



Cass
associates

architecture
masterplanning
planning
landscape
ecology

DETAILED PLANNING APPLICATION:
PROPOSED LANDFILL FACILITY

ENVIRONMENTAL STATEMENT NON-TECHNICAL SUMMARY

on behalf of **BAE SYSTEMS**

AOC Archaeology
SLR Consulting Ltd
Enviros Consulting Ltd

Cass Associates
Studio 104
The Tea Factory
82 Wood Street
Liverpool
L1 4DQ

Tel: 0151 707 0110
Fax: 0151 707 0332

June 2009

Contents

- 1 Introduction to the Environmental Statement
- 2 Key Issues
- 3 Description of the Site and Surroundings and the Project
- 4 Plans and Policy Context
- 5 Introduction to the Assessment of Environmental Effects by Topic
- 6 Socio-Economic Impacts
- 7 Effects on Major Land Uses
- 8 Effects from Traffic
- 9 Effects on Air and Climate
- 10 Effects on Noise and Vibration
- 11 Effects on Geology and Soils
- 12 Effects on Water
- 13 Effects on Landscape and Visual Impacts
- 14 Effects on Fauna and Flora
- 15 Effects on Material Assets and Architectural / Archaeological Heritage
- 16 Inter-Relationships and Conclusions

Figures

- 3.1 Planning Application Boundary
- 3.2 Aerial Photograph of the Site
- 3.3 Scheme Proposals

1 Introduction to the Environmental Statement

- 1.1 This is a Non-Technical Summary of the key points and conclusions contained in an Environmental Statement for the construction of a new landfill facility on the western edge of the Royal Ordnance site at Bishopton (Figure 3.1).
- 1.2 The landfill facility is integral to the process of remediation of the site. It will harbour contaminated materials which originate from other parts of the site.

2 Key Issues

- 2.1 The identification of key issues is, to a large degree, a reflection of matters such as the magnitude of the environmental impact, the frequency of the environmental impact and the sensitivity of the individual or group (the receptors) receiving the impact.
- 2.2 With this in mind the most significant potential impacts which will arise from the landfill facility are:
 - Dust generated from the movement and handling of material
 - The potential impacts on soils from the construction of the landfill
 - Impacts on water from the accidental release of leachates
 - The impacts on landscape character
 - The consequences for wildlife
 - The potential for impact on buried archaeological remains.

3 Description of the Site and Surroundings and the Project

- 3.1 The planning application site in this instance comprises one section of the former Royal Ordnance factory, near to its western boundary (Figure 3.1). The application site extends to around 19.8 hectares.
- 3.2 The application site has previously been used for the breakdown of munitions. Legacies from the historic use of the land will be addressed by remediation and reclamation earthworks which will present a construction platform for the landfill facility. This is the “baseline position” against which environmental consequences are to be assessed.
- 3.3 The application site is made up of two key components : a mixture of dense plantation and deciduous woodland along the northern, western and southern boundaries and reasonably open land at the core (Figure 3.2). At the outer edge of the woodland in a peripheral track which once provided a security route at the very edge of the security fence of the former Royal Ordnance factory.
- 3.4 The character of both landuses and landscape varies at points around the application site. To the west is open agricultural land (intersected by the public highway of Turningshaw Road); to the south is Barochan Moss which is extensive woodland on a raised peat substrate; to the east is the open expanses and redundant infrastructure of the former factory and to the north is established woodland on land which rises in elevation (Figure 3.2).

- 3.5 The landfill site will comprise a land-raise above existing ground level, provisionally comprising two lined phases with separate leachate management and collection systems (Figure 3.3).
- 3.6 There is a requirement for ancillary development associated with the landfill, including general operational infrastructure such as weighbridge facilities, wheel wash facilities, quarantine areas, storage sheds, leachate treatment and waste pre-treatment infrastructure.
- 3.7 In brief, the landfill design (Figure 3.3) comprises:
- General fill to formation level
 - Basal and bund lining system comprising minimum 500mm engineered clay as the geological barrier and 2mm High Density Polyethylene (HDPE) geomembrane as the artificial sealing liner
 - Appropriate leachate drainage blanket for leachate management and collection
 - A capping system comprising HDPE with minimum appropriate depth of restoration soils.

