Bailey
INTERNATIONAL
Steeplejack Company Limited

Inspection report

Client: Council of the Isles of Scilly

Site: Porthmellon Incinerator, Isles of Scilly

Chimney: Incinerator stack

Date of inspection: 14 December 2010

Inspection Report

Client:	Council of the Isles of Scilly
Project number:	C5063
Project address:	Porthmellon Incinerator, Isles of Scilly
Chimney designation:	Incinerator stack

Inspection type:	Inspection date:	Inspection engineer:
Standard external/internal	Tuesday, 14 December 2010	Richard Thompson

We have not inspected parts of the structure which are covered, unexposed or inaccessible and we are therefore unable to report that any such part of the structure is free from defect.

Chimney height:	Chimney outlet diameter:
22.4 from ground 12.4 from base frame *Metres*	750 *millimetres*

Chimney Description:

Type	*Fabric*	*Section*	*Number of flues*
Frame mounted	Plain steel, twin skin	Circular	Single flue

Chimney environment:

Normal inland (A)	Most rural and urban areas (Note: Some rural and urban areas may be polluted from industrial areas close by, depending on prevailing winds)
Polluted inland (B)	Areas with high airborne SO_2 and other contaminants from industrial sources
Normal coastal (C)	High airborne salt levels. (The salt contaminated zone may extend inland as far as 2-3 Km from the coast)
Polluted coastal (D)	As with ‘B’ but with high airborne salt levels. (The contaminated zone may extend inland as far as 2-3 Km from the coast)
Heavy polluted industrial (E)	Aggressive industrial environments such as areas adjacent to acid plants, salt storage depots, electroplating shops, chemical works etc.

Chimney access:

Report	*Comment*	*Photo No.*
There was no access system fitted to the chimney above gantry level.	**BS EN 13084-1:2000 Section 4.8.1** - Chimneys of more than 5 metres height above a structurally accessible level (for example a roof of an adjacent building) shall be provided with an access system from this level to the top with the purpose of allowing inspection and maintenance.	001 - 002
A caged access ladder provided access to the chimney at gantry level.	**HSE's research report 258 "***Preliminary investigation into the fall arresting effectiveness of ladder safety hoops***"** - "In three of the tests the test dummy fell six metres down the cage onto the floor, after first striking the cage several times. The final impacts were around 23g, which in real life would be fatally injurious. In four of the tests the test dummy managed to jam in the cage but at levels of impact that would cause significant injury. In such a case rescue would be extremely difficult." "RR258 concluded that hooped ladders could not stop a fall positively, and unless they could be modified in some way to demonstrate that they could, their use should be abandoned."	001 - 003
The safety chains fitted to the summit of the caged ladder were found to be insufficient.	**BS 4211:2005 - Section 6** – Passage from the ladder to an arrival area, shall be protected by a full depth self closing gate.	

Fall arrest system:

Report	*Comment*	*Photo No.*
There was no permanent fall arrest system fitted	**The Work at Height Regulations 2005 – Section 6.3** – Where work is carried out at height, every employer shall take suitable and sufficient measures to prevent, so far as is reasonably practicable, any person falling from a distance liable to cause personal injury.	001 - 003

Chimney information plate:

Report	*Comment*	*Photo No.*
There was no information plate fitted to the chimney.	**BS 4076:1989 Section 4.6** - a metal information plate shall be rigidly fixed to the outside of the steel chimney	
Manufacturer's name & location.		
Design standard.		
Date erected.		
Design Fuel.		
Total corrosion allowance of the structural shell.		
Recommended inspection frequency.		
Last inspection date.		
The last inspection date was not recorded.	**BS 4076:1989 appendix A.9** - the date of the inspection shall be marked on the information plate.	

