



Engineering Design Services

2395 ABERMULE BUSINESS PARK RECYCLING BULKING FACILITY

Contamination Remediation Verification Report
April 2021

Report No. 2395/R01/002

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1 INTRODUCTION

1.1 This document has been produced to document works carried out following Geo-environmental and geotechnical investigations and reporting and subsequent recommendations.

1.2 The Geo-Environmental and Geotechnical Assessment Report identified the following contaminate linkages:

- a) Asbestos - Asbestos was detected within 3 sampling locations during the Middlemarch ecological works, within stockpiles located adjacent to the northwest boundary.
- b) Radon - The site is located within a medium probability radon area (5% to 10% of homes are estimated to be at or above the action level).
- c) Sulphates - Design Sulphate Class (DS) of DS-1 and an Aggressive Chemical Environment for Concrete Class (AC) of AC- 1.

1.3 As remediation of the identified contaminate linkages, the following solutions were submitted and agreed as part of the Contamination Remediation Strategy:

- a) Abermule Recycling Bulking Facility – Asbestos Management Plan.
- b) Gas Protection under both the bulking shed and office/welfare buildings.
- c) All below ground concrete designed for the stated sulphates class.

2 WORKS

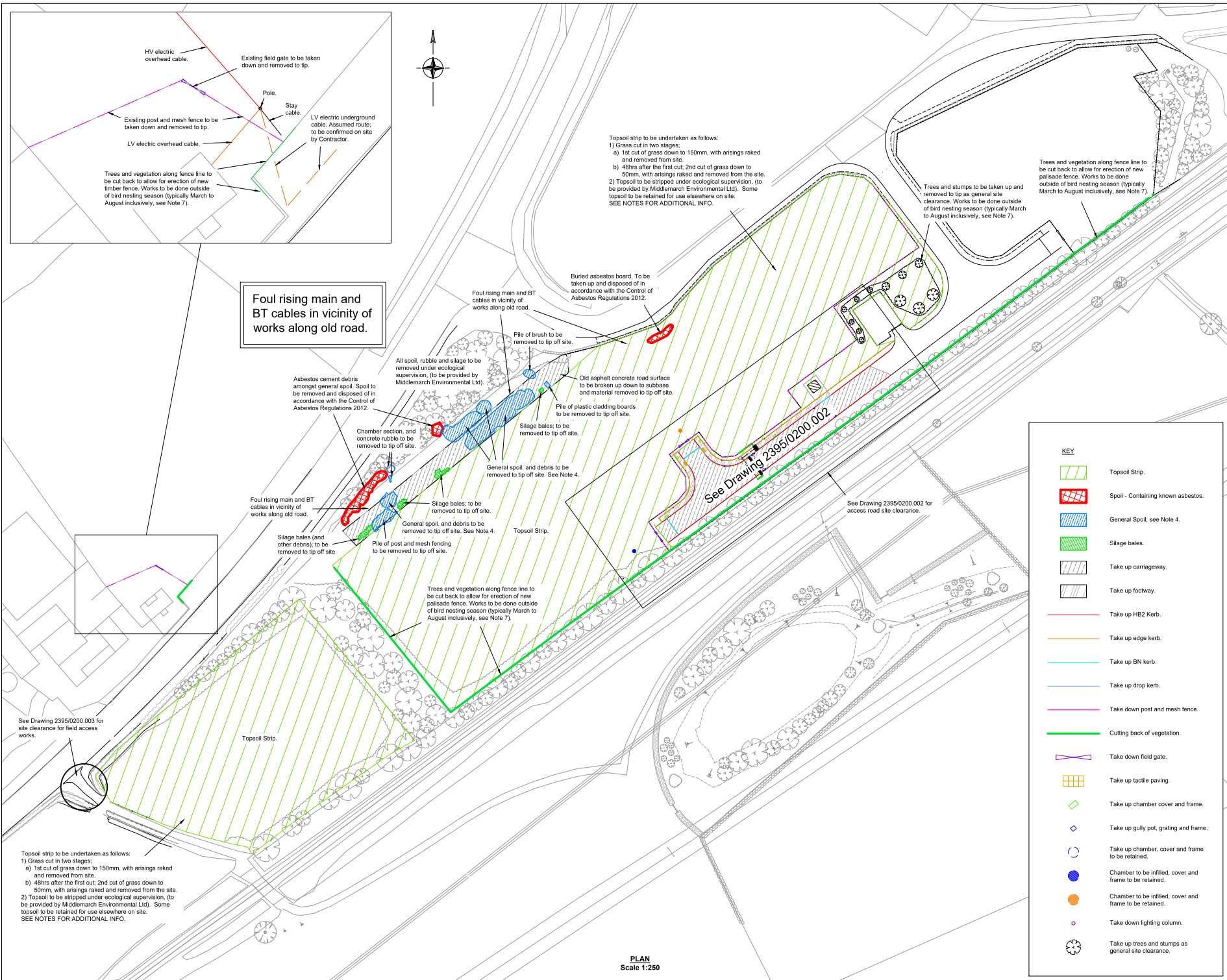
2.1 Works to remove the asbestos were undertaken by Jones Bros Civil Engineering UK in accordance with the approved Asbestos Management Plan, and taken from site to a licenced tip by Ecoefficiency Ltd. See Appendix A for the site clearance plan and Appendix B for the Asbestos Management Plan, consignment note and photograph.

