# MWDA: Gillmoss Materials Recovery Facility

**Air Quality and Odour Assessment**

09 December 2008

*Produced for*
Merseyside Waste Disposal Authority

*Prepared by*
Mouchel

West Hall
Parvis Road
West Byfleet
Surrey
KT14 6EZ
UK

**T** +44 (0)1932 337000

# Document Control Sheet

| | |
|---|---|
| Project Title | MWDA: Gillmoss Materials Recovery Facility |
| Report Title | Air Quality and Odour Assessment |
| Revision | 3 |
| Status | Final |
| Control Date | 09 December 2008 |

Record of Issue

| Issue | Status | Author | Date | Check | Date | Authorised | Date |
|---|---|---|---|---|---|---|---|
| 1 | Final | H Wang | 16.10.08 | N Bellamy | 4.11.08 | M Chapman | 4.11.08 |
| 2 | Final | H Wang | 16.10.08 | S Duff | 2.12.08 | P Coughtrey | 3.12.08 |
| 3 | Final | H Wang | 16.10.08 | S Duff | 9.12.08 | P Coughtrey | 9.12.08 |

Distribution

| Organisation | Contact | Copies |
|---|---|---|
| Mouchel | Sarah Duff | 1 |
| MWDA | Graeme Bell | 1 |

*This Report is presented to Merseyside Waste Disposal Authority (MWDA) in respect of the Gillmoss Materials Recovery Facility Air Quality and Odour Assessment and may not be used or relied on by any other person or by the client in relation to any other matters not covered specifically by the scope of this Report.*

*Notwithstanding anything to the contrary contained in the report, Mouchel Limited is obliged to exercise reasonable skill, care and diligence in the performance of the services required by MWDA and Mouchel Limited shall not be liable except to the extent that it has failed to exercise reasonable skill, care and diligence, and this report shall be read and construed accordingly.*

*This Report has been prepared by Mouchel Limited. No individual is personally liable in connection with the preparation of this Report. By receiving this Report and acting on it, the client or any other person accepts that no individual is personally liable whether in contract, tort, for breach of statutory duty or otherwise.*

# Contents

# Figures

# Tables

# Abbreviations

| | |
|---|---|
| AADT | Annual Average Daily Traffic |
| EHO | Environmental Health Officer |
| HGV | Heavy Goods Vehicles |
| JMWMS | Joint Municipal Waste Management Strategy |
| LCC | Liverpool City Council |
| MRF | Materials Recovery Facility |
| MWDA | Merseyside Waste Disposal Authority |
| $NO_2$ | Nitrogen dioxide |
| $NO_x$ | Nitrogen oxides |
| $PM_{10}$ | Particulate matter with an aerodynamic diameter of less than 10 microns |
| $PM_{2.5}$ | Particulate matter with an aerodynamic diameter of less than 2.5 microns |
| WTS | Waste Transfer Station |

# 1 Introduction

## 1.1 Introduction to Report

Mouchel has been commissioned by Merseyside Waste Disposal Authority (MWDA) to undertake a Local Air Quality assessment for a proposed Materials Recovery Facility (MRF) at Gillmoss, Liverpool (see Figure 8.1). The proposed development is part of an overall strategy within the Merseyside sub-region to develop sustainable waste management facilities for handling domestic waste and diverting proportions of it away from landfill. This strategy is driven by the Joint Municipal Waste Management Strategy (JMWMS) for Merseyside, which sets out how waste will be managed across Merseyside in the future in order to protect the stock of natural resources, prevent both local and global damage and divert more waste from landfill.

## 1.2 Site of the Proposed Development

The site is located approximately 6 miles northeast of Liverpool City centre in the Croxteth Ward of the City. This site is located near the A580 East Lancashire Arterial Road (Figure 8.1). The approximate centre of the site is at OS grid reference (339737, 396596).

To the west of the site is Stonebridge Lane, through which the site connects to the local road network. To the south of the site is currently an area of construction works. To the north are areas of residential properties. The distance between the nearest property and the boundary of the proposed development building is approximately 130 m. To the east of the development site is an industrial estate.

## 1.3 Description of the Proposed Development

The proposed development is for a 100,000 tonnes per annum (TPA) MRF with associated access and construction of an internal Visitor and Education Centre and administration building for the staff. As these facilities will be incorporated into the design of the MRF building no other buildings will be required. The planning application includes the extension of the landscaping bund to the north of the facility along the northern boundary of the site. The layout of the proposed development is shown in Figure 8.2.