Chimney foundation:

Report	*Comment*	*Photo No.*
The weather shroud covering the foundation of the chimney was found be in reasonable condition, however heavy staining was in evidence.		004 - 005

Chimney windshield:

Report	*Comment*	*Photo No.*
The smokeband area of the windshield was showing early signs of paint protection failure.	**BS EN 13084-1:2000 Section 4.6** - Generally chimneys have to be protected against corrosion or chemical attack by means of protective coating.	006 - 007
Throughout the windshield there were isolated areas of paint protection failure and surface corrosion.		008 - 010
The access door frame was found to be showing paint protection failure and surface corrosion.		011
Below the inspection port level the windshield steelwork was found to be heavily stained.		012 - 018

Chimney flanges:

Report	Comment	Photo No.
The chimney flanges, nuts, bolts and washers were found to be showing paint protection failure and minor surface corrosion.		16 - 18 19 - 21

Chimney cope ring:

Report	Comment	Photo No.
The chimney cope ring was found to be showing paint protection failure and minor surface corrosion.		22 - 23

Chimney internal:

Report	Comment	Photo No.
Surface corrosion and minor shaling was in evidence throughout the full height of the stack internally.		22 - 36

Access gantry:

Report	Comment	Photo No.
The galvanised mild steel gantry floors, handrails and support frames were all found to be in reasonable condition. Minor corrosion to handrail knuckle joints, mesh supporting straps and lindaptor grating fixings.		37 - 39

Ultrasonic metal thickness test results:

Section	Orientation: Internal	Orientation: External
Top	4.6	6.2
	4.5	6.3
	4.4	6.2
	4.4	6.3
Two		6.3
	4.2	6.3
	4.3	6.3
		6.3
		5.7
Base		6.2
	4.4	6.2
	4.4	6.2
	4.6	6.3
	4.3	6.2
	4.2	6.6
	4.3	6.4
		6.4

All ultrasonic thickness readings are spot tests and may not represent the thickness of the whole area

Ultrasonic thickness gauge details

Make/Model	Serial number	Calibration certificate No.	Certificate expires
GE – Stresstel T-Mike B	00WJ87	41030	17/06/2011

Lightning conductor system:

Report	Comment	Photo No.
The lightning conductor system was found to be in an unsatisfactory condition.	See attached test certificate.	40 - 42

Recommendations:

Section(s)	*No.*	*Recommendation*	*Action*
Chimney access	1	Install a permanent ladder fall arrest system to EN 353-1, to comply with BS EN 13084-1:2000 Section 4.8.1. The provision of access.	
	2	Remove the caged ladder hoops and straps, install a fall arrest rail and accessories to facilitate safe access and rescue.	
	3	Supply and fit a full depth self closing gate to the summit of the caged ladder.	
Chimney information plate	4	Obtain all the relevant information, manufacture and install a chimney information plate to comply with BS 4076:1989 Section 4.6.	
Chimney windshield	5	Prepare and paint chimney windshield throughout its full height.	
	6	Prepare and paint chimney smokeband.	
Chimney flanges	7	Prepare and paint chimney flanges, nuts, bolts and washers.	
Chimney cope ring	8	Prepare and paint chimney cope ring.	
Lightning conductor system		See attached test certificate.	

Next chimney inspection due on or before: Wednesday, 14 December 2011

BS EN 13084-1:2000 (Free-standing industrial chimneys) section 7 Inspection and maintenance - Chimneys shall be inspected regularly by a specialist. The intervals between two inspections should preferably be not more than two years.

Inspection report compiled by: Michael Coates Date: Thursday, 10 February 2011

Like most other structures, chimneys are subject to all the defects that may shorten their expected life, including inbuilt defects: design and workmanship, and abuse during their service life; misuse and lack of maintenance. However, their effects can be minimised by the implementation of a planned maintenance programme, of which effective inspections, properly interpreted, should be an essential part.

