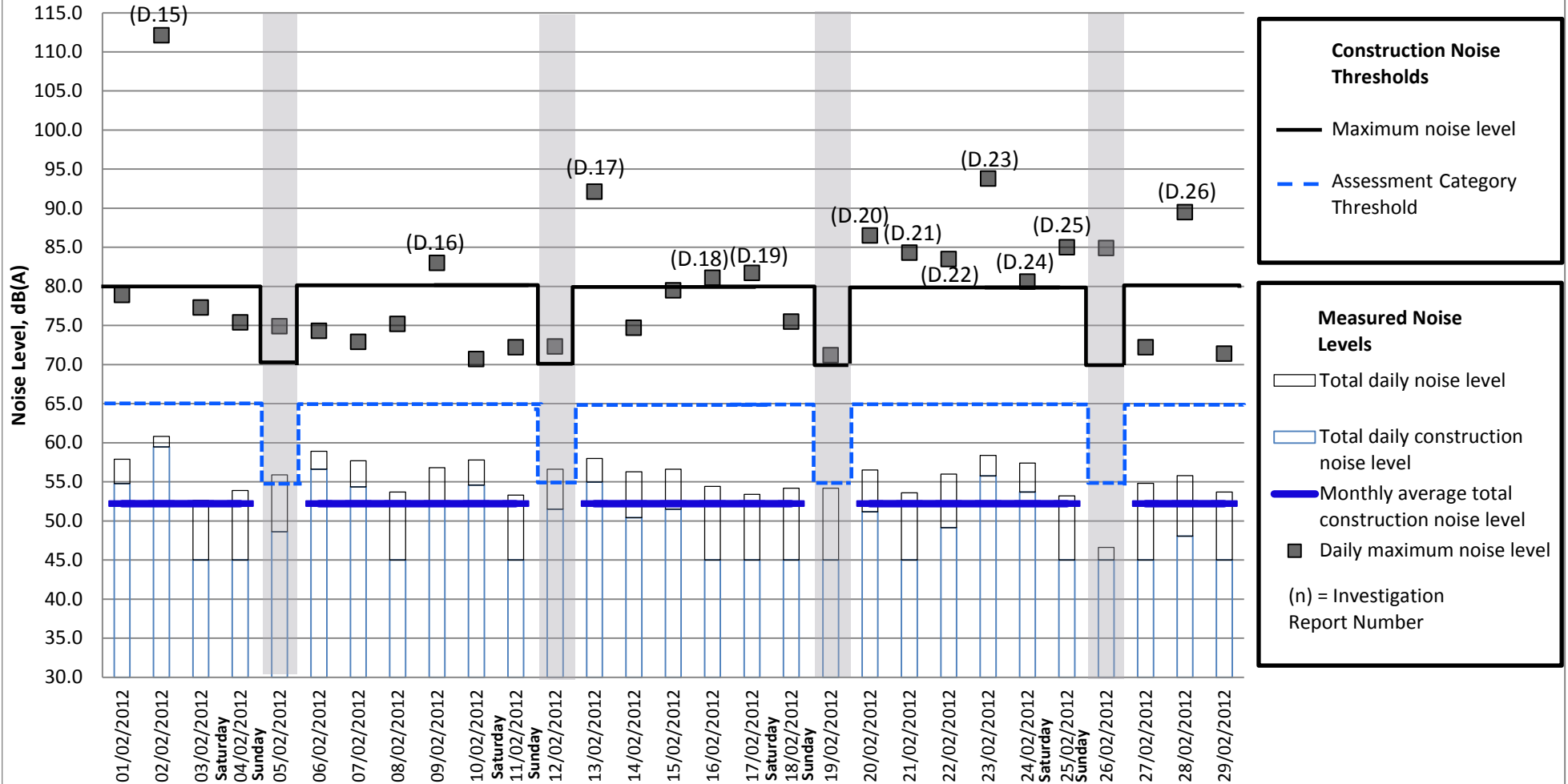
## Measured Daytime Noise Levels at Echline Field Measurement period: February 2012



**Note:** The grey areas of the chart represent days on which no construction works have been conducted; no Sunday construction works have been conducted at this location. Daytime noise data is missing for 05/02/12 and 06/02/12 due to device error and for 28/02/12 and 29/02/12 due to device maintenance. As no construction works have been undertaken on Sundays, an average for Sunday construction noise has not been included.