2.2 Works to install the radon barrier were undertaken by Jones Bros Civil Engineering UK. See Appendix C for installation photographs.

2.3 See Appendix D for concrete mix specification.

Appendix A

Site Clearance Plan



This drawing should not be scaled and any dimensions should be taken from the site.

As dimension lines are not shown, please refer to the following notes.

EDS is the Central Wales Infrastructure Collaboration project between Powys County Council and Engineering Design Services Limited, a registered engineering firm.

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100024418 (Cymru & Cymraeg) & 100024418 (Cymru & Cymraeg)

100024418 (Cymru & Cymraeg) & 100024418 (Cymru & Cymraeg)

Notes

- Drawing to be used with 2395/0200.002 & 003.
- Copies of all tickets for contaminated waste are to be provided to the Site Engineer, as soon as possible after disposal.
- Copies of tickets for all other waste are to be provided to the Site Engineer, at monthly progress meetings.
- Areas tested positive for materials containing asbestos are highlighted on plan. Other areas of general spoil and rubble have had limited testing providing a negative result for asbestos. Due to the limitations of the testing, there is a residual risk of possible asbestos debris within all areas of spoil.
- Should further materials suspected of containing asbestos be found on site, the Site Engineer should be notified immediately, so testing of the material can be arranged.
- Contractor to compose an Asbestos Management Plan, to be agreed with Design Engineer, and Powys County Council Contaminated Land Officer, and signed off at planning within 6 weeks of the commencement of development and prior to works being undertaken on the area identified as contaminated.
- Typical bird nesting season is March to August inclusively, however the period is not set and may vary due to weather. Any works to remove or move trees, hedges, or shrubs during one month either side of this period will require consultation with Ecological Consultant, Middlemarch Environmental Ltd.
- Removal of topsoil, all spoil, rubble and silage, to be undertaken under ecological supervision; (to be provided by Middlemarch Environmental Ltd).
- No large plant to be used within 500mm of new fence. Hand strim only in this area.
- New fence to be protected during strimming with use of boards, or similar, to prevent damage.
- Any minor damage to new fence to be rectified by the contractor immediately. This is to include resecuring/re-erecting/replacing any fallen or broken stakes, re-securing loose fencing, and taping over any minor rips in the fabric. Contractor to ensure photographs are taken before and after the repair, with a plan showing location, all of which are to be sent to Powys County Council as soon after the repair as possible.
- Severe damage, is a complete rip or collapse of the new fence, is to be reported immediately to Powys County Council so that the fence can be repaired/replaced by appointed project ecological consultant.
- No tracked vehicles to be used during grass cutting; wheeled vehicles to be used only.

Rev	Date	Description	By	Chk

Engineering Design Services

EDS West Manager - Steve Holford sh@edsdesign.gov.uk
01545 572513

EDS East Manager - Gareth Price gp@edsdesign.gov.uk
01455 607 0000

Abermule Business Park Development. Recycling Bulking Facility.

Site Clearance Plan - 1 of 3. Main Site.