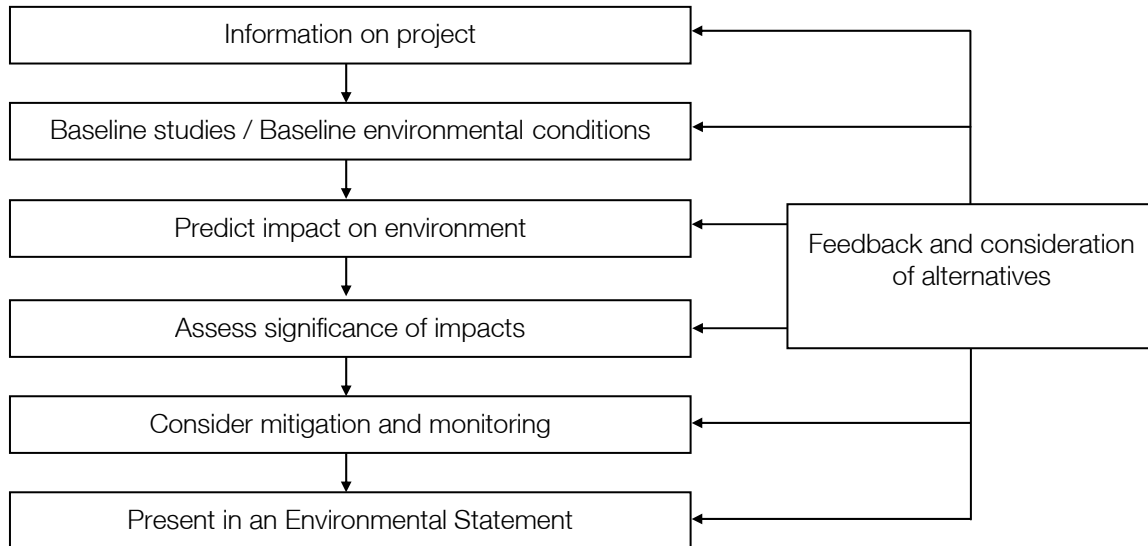
4 Plans and Policy Context

- 4.1 The policy context for the proposed landfill facility can be found at national, regional and local levels.
- 4.2 The strategic planning and waste management policy context embodies the principles of sustainable development through the waste hierarchy and other concepts. Fundamentally, sustainability and the waste hierarchy are reflected in the proposals contained within this planning application. The concept of creating a dedicated landfill facility for remediation wastes arising from within the Royal Ordnance site complies with the principles of proximity, regional self-sufficiency, polluter pays and the Best Practical Environmental Option that form the cornerstones of the planning policy framework.
- 4.3 National and regional planning policy context makes clear that in assessing proposals such as this, a balance will need to be struck between the proximity principle, regional self sufficiency, local amenity and guiding principles for sustainable development (particularly relating to transport). The nature, scope and operation of the proposed landfill operation provides this balance.
- 4.4 At the more detailed level, the proposal complies with both the Structure Plan for the sub-region and the Renfrewshire Local Plan. In particular, these require that proposals must include details of restoration and after-use. In this case, the proposed after-use would be integrated with the wider package of proposals for the Community Woodland Park, in accordance with the Community Woodland Park Management Plan that was submitted with the outline planning application for the regeneration of the Royal Ordnance site.

5 Introduction to the Assessment of Environmental Effects by Topic

5.1 This Environmental Statement is an integral part of the Environmental Impact Assessment (EIA) process. It is a document which brings together the results of the EIA process.

5.2 The EIA process which has been followed can be summarised in a flow diagram :



5.3 For each environmental topic there has been an extended period of collecting baseline information. This has involved desk studies, field surveys and consultation with other experts and bodies. For many of the environmental topics this process has extended over many years.

5.4 The prediction of impacts involves the analysis of potential causes of change to the existing environment. Impacts can be both positive and negative. The significance of each impact is determined by matters such as timescale, frequency and the capacity of the receiving environment to absorb impacts. If there is an adverse impact then mitigation measures are usually required.

6 Socio-Economic Impacts

6.1 Bearing in mind the scope of works associated with the construction of the landfill facility, the socio-economic impacts of the scheme which is the subject of this planning application will be limited. The employment impacts on the local economy are likely to be negligible. The majority of the new employment associated with the landfill will be temporary in nature and will have a negligible impact, in its own right, on the population of Bishopton.

