

# Waste & Minerals Developments

## Introduction

This Guidance Note is aimed at anyone proposing to develop or run a waste or mineral extraction site in Portsmouth Water's groundwater catchments. It recognises that the construction and operational processes can pose risks to the environment and identifies our key areas of concern in relation to groundwater protection and mitigation.

Information relating to water supply and connection to the Portsmouth Water network can be obtained from our website.

## Portsmouth Water

Portsmouth Water has been supplying water to Portsmouth and the surrounding area since 1857. Our customers include a domestic population exceeding 698,000.

Our area of supply extends through South East Hampshire and West Sussex from the River Meon in the west to the River Arun in the east. All our public water sources are reliant on the chalk aquifer of the South Downs, with approximately 85% of our water being directly sourced from boreholes or springs and 15% derived from the River Itchen which itself is groundwater fed.

## Planning and Permitting

The responsibility for mineral and waste planning, and deciding on planning applications, falls to Mineral Planning Authorities (MPAs). For the Portsmouth Water Catchment these are the respective County Councils and the South Downs National Park Authority. The MPAs must produce a 'Minerals and Waste Development Framework' (MWDF), that shows how future provision of minerals and disposal of waste in each area will be provided.

Waste facilities and mineral extraction sites require environmental permits for the development and operation of a site under the Environmental Permitting Regulations 2016. Permits are required for a range of commercial and industrial processes including discharges into the environment.

Applicants and operators are encouraged to get environmental advice on their proposals through consultation with the Mineral Planning Authority, the Environment Agency and Natural England.



## Our Groundwater Catchments

The groundwater catchments that Portsmouth Water utilise are particularly sensitive to pollution and activities that pose a risk to groundwater quantity and quality. Parts of the catchment are prone to solution features, resulting in rapid travel times for groundwater moving from its source to our abstractions.

Solution features are formed over time in the Chalk as water passes through and dissolves it, forming underground cavities, sinkholes, sinking streams and large springs. Changes in ground or surface water flow can flush out existing sediment-filled fissures and sinkholes, causing the formation of circular cylindrical or conical depressions at the ground surface. These zones have a higher permeability than the surrounding geology and therefore rapidly transmit groundwater and contaminants through them.

Due to the sensitivity of the catchments, Portsmouth Water needs to carefully manage the risks posed by new and existing developments and operations. These risks include the adverse impact on groundwater from fugitive emissions such as leachate, surface water runoff and spills, drainage, groundwater diversion, dewatering operations, importation and re-use of soils for landscaping and poor environmental management practices on site.

# KEY RISKS

Each of the following 'Key Risks' should be taken into account at an early stage and understood in the context of a Conceptual Site Model (CSM) and risk assessment that may be qualitative or quantitative, depending on the significance and nature of the identified risk. At sensitive locations Portsmouth Water will seek assurances that the groundwater catchment is not at risk from the development/operation. A Construction Environmental Management Plan (CEMP) may be required to outline the key environmental processes proposed on site during construction and information on what to do in the event of an incident in line with the applicant's Environmental Management Systems (EMS) policy.

## **Fugitive Emissions & Environmental Management Systems**

On site, during construction and operation, there is the potential for polluting materials to enter the environment as leaks, spills or pollution incidents.

Good housekeeping and a robust EMS will reduce this risk and regular maintenance of plant and machinery on site will ensure best practices are followed.

Bulk storage of chemicals and hydrocarbons (oils) should be carried out in line with the environmental permit conditions where relevant and on impermeable surfaces in accordance with British Standards.

Pollution prevention measures can include bunding, secondary containment where feasible, and an incident response plan including spill kits on site and the training of staff on how to use them. This information should be presented in the EMS and can also form part of any CEMP required under planning.

On waste sites control of fugitive emissions would be addressed by an Environmental Permit; in addition Portsmouth Water would insist on a low permeability engineered barrier to underlie the site with pollution prevention and mitigation measures on all drainage systems.

Ground and surface water monitoring programmes should consider the location and type of Portsmouth Water's supply infrastructure nearby to ensure the programme is protective of our assets. Planning permission and/or permit conditions would require ongoing monitoring of ground and surface waters. We would request, where relevant, that our supply infrastructure is considered in the design stage of any monitoring programme.



## **Drainage & Sustainable Urban Drainage Systems (SUDS)**

It is essential to present the proposed drainage methodology of a new waste or minerals site early on in the planning application process. There are significant risks to groundwater associated with new surface and foul water drainage systems and the drainage strategy should take into account the specific environmental risks posed by the development and operation.

If site drainage is not controlled under an environmental permit the following should be considered:

Portsmouth Water has a presumption against the discharge of foul and surface water into ground where adequate pollution prevention measures are not in place.

