

Plymouth City Council

**Waste Management
Site Feasibility Study**

December 2006

Entec UK Limited

Report for

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Plymouth City Council

Waste Management Site Feasibility Study

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December 2006

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Document Revisions

No.	Details	Date
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1. Introduction

1.1 Introduction

This paper provides a high level overview of two potential sites for the location of future waste management facilities for Plymouth City Council. The two sites are;

- Chelson Meadows
- Ernesettle

The site at Chelson Meadows is the location for the current landfill site, for one of the city's two CARCs, the MRF (opened in April 2000), the green waste composting and wood chipping facility, and a facility for bulking recyclables ready for onward transportation and re-processing. A new waste transfer station is to be built on the site for the bulking of residual waste prior to haulage to an out of town landfill site. The area investigated for potential development on the site is the section at the north of the site and encompasses the area that is currently used for green waste composting and wood chipping.

The site at Ernesettle is currently unused land. The site borders a Royal Navy/Naval Armaments Depot (RNAD) to the west, of which the blast zone limits the availability of land and causes the potential site to have a long, thin and awkward shape. There are residential dwellings to the south and east of the site and the land to the north of the site is industrial with various infrastructures including a wastewater treatment works (WWTW).

1.2 Purpose of Report

This report has been written to assess the potential viability of two sites for selected waste management infrastructure of various sizes. Waste flow modelling has been undertaken as part of the Plymouth Municipal Waste Management Strategy (MWMS) to determine what infrastructure Plymouth may require in the future. The waste flow modelling has identified a number of facilities of various sizes that could potentially deal with waste in Plymouth, and potentially the sub-region, over the next 25 years. This report looks at the suitability of the two sites for an energy from waste (EfW) facility and an in-vessel composting (IVC) facility. Table 1.1 shows the approximate sizes of facilities used in this assessment.

Table 1.1 Facilities Assessed in Study

Facility	Capacity (tonnes per annum)	Waste Type	Users
Energy from Waste	c.120,000	Mixed residual municipal waste	Plymouth City only
Energy from Waste	c.180,000	Mixed residual municipal waste	Potential for sub-regional facility
In-vessel Composting	c.25,000 to 35,000	Source separated organic waste	Suitable for Plymouth city and perhaps small quantities of imported waste

1.3 Structure of Report

This report has been structured to in to 5 sections;

- Section 1 Introduction
- Section 2 Principle Facility Characteristics
- Section 3 Site Specific Planning Issues
- Section 4 Site Drawings and Facility Footprints
- Section 5 Summary

2. Principal Facility Characteristics

2.1 Introduction

This note sets out the anticipated principal characteristics of selected infrastructure that may be required to fulfil the future needs of waste management in Plymouth. The infrastructure concentrates on facilities identified and investigated in the 'Strategic Options Modelling' paper in support of the Plymouth MWMS. It should be noted that for certain technologies a variety of facility characteristics (shapes, sizes, footprints) are currently available.

The facilities described include:

- In Vessel Composting
- Energy from Waste Facility.

2.2 In-vessel Composting Plant (IVC)

Composting is an aerobic process in which biodegradable waste is decomposed in the presence of oxygen. The principal by-products of the process are carbon dioxide, water and a stabilised residue. In-vessel composting is required if the process is to receive both green and kitchen/catering derived organic waste. The State Veterinary Service (SVS) regulates IVC installations capable of receiving kitchen/catering-derived wastes. The regulations require the separation of pre and post treated materials. The site should therefore allow separation of vehicles delivering waste from those exporting product. In recent years numerous IVC facilities have been commissioned and the technology has matured significantly.

A typical IVC installation may include:

- Site security fence and gatehouse;
- Weighbridge and ticket office;
- Site roads and hard-standing;
- Waste reception and conditioning area (enclosed);
- Primary composting stage;
- Secondary composting stage;
- Product classification and conditioning plant;
- Storage and packing facility.

The principal processing area will be within an enclosed vessel and waste reception and conditioning must also be enclosed. Locations remote from sensitive receptors may be

preferable. Post processing the composted material may require maturation and storage in open piles.