7 Effects on Major Land Uses

Agriculture

- 7.1 The planning application site does not embrace land in agricultural use. There will be no direct impact on agricultural activity. There will be no severance impacts on agricultural holdings.

Forestry

- 7.2 There is no active forestry use within the boundary of the planning application site.

Recreation and Leisure

- 7.3 The application site is contained within a security fence. There is no recreational value at present although the long-term afteruse (as a part of the Community Woodland Park) will allow for public access.

8 Effects from Traffic

- 8.1 The magnitude and significance of impacts arising from the traffic associated with the formation and construction of the landfill facility and landfill traffic moving to and from the Royal Ordnance site are both predicted to be low.
- 8.2 This traffic will use the haul road (or, at later stages, the southern and northern link roads). This will mean that this traffic is not routed through the village of Bishopton. The marginal increase in traffic on the local road network (associated with the landfill facility) will not be significant and any impacts will be negligible.

9 Effects on Air and Climate

- 9.1 The main air quality issue which needs to be addressed is the control of potential fugitive dust emissions from the construction and operation of the landfill. These works will consist of the preparation of the area that is proposed for the landfill, material handling, material pre-treatment, stockpiling and the operation of plant and machinery.
- 9.2 Air quality implications resulting from the proposed landfill facility have been assessed. Specific reference has been made to the landfill site's location in relation to the larger Bishopton site, nearby sensitive locations, the planned processes, the duration of the construction and operational periods, site characteristics, the prevailing wind direction, and the risks posed by contamination in dusty materials.
- 9.3 The assessment has concluded that the construction and operational activities associated with the landfill facility are unlikely to have a significant impact with regards to dust emissions. This is due firstly to the distance between the landfill site and the closest sensitive locations. Secondly, good working practice measures will be specified and used to ensure that dust generation is minimised. The measures will be set out clearly in the dust management plan which is an integral part of the Permit required from the Scottish Environment Protection Agency (SEPA). Thirdly, monitoring in the form of weekly visual inspections will be carried out to confirm that dust control measures have been effective.
- 9.4 The air quality effects of traffic associated with the landfill facility are unlikely to have any significant impact with regards to air quality.

10 Effects on Noise and Vibration

- 10.1 The predicted construction noise impacts at the nearest identified sensitive receptors have been calculated based on the plant and equipment likely to be used during the construction and operation phases of the landfill and the corresponding noise emission levels for the landfill site. These impacts have been assessed in terms of nationally adopted criteria. Consideration has been given to the introduction of mitigation measures where necessary.
- 10.2 Construction noise levels for the landfill site are unlikely to be significant at most of the identified noise sensitive receptors for the potentially temporary nature of this phase of activities.
- 10.3 The significant distance between new development and ongoing works will minimise the impact of ongoing construction noise for new residents.

11 Effects on Geology and Soils

- 11.1 The geological setting of the site has been investigated thoroughly in order to determine its potential use as a location for an engineered containment landfill with support facilities. The site investigations have shown that there is a substantial thickness of superficial deposits beneath the site and that these overlie deposits of mudstone, sandstone and basalt.
- 11.2 It is proposed to develop the landfill as a containment land-raise facility and thus it is considered that the potential impacts on geology and soils are neutral.
- 11.3 It is noted that prior to construction of a containment land-raise a Permit would be required from SEPA. As part of the Permit application stability and hydrogeological risk assessments for the proposed development would be prepared. These would detail necessary and appropriate technical precautions to ensure protection of the soils and water associated with the proposed development.

12 Effects on Water

- 12.1 Key components of the scheme that could have an impact on the hydrological regime include:
- Development of a containment landfill (for non-hazardous waste) has the potential to create landfill leachate
 - Restoration and landscaping of the proposed containment landfill has the potential to increase surface water runoff rates compared with current site conditions
 - Runoff from areas of waste handling, storage and treatment has the potential to contain leachate from waste materials and suspended solids.
- 12.2 A detailed review of the hydrogeological and hydrological site setting has been undertaken. It is evident that the site is underlain by a significant thickness of low permeability sediments which contain little or no groundwater. Groundwater is recorded to be present at depth beneath the site associated with bedrock deposits.
- 12.3 Potential impacts associated with the proposed development have been assessed and, where appropriate, mitigation measures have been identified to be included within the development proposal.