There are areas in the catchment where Portsmouth Water would object in principal to discharging surface/foul water due to the risk of contamination. These locations are in Source Protection Zones (SPZs - see the Government's groundwater protection guides), areas close to our abstractions and areas known to have solution features present.

Portsmouth Water has a presumption against the use of deep bore soakaways for all waste handling developments. All applications for the construction and installation of deep bore soakaways should be accompanied by an adequate risk assessment demonstrating how the risk to groundwater would be mitigated in the proposed design.

For foul drainage in SPZ1 we require the use of the highest specification pipework and designs for schemes to minimise leakage.

Where SUDS are proposed in sensitive areas to manage surface water, we would welcome being consulted to advise what measures would be appropriate to protect groundwater quality. This may include settlement chambers, separators, syphon heads and/or regular monitoring.

Drainage plans may take the form of Surface Water Management Plans (SWMPs) and these are encouraged to ensure a suitable and reliable drainage strategy is adopted early on and, in particular, during the construction phase of the scheme.



### **Dewatering & Groundwater Control**

As part of mineral extraction there may be the need for groundwater control to win the product from a safe and dry platform. The resulting drawdown of the water table can have widespread impacts on nearby groundwater resources, habitats and ecology.

Dewatering works for quarry activities require a bespoke permit under the Environmental Permitting Regulations 2016 and more information should be sought from the Environment Agency. As part of the risk assessment Portsmouth Water request the applicant considers the abstraction of groundwater from the aquifer, local and regional drawdown of the water table, diversion of flow and recharge of potentially impacted groundwater.



### **Importation & Recovery/Use of Soils**

The sustainable use of soils is influenced by legislation related to waste, national recycling objectives and incentives and UK regulation on waste. The Environment Agency is responsible for enforcing waste management legislation in England and Wales and regulation is currently discharged under the terms of the EU Waste Framework Directive.

As part of closure plans the importation of soils is often required for landscaping or backfilling excavations; therefore the transportation of contaminated soils into the catchment is a concern due to the potential for contaminants to leach into groundwater. There is also the potential for diversion of groundwater flow therefore, prior to development and/or operation, advice should be sought from the Environment Agency on the requirements for importing and using soils on site for restoration.



## **Brownfield Development**

Development of land that is contaminated poses significant risks to groundwater if not carried out correctly. Portsmouth Water considers a phased approach appropriate by starting with a desk study and literature review identifying all potential source, pathway and receptor linkages. The desk study should also include a site walkover and preliminary assessment for the potential presence of solution features.

Based on the findings of this review, an intrusive investigation may be required. In addition to chemical, geological and geotechnical characterisation, the investigation must aim to identify the presence of solution features that act as rapid pathways for pollutants. A risk assessment should be completed incorporating the hydrogeological setting and any contamination identified. This phase is typically followed by an options appraisal and, following approval, remediation and validation testing.

The fundamental basis for all this work is the construction of a CSM. A CSM is a dynamic model that acquires more detail as the project evolves. It should represent the anticipated site conditions and the interactions between different processes, both natural and man-made.

The CSM is a vital tool to understand the potential risks associated with land contamination and the risks to our water supply from development and operation.

Portsmouth Water may request monitoring as part of a planning permission and will require assurances from the developer, local authorities and regulatory bodies that the development of land affected by contamination is being carried out in a way that protects groundwater quality.

Without an approved desk study, site investigation, conceptual site model and risk assessment, Portsmouth Water would object to developments on land that could pose a risk to groundwater.



## Useful Guidance

You can read the following guidance by clicking on the links below:

**Assessing the impact of dewatering on water resources. Science Summary SC040020/SS**

**CLR11 Model Procedures for the Development of Land Contamination**

**Environmental Permitting Regulations and Guidance**

**EPR Guidance - Mining Waste Directive**

**Groundwater protection guides covering: requirements, permissions, risk assessments and controls**

**Groundwater risk assessment for your environmental permit – Hydrogeological Risk Assessment**

**How Safe is your Heating Oil Storage Tank?**

**How to comply with your Landfill Permit**

**Land Contamination: Risk Management**

**Mineral Planning Factsheets - British Geological Survey**

**Pollution Prevention Guideline 22 Incident Response – Dealing with spills - DRAFT**

**Pollution Prevention Guideline 3 Use & Design of Oil Separators in Surface Water Drainage Systems**

**The SUDS Manual 2015 CIRIA 753 (including the handbook for the construction of SUDS: CIRIA 698)**

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## Further Information

Other Portsmouth Water Guidance Notes in this series:

- **Agricultural Developments**
- **Commercial Development**
- **Housing Developments**
- **Oil and Gas Developments**

For further information please contact Portsmouth Water:

**023 9249 9888 (during normal hours)**

**023 9247 7999 (24 hour emergency line)**

**[catchment.management@portsmouthwater.co.uk](mailto:catchment.management@portsmouthwater.co.uk)**