## Measured Daytime Noise Levels at Dundas Home Farm Measurement period: February 2012

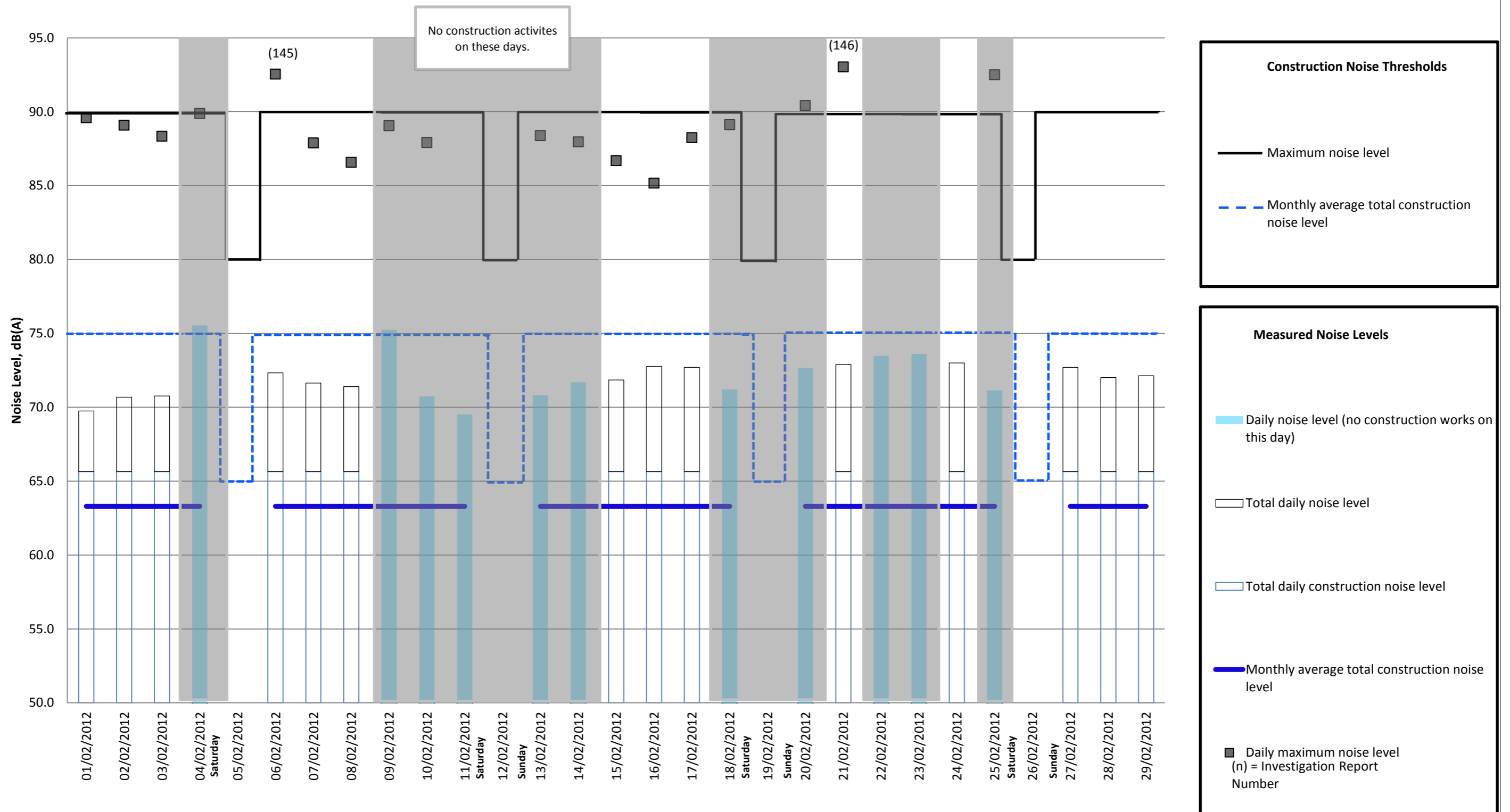


**Note:** The grey areas of the chart represent days on which no construction works have been conducted; no Sunday construction works have been conducted at this location. As no construction works have been undertaken on Sundays, an average for Sunday construction noise has not been included.