Bailey Business Park, Grimshaw Lane, Bollington, Macclesfield, Cheshire, SK10 5NY, England
Telephone: 01625 576243 Facsimile: 01625 576789 E-mail: Bailey@Steeplejacks.co.uk

Lightning Protection System Inspection Certificate

Client:	Council of the Isles of Scilly
Project number:	C5063
Project address:	Porthmellon Incinerator, Isles of Scilly
Chimney designation:	Incinerator stack

Certificate number:	Inspection date:	Inspection engineer:	Next inspection due:
LPSIC - C5063	14-Dec-10	Richard Thompson	14-Dec-11

System component	*Quantity*	*Size*	*Materials*	*Report*
Air termination			Utilises chimney steelwork	
Coronal bands			Utilises chimney steelwork	
Down conductors			Utilises chimney steelwork	2 No down tapes from base of stack to ground
Joints				
Bonds to steelwork		2 No	Aluminium	
Bonds to guy ropes				
Earth test facility		1 No	Copper	
Inspection pit		2 No	GRP	

Earth readings:

No 1	No 2	No 3	No 4	Collective reading:	Continuity reading:
18.64 Ω	25.30 Ω	Ω	Ω	Ω 10.73	

Make/Model	*Serial No*	*Calibration certificate*	*Calibration expires*
Lem Heme - Norma Handy	S061905492A3	58291	23 February 2011

Conclusions:

This system does not comply with BS 6651:1999

Recommendations:

Install additional earth rods to reduce the resistance to earth readings to acceptable levels.

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Inspection report photographs