LMC	DB	1:250
July 2019		

Drawing Number	Drawing Name	Revision
H2395	2395/0200.001	

Drawing Filename - 2395-001 - Bulk Recycling
Last saved - 28/07/2019

Appendix B

Asbestos Management Plan, Consignment Note and Photograph



ABERMULE RECYCLING BULKING FACILITY

ASBESTOS MANAGEMENT PLAN

REV: 0

7TH NOVEMBER 2019

1 INTRODUCTION

1.1 Commission

1.1.1

In October 2019, Jones Bros Civil Engineering were commissioned by Powys county council (PCC), to provide an Asbestos Management Plan (AMP) for the excavation of spoil heaps with identified asbestos within the vicinity, on the site of the new Abermule recycling facility.

1.1.2

The following AMP includes details of information relating to regulatory compliance for the management of asbestos containing made ground and soils at the site.

1.1.3

This AMP relates specifically to the spoil heaps adjacent to the old Newtown, Welshpool road where the new recycling facility will be constructed/landscaped.

1.1.4

The project comprises of constructing a recycling bulking facility including bulking building, welfare building, yard area with wash down and storage slabs and all associated drainage, soakaways and utilities. In addition to this we will be forming a temporary compound area which will involve topsoil stripping and installing a capping layer on the neighboring business park area.

1.1.5

This AMP relates categorically to asbestos contamination of this area at the site and should be used to support any other remediation works and specifications that may have been produced to cover general requirements for the site, as required by current planning legislation and processes. It does not assess the suitability for use or other regulatory considerations such as waste legislation.

1.1.6

All ground works where asbestos has been identified should be carried out in accordance with the Control of Asbestos Regulations 2012 (CAR 2012), with further reference to current guidance and guides including but not limited to:

- Control of Asbestos Regulations 2012 – Interpretation for Managing and Working with Asbestos in Soil and Construction and Demolition Materials. Industry guidance, commonly known as CAR-SOIL (CL:AIRE & JIWG, 2016).
- Asbestos in soil and made ground: a guide to understanding and managing risks.
- Asbestos in soil and made ground good practice site guide.

1.3 Involved Parties

JONES BROS RUTHIN (CIVIL ENGINEERING)

Powys County Council (PCC)

1.3.1

A summary of the parties that will be involved with the works shown below.

Involved Parties

Client: Powys County Council

County Hall, Llandrindod Wells, Powys LD1 5LG

Contact: Mr Ashley Collins

Tel: 01597 826974

Service Manager for Highway Works

Head of Highways, Transport & Recycling, Powys County Hall, Spa Road East, Llandrindod Wells LD1 5LG

Contact: Mr A Jervis

Tel: 01597 826659

Project Manager: Central Wales Infrastructure Collaboration – Engineering Design Services (CWIC EDS), County Hall, Llandrindod Wells, Powys, LD1 5LG

Contact: Mr S Kendrick - Project Manager

Tel: 01597 826469

Principal Designer: Central Wales Infrastructure Collaboration – Engineering Design Services (CWIC EDS) County Hall, Llandrindod Wells, Powys, LD1 5LG

Contact: Mr S Kendrick - Project Manager

Tel: 01597 826469

Principal Contractor: Jones Bros Civ Eng, Ty Glyn, Canol Y Dre, Ruthin, Denbighshire, LL15 – 1QW

Local HSE Office

Health & Safety Executive, Government Buildings, Phase 1, Ty Glas, Cardiff CF14 5SH

Network Rail Emergency Contact

24-hour helpline

Tel: 03457 11 41 41

British Transport Police:

Tel: 0800 40 50 40

Specialist asbestos contractors

To be appointed by Principal contractor in due course.

2 REVIEW OF AVAILABLE INFORMATION

2.1 Site History

Until recently the site has been used for agricultural grazing which ceased in late 2018 in order to comply with the environmental licensing procedure. Since then it has been left empty but maintained in accordance with the licensing guidelines.

3 WORKS

3.1

On-Site Works

3.1.2

Given the known presence of asbestos, all works within this must be undertaken with due consideration to fiber release. CAR 2012 requires the Principal Contractor i.e. Jones Bros Ltd. to provide the following:

- A plan of work/ RAMS prior to the work commencing completed by a competent person(s);
- Controls;
- Training;
- Emergency procedures; and
- RPE/PPE requirements.

3.1.3

All asbestos works must be managed in accordance with these procedures. This AMP has been produced to support Jones Bros Ltd, In fulfilling their requirements.

3.1.4

It is important that all parties working at the site have undergone the necessary training. All workers on site should have asbestos awareness training prior to the commencement of works. Those workers who will be working with the material will have Notifiable Non-Licensable Work (NNLW) training.