13 Effects on Landscape and Visual Impacts

13.1 One of the reasons why the Royal Ordnance factory was developed in this location was that it is well concealed by the landscape. The landfill site is within the western part of the factory. The factory site lies within the alluvial plain of the Clyde Valley. The majority of the factory site is fairly flat with the land rising to the north and west. The landfill site lies at the toe of the prominent ridge of Barochan Hill.

13.2 The design of the proposals has been informed by the landscape. In particular:

- **Design of the landform**

The landform is designed so that it fits in with the surrounding topography. It forms an extension to the Barochan Hill complex with orientation, gradients and alignment reflecting the surrounding distinctive topography.

- **Retention of existing trees**

The existing trees on the site have influenced the design. The new landform enables the retention of the majority of the existing trees including the woodlands fringing much of the site. This has the advantage of screening views of the new landform and retaining the wooded character of the site.

- **Landscape proposals**

The landscape proposals provide new grassland and native woodland that represent enhancements to the baseline vegetation.

- **Access and management**

The site will become part of the Community Woodland Park. This will include public access that has been catered for through the provision of a footpath system which links into the wider network of the Park. The proposed footpaths also provide access to the top of the new landform and through the woodlands and open spaces. The site will also be positively managed.

13.3 Even after the inclusion of the integrated design mitigation measures outlined above, there are some unavoidable negative impacts on the landscape and visual resource. The key ones are: the loss of some coniferous trees; the temporary loss of grassland and the introduction of the new landform.

13.4 These negative impacts on the landscape and visual resource need to be balanced against the repair brought about as a result of the new planting which includes native woodlands and grassland, provision of public access and improved landscape management.

14 Effects on Fauna and Flora

14.1 The area surveyed has only limited ecological interest mainly reflecting its restricted mosaic of habitats and, hence, species diversity. The core areas of nature conservation interest are focussed on the western deciduous woodland cover and also the birch bog woodland of the southern outlier of the adjacent Barochan Moss. The latter is in a fairly degraded condition, reflecting its isolation from the core bog and perhaps drying out of the peat substrate. The western woodlands are developing well, with several local woodland species present, although the large area of immature sycamore in the canopy reduces the woodland's value.

14.2 The large area of open vegetation does not represent any habitat of nature conservation significance (apart from being a general biodiversity resource). The small area of marsh to the extreme southeast is of some interest and

will be retained or enhanced as a marginal feature. The area of lichen heath is also an unusual feature and will be retained at the boundary of the site.

- 14.3 There is generally a low-level of bat activity throughout the site and no record of bat roosts in the area. There is no record of otter activity. Provision will be made under the wider remediation and reclamation earthworks programme for the installation of feeding poles to mitigate for the loss of a barn owl roost to maintain barn owl activity in the area. The badger setts will remain undisturbed at the site boundary and are sufficiently distant from the proposed construction works not to be disturbed by the activity.
- 14.4 In summary, the impact of the proposed landfill will be no net change during the construction period (with the exception of the temporary loss of grassland created following remediation) but a significant positive impact following completion of restoration measures in the creation of a range of habitats, in enhanced biodiversity and habitat for protected species on site, for badgers, bats and barn owls.

15 Effects on Material Assets and Architectural / Archaeological Heritage

- 15.1 This desk-based assessment has identified known and suspected archaeological and cultural heritage remains in the vicinity of the proposed development area. Known remains, dating to prior to the construction of the Royal Ordnance factory have been judged to be of a low cultural heritage value, largely fragmentary in nature and already somewhat disturbed by the activities associated with the Royal Ordnance factory, and therefore preservation *in-situ* is not perceived to be appropriate in this instance. However, given the possibility of encountering archaeological remains it is recommended, in accordance with national and local planning policies, that an archaeological evaluation be carried out prior to any ground breaking works associated with the development. Trial trenching should target those areas that have been least disturbed. The specific evaluation strategy would be discussed in detail during the preparation of a Written Scheme of Investigation by the archaeological contractor
- 15.2 The settings of one Listed Building, Dargavel House and one Scheduled Ancient Monument, Barochan Roman Fort, located to the east and west of the landfill respectively will be slightly impacted upon visually. However, it should be noted that the visual setting of these sites has already been compromised by the construction of the Royal Ordnance factory and other modern developments in the surrounding area. Visual impacts upon a further 87 Listed Buildings and 11 Scheduled Ancient Monuments in the assessment area up to 5 km away have been assessed and judged as negligible due to the great inter-visible distance between the proposed landfill and the sites.

