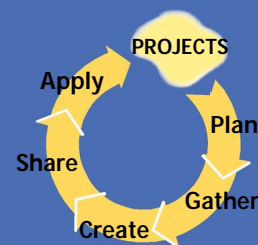


# SecondSite Property

## Learning about bio-remediation



### Background

SecondSite Property (formerly Lattice Property) was set up in 1994 to take over a large portfolio of property formerly belonging to British Gas, including some 1,000 former gasworks ranging in size from 300 acres to half an acre, from Scotland to Cornwall. Their mission is to reclaim the land — 7,000 acres of it potentially contaminated — and return it to beneficial use.

SecondSite have already cleaned up hundreds of acres of brownfield land, which have since been redeveloped as industrial units, leisure facilities, homes, schools, shops and open space — the Millennium Dome at Greenwich, a leisure complex in Plymouth, a Tesco in Swansea, parks at Withernsea and Kirkconnelhomes at Tipton, offices in Leeds and many more. They are currently restoring around 70 sites a year.

Contaminated sites have to be treated, often to a considerable depth. The dirtiest and most dangerous material, such as tar and asbestos, is excavated and sent to licensed tips. Cleaner material, such as building rubble, can often be left in situ, capped off with compacted clean clay and soil. In between these extremes there is a large volume of moderately contaminated soil which could be dealt with in two ways. In the past it has normally been sent to tips, but it can, in principle, be bioremediated using aerobic bacteria which convert hydrocarbon wastes successively to alcohol, aldehyde, fatty acids and eventually to harmless carbon dioxide and water. In this process, the excavated spoil is heaped into long mounds ('windrows'), primed with bacteria and nutrients, kept well aerated (by turned it over repeatedly) for 4 - 10 weeks until site clean-up criteria are achieved, and then put back. As the landfill tax rises and the number of tips licensed to accept contaminated material falls bioremediation is becoming an increasingly competitive option and SecondSite are trying it out on some of their sites.

SecondSite based their pilot trial of the Learning Toolkit on the second phase of a project to regenerate a large former gasworks site in Portsmouth. A first phase was completed several years ago and the land redeveloped as industrial units. The larger part of the site was left untouched because investigation showed that it would cost an uneconomic £6 - 7 million to clean up using conventional methods. Since then, bioremediation has emerged as a practical option, and a new costing suggested that this might offer an economically viable way forward at Portsmouth. Bioremediation is also, in principle, an environmentally superior approach. However, it is not yet widely accepted by local authority environmental officers, and Portsmouth City Council were only prepared to allow it under very strict conditions — they said, for example, that they would stop the work if they received more than two complaints about smell. SecondSite nevertheless decided to go ahead and make Portsmouth a trial of large-scale bioremediation. Despite several difficulties — including exceptionally wet weather (which complicated the bioremediation process) and the discovery of unexpectedly larger volumes of heavily contaminated material — the project was completed successfully and on time, with 25,000m<sup>3</sup> of soil successfully treated by bioremediation.

### Using the Learning Toolkit

The Portsmouth project made an ideal learning opportunity because it was an example of an unfamiliar but potentially widely-useful process, conducted under an exceptionally rigorous regulatory regime. Many of the lessons learned there should carry over directly to future projects.

SecondSite had no previous experience with structured learning, and they chose to carry out a workshop-based **Hindsight Review** closely following the guidance given in the Learning Manual.



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The review started in the last few weeks of the project with a **desk review of project records** to identify key stages. The **review workshop** followed shortly after project completion. It was attended by seven senior and middle managers from all the main organisations involved in the project — SecondSite, consultants WSP Environmental and contractors VHE — and scheduled to take two and a half hours, but over-ran by about half an hour. The leader followed the sequence and time plan suggested in the Learning Manual: about 25% establishing *what* happened, 25% discussing *why* it happened, and 50% working out *how to do better* in future, using the chronology from the desk review as a framework. In the event there was some blurring of boundaries between the three parts of the workshop — it was difficult for the workshop leader to stop discussion of what had happened and why leading immediately into suggestions for doing better. The discussion was open, animated and constructive throughout: participants had been briefed on the ground rules before the workshop (see side panel) and had no difficulty following them.

The workshop provided new insights into the factors which lay behind the success of the Portsmouth project, and identified others which had caused avoidable problems. For example, it showed that having a team with the right combination of expertise and good working relationships had been crucial in allowing the project to overcome, that it pays big dividends to investigate sites thoroughly before planning projects and to prepare paperwork for regulators before work starts, that it is best to use the same contractor and plant for excavating and for turning windrows to avoid conflicting aims, and that efficient operation of the batch processes involved in bioremediation requires site managers to plan continuously 2-3 weeks ahead.

Overall, around 20 significant lessons emerged. To make these available to all the managers responsible for remediation projects, SecondSite encapsulated all the lessons in a 3-page guidance note detailing issues which should be taken into account in the key stages of site investigation review, team assembly, detailed planning, and obtaining regulator approval.

## How it worked

SecondSite found that the Learning Manual techniques they chose to use worked well, and they expect to use them increasingly in the future and to make them part of a comprehensive Knowledge Management system they are developing. The structured, facilitated workshop is much more productive of lessons with real business value than the conventional project management meetings they have relied on in the past. It also helps ensure that lessons learned on the job — as many are when relationships between client and contractors are good — are recognised and disseminated. The process is particularly valuable when, as in the Portsmouth project, novel techniques are being used and overall success tends to leave problems unexamined.

## Lessons learnt about Learning from Experience

- Plan adequate time for workshops; the benefits easily outweigh the small extra cost.
- To make best use of available time and the workshop leader's job easier it is helpful to pre-filter issues to focus attention on the most important, and to have the basic chronology of the project visible throughout the workshop, perhaps on a flip chart. A well-structured discussion is also easier to record in a form which can easily be developed into a tidy document to disseminate lessons learnt.
- There is a tendency for discussion of what happened and why to spill over into how to do better. Within limits this does not matter, but the workshop leader should not allow it to compromise coverage of the whole project history and all the important issues.
- Workshops have an inevitable bias towards the circumstances of the project being reviewed. In Workshop leaders need to be aware of this and steer discussion of how to do better towards circumstances likely to arise in future projects.
- A structured approach may not make learning much more effective within small teams, but it pays big dividends by enabling knowledge capture and dissemination of lessons learnt.



### Workshop Rules of Procedure

- Nobody is required to speak, but everyone is strongly encouraged to do so
- All participants have equal status during the workshop
- Everybody speaks only about their personal experience in the information gathering phase
- Everyone recognises that subjective truth can differ from person to person
- Nobody criticises anyone else — the focus is on past truth and future improvement
- Management guarantees no recriminations

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