**APPENDIX B -**

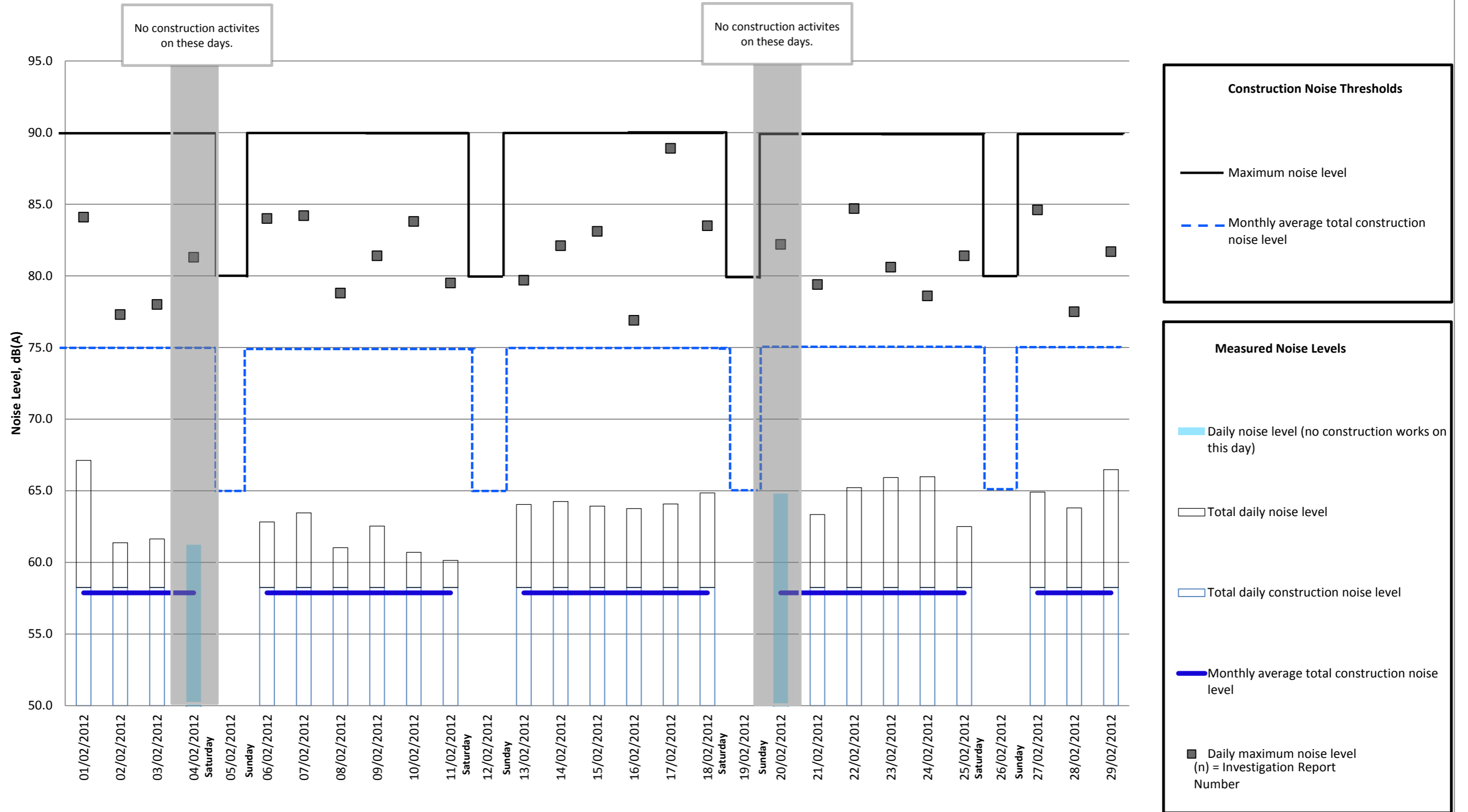
**M9 J1A CONTRACT - CONSTRUCTION  
NOISE MONITORING REPORTS**

## Measured daytime noise levels, 93/95 King Edwards Way (CNV02) Measurement period 1st February to 29th February 2012



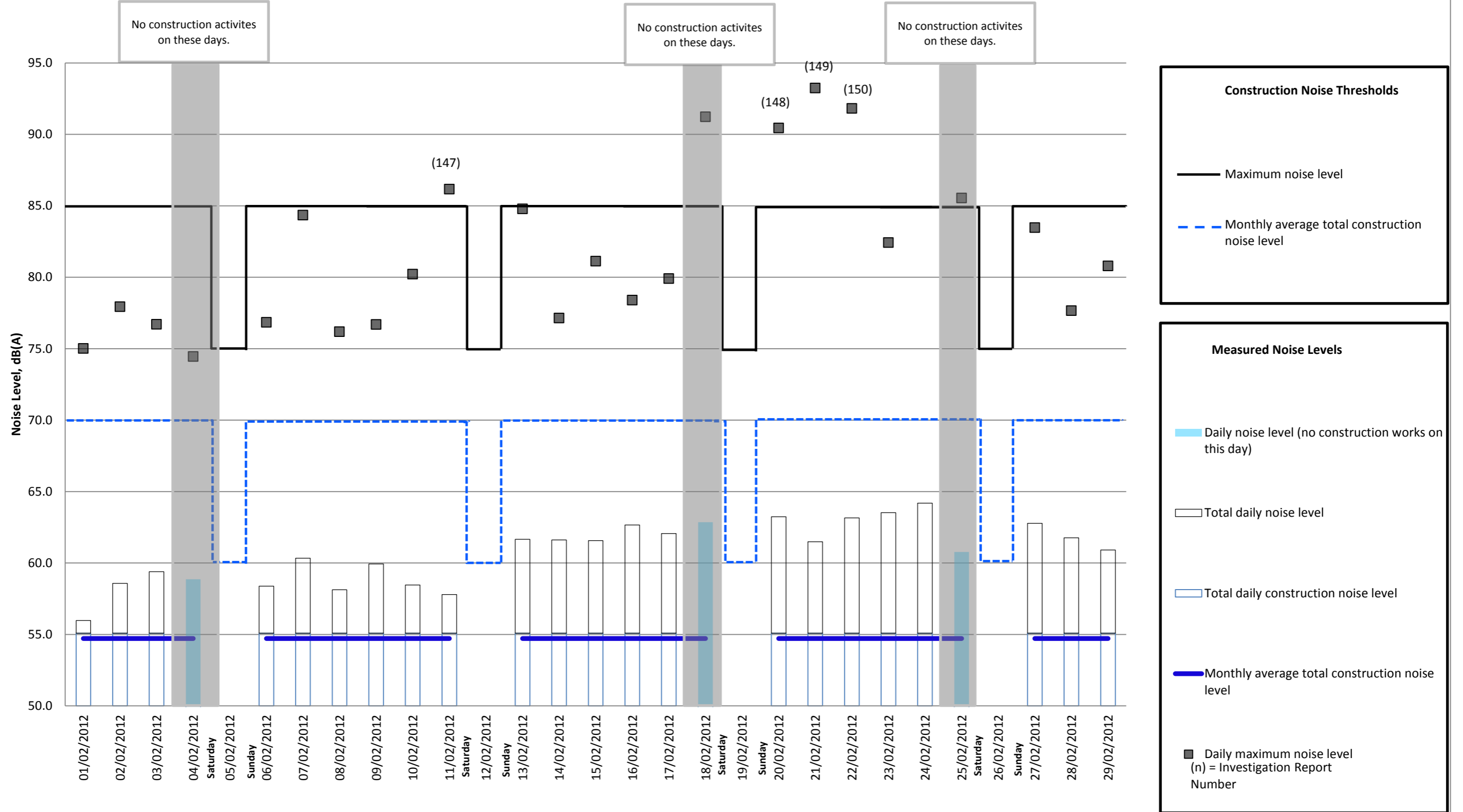
Sunday data have not been included as no construction works have been conducted during these hours.

## Measured daytime noise levels, 15-17 Buie Rigg (CNV07) Measurement period 1st February to 29th February 2012



Sunday data have not been included as no construction works have been conducted during these hours.

## Measured daytime noise levels, 8 Kirklands Park Grove (CNV16) Measurement period 1st February to 29th February 2012



Sunday data have not been included as no construction works have been conducted during these hours.



Project Title:  
**FORTH REPLACEMENT  
 CROSSING  
 M9 Junction 1A**

Project  
 Number:  
  
**208**

Contractor:  
**SRB**

Date:  
**08-02-12**

**NER. 20**

**QUALITY MANAGEMENT  
 SYSTEM**

**NOISE EXCEEDENCE REPORT**

**Summary of Finding(s): February 6th 2012– CNV02**

Exceedence 145: Maximum Noise Level: 92.5 dB (A) at 18.27pm.