Photo 001

Photo 002

Photo 003

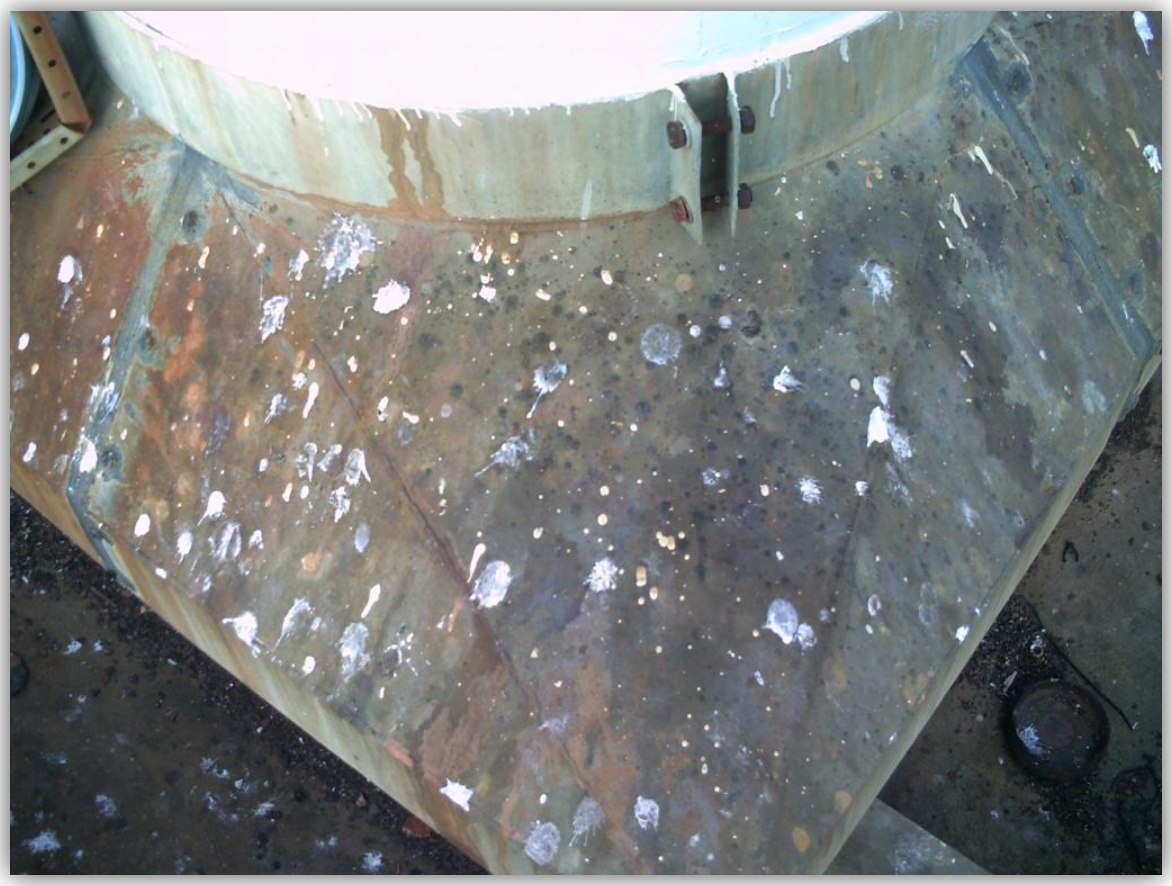

Photo 004

Photo 005

Photo 006

Photo 007

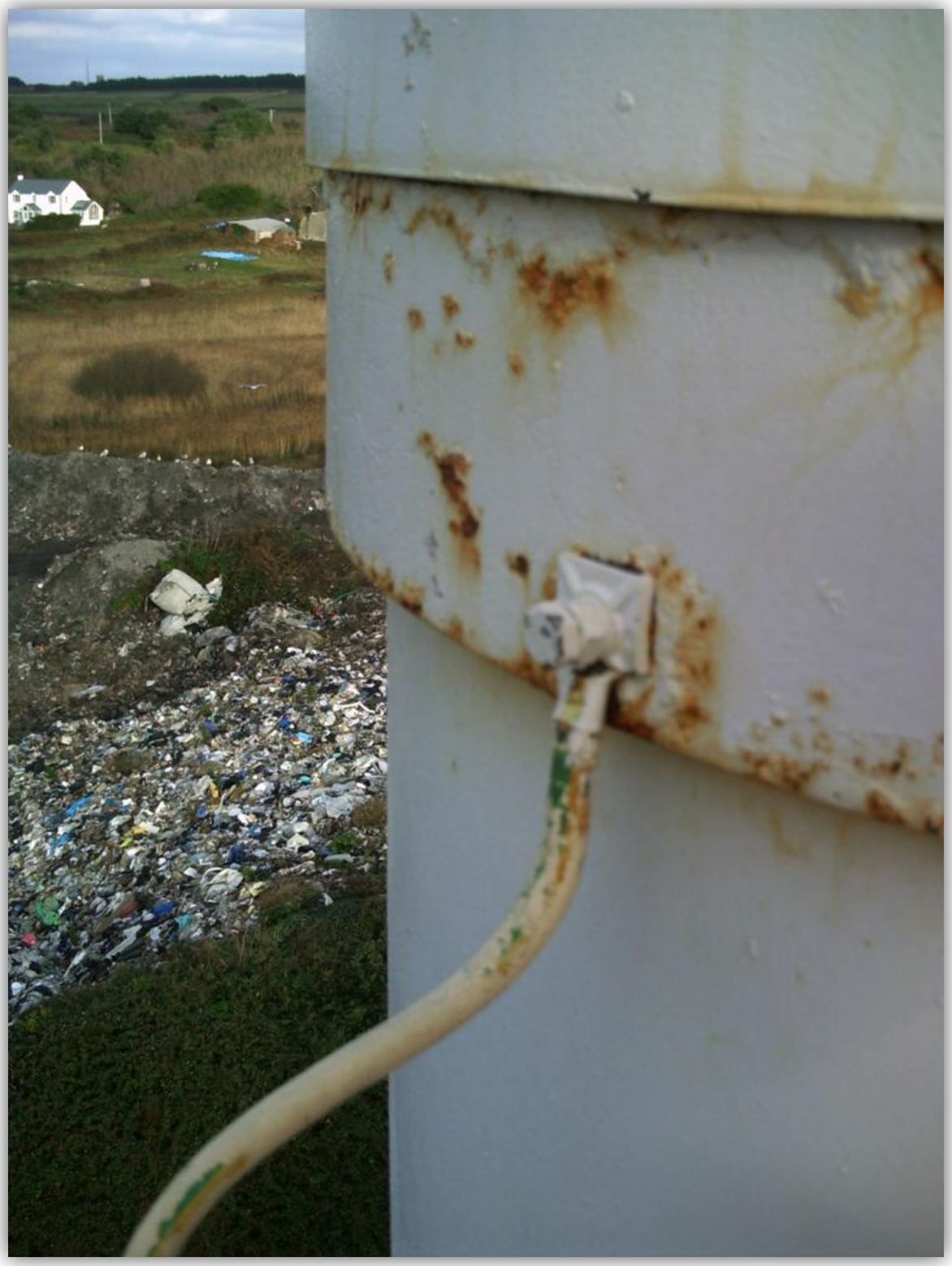

Photo 008

Photo 009

Photo 010

Photo 011

Photo 012

