

2405/Mag/WCBC/Queries/mjs

Adrien Young  
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Rackery Lane  
Wrexham LL12 0PB

1<sup>st</sup> April 2021

Dear Adrien,

## **RE: GAS MONITORING RISK ASSESSMENT- MAGELLAN**

### **1.0 Introduction**

Following issue of eh GSL geo-environmental report for the above scheme in November 2020. The client received a memo from Angela Guy of Wrexham County Borough Council (WCBC) stating that further information is required regarding contamination and landfill gas risks to discharge the planning conditions, with particular regard to the:

- Former sidings,
- Ground gas, as made ground has been identified at the site up to 4.70m thick.

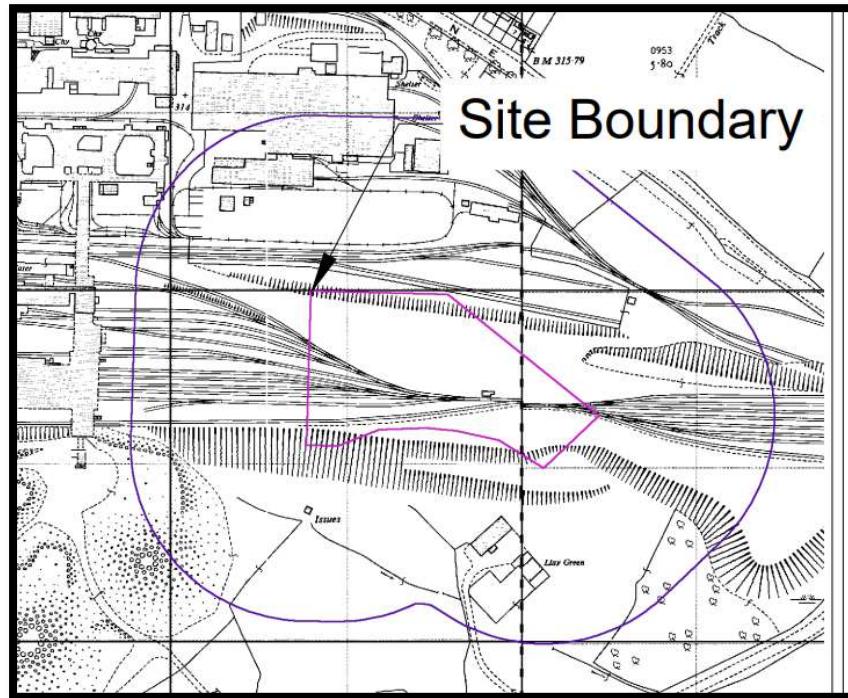
This letter report addresses the above concerns.

### **2.0 Contamination Risk Assessment**

The desk study and site investigation confirmed that the site was occupied by what was described as railway sidings, which in the report was the easiest way to describe them.

However, the way they would actually would have worked is as follows:

The overhead gantry to the west of the site would have been used for loading the coal wagons through hoppers. As can be seen from the OS plan presented below there were numerous hoppers for loading the wagons. The trains and wagons then need to be turned around, hence the configuration of tracks observed, with a dead end to the east of the site. It should also be noted that very few lines were present on site, and their configuration confirms that trains would not have been stockpiled so close to the pinch point.



*Figure 3f from GSL Geo-environmental Report.*

Therefore, the risk of potential contamination from the railway lines is considered to be very low.

This was confirmed by the chemical testing, where for a 'Commercial' end, using the most conservative SOM content of 1%, no exceedances of any potential contaminants were recorded. This being the most appropriate end use for the development, as the site is being entirely covered by an industrial building and associated hardstandings. Therefore, this eliminates the human health risk to future land users, as any potential pathways had been broken.

It should also be noted that the site level is to be reduced by 1.25m, therefore any surface materials would be removed from site and taken to a suitably licensed landfill facility.

### **3.0 Gas Risk Assessment**

When classifying the risks posed by the possible presence of gas, it is necessary to consider the following points:

- The source of gas,
- The generation potential for the source,
- The location of the source, and the presence of any natural geological barriers to migration.

## **Source**

The desk study failed to identify any historical landfill sites within 500m of the site, therefore, the risk of gas generation from landfill is negligible.