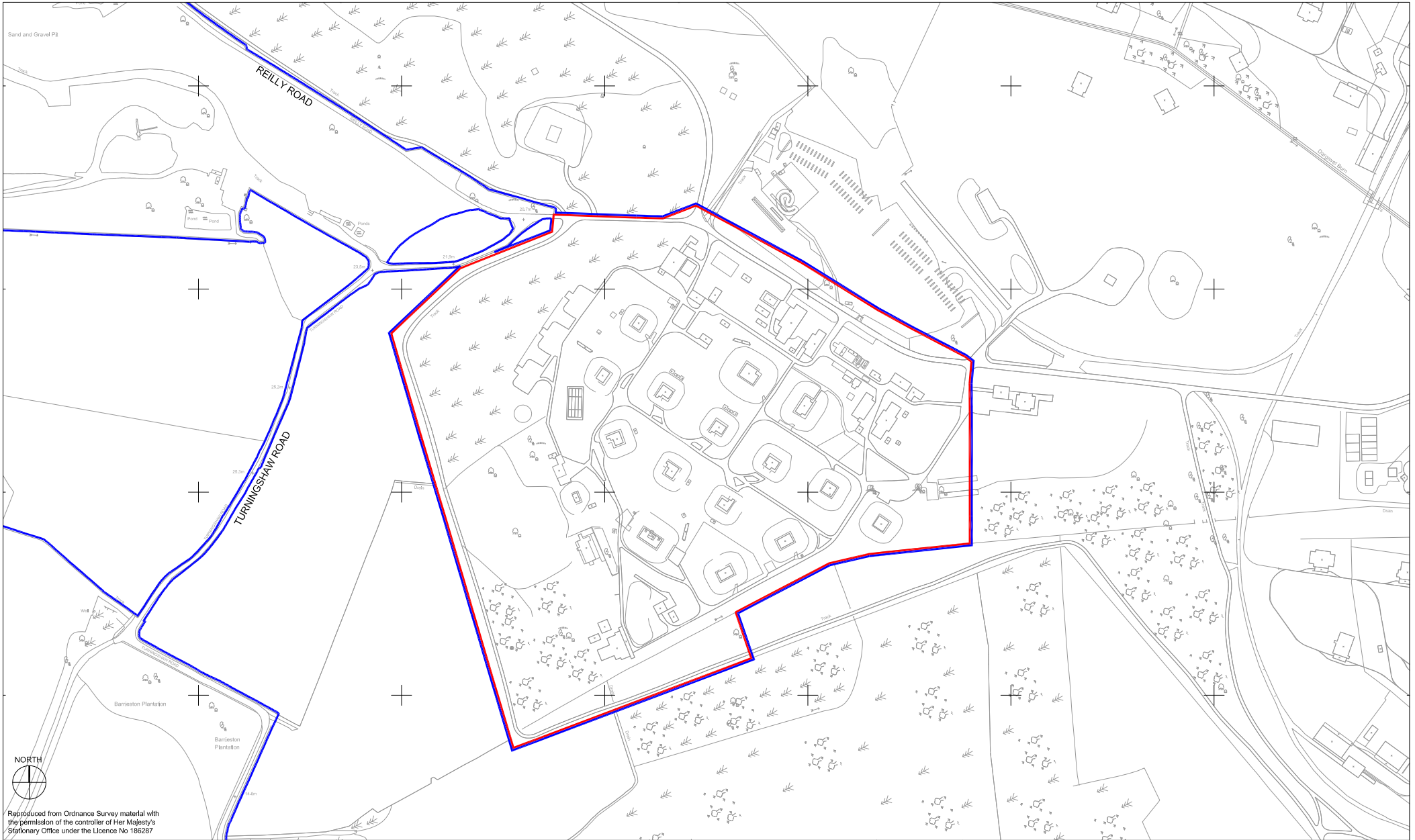
16 Inter-Relationships and Conclusions

- 16.1 The formation, construction and operation of a landfill facility on the western edge of the Royal Ordnance site will not present a significant risk to the environment provided that construction and working methods are robust and that mitigation measures to counteract potentially negative impacts on the environment are adopted and adhered to.
- 16.2 At the formation stage there is the potential for a range of impacts associated with engineering activity. In particular, dust generation from the handling of material and the potential for the release of leachate to the water environment are risks that require mitigation. The potential for impacts on soils at the formation stage is less significant as the facility will be a landraise requiring only modest excavation of existing Made Ground and Superficial Deposits.