The facility will be located on land owned by MWDA, to the south west of the existing Waste Transfer Station (WTS) that is presently licensed to handle 500,000 tpa of residual municipal waste.

The MRF will process recyclable material that has been collected from the kerbside. This will principally comprise paper, card, plastic bottles, steel and aluminium cans and glass bottles. The recyclable material will be brought to site in either conventional collection vehicles or in bulk haulage vehicles. The vehicles will weigh-in at the existing site weighbridge before unloading within the proposed MRF building. The material will be dry and of low odour. Kitchen waste and garden waste will not be delivered to the proposed facility and, if found in the recycling bins at the kerbside, will be rejected by the collection crew.

All recyclable material will be handled within the MRF building and there will be no external storage of recyclable material. All doors to the facility will operate on a fast open and close operation to ensure that they are open for the shortest practical time.

The proposed MRF is made up of a series of conveyor belts and a mix of manual and automatic procedures to separate the materials. The sorting system within the building will separate co-mingled materials into individual streams whilst also removing reject material that has been incorrectly placed into bins by householders. This reject material will be taken off site to a licensed disposal facility. Recyclable material will be processed using a variety of screens, magnets and manual separation systems before being bulked and loaded for transport to a processing plant.

The existing earth bunding along the north site boundary will be extended up to Stonebridge Lane (see Figure 8.2).

The construction of the proposed development is expected to last 12 months commencing in June 2009 subject to successful planning approval. The proposed development is expected to open in June 2010.

## 1.4 Legislation and Policy Context

The following legislation and guidance has been consulted and considered in the production of the Air Quality and Odour Assessment and in the planning and carrying out of works associated with the proposed development:

- The European Air Quality Framework Directive and Daughter Directives (Directive 96/62/EC);
- The Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007;
- The Environment Act 1995;
- The Air Quality (England) Regulations 2000;
- The Air Quality (England) (Amendments) Regulations 2002;
- Planning Policy Statement 23 (PPS23) – Planning Pollution Control; and
- Design Manual of Roads and Bridges (DMRB) 11.3.1[1].

# 2 Scope of the Assessment

The Scope of the Air Quality and Odour Assessment presented herein has been determined in consultation with Environmental Health Officers (EHOs) at Liverpool City Council (LCC) to discuss the availability of monitoring data, obtain copies of their latest Review and Assessment Reports, and to agree an appropriate assessment methodology. The consultation included LCC representatives visiting a similar MRF facility at Bidston, Birkenhead. Following this visit LCC confirmed that they have no objection to the proposed development at Gillmoss with regards to air quality, and in particular odour (email correspondence see Section 9). Nevertheless this assessment further considers each point below:

- Review of the development proposal;
- Identification of baseline air quality in and around the development site through analysing dust, odour and $NO_2$ monitoring data and those held by LCC, and reviewing emissions data for local industrial processes regulated by the EA;
- Desk-study to establish the location of any receptors that may be sensitive to changes in air quality during the construction and operation phases of the development (e.g. schools, hospitals, homes for the elderly, residential properties, etc.);
- Temporal traffic data including percentage composition of HGV and vehicle speeds, provided by Mouchel;
- Dust assessment during construction phase; and
- Dust and odour during operation phase.

## 2.1 Construction Phase

### *2.1.1 Activities and Plant*

During the construction phase, there will be a number of activities undertaken that have the potential to generate and/or re-suspend dust and $PM_{10}$/$PM_{2.5}$. Such activities include site clearance and preparation storage of materials laying of hard surfaces and landscaping.

The potential impact of a construction site on air quality is determined by its size, the range of activities undertaken across the site and its proximity to sensitive receptors. In order to determine the likelihood of a construction site impacting on air quality, an assessment should be undertaken.

The potential for dust generated, or re-suspended, during construction to accordingly migrate to sensitive receptors beyond the site boundary, and the likelihood of dust deposition and soiling to cause a noticeable effect will be dependent on a variety of factors, including:

- Construction sources of dust and $PM_{10}$;
- Distance from the point of generation to the sensitive receptor;
- Whether demolition will need to take place;
- Nature, location and size of stockpiles and the length of time they are to be on site;
- Occurrence and scale of dust generating activities, including cutting, grinding and sawing;
- Necessity for onsite concrete crusher or cement batcher;
- Number and type of vehicles and plant required on site;
- Potential for dirt or mud to be made airborne through vehicle movements;
- Recent and prevailing weather conditions; and
- The effectiveness of dust control measures.