Photo 013

Photo 014

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Photo 020

Photo 021

Photo 022

Photo 023

Photo 024

Photo 025

Photo 026

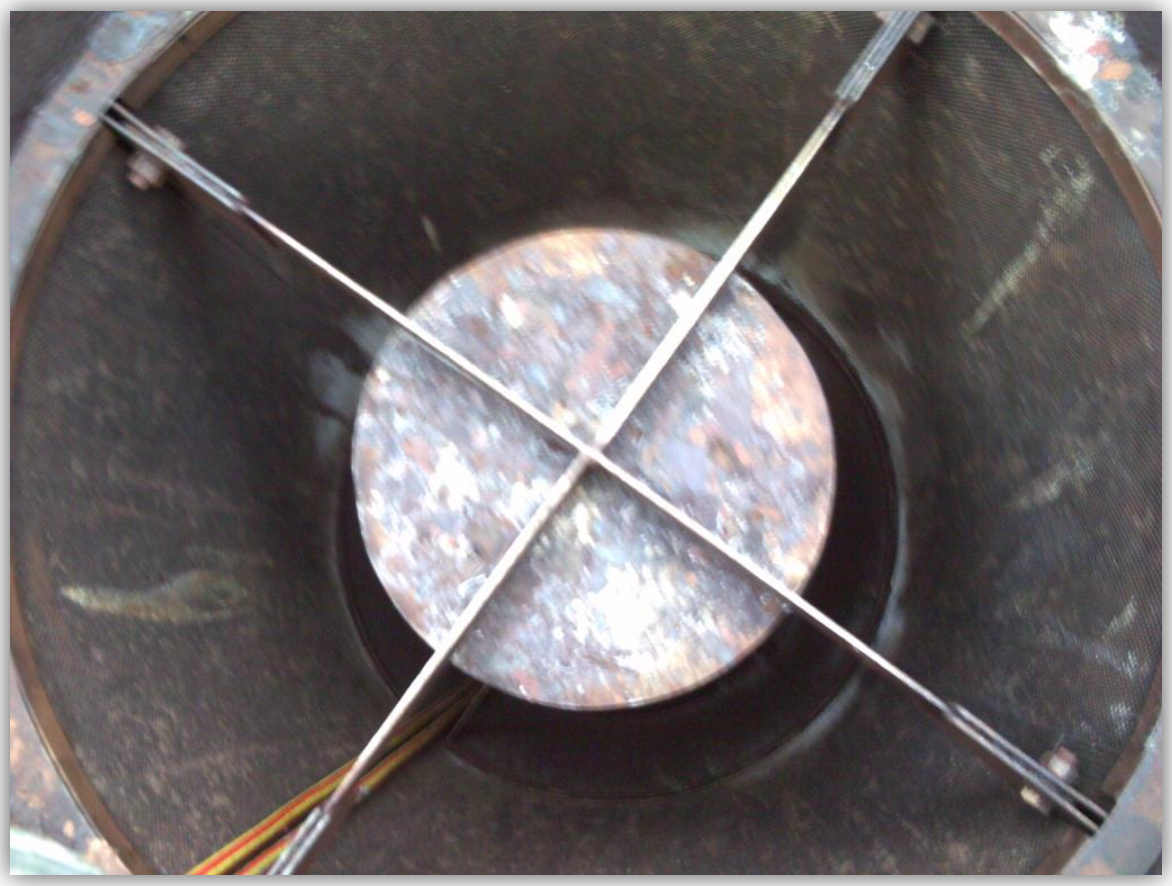

Photo 027

Photo 028