Table 2.1 In-vessel Composting Generic Facility Characteristics

Generic Physical and Operational Characteristics	
Expected Facility Lifetime	10-15 years
Operational Hours	8 hours day, 5-6 days / week
Facility Capacity	25,000 tonnes per annum
Typical Site Area	1 - 2 hectares
Building Footprint	Enclosed building footprint: 25m x 30m
Building Height	4-5m
Active enclosed composting	Windrows in enclosed building, in-vessel unit or tunnels Mobile in-vessel containers: 3,000 to 4,000 m ²
Vehicle Movements	Approximately 20-40 vehicles per day
Employment	Site Manager, Assistant Manager, plus 3 site operatives
Waste Storage	Storage of inputs from at least one day to up to one week may be required Compost storage - 30-40% by volume of input material Oversize storage - 10-20% by volume of input material

Source: ODPM Report (2004): Planning for Waste Management Facilities: A Research Study

2.3 Energy from Waste Facility

In land use planning terms a distinction can be made between ‘mass burn’ plants that are designed to handle large volumes of mixed untreated waste and facilities designed to receive a specific component of the waste stream using different process technologies e.g. combustion of a refuse derived fuel (RDF) output from an MBT technology.

Large scale thermal treatment plants can typically be characterised by large building designs which are often located in or near urban area. Thermal treatment facilities are designed to burn waste under controlled conditions at high temperatures. Heat released from this process is usually recovered and used to generate electricity and/or to provide heat in the form of steam or hot water, becoming a combined heat and power (CHP) plant. Plants with good CHP recovery can generate Renewable Obligations Certificate (ROC’s).

The general siting criteria for large scale thermal facilities include a preference for areas allocated for business use or in traditional commercial industrial urban areas. Additionally, sites that are currently or have historically be used as waste management sites should also be considered.

Key issues surrounding large scale thermal treatments are similar to other waste treatment facilities and include traffic impacts, air emissions, dust, odour, noise and visual intrusion. Since the 1980’s public concern associated with emissions from incinerators has grown. However, this

has been mirrored in recent years with the introduction of more stringent standards through EC Directives. Very stringent pollution control requirements imposed by the Waste Incineration Directive and IPPC Regulations require that all new and existing plants operate to extremely high standards.

Careful site selection and appropriate orientation of the building footprint, together with appropriate screening measures can help to minimise any potential adversarial impact. Careful site engineering and profiling can minimise the visual appearance of the building, and in some cases partial burial of certain elements of the facility may be possible.

A typical facility may comprise:

- Site security fencing and gatehouse
- Weighbridge and ticket office
- Site roads and hard standing
- Building
- Waste reception pit
- Recovered material storage bays
- Materials storage and loading bays
- Odour control and dust suppression systems
- Combustion Chamber
- Boiler / electricity generator
- Chimney Stack (size of which dependant of factors relating to process design and air dispersion modelling).

Table 2.2 Energy from Waste - Generic Facility Characteristics

Generic Physical and Operational Characteristics	
Expected Facility Lifetime	20-25 years
Operational Hours	24 hours day, 7 days / week
Facility Capacity	50,000 to 500,000 tonnes per annum
Typical Site Area	1.5 - 5 hectares
Building Footprint	120m x 60m to 130m x 60m
Building Height	25 - 40m
Stack Height	60 - 80m (dependant on process design and local conditions)
Vehicle Movements	Approximately 50 waste collection vehicles per day (based on 250,000 tpa plant)
Employment	Site Manager, Assistant Manager, plus 10 on 3 shift system
Waste Storage	No storage outside main reception pit if via collection vehicles
Chemical Storage	Lime, activated carbon, ammonia/urea
Ash Storage	Bottom Ash (20-30% by weight) Air Pollution Control Residue (2-5% by weight)

Source: ODPM Report (2004): Planning for Waste Management Facilities: A Research Study