**Analysis:**

An analysis was carried out using the following data:

- Recorded Noise Logs and Noise Data
- Noise type
- Site Diaries / Weather Data
- Inspections by Senior Engineer (Roland Tarrant)

**Findings:**

An analysis of the site diaries shows that works finished in this area at 5pm and all plant was parked up after this time.

It is considered unlikely that construction operations resulted in the exceedence recorded.

**Corrective Action Required:**

Maintain current monitoring and surveillance levels

Signature .....Roland Tarrant.....

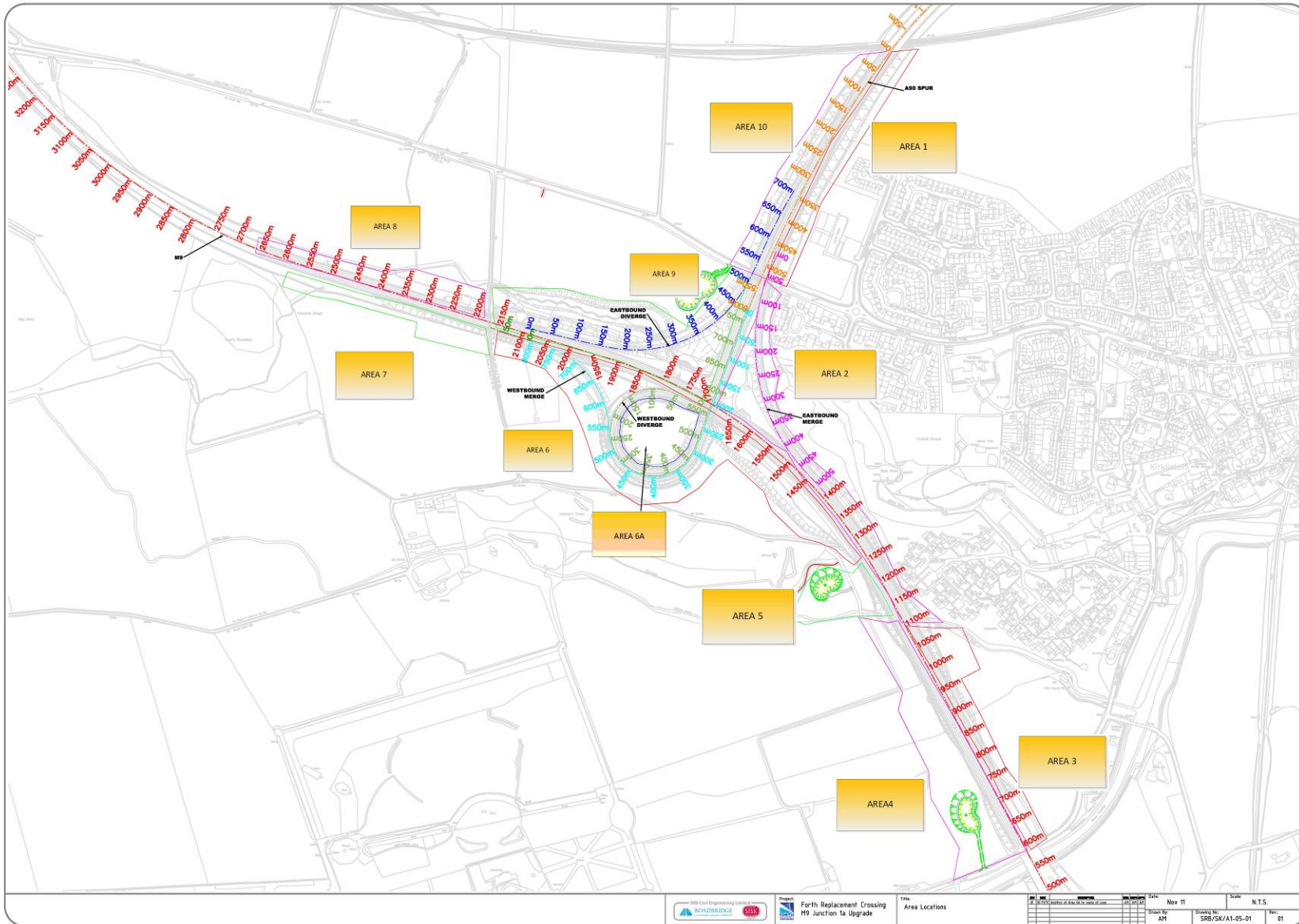
Date .....08-02-12.....


**NER Closed**

Works have been inspected and completed as described above.