3.1.5

Should any works be determined to be licensable then only licensed asbestos contractors who have specialized training will be contacted to attend site to carry out the works.

3.1.6

Abermule Business Park Development Recycling Bulking Facility – Site Clearance Plan 1 of 3 Main Site Drawing, shows the locations where asbestos is known to be located on site. Asbestos cement debris are present in two spoil heaps located to the North of the old Newtown to Welshpool Road, as well as a buried asbestos board within the Recycling Facility's footprint. From the ARCADIS Abermule geo-environmental and Geo-technical report that has been carried out on site, Eight samples of made ground and 28 samples

of natural soils were screened for asbestos, there were no positive results found in any of the ground samples.

During ecological works undertaken at the site (the erection of the new fencing), the ecological contractor encountered suspected pieces of ACM (Asbestos Containing Material). A further area of stockpiled material was also identified.

Consequently 4 samples were obtained from suspect material and were analyzed for the presence of Asbestos.

Of the 4 samples, 3 positive detections were made and are detailed below;

- Sample ID: 180032 (Debris in soil under fencing line) – Chrysotile/Amosite Board.
- Sample ID: 180041 (Debris in spoil heap) – Chrysotile Cement.
- Sample ID: 180042 (Debris in spoil heap) – Cement – No asbestos detected.
- Sample ID: 180043 (Debris in Spoil heap) – Chrysotile Cement.

Two Material Risk Assessment Reports have also been provided to Arcadis for review for samples 180041 & 180043. The material in both cases was classified as Low Risk within the Material Risk Assessment.

Other general spoil heaps and rubble are located around the location of the old road and within close vicinity to the Asbestos Cement debris. Testing carried out on these spoil heaps provided a negative result for asbestos. It is however deemed that there is a residual risk of possible asbestos debris within these spoil heaps.

3.1.7

The spoil heaps that have been identified to contain asbestos, will be excavated under the supervision of a specialist asbestos contractor (TBC), the asbestos will be removed from site to a licensed facility and disposed of accordingly.

3.1.8

Under the watching brief of the Jones Bros environmental team, the spoil heaps that have been declared free of asbestos but carry a residual risk of containing asbestos debris will be excavated/broken with the bucket of a tracked vehicle, each bucket of soil will be visually inspected for signs of asbestos.

The training and competence certificates of the Jones Bros Environmental team who will supervise the watching brief are attached to this document.

3.1.9

Should these spoil heaps be found to contain any asbestos, the works will be halted, with specialist contractors called in to supervise the remaining excavations.

3.1.10

Once the spoil has been cleared of containing asbestos the soil will be removed from site as inert soil waste, to a licensed/permitted facility.

3.1.11

The buried asbestos board that has been discovered on site during the initial ecological works, will be removed from site by the specialist asbestos sub contractor when they are appointed.

3.2 Site Records for Site Health and Safety File

3.2.1

The following documentation should be included within the site health and safety file during the site works:

- The Jones Bros AMP
- Air Monitoring (PCM Phase Contrast Microscopy) dates if undertaken;
- The Jones Bros Ltd. Plan of Work/RAMs
- Registers of all people on site;
- Training certificates of all those on site;
- Induction documentation;
- RPE/PPE regulations for site; and
- Toolbox talks documentation.

3.3 Air monitoring

It has been concluded that due to the ACM's on site being low risk and the materials being non-fibrous air quality monitoring on site will not be required. The ACM's on site are set in concrete and as the materials will be removed from site in their current condition and not processed in anyway the release of fiber materials is low risk.

Under the watching brief, the stock piles of materials will be sprayed with water to prevent any potential materials entering the atmosphere, this process will continue throughout the watching brief, should any further asbestos be found as mentioned in section 3.1.9, the work will cease with specialist contractors contacted to attend site and remove the materials.

3.4 Future Works

3.4.1

Any contractors establishing future works involving movement of the material stockpile should be provided with the site health and safety file containing the records outlined above.

4 STRATEGY FOR COMPLIANCE WITH CAR REGS 2012

4.1 Control of Asbestos Regulations 2012

4.1.1

The following information details the requirement of the Asbestos Management Plan (AMP) in order to comply with the CAR regulations. This strategy is in place in order to minimize the risk to human health and prevent the spread of asbestos.