Table 2.3 Energy from Waste - Specific Facility Specifications

Location Specific Case Studies		
Location	Chineham near Basingstoke	Billingham, Teeside
Setting	Rural/Urban Fringe	Industrial
Waste Types	Mixed residual waste followed by separation of recyclables	Mixed residual waste followed by separation of recyclables
Waste Volumes	90,000 tonnes per annum	250,000 tonnes per annum
Energy Generation	7 MW	20 MW
Site Area	1.7 hectares	4 hectares
Building Footprint	130m x 45m	110m x 60m x 40m
Stack Height	65m	70m

Source: ODPM Report (2004): Planning for Waste Management Facilities: A Research Study

3. Plymouth Waste DPD – Amended Site Assessments

3.1 Introduction

The purpose of this section is to validate the planning risks associated with the Ernesettle and Chelson Meadow sites identified in the ‘Search for Potential Waste Management Sites Report’ dated 11th July 2005. This section assesses the potential of these sites in the light of boundaries revisions over the intervening period.

3.2 Ernesettle – Assessment of Re-defined Site

3.2.1 The Need for Ernesettle

In policy terms, the emerging DPD includes Ernesettle on the basis that it will be required should the delivery of strategic facilities of sufficient size not be possible on other sites named in the submission Core Strategy. In reality, the site is a substitute for Coypool as Chelson Meadow, Moorcroft Quarry or Princes Rock are either not large enough or suitable to meet all likely needs. Put simply, the Council needs Ernesettle should Coypool be unavailable. This is an important statement in justifying why the site is required given the level of previous development it has undergone and its proximity to environmentally sensitive designations.

3.2.2 Previous Assessment

The site as currently defined by the Council comprises 7.8 hectares of that previously assessed as Site E54 in the Search for Potential Waste Management Sites dated 11th July 2005. Previous assessment for the sites is presented in Table 3.1.

Table 3.1 Previous Site Assessment - Ernesettle

Stage 1 Inclusionary Objective: Greenfield Vacant Playing Fields	
Relevant Stage 2 Exclusionary Objectives:	Severity
Falls within RNAD Explosive Arc (yellow zone)	20%
Relevant Stage 3 Discretionary Objectives:	Severity
Affected by Greenscape (Sports pitches)	100%
Falls within RNAD Explosive Arc (purple zone)	80%
Affected by BAA Birdstrike Consultation Zone	100%
This significant underused site is large enough to accommodate a range of waste facilities and is in a relatively remote location. Co-location of facilities between the existing WWTW and the RNAD and including E53 would appear to offer the greatest potential although the use of established playing fields will need to be justified. Construction of a building of curtain wall construction will within the purple zone of the explosive arc with require consultation with MoD. Use of site would need to be justified by lack of capacity on sites further up the sequential test. EA concerned that site is adjacent to Tamar SAC. Requirement to consult with English Nature as part of any proposal. Site within ownership of University of Plymouth.	

3.2.3 Assessment of Constraints on Re-Defined Site

The effect of this re-definition has been to avoid the most severe explosive arc associated with the neighbouring RNAD site. The site is not now affected by any exclusionary constraints. The three discretionary constraints remain.

Sports Pitches

In terms of the discretionary constraints that directly apply to the site, the most serious pertains to its established use as sports pitches. Any application that seeks to secure a change of use would need to demonstrate

- That there is a sufficient supply of sports and leisure facilities to meet the needs of the population of Plymouth as a whole, and
- That there is a sufficient supply of sports and leisure facilities to meet the needs of the population of the Ernesettle area. The poor quality and disuse of the facility is not material to its use for another purpose.

The means of demonstrating a sufficient supply is through a PPG17 compliant study which, it is understood, has not been undertaken by the Council. In the final analysis, success will depend upon whether the Council (as determining authority) or an Inspector views that the need for a strategic waste facility outweighs the loss of the playing fields in this location.

RNAD Explosive Arc – Purple Zone

This arc does not call the principle of development of the site into question, rather it imposes constraints upon the nature and form of development. For instance, the use of large areas of glass would be unacceptable.

Subject to these modifications, it is not considered that this constraint would call the suitability of the site as a strategic waste facility into question.