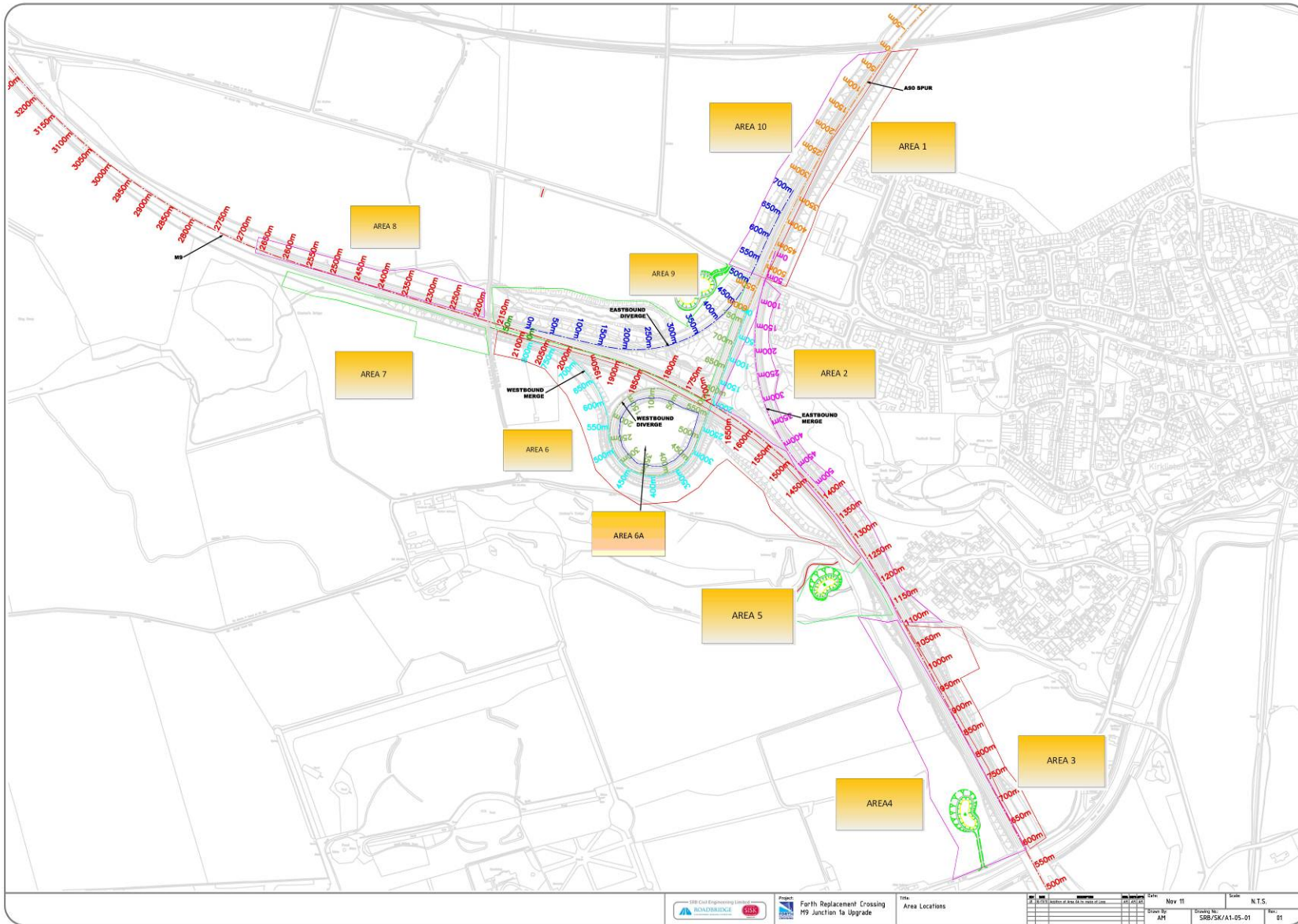
Signature .....Seamus O'Brien.....Date .....08-02-12...