4.1.2

Before any works are undertaken within sites where there is a risk of potential asbestos exposure it is important that all parties involved undertake a risk assessment. It is the responsibility of each employer to compose their own risk assessments, however the information within this document is likely to support individual risk assessments.

**Appendix A –
Certificates of Training – NLW and NNLW**



Certificate of Training

THIS IS TO CERTIFY THAT

Sam Higgitt

OF

Jones Brothers Civil Engineering UK

Successfully Completed

Non-licensable work (NLW) with asbestos including Notifiable
non-licensable work (NNLW)

THE PERSON NAMED ABOVE HAS DEMONSTRATED A GOOD
UNDERSTANDING OF THE THEORETICAL AND PRACTICAL KNOWLEDGE
AND HAS BEEN ASSESSED IN THE ELEMENTS IDENTIFIED OVERLEAF

Course Instructor: Ian Durber

Date: 25/06/2019

APPOINTING AUTHORITY

Certificate No: NLW/NNLW/033

Expiry Date: 24/06/2020

Element	Title	Successfully completed
1.	Legal requirements – Control of Asbestos Regulations 2012. Regs. 3, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 22.	Yes
2.	The operations which could result in asbestos exposure and the importance of preventive controls to minimise exposure.	Yes
3.	How to make suitable and sufficient assessments of the risk of exposure to asbestos.	Yes
4.	The control limit, and the purpose of air monitoring.	Yes
5.	Safe work practices, control measures, and protective equipment. Including an explanation of how the correct use and maintenance of control measures, protective equipment and work methods can reduce the risks from asbestos, limit exposure to workers and limit the spread of asbestos fibres outside the work area.	Yes
6.	Procedures for recording, reporting and correcting defects.	Yes
7.	The purpose, appropriate choice and correct selection from a range of suitable RPE, including any limitations.	Yes
8.	The correct use, and where relevant, cleaning, maintenance and safe storage of RPE and PPE, in accordance with the manufacturer's instructions and information.	Yes
9.	The importance of achieving and maintaining a good seal between face and RPE, the relevance of pre-use tests and FFTs, and the importance of being clean-shaven.	Yes
10.	Hygiene requirements.	Yes
11.	Requirements and procedures for medical examination, for NNLW.	Yes
12.	Decontamination procedures.	Yes
13.	Waste handling procedures.	Yes
14.	Emergency procedures, including how to deal with an emergency release.	Yes
15.	Which work requires notification as NNLW and which work requires an HSE licence.	Yes
16.	An introduction to the relevant regulations, ACOPs and guidance that apply to asbestos work and other regulations that deal with the carriage and disposal of asbestos.	Yes
17.	Other work hazards, including working at height, electrical, slips, trips and falls, where this is applicable to the work being done.	Yes
18.	Non-licensable work (NLW) with asbestos including Notifiable non-licensable work (NNLW) End Assessment – Multiple Choice, 20 questions.	Yes. 19/20 = 95%



Certificate of Training

THIS IS TO CERTIFY THAT

Nathan Owen

OF

Jones Brothers Civil Engineering UK

Successfully Completed

Non-licensable work (NLW) with asbestos including Notifiable
non-licensable work (NNLW)

THE PERSON NAMED ABOVE HAS DEMONSTRATED A GOOD
UNDERSTANDING OF THE THEORETICAL AND PRACTICAL KNOWLEDGE
AND HAS BEEN ASSESSED IN THE ELEMENTS IDENTIFIED OVERLEAF