Guidance published by the following organisations considers the influence of each of these factors, which have been used in the assessment presented herein:

- Building Research Establishment (BRE)[2];
- Quality of Urban Air Review Group (QUARG)[3];
- Department of the Environment (DoE)[4]; and
- Mayor of London and London Councils[5].

The recent guidance provided by the Mayor of London and London Councils has been prepared by the Air Pollution Planning and the Environment (APPLE) Working Group and constitutes current best practice. It has therefore been used as relevant guidance in establishing the potential impacts of the proposed development and identifying appropriate mitigation controls.

### *2.1.2 Construction Traffic Emissions*

Construction vehicles generate extra traffic on existing flows, and the implementation of temporary traffic management during the construction phase will cause a temporary change in traffic on the local road network. This in turn will have a temporary effect on local pollution concentrations around the development site. Of those pollutants included in the Air Quality Regulations, emissions of $NO_x/NO_2$ and $PM_{10}$ are assessed as the most representative source of traffic-derived pollutants[6].

## 2.2 Operation Phase

For the operation phase, this assessment focuses on the area where local air quality is likely to be affected by the development, especially where dust / odour complaints are reported if there are any.

Also, there will be a number of HGVs associated with the proposed development in the operation phase. These vehicles are likely to have potential to affect local air quality.

## 2.3 Pollutants of Potential Concern

For the construction phase, potential pollutants in relation to the development have been identified as dust, particulate matter $PM_{10}/PM_{2.5}$ and $NO_X/NO_2$.

For the operation phase, potential pollutants in relation to the development have been identified as dust, $PM_{10}/PM_{2.5}$, $NO_X/NO_2$.and odour.

# 3 Assessment Methodology

## 3.1 Traffic Assessment – DMRB Approach

This report adopts DMRB HA207/07[7] Guidance which provides a staged approach to define the depth of assessment necessary for the consideration of potential impacts on air quality from road transport.

The DMRB provides a method for assessing air quality impacts from road transport emissions and sets out four 'Assessment Levels':

- Scoping;
- Simple;
- Detailed; and
- Mitigation/Enhancement and Monitoring.

An appropriate level of assessment should be undertaken to reflect the potential for a development to cause 'adverse environmental consequences'. Not all developments will be subject to the same level of assessment in order to meet the relevant legislation or guidance.

If the results of the scoping level assessment show there is a need for further assessment (Simple Level or Detailed Level), the brief of the simple / detailed level assessment will be prepared and the appropriate level assessment should be undertaken.

Each assessment level comprises a local air quality component and a regional component. In the local air quality component potential construction and operation effects should be considered. It is acknowledged that for each component a differing level of assessment may be required.

### *3.1.1 Local Air Quality*

The scoping level assessment identifies which roads are likely to be affected by the proposed development. Sensitive receptors where people might experience a change in local air quality and designated sites near the 'affected' roads should also be identified.

The traffic/alignment screening criteria for the identification of 'affected' roads is set out below:

- Road alignment will change by 5 m or more; or
- Daily traffic flows will change by 1,000 AADT or more; or
- HGV flows will change by 200 AADT or more; or
- Daily average speed will change by 10 km/hr; or
- Peak hour speed will change by 20 km/hr or more.

### *3.1.2 Regional Impact*

The screening criteria for the identification of 'affected' roads for regional impact is set out below:

- A change of more than 10 % in AADT; or
- A change of more than 10 % to the number of HGV; or
- A change in daily average speed of more than 20 km/hr.

## 3.2 Construction Phase

### *3.2.1 Activities and Plant*

Best Practice Guidance issued by the Mayor of London and London Councils provides guidelines that allow the evaluation of potential risk on air quality occurring during the demolition or construction of a site. The evaluation criteria are outlined in Table 3.1.