- 16.3 The formation stage will have been preceded by a programme of remediation and reclamation earthworks (detailed in a separate planning application). The more significant impacts on the ecology and the immediate landscape character will be associated with these engineering activities, although the retention of peripheral woodland and higher value habitats goes some way to minimising the severity of ecological or landscape impacts.
- 16.4 The excavation of Made Ground and Superficial Deposits has the potential to impact on buried archaeological remains and, as a consequence, an evaluation will be required prior to works commencing, perhaps involving trial trenching of areas that have been little disturbed in the past. This evaluation is likely to be a requirement for the site as a whole and therefore is likely to be carried out as a comprehensive exercise which embraces the landfill site along with other parts of the former Royal Ordnance factory.
- 16.5 The phased construction and operation of the landfill facility will require mitigation against the risk of wind blown dust and the release of leachate to the water environment. This mitigation will be integral to operating methods and engineering design.
- 16.6 As the facility is constructed in phases there will be a limited impact on the landscape and visual resource of the area. The magnitude of the impact is lessened by the existing belt of trees along the northern, western and southern margins. The finished restoration levels are designed so as to achieve a landform which is consistent with the landscape character of this part of the Royal Ordnance site and the surrounding topography.
- 16.7 There is a reasonably strong inter-relationship between the restoration planting (in phases) on the landfill facility and emerging ecological value. The impact on ecological interests through the construction of the landfill will not be of significance but as restoration measures are put in place there will be a net positive benefit arising from the creation of new habitat suited to protected species in particular.
- 16.8 The completion of the restoration stage will deliver a new landform which has been subject to landscape treatment. This will be integrated into the wider Community Woodland Park and will be available for public recreational use in the long term.

Figures

- 3.1 Planning Application Boundary
- 3.2 Aerial Photograph of the Site
- 3.3 Scheme Proposals



Refer to drawing number:
904/P/010

Cass Associates
Studio 104 The Tea Factory
82 Wood Street Liverpool L1 4 DG
Tel 0151 707 0110 Fax 0151 707 0332
Email: all@cassassociates.co.uk

drawing title
**PLANNING APPLICATION
BOUNDARY**



**ROYAL ORDNANCE BISHOPTON
CONSTRUCTION OF LANDFILL FACILITY**

scale 1:5,000 @ A4

date 30.06.09

dm SW

FIG 3.1

-  BAE Systems land ownership boundary
-  Planning Application boundary



Reproduced from Ordnance Survey material with the permission of the controller of Her Majesty's Stationary Office under the Licence No 186287



