

**National Grid Property Holdings
Maelor Works, Wrexham Remediation
Works Summary Supplementary Statement**

1. Introduction

A planning application has been submitted seeking permission for remediation and ancillary works at the National Grid Property Holdings (NGPH) site known as Maelor Works in Marchwiel, near Wrexham (Planning Application Ref: P/2014/0658).

A detailed remediation strategy and associated drawings have been submitted in support of this application to describe the extent and nature of the proposed works (Report Ref: IKM Consulting Limited, 13627-REP-005, September 2014). This supplementary statement has been produced to provide a non-technical summary of the proposed works and the background to the current application. This statement is not intended to supersede or take precedence over the detailed proposals set out in the previously submitted documentation.

2. Background

The Maelor Works site has a long history as a major gas manufacturing plant, producing town gas from both coal and oil feedstocks. These industrial processes are associated with the production and storage of various by-products with a potential for impacts on site soils and groundwater. Following cessation of the gas manufacturing processes, the site was partially cleared to ground level and redeveloped as a natural gas distribution and gas supply administration centre.

As a result of site redevelopment and the requirements of various owners and tenants, a large amount of site investigation and risk assessment has taken place, with the identification of impacts on soil and groundwater in a number of areas within the site. Some of these issues have been addressed by previous remediation works and NGPH has commissioned this latest phase of work in order to identify any outstanding issues that may require remediation or mitigation under the current site use scenario.

Further to the privatisation and fragmentation of the gas supply industry, land ownership at the site has passed to a number of organisations, with parts of the site also now under leasehold occupation by third parties. This planning application applies only to land currently owned by NGPH.

3. Risk Assessment Outcomes

Soil and groundwater impacts have been identified beneath parts of the site previously occupied by the main gas manufacturing and by-product storage and processing plant. These areas are situated in the northwest and western quadrants of the main site with actions required to reduce risks to groundwater and site occupants / workers in these areas.

Oily / tarry liquids have been identified within the surface water pond and Bedwell Brook channel in the southeastern quadrant of the site, physically separated from the western areas discussed above by the existing central car park / storage area where no impacts have been identified. Connections between the impacted areas are however suspected in the form of surface water drainage pipes, with visible contamination having been observed emanating from the discharge end of these pipes at both the pond feature and on the northern bank of Bedwell Brook. Future continuation of contaminated discharges is unlikely to be prevented without treatment of the main soil contamination source area in the western site quadrant.

The main issues identified relate to different parts of the Maelor Works site, identified on the accompanying Drawing No. A1-13627-3064 as Areas AC1, AC2, AC3 and AC4:

- Area AC1 is an area of elevated open ground, built up from the surrounding agricultural land. The area lies immediately to the north of the main soil contamination source areas associated with the former gasworks processes and below ground liquid storage tanks. Consequently the made ground and underlying granular alluvium strata contains contaminated groundwater that extends from the southern Area AC1 boundary to the western boundary. Deeper migration of the shallow groundwater is prevented by the glacial clay deposits beneath. Movement to the north is limited by large underground concrete structures (former spent oxide storage silos) and natural groundwater flow paths (trending to the west). Only dissolved phase contamination has been identified within Area AC1 (no free phase oils or tars).
- Area AC2 occupies the westernmost quadrant of the Maelor Works site and was previously the site of major parts of the gas by-product processing and storage operations. This part of the site has been cleared to ground level, although there have been previous phases of partial remediation within the Area AC2 boundary and on third party land immediately to the north, involving the removal of below ground tar tanks (and contents) and back-filling with clean aggregate material. Nevertheless, extensive below ground structures and contaminated made ground material remain in-situ (oil, tar and asbestos); with further free phase tarry liquids identified within underlying granular alluvium (above and below the local groundwater surface). Deeper migration of the free phase oil and tar and associated groundwater is prevented by the low permeability of the underlying glacial clay. Migration to the south and east is also largely prevented by shallow deposits of this same clay stratum. This natural containment may be compromised by the presence of shallow surface water / road drains, with these drains potentially allowing intermittent movement of floating free phase contamination and contaminated shallow groundwater between Area AC2 and Bedwell Brook (Area AC4) to the southeast.
- Area AC3 is a small surface water pond feature, close to the southern boundary of the site. The pond is connected by an artificial overflow channel to Bedwell Brook where that watercourse enters the site in its southeastern corner. In-flow into the pond is from artificial surface water drainage from the southernmost parts of the Maelor Works site and is associated with visible free phase oils and oily sediments within the pond itself (but not as far as the outlet channel). The drainage into Area AC3 is not thought to be directly connected to Area AC2, but is linked to an area historically impacted by the former bulk oil storage tanks that previously occupied land immediately to the north and west of the current discharge point. Small scale removal of oil contaminated soil was carried out, but there is no record of any drainage inspection, cleaning or replacement at that time. Visible contamination in the pond and at the drain discharge point may therefore be a combination of historical and ongoing movement of oily water within the local drain system.
- Area AC4 is a corridor of land across the southeast corner of the Maelor Works site, containing the Bedwell Brook channel and the river banks to either side. Bedwell Brook emerges from an artificial culvert beneath the former railway line embankment immediately to the southwest of the area and passes beneath the Maelor Works site access road on the eastern side of the site area. A number of surface water drains from the main site area discharge into Bedwell Brook along the northern bank. This north bank is a large embankment of loose tipped mixed waste and natural materials used to build out the southeast quadrant of the site (although it has never been used for built development). Free phase oil and tar has been observed within the sediments in the Bedwell Brook channel, which also contain elevated levels of metals (particularly lead).

These contaminants appear to be concentrated around the main surface water drainage discharge points in the western end of Area AC4. No direct seepage or discharge of oil or tar has been observed from the northern embankment itself, although visible ferruginous (orange, oxidised iron rich) leachate does emanate from around the outside of the surface water drains that pass through the tipped materials. It is concluded that the majority of the oil / tar contamination has originated remotely from Area AC4, most likely in Area AC2, and that intermittent reactivation of this contamination source occurs during periods of high rainfall / run-off. Any contamination entering Bedwell Brook is dispersed downstream due to natural river sediment transport.

Extensive assessment of these issues, in the light of the ongoing operations at the Maelor Works site as a whole, has concluded that remediation of the contamination sources and mitigation of the existing impacts within the site is necessary and justified. A detailed and comprehensive remediation strategy for the site has been prepared on the basis of all available information and the assessment of risks in accordance with current good practice (submitted with the planning application as IKM report 13627-REP-005).

4. Proposed Remediation Works

In accordance with the requirements of the landowner, a programme of voluntary remediation works has been proposed to address the soil and groundwater contamination source area and to treat parts of the site that have been impacted due to migration of contamination from the main source area. These works are set out in detail in the remediation strategy report that accompanies the planning application. The main features of the remediation works refer back to the different parts of the site area previously described as Areas AC1-4 respectively:

- Area AC1 will be subject to a phase of groundwater recovery from approximately 10 boreholes (new and existing) drilled into the made ground and underlying water saturated natural strata. These boreholes will be pumped on a continuous basis so that groundwater levels are depressed compared to surrounding land, causing groundwater flow into the treatment area from all sides. Groundwater recovered from these boreholes will be subject to settlement and pre-treatment (skimming of floating oil) where necessary, prior to discharge to the local foul sewer for final treatment at the nearby Welsh Water sewage treatment plant. Pumping will continue as long as possible, until all the adjacent source area soil treatment has been completed or until groundwater inflows meet agreed quality targets, whichever is shorter.
- Area AC2 will be subject to excavation of contaminated soils and remaining underground structures, with the excavated materials being screened and segregated to allow recovery of clay and oversize fragments (bricks, concrete etc) for direct re-use on site. Remaining contaminated made ground and soil will be passed for ex-situ treatment by cement based solidification and stabilisation in the adjacent treatment area.