Course Instructor: Ian Durber

Date: 25/06/2019

APPOINTING AUTHORITY

Certificate No: NLW/NNLW/034

Expiry Date: 24/06/2020

Element	Title	Successfully completed
1.	Legal requirements – Control of Asbestos Regulations 2012. Regs. 3, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 22.	Yes
2.	The operations which could result in asbestos exposure and the importance of preventive controls to minimise exposure.	Yes
3.	How to make suitable and sufficient assessments of the risk of exposure to asbestos.	Yes
4.	The control limit, and the purpose of air monitoring.	Yes
5.	Safe work practices, control measures, and protective equipment. Including an explanation of how the correct use and maintenance of control measures, protective equipment and work methods can reduce the risks from asbestos, limit exposure to workers and limit the spread of asbestos fibres outside the work area.	Yes
6.	Procedures for recording, reporting and correcting defects.	Yes
7.	The purpose, appropriate choice and correct selection from a range of suitable RPE, including any limitations.	Yes
8.	The correct use, and where relevant, cleaning, maintenance and safe storage of RPE and PPE, in accordance with the manufacturer's instructions and information.	Yes
9.	The importance of achieving and maintaining a good seal between face and RPE, the relevance of pre-use tests and FFTs, and the importance of being clean-shaven.	Yes
10.	Hygiene requirements.	Yes
11.	Requirements and procedures for medical examination, for NNLW.	Yes
12.	Decontamination procedures.	Yes
13.	Waste handling procedures.	Yes
14.	Emergency procedures, including how to deal with an emergency release.	Yes
15.	Which work requires notification as NNLW and which work requires an HSE licence.	Yes
16.	An introduction to the relevant regulations, ACOPs and guidance that apply to asbestos work and other regulations that deal with the carriage and disposal of asbestos.	Yes
17.	Other work hazards, including working at height, electrical, slips, trips and falls, where this is applicable to the work being done.	Yes
18.	Non-licensable work (NLW) with asbestos including Notifiable non-licensable work (NNLW) End Assessment – Multiple Choice, 20 questions.	Yes. 16/20 = 80%

THE HAZARDOUS WASTE REGULATIONS 2005:
Consignment Note



Armstrong House, 4-6 First Avenue, Finningley, Doncaster, DN9 3GA

Part A Notification details

1. Consignment note code: **J O N E S B / H W 0 0 2**
2. The waste description below is to be removed from (name, address, postcode, telephone, e-mail, facsimile):
Jones Bros, Abermule Recycling Facility, Abermule, Newtown, Powys, SY15 6NU
3. Premises code (where applicable): **C A R 4 1 7**
4. The waste will be taken to (name, address and postcode):
Middleton Waste, Sprotborough Road, Doncaster, DN5 8BW
5. The waste producer was (if different from 2) (name, address, postcode, telephone, e-mail, facsimile):
Jones Bros, Ruthin, LL15 1QW

PART B Description of the waste

1. The process giving rise to the waste(s) was: **Civil Engineering**
2. SIC for the process giving rise to the waste: **4 2 2 2 0 /**

3. WASTE DETAIL (where more than one waste type is collected all of the information given below must be completed for each EWC identified)

Description of waste	List of wastes (EWC code) (6 digits)	Quantity (kg)	The chemical/ biological components of the waste and their concentrations are:		Physical form (gas, liquid, solid, powder, sludge or mixed)	Hazard code(s)	Container type, number and size
			Component	Concentration (% or mg/kg)			
Chrysotile asbestos	1 7 0 6 0 5	50KG	Asbestos	>0.1%	Solid	HP7	Asbestos double bag

The information given below is to be completed for each EWC identified

EWC code	Packing group(s)	UN identification number(s)	Proper shipping name(s)	UN class(es)	Special handling requirements
1 7 0 6 0 5	n/a	n/a	n/a	n/a	PPE

PART C Carriers certificate

(If more than one is used, please attach schedule for subsequent carriers. If a schedule of carriers is attached tick here ☒)
I certify that I today collected consignment and that the details in A2, A4 and B3 are correct and I have been advised of any special handling requirements.

1. Carrier name: **Justin Hasman**
On behalf of (name, address, postcode, telephone, e-mail, facsimile):
Ecoefficiency, Armstrong House, First Avenue, Finningley, Doncaster, DN9 3GA

2. Carrier registration no. (or mode of transport, if not road):
CBDU235597

3. Vehicle registration no. (or mode of transport, if not road):
FX19 YVO
Signature:

Date: **2 6 0 8 2 0 2 0** Time: **1 0 0 0**

PART D Consignor's certificate

I certify that the information in A, B and C is correct, that the carrier is registered or exempt and was advised of the appropriate precautionary measures. All of the waste is packaged and labelled correctly and the carrier has been advised of any special handling requirements.
I confirm that I have fulfilled my duty to apply the waste hierarchy as required by Reg 12 of waste (Eng & Wales) Regs 2011.

