

Our Ref: AC00036/NGVT&IHT/02

Date: 12 October 2015

Ms A Guy
Environmental Protection
Housing & Public Protection Department
Wrexham CBC
Ruthin Road
Wrexham
LL13 7TU

Dear Angela

**The Former Glyn Ceiriog Highways Depot, Glyn Ceiriog, Llangollen
Planning Reference P/2012/0054 – Validation Testing Report**

Further to our telephone discussion of 9th October 2015, I confirm that we act on behalf of The New Glyn Valley Tramway & Industrial Heritage Trust (the Trust) and write to set out the details of the validation testing associated with the remedial measures to mitigate the risks from elevated polyaromatic hydrocarbons (PAHs) in soils as part compliance with Condition 4 of the planning permission.

Progress on other remedial measures completed or partially completed are also reported based on the information supplied by the Trust, which will be updated and incorporated into a verification report upon completion of the groundworks.

The remedial measures are set out in the Remediation Statement prepared by AC Environment Solutions Limited, reference NFP/AC00036/26/03/2014v2 dated 26th March 2014, approval of which was confirmed by Sharon Holman of Wrexham County Borough Council (the Council) by email dated 27th March 2014.

Previous Reports

The following documents in respect of the assessment of contamination at the site have previously been issued:

- '*Phase 1 – desk study and preliminary site assessment*' prepared by Richards Moorehead & Laing Limited dated February 2007;
- '*Phase 2 – Ground contamination investigation and risk assessment*' prepared by Richards Moorehead & Laing Limited dated March 2007;
- '*Supplementary site investigation & contamination risk assessment*' report prepared by AC Environment Solutions Limited dated 11th October 2013;
- 'Remediation Statement' prepared by AC Environment Solutions Limited, reference NFP/AC00036/26/03/2014v2 dated 26th March 2014.



Soils Contaminated With PAHs

The Remediation Statement sets out the options to mitigate the risks from those locations where soils elevated in PAHs above their respective screening criteria were considered to present a risk to future site occupants and visitors. The elevated PAHs were identified for removal from 2 locations; these being the topsoil (top 0.30m) at TP1A, TP1A/2 and TP1A/3 to the rear of the old engine shed which is proposed to remain as grass or reinstated with slate gravel, and a soil mound (also referred to as a ramp) extending along part of the south eastern site boundary which had been sampled from TP3A.

The above trial pit locations are shown on the attached plan (Attachment 1) and the measures to deal with the elevated PAHs at these locations are outlined in sections 2 and 3 of the Remediation Statement.

TP1A, TP1A/2 and TP1A/3

The surface soils equating to the full depth of topsoil (top 0.30m) to the rear of the old engine shed were excavated and encapsulated within a walled structure forming the foundations of the new station platform in accordance with section 2, option e) of the Remediation Statement. Approximately 25m³ of topsoil was moved and compacted in layers within the platform structure in August 2015 and capped with concrete. A waste exemption was registered with Natural Resources Wales to permit the use of the waste soil in construction for this purpose (EPR/JF0808/FM/A001).

A sampling exercise was undertaken by AC Environment Solutions on 10th September to validate that no soils with elevations in PAHs above the screening criteria remained within the excavation base in the area of the previously determined elevations. Five soil samples were collected for speciated PAH analysis and the validation sampling locations are identified on the attached plan (Attachment 2) and shown on photographs within Attachment 3.

The results of the soil analysis are presented in Attachment 4 and these were assessed against the Land Quality Management Limited (LQM) and Chartered Institute of Environmental Health (CIEH) Suitable 4 Use Levels (S4ULs) for human health risk assessment dating from January 2015. These represent an updated version of the values that were used to assess the results for the 2013 supplementary site investigation report. The concentrations for benzo(a)pyrene (an individual PAH compound) were also assessed against the Category 4 Screening Level issued by DEFRA in March 2014.

In both of the above, the concentrations have been assessed against the values for residential use without home grown produce and the results of the assessment are presented in the table below on the following page.

The assessment shows that concentrations in PAHs within the base of the excavation in the area of the previously determined elevations were all below the screening levels.

Parameters	Range of Levels Found on Site (mg/kg)	LQM CIEH S4UL (mg/kg) (@ 2.5% SOM) ¹	Proportion of Samples Exceeding LQM CIEH S4UL	DEFRA Category 4 Screening Level (mg/kg)	Proportion of Samples Exceeding Category 4 Screening Level
Polyaromatic Hydrocarbons (PAHs)					
Acenaphthene	<0.10-0.13	4700	0		
Acenaphthylene	<0.10-0.15	4600	0		
Anthracene	<0.10-0.42	35,000	0		
Benzo(a)anthracene	<0.10-1.3	14	0		
Benzo(a)pyrene	<0.10-1.3	3.2	0	5.3	0
Benzo(b)fluoranthene	<0.10-1.7	4.0	0		
Benzo(g,h,i)perylene	<0.10-1.0	360	0		
Benzo(k)fluoranthene	<0.10-0.98	110	0		
Chrysene	<0.10-2.1	31	0		
Dibenz(ah)anthracene	<0.10-0.16	0.32	0		
Fluoranthene	<0.10-2.4	1600	0		
Fluorene	<0.10-0.13	3800	0		
Indeno(1,2,3-cd)pyrene	<0.10-0.77	46	0		
Naphthalene	<0.10-1.2	5.6	0		
Phenanthrene	<0.10-1.5	1500	0		
Pyrene	<0.10-2.2	3800	0		
PAHs (total)	<2.0-17				