*Table 3.1 - Best Practice Guidance Construction Dust Risk Classification*

| Risk Categories | Criteria |
|---|---|
| Low Risk Site<br>(Small Developments) | Development of up to 1,000 square metres of land; or |
| | Development of one property and up to a maximum of ten; or |
| | Potential for emissions and dust to have an infrequent impact on sensitive receptors. |
| Medium Risk Site<br>(Medium Sized Developments) | Development of between 1,000 and 15,000 square metres of land; or |
| | Development of between ten and 150 properties; or |
| | Potential for emissions and dust to have an intermittent or likely impact on sensitive receptors. |
| High Risk Site<br>(Large Developments or Developments of Strategic Importance) | Development of greater than 15,000 square metres of land; or |
| | Development of greater than 150 properties; or |
| | Major Development referred to Central Government; or |
| | Major Development as defined by the Local Planning Authority; or |
| | Potential for emissions and dust to have a significant impact on sensitive receptors. |

### *3.2.2 Construction Traffic*

The volume of traffic flow associated with construction depends on the size of the construction work. As this information is not available, the impact of construction traffic on air quality is only assessed qualitatively in this report.

## 3.3 Operational Phase

Assessment of the effects of traffic on air quality in the operational phase follows the DMRB approach described in Section 3.1.

As details of potential process emissions associated with the proposed development are not available, qualitative assessment of the possible effect of the potential process emissions on air quality is undertaken.

# 4 Air Quality Baseline

## 4.1 LCC Air Quality Review and Assessment

Under the Environment Act (1995)[8] LCC has statutory duties for undertaking Local Air Quality Management (LAQM). In 2003 LCC predicted that the Annual Mean Air Quality Objective for $NO_2$ was likely to be exceeded in 2005. Consequently, LCC declared two Air Quality Management Areas (AQMAs) within the City.

The AQMAs cover an area of Liverpool City Centre (334890, 390962) and an area around the M62/Rocket Junction (340887, 390297). These are located approximately 8.7 km southwest and 6.4 km south of the development site respectively. Subsequent further assessments of air quality undertaken by LCC indicate additional areas where air quality is considered to be poor; however to date these have not been declared AQMAs.

## 4.2 Background Pollution Concentrations

### *4.2.1 NAQIA Background*

Table 4.1 shows the results of the initial data gathering of estimated background pollution concentrations surrounding the proposed development site. The National Air Quality Information Archive (NAQIA) provides estimated data for annual mean background concentrations of air pollution at a 1 km by 1 km grid resolution for 2004, 2005 and 2010. Background concentrations for 2009 are derived by projecting 2005 background concentrations with projection factors provided in LAQM TG(03).

*Table 4.1 - NAQIA Estimated Annual Mean Background Pollution Concentrations in the Vicinity of the Site*

| Year | Pollution Concentration – Annual Mean (µg/m$^3$) | | |
|---|---|---|---|
| | $NO_2$ | $NO_X$ | $PM_{10}$ |
| 2009 | 18.96 | 26.11 | 18.04 |
| 2010 | 18.70 | 25.20 | 17.70 |

Background concentrations in the vicinity of the proposed site are below the national air quality objectives (AQOs) (Annual Mean of 40 µg/m$^3$ for both $NO_2$ and $PM_{10}$).

### *4.2.2 Monitoring Undertaken by Mouchel*

Mouchel was commissioned to undertake baseline investigations for pollutants including dust, odour and $NO_2$ for the proposed development site. These surveys were undertaken between 23rd November 2006 and 11th June 2007 for approximately six months (Table 4.2) at the five locations shown in Figure 8.1.

*Table 4.2 - Monitoring Periods in the Vicinity of the Proposed Development*

| Months | Duration | |
|---|---|---|
| | Start | End |
| 1 | 23/11/06 | 19/12/06 |
| 2 | 19/12/06 | 01/02/07 |
| 3 | 01/02/07 | 07/03/07 |
| 4 | 07/03/07 | 04/04/07 |
| 5 | 04/04/07 | 09/05/07 |
| 6 | 09/05/07 | 11/06/07 |

Figure 8.1 shows that Site 5 and Site 1 are closer to the existing Waste Transfer Station (WTS) than the other sites and consequently are more likely to be affected by the WTS. Site 5 which lies to the north of the WTS is representative of the residential properties with respect to vehicles emissions from vehicles accessing the WTS.

### *4.2.3 Baseline Dust Monitoring*

Table 4.3 presents period average weekly dust soiling levels in the vicinity of the proposed development at Gillmoss across the six month period of monitoring.