Photo 029

Photo 030

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Photo 034

Photo 035

Photo 036

Photo 037

Photo 038

Photo 039

Photo 040

Photo 041

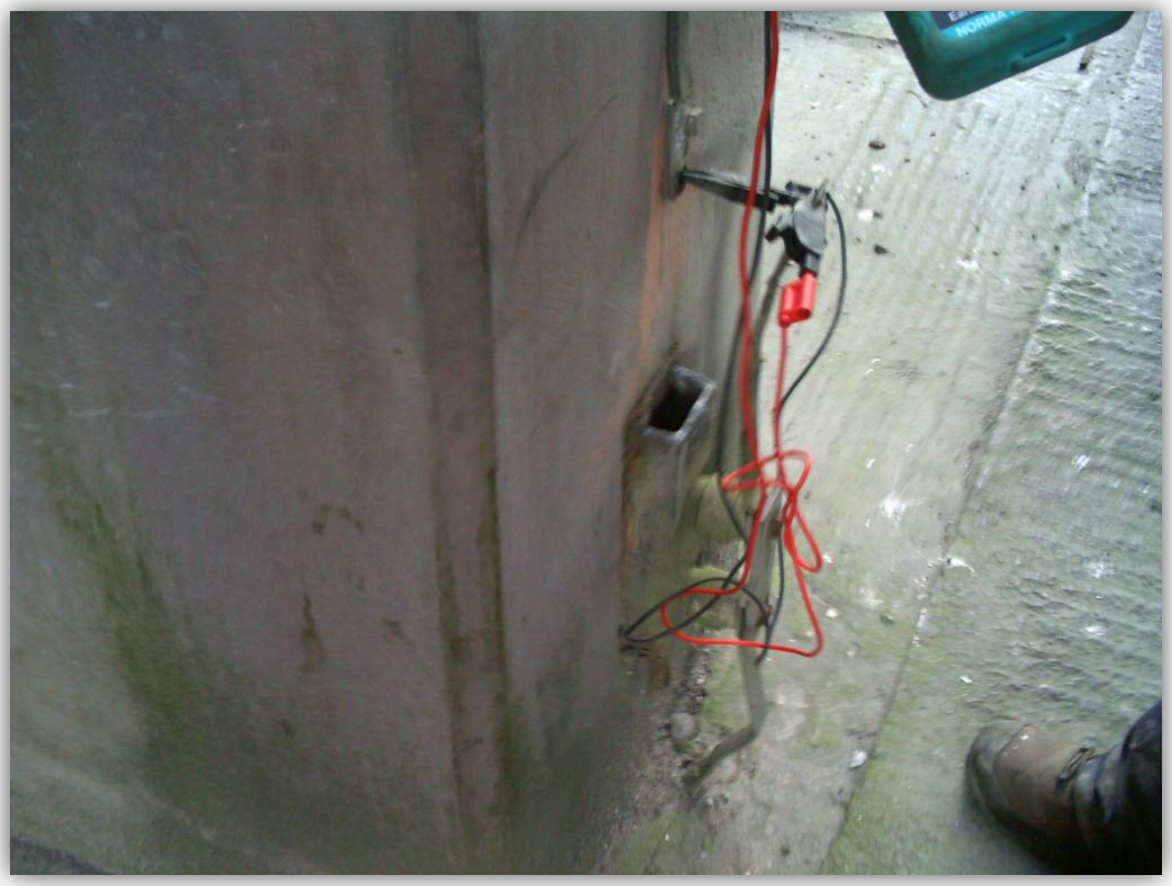

Photo 042