It must be stressed that the made ground located on the site is colliery spoil, which is derived from excavations underground, and is therefore inert, comprising fragments of mudstone, siltstone and sandstone. Therefore, it is not considered to be a possible source of gas. However, experience shows that such deposits often contain fragments of coal and ash and clinker that can contain slightly elevated levels of carbon dioxide or methane, but with no flow. Again, the quantities observed in the site investigation confirmed this is not considered to be a potential gas source.

It must also be stressed that the new ground levels will be 1.25m lower than the existing ground levels, when the thickness of the floor slab construction, and the underlying sub base is taken into account, around 2m of colliery spoil (made ground) will have been taken off site, therefore removing most of the potential source.

In addition, the potential for mine gas can be discounted due to the distance from the shafts and the considerable depth to the workings.

## **Generation Potential of the Source**

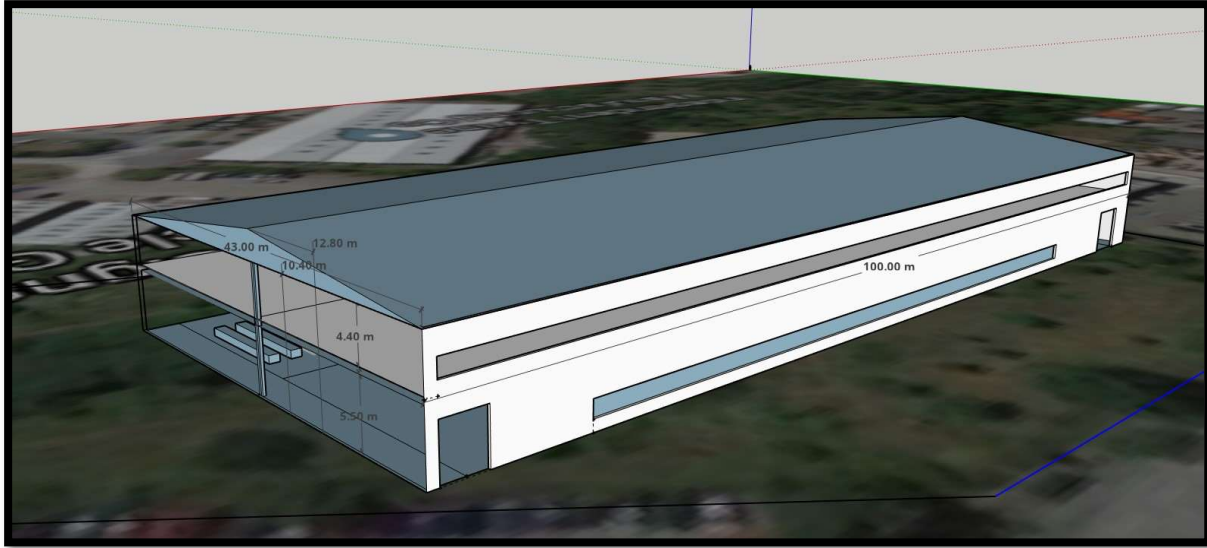
As discussed above, the generation potential for the sources is considered to be very low/negligible.

## **Barriers to Migration**

The made ground overlies a low permeability glacial clay, which offers a natural barrier to migration of any ground gasses onto site. The site is also located on top of a slope, which means any gas would migrate out of the side of the slope and not up to the ground beneath the proposed building.

Proposed floor levels also suggest that much of the made ground is to be removed in preparation for the building and hard standings, with the spoil taken off site to a suitably licensed landfill facility. Current levels are 94.50mAOD, with final formation level at 93.25mAOD, some 1.25m below ground level.

The proposed development is a large warehouse building, over 10m high as shown in the scheme drawing below.



The proposed building is to be very well ventilated with sufficient windows and doors for ventilation, which would ensure any potential gas would be dissipated in the space.

In addition, the building will have a floor slab of substantial thickness, which will incorporate slip membranes comprising 1,200-gauge polyethene, which in itself provides substantial protection against ground gasses.

### **Conclusions**

Since the desk study failed to reveal any sources of gas, and the site investigation concluded that the risks from contaminated land are extremely low, the requirement to carry out further investigation is considered to be unjustified.

If you should require any further clarification, please contact Elizabeth Smith on 01244 661 361.

Yours Sincerely

Elizabeth Smith