Excavation areas will be dewatered in advance through the installation of temporary open sumps, with all recovered groundwater being pumped to the adjacent groundwater pre-treatment facility, prior to discharge to foul sewer. Excavation areas will be kept free of standing water as much as possible before backfilling with verified suitably treated materials.

Excavation and backfilling will be phased to minimise open excavation areas as much as possible. Excavation will be backfilled to just below existing site levels with suitably treated material; a surface layer of verified suitable material recovered from the excavations then being placed to achieve a level surface equivalent to current site levels. No import or export of material is anticipated at this stage.

Backfilled materials will be tested to demonstrate that they do not pose a risk to surrounding groundwater or surface water drains.

- Area AC3 will be subject to localised excavation of contaminated soil and sediment within the pond area; excavated materials will be treated as per material from AC2. Surface water drainage runs leading from the current pond discharge point will be inspected and cleaning as necessary, sediments from the cleaning operations requiring remediation will also be treated at the site treatment area. The existing discharge point will be reconstructed and provided with a functional oil / water interceptor to protect against possible future spills / releases within the drainage catchment area (within the operational Maelor Works site).
- The stream channel within Area AC4 will be subject to temporary isolation from the rest of the watercourse and recent sediments excavated and removed to the site treatment area. The exposed clean clay strata will be re-profiled as necessary to achieve a stable and natural channel as close as possible to the existing conditions. Surface water drainage runs discharging to the brook will be subject to inspection and cleaning as necessary, with sediments from the cleaning operations being transferred to the site treatment area. Existing discharges will be reconstructed to prevent peripheral seepage and provided with a functional oil / water interceptor to protect against possible future spills / releases within the drainage catchment area (within the operational Maelor Works site).

The location of each area within the Maelor Works boundary is shown on the accompanying plan (Drawing No. A1-13627-3064) along with a brief description of the proposed remediation work. The remediation is described in detail within the remediation strategy report under the same area identifier headings.

5. Additional Site Works

Additional work included in the current application includes:

- Demolition of a surplus, derelict modern office building in the northern site area (former Northeast Wales administration offices). All material arising is to be recovered for re-use on-site or recovered / recycled off-site at local, licensed facilities. A small amount of asbestos containing materials will be segregated and separately disposed off-site in accordance with current legislation and good practice.
- Replacement of the private drinking water supply main providing potable water to the occupied buildings on-site. A new connection to the existing water meter on the northern site boundary has been agreed with the water supply company.
- Clearance of sediment and vegetation accumulating within the former railway embankment culvert immediately upstream of remediation Area AC4. This is a normal maintenance operation, not associated with chemical contamination, but making use of the presence of the necessary plant and flow management equipment being used by the remediation works.

The locations of the buildings to be demolished and the corridor to the site boundary where the new water main will run are shown on the accompanying Drawing No A1-13627-3064.

6. Site Completion Details

All remediation works have been designed to reinstate the site to its current use scenario, with no significant change in surface level, detailed operational uses, appearance or access arrangements.

Areas excluded from remediation works due to access constraints (building footprints and live service corridors) will be documented so that any future excavation or development work in these areas can be appropriately planned and managed.

All completed remediation works (including any significant changes to the proposed scope) will be reported in the site verification report to be submitted to the landowner and local authority on completion of the works.

All site works will be carried out in accordance with pre-agreed methodologies and procedures and will be subject to a programme of environmental controls and monitoring of noise, dust, vibration and water quality within and at the site boundaries.

A further round of surface and groundwater monitoring will be conducted three months after the completion of the remediation works and reported as part of the final verification process.

Prepared By:	David Cooke	Date:	10 October 2014	Initials:	DC
Checked By:	Alistair Kean	Date:	10 October 2014	Initials:	AK

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