BAA Bird-Strike Consultation Zone

Following deregulation from BAA, Plymouth Airport is charged with responding to any planning application that causes it concern. As the airport will not have a 'wider view' it is likely that it would object to any proposed waste facility within 13km of its boundary airport in accord with BAA policy; this easily takes in all areas of the city. The airport is unlikely to view the site in the context of the bird activity on the Tamar estuary. Negotiating away any objection could take time although any applicant should be able to demonstrate that the site can be managed to avoid attracting birds.

Subject to these conditions being met it is not considered that this constraint would call the suitability of the site as a strategic waste facility into question.

3.2.4 Assessment of Constraints off Re-Defined Site

Nature Conservation Designations

The main off site constraint is the presence of internationally and nationally important nature conservation associated with the Plymouth Sound and Estuaries SAC and the Tamar Estuaries Complex SPA.

Contact with English Nature (now Natural England) has confirmed the sensitivity of the designations and the issues that would need to be addressed as part of any EIA to support the development. The redefined site area means that any development would be located at least 350m from the boundary of the SAC/SPA. This increased separation is helpful but success will depend upon the nature of the development proposed, the expected nature of its impacts and effects and the degree that these can be mitigated to the satisfaction of English Nature.

Nearby Receptors

There are a number of residential receptors located at least 140m to the east and 150m to the south of the site boundaries and further workplace receptors are located within 50m of the sites northern boundary and may also be present within the adjoining WWTW and RNAD site. Under EA Technical Guidance on Composting Operations (Version 3.0) the Agency will object to any new composting operation where the boundary of the facility is located within 250 m of a workplace or the boundary of a dwelling. Any application must be accompanied by a site specific risk assessment, based upon clear, independent scientific evidence which shows that the bio-aerosol levels are and can be maintained at appropriate levels at the dwelling or workplace. Given the site configuration and the location of these receptors, it is likely that the EA guidance applies to all areas of the assessed site.

However, the guidance also states that the Agency will work with DEFRA and others to identify appropriate controls to allow the 250 m buffer to be relaxed and suggests a series of measures, such as IVC that may allow a more flexible approach to be adopted. As such, the suitability of the site to accommodate IVC is yet to be established and will depend upon the nature of the proposals and the mitigation measures proposed.

3.2.5 Other Issues

Access

Although access from the adopted highway is unconstrained, the capacity of the site is constrained by the RNAD access road that crosses it.

Realignment of this access would greatly enhance the potential of the site and is assumed within the draft layout. It cannot be known at this time how amenable Defence Estates would be to such proposals.

Visual Impact

As with all development of this type, particularly where a stack is proposed, visual impact will be a material consideration to any application. The Ernesettle area currently accommodates compatible, but relatively unobtrusive, land uses and the impact of a major scheme upon the Tamar and views of the city from the north and west is likely to be viewed as a significant issue. In this context, the lack of suitable alternative sites will be important.

3.2.6 Ernesettle Conclusions

Subject to the above comments, Ernesettle has potential to accommodate strategic waste management facilities subject to there being no suitable accommodation on those sites cited within the Core Strategy. The site may also have potential for IVC subject to a risk assessment and appropriate mitigation measures agreed with the EA.

The potential of the site would be boosted by amendment of the RNAD access road.

3.3 Chelson Meadow

3.3.1 The Need for Chelson Meadow

As an established waste site, Chelson Meadow is well placed to provide further development to meet the needs of the city. The site is mentioned within the Core Strategy as a strategic site. Its acceptability will depend upon the nature of the development proposed and how far it can be mitigated to fit in with development proposals that will introduce a significant increase in housing close to the site boundaries.

3.3.2 Previous Assessment

The site as currently defined by the Council comprises 1.9 hectares of that previously assessed as Site E01 in the Search for Potential Waste Management Sites dated 11th July 2005. Previous assessment for the sites is presented in Table 3.2.