Project Manager / ~~Assist Project Manager~~

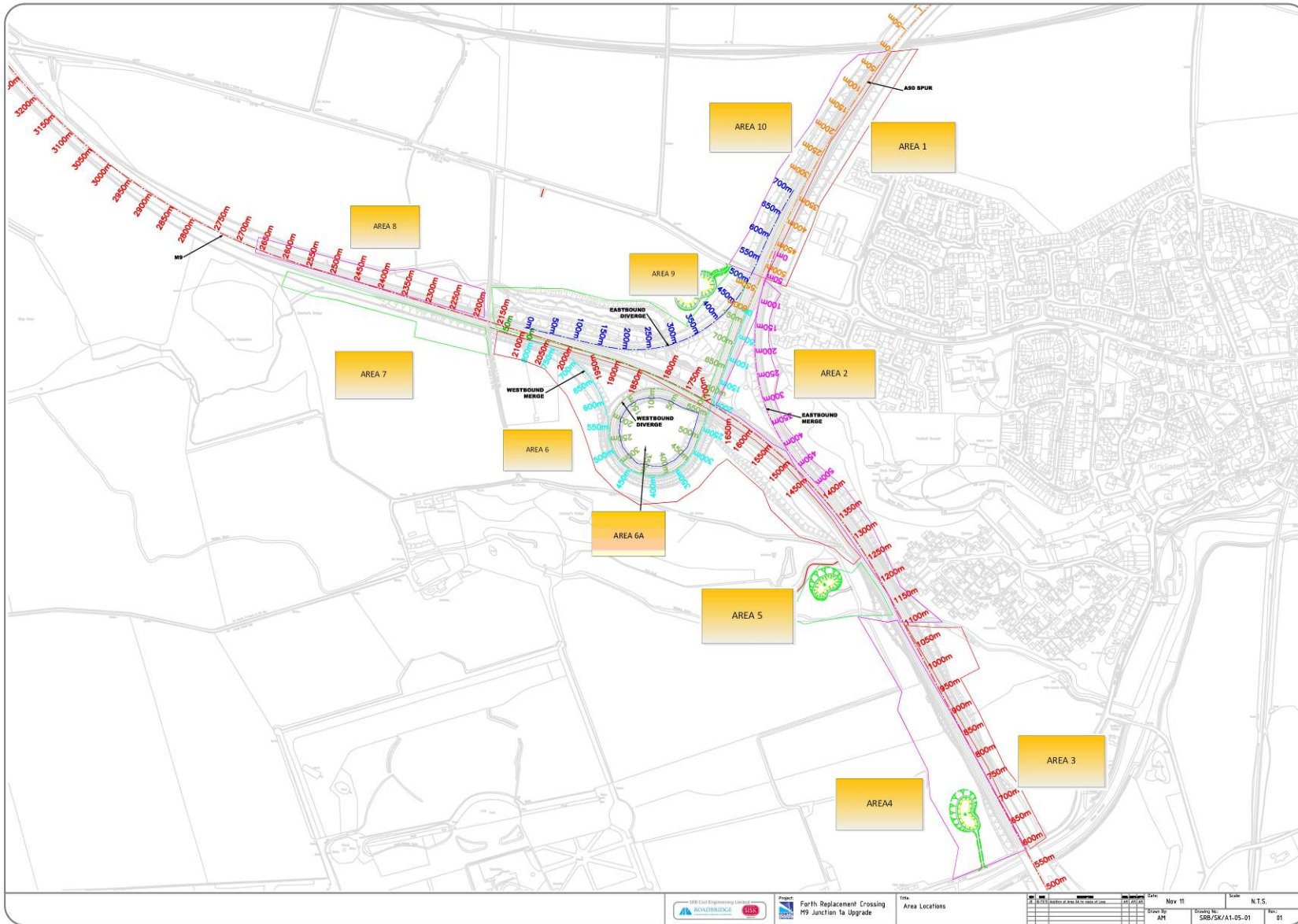



 <b>QUALITY MANAGEMENT SYSTEM</b>	<b>Project Title:</b> <b>FORTH REPLACEMENT CROSSING</b> <b>M9 Junction 1A</b>		<b>Project Number:</b>  <b>208</b>
	<b>Contractor:</b> <b>SRB</b>	<b>Date:</b> <b>23-02-12</b>	<b>NER. 21</b>
	<b>NOISE EXCEEDENCE REPORT</b>		
<b>Summary of Finding(s): <u>February 21st 2012– CNV02</u></b> Exceedence 146: Maximum Noise Level: 93 dB (A) at 14.00pm <b>Analysis:</b> An analysis was carried out using the following data: <ul style="list-style-type: none"> <li>• Recorded Noise Logs and Noise Data</li> <li>• Noise type</li> <li>• Site Diaries / Weather Data</li> <li>• Inspections by Senior Engineer (Roland Tarrant)</li> </ul> <b>Findings:</b> Works ongoing within 200m of this receptor were the Niddry Burn Culvert extension (M912E-Northside) which lies approximately 150m from the Sensitive Receptor, on the other side of the M9 motorway, with no line of sight between the works in this area and the receptor location. Further, on inspection, there was no evidence that works at the Niddry culvert could be heard at the sensitive receptor location. It is considered unlikely that construction operations resulted in the exceedence recorded. <b>Corrective Action Required:</b> Maintain current monitoring and surveillance levels Signature .....Roland Tarrant..... Date .....23-02-12.....			
<b>NER Closed</b> Works have been inspected and completed as described above. Signature .....Seamus O'Brien.....Date .....23-02-12... Project Manager / <del>Assist Project Manager</del>			