Planning Application boundary

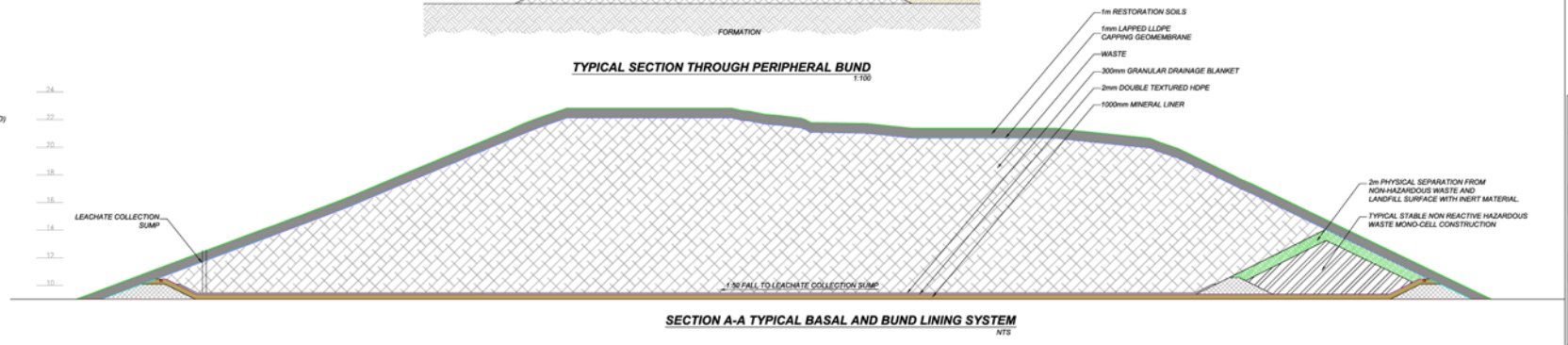
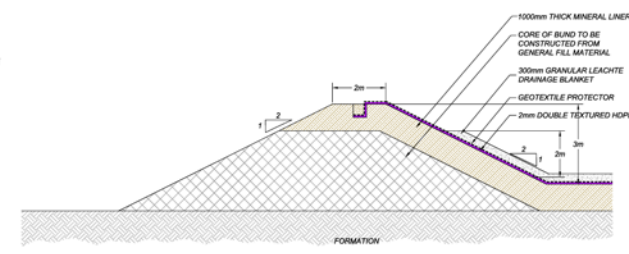
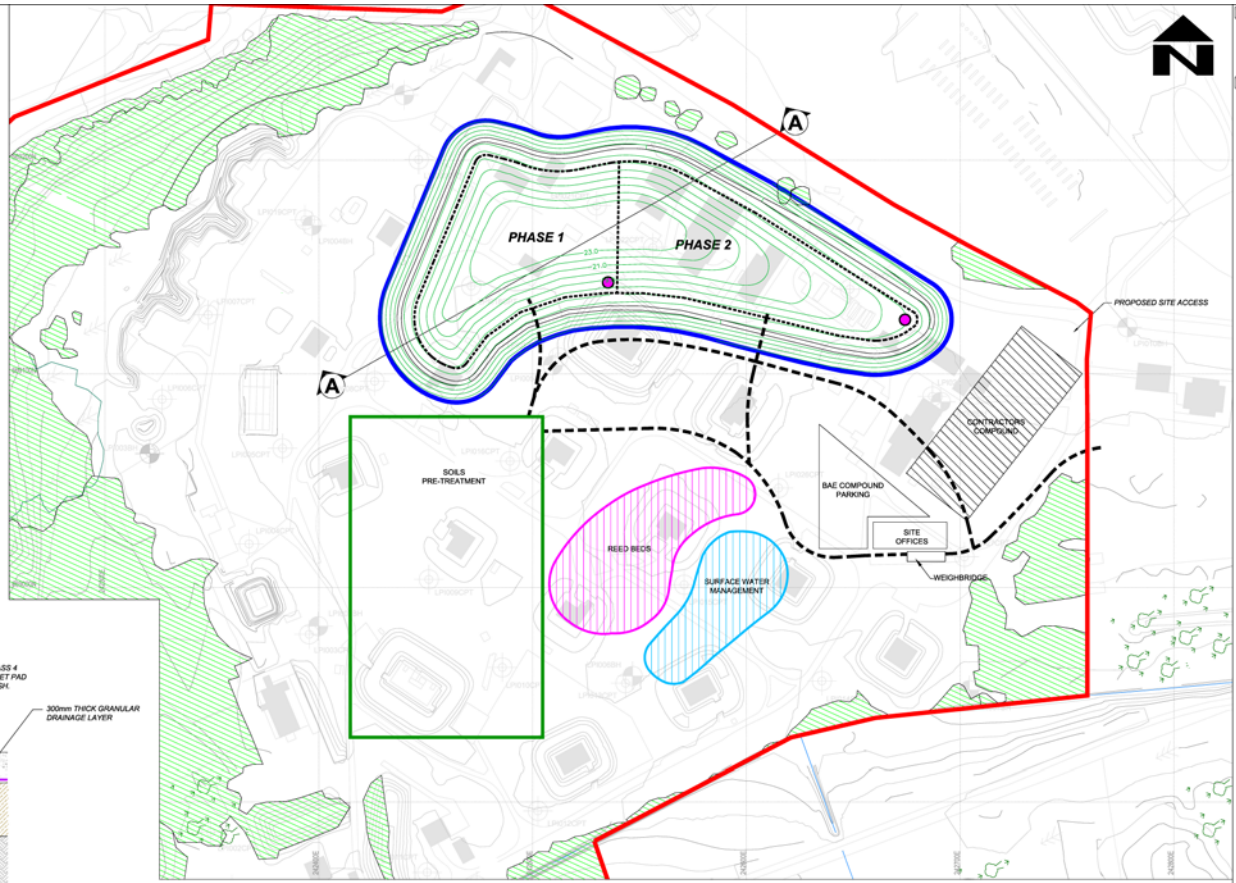
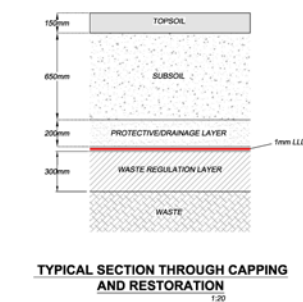
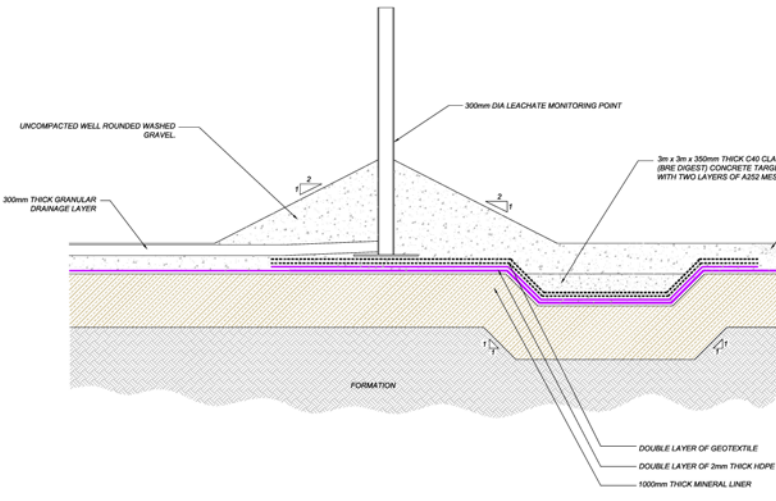
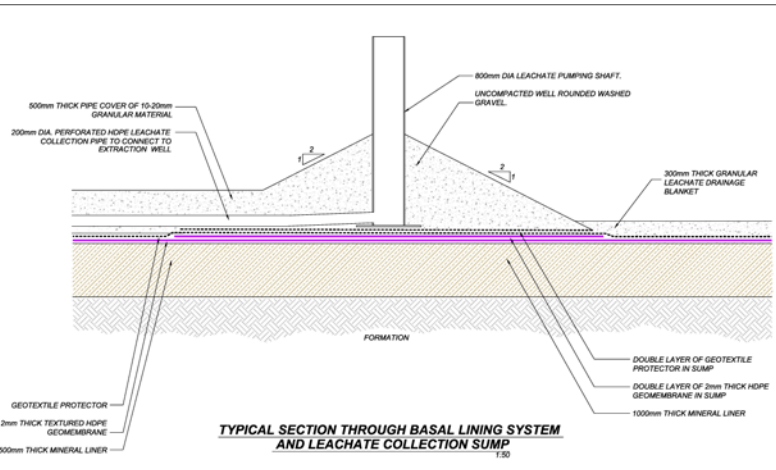
Cass Associates
 Studio 104 The Tea Factory
 82 Wood Street Liverpool L1 4 DQ
 Tel 0151 707 0110 Fax 0151 707 0332
 Email: all@cassassociates.co.uk

drawing title
AERIAL PHOTOGRAPH OF THE SITE

ROYAL ORDNANCE BISHOPTON
 CONSTRUCTION OF LANDFILL FACILITY

scale 1:5,000 @ A4
 date 30.06.09
 dm SW

FIG 3.2



NOTES

LEGEND - PLAN

- PLANNING APPLICATION BOUNDARY
- PROPOSED LANDFILL BOUNDARY
- EXISTING GROUND CONTOURS
- PROPOSED RESTORATION CONTOURS (PRE-SETTLEMENT)
- ACCESS ROADS
- TREES
- PROVISIONAL LOCATION OF LEACHATE EXTRACTION SUMPS

0	JUN 09	DT	
Revision	Issue Date	Issued By	Comments
BAE SYSTEMS			
Site: BISHOPTON RD			
Project: LANDFILL ENVIRONMENTAL ASSESSMENT			
Drawing No. 3.3			
Date: JUNE 2009	Scale: 1:1,250 (PLAN)		
<small>© 2009 BAE SYSTEMS. 0000_10_11_2_000-05</small> <small>THE ROYAL INSTITUTE OF ARCHITECTS, 21 BEDFORD SQUARE, LONDON, W1P 9LJ, UK</small> <small>SLR</small>			