Table 3.2 Previous Site Assessment - Chelson Meadows

Stage 1 Inclusionary Objective: Existing Waste Facility	
Relevant Stage 2 Exclusionary Objectives:	Severity
Partially Affected by Mixed Used Allocation	< 2%
Relevant Stage 3 Discretionary Objectives:	Severity
Partially Affected by Floodplain Zone 1	< 2%
Partially Affected by Greenscape	< 5%
Affected by BAA Birdstrike Consultation Zone	100%
Site should be assessed further for a range of waste facilities including composting subject to sufficient stable land being available. The site remains in policy terms suitable for landfilling/landraise in advance of its closure in 2007 due to non-conformity with the landfill directive suggests that further tipping will be precluded. In the short term, there is a undertaking with Devon CC and the National Trust to limit landraise at its northern extent. Proposed redevelopment of Plymstock Quarry may impose additional constraints. No concerns raised by consultations with Environment Agency. Site title indicates ownership by Devon CC.	

3.3.3 Assessment of Constraints on Re-Defined Site

The effect of this re-definition has been to avoid all exclusionary and discretionary constraints with the exception of the BAA birdstrike zone.

BAA Bird-Strike Consultation Zone

Following deregulation from BAA, Plymouth Airport is charged with responding to any planning application that causes it concern. As the airport will not have a 'wider view' it is likely that it would object to any proposed waste facility within 13km of its boundary airport in accord with BAA policy; this easily takes in all areas of the city. The airport is unlikely to view the site in the context of the bird activity on the Plym. Negotiating away any objection could take time although any applicant should be able to demonstrate that the site can be managed to avoid attracting birds.

Subject to these conditions being met it is not considered that this constraint would call the suitability of the site as a strategic waste facility into question.

Nearby Receptors

There are few sensitive receptors close to Chelson Meadow as a consequence of its long history of landfilling. The proposed redevelopment of Plymstock Quarry to the south will introduce significant numbers of residential receptors within 250m of the site boundary. This redevelopment has the support of the City Council and Westbury (now Persimmon) have already objected to the identification of Chelson Meadow for continued strategic waste uses. The National Trust has also objected in support of their property interest at nearby Saltram Park.

Under EA Technical Guidance on Composting Operations (Version 3.0) the Agency will object to any new composting operation where the boundary of the facility is located within 250 m of a workplace or the boundary of a dwelling. Any application must be accompanied by a site specific risk assessment, based upon clear, independent scientific evidence which shows that the bio-aerosol levels are and can be maintained at appropriate levels at the dwelling or workplace.

Upon the development of Plymstock Quarry the EA guidance will apply to all areas of the assessed site.

Any proposed development will need to be assessed on its own merits against the impact that this is likely to have upon Saltram Park and the Plymstock Quarry proposals.

3.3.4 Other Issues

Access

Access to the current landfill is via a traffic controlled junction on the A379. There are no known issues associated with this junction and the traffic associated with any proposal would be viewed in the context of that associated with the current landfill – proposed HGV movements would probably be less.

Increased pressure upon this junction may occur as a result of the redevelopment of Plymstock Quarry; this should not however, be an insurmountable issue.

Visual Impact

Although any development of this type, particularly where a stack is proposed, creates visual impact, this will be a sensitive issue at Chelson Meadow. Although currently a landfill site, it contains no large structures and the forthcoming removal of the nearby plant at Plymstock Quarry will address a long standing visual blight in the area.

Any new large structure or stack will be obtrusive from the Cattedown, Mount Gould and Laira residential areas in the east of the city. Visual impact may also be an issue for residents in Plymstock and will be of particular sensitivity for the National Trust at Saltram Park.

3.3.5 Chelson Meadows Conclusions

Subject to the above comments, Chelson Meadow has potential to accommodate strategic waste management facilities subject to there being no suitable accommodation on those sites cited within the Core Strategy. The site may also have potential for IVC subject to a risk assessment and appropriate mitigation measures agreed with the EA.

4. Site Drawings and Facility Footprints

4.1 Methodology

Through Entec's work in engineering design, preparation and evaluation of waste procurement projects, we have access to a large number of contractor's site layout drawings and proposals. Due to commercial sensitivity it is not possible to identify specific contractors; however, we have used site and facility footprints extracted from these bids to assess the potential for the two sites in Plymouth to house such facilities.