Overall, the data capture rates are very good, with an exception at Site 2 where the data capture was 50% due to loss of the glass slides.

It should be noted that during the monitoring periods:

- There were no significant issues ongoing in the vicinity of the survey sites that may have adversely affected the results of the monitoring;
- Weather conditions during the survey period were typical of the time of year and there were no prolonged periods of wet or dry conditions; and
- There were no activities which may generate dust or particulate material (such as road-works or other earth-works or street-works) ongoing in the vicinity at the time of the survey.

On the basis of these observations, it is considered that the survey is representative of soiling around the proposed development for the purposes of establishing baseline conditions.

Acceptance criteria in terms of soiling units (SU) have been established following social surveys. A soiling rate of greater than about 25 su/week is likely to cause complaints[9].

Table 4.3 shows that the largest dust soiling rate in the vicinity of the proposed development is 10.6 su/week monitored at Site 5 during Period 6; this is well below

the criteria. The values in the Table are monthly average data, and week to week fluctuations may be smoothed out; however, it is considered unlikely that weekly average soiling rates would exceed the criteria.

*Table 4.3 - Dust Slide Results (soiling units/week)*

| Site | Six Month Data Capture (%) | Period 1 Mean | Period 2 Mean | Period 3 Mean | Period 4 Mean | Period 5 Mean | Period 6 Mean |
|---|---|---|---|---|---|---|---|
| 1 | 100 | 2.7 | 3.9 | 2.5 | 4.9 | 2.8 | 3.7 |
| 2 | 50 | 1.1 | 2.5 | lost | 10.5 | lost | lost |
| 3 | 100 | 1.8 | 3.4 | 1.3 | 13.5 | 8.6 | 8.7 |
| 4 | 100 | 1.8 | 2.6 | 1.3 | 6.7 | 7.3 | 5.3 |
| 5 | 100 | 2.2 | 2.8 | 2.0 | 5.3 | 2.1 | 10.6 |

### 4.2.4 *Bias Adjusted $NO_2$ Monitoring Results*

$NO_2$ diffusion tube monitoring was carried out for six months from 23rd November 2006 to 11th June 2007 at the five sites shown in Figure 8.1. At the same time, an $NO_2$ diffusion tube was deployed co-locating with Manchester Piccadilly continuous monitoring site, in order to undertake bias-adjustment. Continuous monitoring $NO_2$ data at Ladybower, Manchester South and Glazebury are used to apply short-term to long-term conversion following LAQM TG(03).

Table 4.4 presents 2007 $NO_2$ Annual Mean equivalent concentrations at the five monitoring sites in the vicinity of the proposed development. It shows no exceedence of the Annual Mean Objective for $NO_2$ (40 µg/m$^3$) at any of the monitored locations in 2007.

No locations are predicted to exceed the $NO_2$ 1 Hour Mean Annual Mean Equivalent (60 µg/m$^3$), which means that there are not likely to be exceedences of the 1 Hour Mean Objective (200 µg/m$^3$ not to be exceeded more than 18 times a year) in 2007.

*Table 4.4 - Annual Mean $NO_2$ Equivalent Concentrations*

| Site Number | 2007 Annual Mean Equivalent (µg/m$^3$) |
|---|---|
| 1 | 28.4 |
| 2 | 25 |
| 3 | 38 |
| 4 | 38.1 |
| 5 | 28 |

### *4.2.5 Baseline Odour*

The proposed site was visited by Mouchel staff twice in November 2006 to identify any existing odour sources in the vicinity of the development. Tests were undertaken at the five locations shown in Figure 8.1. The wind directions were southwest and consequently Site 5 and Site 1 were most likely affected by the existing WTS should the facility have emitted any odorants.

Table 4.5 shows the results of the sniff test on 23rd November 2006. Sites 1, 2 and 3 did not experience odour during the survey period. Sites 4 and 5 experienced moderate odour, but with different probable causes due to their different smells. For Site 4, the likely cause might be related to the effluent treatment works as the smell was foul drain sewage. The effluent treatment works is located approximately 250 m to the southwest (upwind during the sniff test) of Site 4. For Site 5, the smell was considered to be similar to marzipan and damp hospital waste and was likely caused by the WTS with wind direction being southwest.