1. Consignors name: **Gareth Jones**
On behalf of (name, address, postcode, telephone, e-mail, facsimile):
Jones Bros, Ruthin, LL15 1QW

Signature:
Date: **2 6 0 8 2 0 2 0** Time: **1 0 0 0**

PART E Consignee's certificate (where more than one waste type is collected all of the information given below must be completed for each EWC)

Individual EWC code(s) received	Quantity of each EWC code received (kg)	EWC code accepted/ rejected	Waste management operation (R or D code)
1 7 0 6 0 5	50	ACCEPTED	D 15

1. I received this at the address given in A4 on:

2. Vehicle registration no. (or mode of transport, if not road): **FX19 YVO**

3. Where waste is rejected please provide details:

I certify that the waste management license/ permit/ authorised exemption no(s). authorises the management of the waste described in B at the address given in A4.

Date: **2 8 0 8 2 0 2 0** Time: **0 9 3 1**
Name: **CAWLIKES 55-71 SPROT BROUGH ROAD**
On behalf of (name, address, postcode, telephone, e-mail, facsimile):
DONCASTER DN5 8BW
TELEPHONE 01302 783731
FAX 01302 390024
Signature:



Appendix C

Gas Protection to Concrete Floors Installation Photographs







Appendix D

Concrete Mix Specification



CERTIFICATE OF MIX COMPOSITION

To. JONES BROS.(RUTHIN)
CIVIL ENGINEERING CO. LTD
DENBIGH ROAD
RUTHIN
DENBIGHSHIRE
LL15 2YH

Certificate Number 18710C TF
Date: 26/10/2020

Enquiry No.:

F.t.a.o.:

Sales Manager: Mark Bowen

Customer Fax No.

Customer Tel No.

Supplying Depot: Tan Y Foel
Site: ABERMULE RECYCLING FACILITY,
ABERMULE, SY156NU.

Dear Sirs,

We have pleasure in detailing below our proposed concrete composition and materials in connection with the supply of ready-mixed concrete to the above site.

Material	Supplier	Source	Size/Type	BS No.
Cement	Hope	Hope Valley	CEM1 52.5N	BSEN 197
Type1 Addition	Hanson	Port Talbot	GGBS	BSEN 15167-1
Aggregate 1				BSEN 12620
Aggregate 2	H V Bowen & Sons Ltd	Tan Y Foel	4/20mm Gritstone	BSEN 12620
Aggregate 3	Tudor Griffiths	Ellesmere	0/4 Washed Sand	BSEN 12620
Aggregate 4				
Admixture 1	GCP	Warrington	WRDA30	BSEN 934
Admixture 2	GCP	Warrington	AE3P	BSEN 934
Admixture 3				

	1	2	3	4	5
Concrete Description	PAV 2 W/R AEA	GEN 3	ST4	RC28/35	
Min Cement Content	340	220		280	
Max Water/Cement Ratio	0.45	0.8		0.6	
Other special requirements	CIIBS	CIIIA	CIIIA	CEM I	

BATCH WEIGHTS OF MATERIALS CALCULATED ON S.S.D. BASIS

MIX COMPOSITIONS	UOM	m ³	m ³	m ³	m ³	m ³
Batch book ref.		PAV 2	GEN 3	ST4	RC28/35	
Total Cement Content	Kg	430	220	295	375	
Cement CEM1 52.5N	Kg	301	110	147	375	
Type1 Addition GGBS	Kg	129	110	148		
Aggregate 1	Kg					
Aggregate 2 4/20mm Gritstone	Kg	1010	1042	1050	1045	
Aggregate 3 0/4 Washed Sand	Kg	625	890	789	790	
Aggregate 4	Kg					
Admixture 1 WRDA30	lt	2.15			1.88	
Admixture 2 AE3P	lt	0.51				
Admixture 3	lt					
Free Water	lt	192	140	145	195	
Slump	mm	S3	S1	S1	S3	
Aggregate/Cement Ratio		3.80	8.78	6.23	4.89	
% Fines content		38.2%	46.1%	42.9%	43.1%	
Free Water/Cement Ratio		0.45	0.64	0.49	0.52	

Checked By: N Farrell

Date: 26-Oct-20

Note 1: The above mixes are designed to comply with EN206/BS8500 unless otherwise agreed with the customer.

Note 2: Aggregate quantities are in the saturated surface dry condition unless otherwise stated.

Note 3: A continuous quality control system is operated in accordance with the technical requirements of the BSI and the above may be subject to change to maintain the required design margin and material availability.

Yours sincerely

N Farrell

On behalf of H V Bowen Ltd.