4.2 Use of this Data

Given the limited scope of this report, and the lack of site specific data, Entec would stress the limited nature of the findings set out in this document. Before making firm investment decisions, a comprehensive feasibility study should be completed to confirm, or otherwise, the validity of our findings.

4.3 Research Limitations

This study has been conducted at a high level and is only intended to give a first pass indication of whether certain facilities could potentially fit onto a site. Suitability of sites has been judged purely on facility area footprint and amount of land available. No assessment of ground conditions have been made and significant further studies will be required before any decision is made regarding the feasibility of these sites for any future waste management facilities.

No assessment has been made regarding connection to utilities. Connection to power grid and availability of adequate water supply are likely to be the significant issues and these issues have not been addressed within this report.

The construction of any facility will require good access to the site and adequate area surrounding the site for manoeuvrability and general building works. This paper does not assess the practical issues of whether the facility could actually be built at this site, it simply matches the facility footprint to the area of land available. Experience of facility construction, notably EfW construction, suggests that a significant area surrounding the site is required for construction and consideration must be given to this when assessing the feasibility of any site.

4.4 Chelson Meadows

4.4.1 Introduction

A number of questions were asked of the Chelson Meadows site;

1. Could a 180,000tpa EfW facility fit on the site?

-
2. Could a 120,000tpa EfW facility fit on the site?
 3. Could a 25,000 to 35,000tpa IVC facility fit on the site?
 4. Could any combination of IVC and EfW facilities fit on the site?

It was assumed that the existing infrastructure of offices, weighbridge and car park will service any future facility and as such no provision has been made for additional infrastructure.

Facility footprints were overlaid onto the Chelson Meadow site and are presented on drawing 18330-B02 (180,000 tpa EfW facility) and 18330-B07 (25,000 to 35,000 tpa IVC).

4.4.2 Question 1 - Could a 180,000tpa EfW fit on the site?

It can be seen from drawing 18330-B02 that a 180,000tpa dual line EfW could potentially fit onto the site at Chelson Meadows. While there is potential for a facility of this size on the site, attention must be drawn to the limited 'spare' area surrounding such a facility and, given the degree of inaccuracy with such a high level drawing, no firm conclusions can be drawn from this drawing except that there is potential for further investigation.


4.4.3 Question 2 - Could a 120,000tpa EfW fit on the site?

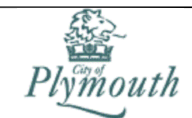
On the basis that a 180,000tpa facility could potentially be located at the Chelson Meadow site, it was deemed unnecessary to draw a 120,000tpa facility onto the plot as the 120,000tpa reference facility occupies a smaller footprint than the 180,000tpa. It is therefore the conclusion of this high level scoping assessment that a 120,000tpa EfW facility could fit onto the Chelson Meadow site.



Key

 Site boundary

0 m  100 m
Scale 1:2000 @ A3



Plymouth City Council - Waste Management Site Feasibility

Concept Chelson Meadows Layout (EfW)

December 2006
18330-B02.dwg harrp



4.4.4 Question 3 - Could a 25,000 to 35,000tpa IVC facility fit on the site?

By overlaying the IVC facility footprint onto the site it can be seen that there is potential for a facility of this size to be located at Chelson Meadows. As with the EfW, the IVC occupies almost all of the available space and leaves little spare capacity. There are various IVC processes available and this drawing represents only one potential solution. The ODPM report 'Planning for Waste Management Facilities' (2004) cites an area of between 1 and 2 hectares would be required for an IVC of 25,000tpa. There is potentially circa 2 hectares of land available at the Chelson Meadow site, suggesting that it is a potential site for an IVC (reference must be made to planning issues associated with composting processes and proximity to receptors as discussed in Section 2).


4.4.5 Question 4 - Could any combination of IVC and EfW fit on the site?

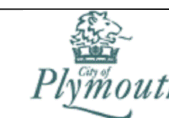
From the facility footprints used in this study it seems unlikely that any combination of EfW and IVC facilities could be co-located on the available land at Chelson Meadows. Very little spare capacity existed for either the EfW or IVC facilities at the site and, even though both facility footprints used were on the larger side of what is required (e.g. 180,000tpa EfW and 25,000 to 35,000tpa IVC), efforts to fit smaller scale facilities onto the site were unsuccessful.