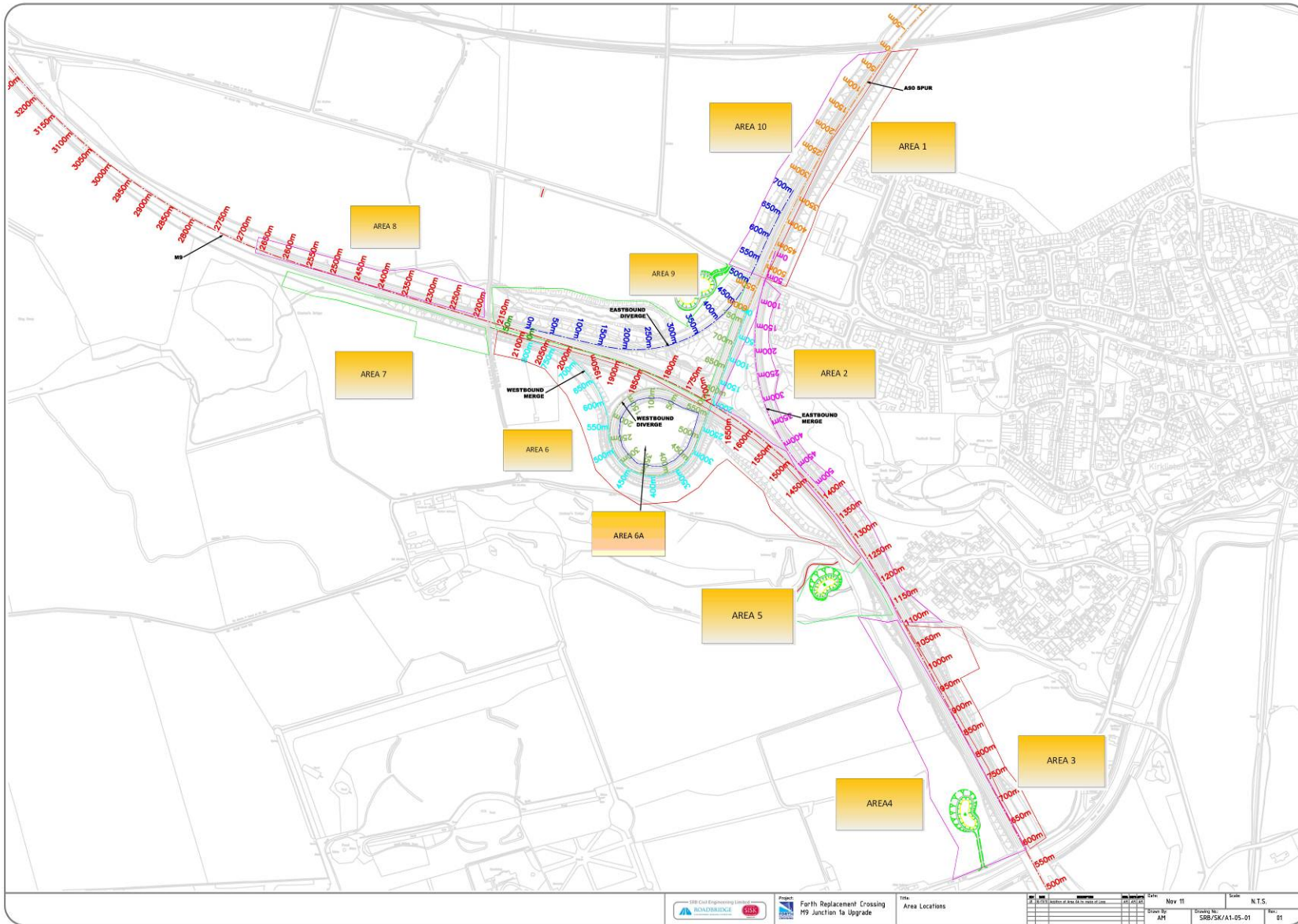



 <b>QUALITY MANAGEMENT SYSTEM</b>	<b>Project Title:</b> <b>FORTH REPLACEMENT CROSSING</b> <b>M9 Junction 1A</b>		<b>Project Number:</b>  <b>208</b>
	<b>Contractor:</b> <b>SRB</b>	<b>Date:</b> <b>13-02-12</b>	<b>NER. 22</b>
	<b>NOISE EXCEEDENCE REPORT</b>		
<b>Summary of Finding(s): <u>February 11th 2012– CNV16</u></b> Exceedence 147: Maximum Noise Level: 86.2 dB (A) at 11.49am <b>Analysis:</b> An analysis was carried out using the following data: <ul style="list-style-type: none"> <li>Recorded Noise Logs and Noise Data</li> <li>Noise type</li> <li>Site Diaries / Weather Data</li> <li>Inspections by Senior Engineer (Roland Tarrant)</li> </ul> <b>Findings:</b> An analysis of the site diaries shows that there were no specific activities taking place within 200m of this receptor on this day with the exception of using the hard shoulder of the M9 Spur for the purposes of access. Hauling took place from G15 to G16 but no hauling took place along the hard shoulder at the sensitive receptor location. It is considered unlikely that construction operations resulted in the exceedence recorded. <b>Corrective Action Required:</b> Maintain current monitoring and surveillance levels Signature .....Roland Tarrant..... Date .....13-02-12.....			
<b>NER Closed</b> Works have been inspected and completed as described above.  Signature .....Seamus O'Brien.....Date .....13-02-12... Project Manager / <del>Assist Project Manager</del>			