1. S4UL values relevant to a soil organic matter content of 2.5% selected for the assessment based on the average value for the site of 4.1% determined during the 2013 investigation and the recent validation testing

Soil Mound (Ramp)

The soils forming the mound extending along part of the south eastern site boundary were excavated and transported for use on a nearby site (the coal wharf) also under the control of the Trust (see section 3, option b of the Remediation Statement) as agreed by Wrexham Council. It is understood by the Trust that there is an email from Trevor Coxson of Wrexham Council confirming this arrangement, but this has not been made available. There is also a hand written note on a plan which was provided with the planning decision notice, a copy of which is attached (Attachment 5).

No validation samples were taken from the excavation base following removal of the mound since the excavation was over dug into the subsoils beneath the base of the mound, on which a gravel track bed to an approximate thickness of 0.3m had also recently been laid, representing the location of the track that had previously existed at the time of the original operation of the tramway. The chance of any residual PAHs remaining at this location from the soil mound was therefore considered to be low and the risk to end users if there were any residual PAHs remaining at this location has also been judged to be low.

Unexpected Significant Contamination

No suspicious materials have been encountered on site during the progression of the works to warrant any further sampling for chemical analysis.

Asbestos Containing Materials (ACMs)

The corrugated asbestos cement sheet roof to the old engine shed has been dismantled by contractors and reinstated with slate. It is understood by the Trust that the asbestos cement sheet roofing was removed for appropriate disposal off site. AC Environment Solutions are awaiting further information from the Trust which will be incorporated into the final verification report.



It is understood by the Trust that an asbestos survey of the old engine shed identified ACMs within the toilet block (extension from the south western corner of the shed) and that these materials were removed by contractors for appropriate disposal off site prior to the toilet block being demolished. AC Environment Solutions are awaiting further information from the Trust which will be incorporated into the final verification report.

Imported Materials

At the time of completing this report, no soils had been imported for use on site. It is understood that the Trust are considering the options of importing topsoil or slate gravel for use as a cover for the excavated area at the back of the old engine shed. If topsoil is to be used, arrangements have been made for any imported soil from a single source other than a retail outlet, to be tested to verify that such soil is chemically clean (as proposed in the Remediation Statement).

A quantity of local slate has been imported for use on site as the facing of the new station platform which was donated by Jones Brothers of Ruthin. Correspondence confirming this is included as Attachment 6.

Photographic Records

A photographic record showing the general progression of activities on the site has been made available by the Trust and is presented as Attachment 7. Other photographs of the western end of the site at the time of the validation sampling exercise on 10th September 2015 are also included in Attachment 3.

Conclusions

The source of the PAHs in soils within the mound (ramp) extending along part of the south eastern site boundary has been removed by the offsite removal of the mound. The surface soils elevated in PAHs to the rear of the old engine shed have also been removed and safely encapsulated within the new station platform. It is therefore considered that the potential risk to future occupants and visitors from soil PAHs at these locations has been reduced to an acceptable level.

All outstanding information will be incorporated into a Verification Report upon completion of the groundworks in compliance with Condition 4 of the planning permission, but we would be grateful if you could confirm acceptance of the measures completed to mitigate the risks to future site occupants and visitors from PAHs in soils.

Kind regards



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Associate and Chartered Environmental Surveyor

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Cc Mr Keith Roberts - The NGVT & IHT

Attachments

1. Plan of trial pit locations from previous investigations
 2. Plan showing validation sampling points
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3. Photographs from validation sampling dated 10th September 2015
 4. Chemical testing results from validation sampling
 5. Planning decision notice
 6. Correspondence confirming the source of the slate for use in construction
 7. Photographic record showing general progression of works

Attachment 1

Plan of Trial Pit Locations from Previous Investigations



Attachment 2

Plan Showing Validation Sampling Points

Attachment 3

Photographs from Validation Sampling dated 10th September 2015

Attachment 4
Chemical Testing Results from Validation Sampling

Attachment 5
Planning Decision Notice

Attachment 6

Correspondence Confirming Source of Slate for use in Construction



Attachment 7

Photographic Record Showing General Progression of Works