Key

 Site boundary

0 m  100 m
Scale 1:2000 @ A3



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Concept Chelson Meadows Layout (IVC)

December 2006
18330-B07.dwg harrp



4.5 Ernesettle

4.5.1 Introduction

A number of questions were asked of the Ernesettle site;

1. Could a 180,000tpa EfW fit on the site?
2. Could a 120,000tpa EfW fit on the site?
3. Could a 25,000 to 35,000tpa IVC fit on the site?
4. Could any combination of EfW and IVC facilities fit on the site?
5. Could any additional facilities fit on the site?

Due to the lack of current waste management infrastructure at the Ernesettle site, it was assumed that any facility located at the site would require additional infrastructure such as offices, car park and weighbridges. These facilities have been included in the drawings.

There is a significant drop in height from the southern end of the Ernesettle site to the northern end. The greatest slope gradient exists on the section of the site to the south of the RNAD access road. At this initial scoping stage, this section would seem to be a most logical location for the EfW facility. While the slope itself may not prevent the location of the facility here, there may be significant costs associated with excavation and complications surrounding the construction of any facility in this area. However, in accordance with the ODPM 'Planning for Waste Management Facilities' report, the partial burial of certain aspects of waste management facilities and the careful use of screens and bunds can help to reduce visual intrusion and therefore aid the planning process.

Various combinations of facility footprints were overlaid onto the Ernesettle site and one potential combination of facilities is presented on drawing 18330-B28. Only one drawing is shown as it can address all 5 questions presented above. The EfW facility shown in the drawing is of approximately 180,000tpa. The drawing suggests that at this level of accuracy, the 180,000tpa facility could potentially fit in the southern most part of the site. It is assumed that a smaller capacity EfW, such as a 120,000tpa, would also fit onto the site and, due to its reduced footprint, would have more spare capacity surrounding the facility.


In the same drawing it can be seen that a 25,000 to 35,000tpa IVC could also potentially fit onto the site. Again, there is little spare capacity and the fit is tight, however there is potential. The drawing assumes that the current access road used to enter the RNAD facility that currently bisects the proposed site can be removed, re-located or re-designed. This is a large assumption and one which will require further investigation. If the access road must remain in its current location it may prove problematic if trying to locate two large waste facilities at the site.

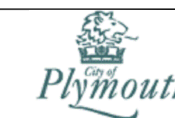
In addition to the EfW and IVC facilities, a household waste recycling centre (HWRC) has been plotted in the northern most part of the site. This section of the site is relatively narrow and may prove problematic for a number of waste management facilities, however there seems to be potential for a HWRC.