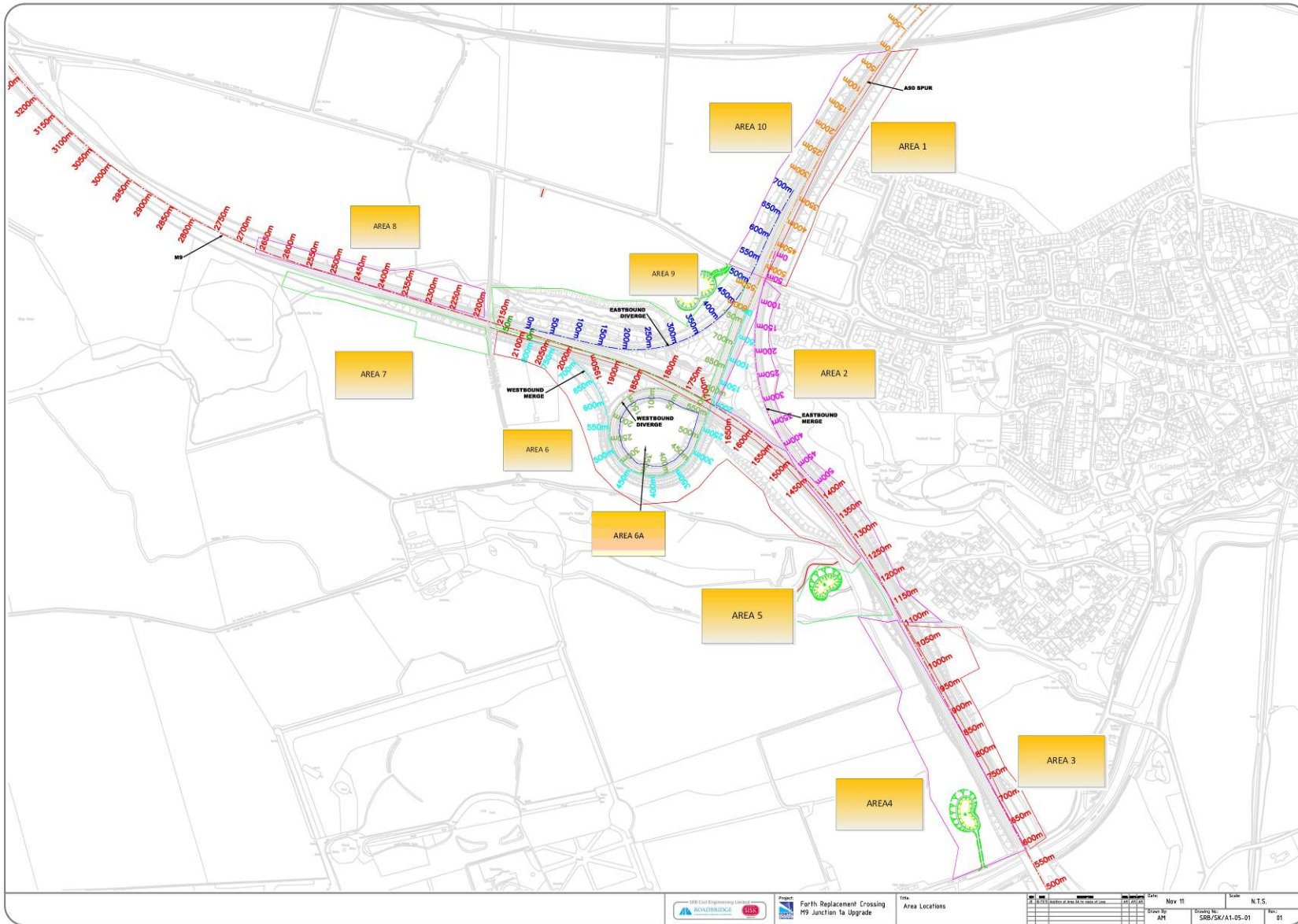



 <b>QUALITY MANAGEMENT SYSTEM</b>	<b>Project Title:</b> <b>FORTH REPLACEMENT CROSSING</b> <b>M9 Junction 1A</b>		<b>Project Number:</b>  <b>208</b>
	<b>Contractor:</b>  <b>SRB</b>	<b>Date:</b>  <b>22-02-12</b>	<b>NER. 23</b>
	<b>NOISE EXCEEDENCE REPORT</b>		
<b>Summary of Finding(s): <u>February 20th 2012– CNV16</u></b> Exceedence 148: Maximum Noise Level: 90.4 dB (A) at 15.17pm <b>Analysis:</b> An analysis was carried out using the following data: <ul style="list-style-type: none"> <li>• Recorded Noise Logs and Noise Data</li> <li>• Noise type</li> <li>• Site Diaries / Weather Data</li> <li>• Inspections by Senior Engineer (Roland Tarrant)</li> </ul> <b>Findings:</b> An analysis of the site diaries shows that there were no specific activities taking place within 200m of this receptor on this day with the exception of using the hard shoulder of the M9 Spur for the purposes of access. In particular, no plant was in operation in the immediate vicinity of the Sensitive Receptor Location. In addition, 5mm of rain fell on the 20 <sup>th</sup> Feb and strong winds were noted at the site weather station (3pm-4pm = 12.7m/s average). This would indicate the potential for gusting winds to influence the noise readings taken. It is considered unlikely that construction operations resulted in the exceedence recorded.			
<b>Corrective Action Required:</b> Maintain current monitoring and surveillance levels Signature .....Roland Tarrant..... Date .....22-02-12.....			
<b>NER Closed</b> Works have been inspected and completed as described above. Signature .....Seamus O'Brien.....Date .....22-02-12... Project Manager / <del>Assist Project Manager</del>			





  <b>QUALITY MANAGEMENT SYSTEM</b>	<b>Project Title:</b> <b>FORTH REPLACEMENT CROSSING</b> <b>M9 Junction 1A</b>		<b>Project Number:</b>  <b>208</b>
	<b>Contractor:</b>  <b>SRB</b>	<b>Date:</b> <b>23-02-12</b>	<b>NER. 24</b>
	<b>NOISE EXCEEDENCE REPORT</b>		
<b>Summary of Finding(s): <u>February 21st 2012– CNV16</u></b> Exceedence 149: Maximum Noise Level: 93.2 dB (A) at 17.28pm <b>Analysis:</b> An analysis was carried out using the following data: <ul style="list-style-type: none"> <li>• Recorded Noise Logs and Noise Data</li> <li>• Noise type</li> <li>• Site Diaries / Weather Data</li> <li>• Inspections by Senior Engineer (Roland Tarrant)</li> </ul> <b>Findings:</b> An analysis of the site diaries shows that works finished in this area at 5pm and all plant was parked up after this time. It is considered unlikely that construction operations resulted in the exceedence recorded.  <b>Corrective Action Required:</b> Maintain current monitoring and surveillance levels Signature .....Roland Tarrant..... Date .....23-02-12.....			
<b>NER Closed</b> Works have been inspected and completed as described above.  Signature .....Seamus O'Brien.....Date .....23-02-12... Project Manager / <del>Assist Project Manager</del>			



 <b>QUALITY MANAGEMENT SYSTEM</b>	<b>Project Title:</b> <b>FORTH REPLACEMENT CROSSING</b> <b>M9 Junction 1A</b>		<b>Project Number:</b>  <b>208</b>
	<b>Contractor:</b> <b>SRB</b>	<b>Date:</b> <b>27-02-12</b>	<b>NER. 25</b>
	<b>NOISE EXCEEDENCE REPORT</b>		
<b>Summary of Finding(s): <u>February 25nd 2012– CNV16</u></b> Exceedence 150: Maximum Noise Level: 91.8 dB (A) at 16.37pm <b>Analysis:</b> An analysis was carried out using the following data: <ul style="list-style-type: none"> <li>• Recorded Noise Logs and Noise Data</li> <li>• Noise type</li> <li>• Site Diaries / Weather Data</li> <li>• Inspections by Senior Engineer (Roland Tarrant)</li> </ul> <b>Findings:</b> An analysis of the site diaries shows that there were no specific activities taking place within 200m of this receptor on this day with the exception of using the hard shoulder of the M9 Spur for the purposes of access. In particular, no plant was in operation in the immediate vicinity of the Sensitive Receptor Location. In addition, 4mm of rain fell on the 22 <sup>nd</sup> Feb with wind during this period (4pm to 5pm averaging 7m/s). While the wind levels are lower than best practice thresholds for noise monitoring, they do point to the potential for rainfall and gusting wind to influence the noise readings taken. It is considered unlikely that construction operations resulted in the exceedence recorded.  <b>Corrective Action Required:</b> Maintain current monitoring and surveillance levels Signature .....Roland Tarrant..... Date .....27-02-12.....			
<b>NER Closed</b> Works have been inspected and completed as described above.  Signature .....Seamus O'Brien.....Date .....27-02-12... Project Manager / <del>Assist Project Manager</del>			