Key

 Site boundary

0 m  125 m
Scale 1:2500 @ A3

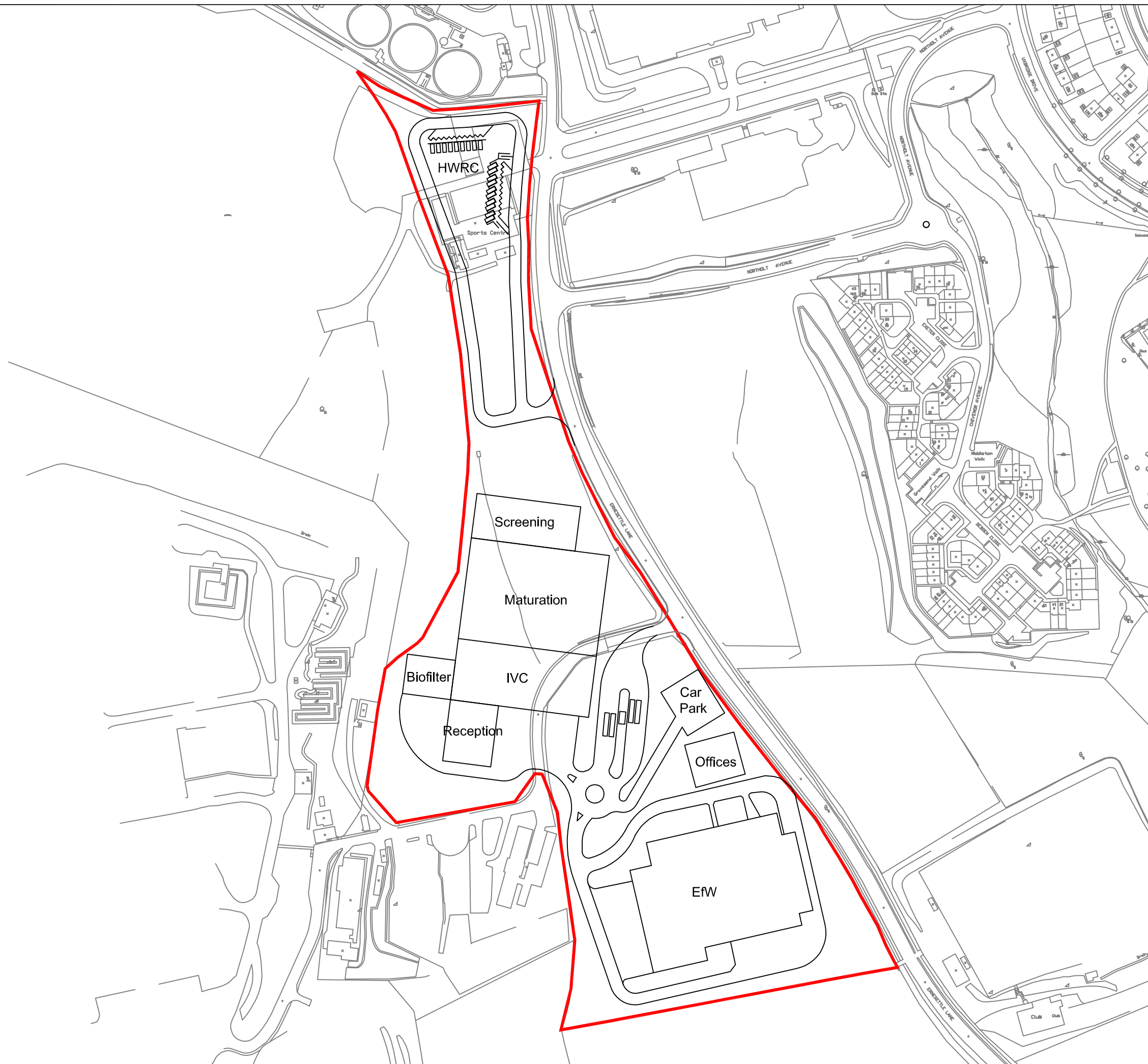


Plymouth City Council - Waste Management Site Feasibility

Concept Ernesettle Layout

December 2006
18330-B28.dwg harr

Entec



5. Summary

5.1 Chelson Meadows

Subject to the comments detailed in Section 3 regarding planning issues, Chelson Meadow has potential to accommodate strategic waste management facilities subject to there being no suitable accommodation on those sites cited within the Core Strategy. The site may also have potential for IVC subject to a risk assessment and appropriate mitigation measures agreed with the EA.

With regards to the size of the site, there is potential for one of the facilities investigated within this report to be sited at Chelson Meadows. Based on the available facility footprints, the site could potentially accommodate either a 180,000tpa or 25,000 to 35,000tpa IVC however the site may be better suited to facilities of reduced capacity.

5.2 Ernesettle

Subject to the comments detailed in Section 3 regarding planning issues, Ernesettle has potential to accommodate strategic waste management facilities subject to there being no suitable accommodation on those sites cited within the Core Strategy. The site may also have potential for IVC subject to a risk assessment and appropriate mitigation measures agreed with the EA.

The facility footprint analysis suggests that there is potential for the site at Ernesettle to accommodate one or multiple waste management facilities. The site totals 7.8 hectares however the irregular shape reduced the amount of available land and therefore limits options for certain technologies. The southern half of the site offers the most potential for development however issues such as the RNAD access road and the slope of the ground may add complications.