Table 4.6 shows the results of the sniff test on 28th November 2006. Site 4 experienced a strong odour which was likely caused by the effluent treatment works, as this was upwind during the sniff test.

*Table 4.5 - Odour Sniff Test on 23/11/2006*

| **Testing Date** | 23/11/2006 | | | | |
|---|---|---|---|---|---|
| **Tester** | Lisa Watt | | | | |
| **Test Location** | 1 | 2 | 3 | 4 | 5 |
| **Start Time** | 9:10 | 9:19 | 9:30 | 9:46 | 9:54 |
| **End Time** | 9:15 | 9:24 | 9:35 | 9:51 | 9:59 |
| **Odour Description** | Nothing, Fresh Air | Nothing, Fresh Air | Nothing, Fresh Air | Foul Drain Sewage | Christmas cake marzipan, damp hospital waste |
| **Detectability** | | | | Moderate | Moderate |
| **Extent and Persistence** | | | | Local | Local |
| **Offensiveness** | | | | Yes | |
| **Frequency** | | | | Infrequent | Infrequent |
| **Wind Direction** | S/W | S/W | S/W | S/W | S/W |
| **Wind Speed** | 1.5-2 | 1.5-2 | 1.5-2 | 1.5-2 | 1.5-2 |
| **Temperature** | | | | | |
| **Cloud Cover/Height** | High / Light | High / Light | High / Light | High / Light | High / Light |

*Table 4.6 - Odour Sniff Test on 28/11/2006*

| **Testing Date** | 28/11/2006 | | | | |
|---|---|---|---|---|---|
| **Tester** | Lisa Watt | | | | |
| **Test Location** | 1 | 2 | 3 | 4 | 5[i] |
| **Start Time** | | 9:52 | 10:05 | 10:28 | |
| **End Time** | | 9:57 | 10:10 | 10:33 | |
| **Odour Description** | Nothing | Wet Grass | Nothing | Refuse | |
| **Detectability** | | Faint | | Strong | |
| **Extent and Persistence** | | Local | | Persistent | |
| **Offensiveness** | | No | | Yes | |
| **Frequency** | | Moderate | | Constant | |
| **Wind Direction** | | S/SW | S/SW | S/SW | |
| **Wind Speed** | | 2 | 3 | 1 | |
| **Temperature** | | | | | |
| **Cloud Cover/Height** | | 5º/High | | 5º/High | |
| **General Weather conditions** | | Clean, Bright, Still | | Clean, Bright, Still | |

[i] Data not available

## 4.3 Industrial Emissions to Atmosphere

Table 4.7 shows the only relevant Part A process within 2 km of the proposed development, which is regulated by the Environment Agency. As can be seen from the table, there are no records of notifiable emissions to atmosphere from the Gillmoss Waste Water Treatment Works. However, in April 2008, a significant impact to air was reported (Incident number 579319), but the pollutant was not identified.

*Table 4.7 - Part A Processes*

| Operator Name | Authorisation Number | Process Type | Postcode | X | Y | Notifiable Releases |
|---|---|---|---|---|---|---|
| United Utilities Water PLC | 016930112 | Sewage Treatment Works | L10 5HA | 339380 | 396635 | n/a |

## 4.4 Sensitive Receptors

A review of local sensitive receptors has indicated that the nearest sensitive receptors to the proposed development site are those shown in Table 4.8.

Figure 8.1 and Figure 8.2 show that the site along its northern boundary is adjacent to residential properties. The distance between the nearest property and the development building is approximately 130 m.

Figure 8.1 shows that there are no residential properties within 200 m from other boundaries to the site, i.e., southern, western and eastern boundaries.

*Table 4.8 - Nearest Air Quality Sensitive Receptors to the Centre of the Proposed Development Site*

| Type of Sensitive Receptor | Name of Receptor | Approximate Distance from Proposed Development Building |
|---|---|---|
| Residential | Longdown Road | 0.13 km (N) |
| | Wadebridge Road | 0.27 km (N) |
| | Elizabeth Road | 0.32 km (N) |
| | Pamela Close | 0.34 km (N) |
| | Valerie Close | 0.34 km (N) |
| School | Croxteth Community Comprehensive | 0.53 km (SE) |
| | Fazakerley Primary and High School | 0.83 km (NW) |
| Hospital | University Hospital Aintree | 1.10 km (NW) |
| | Walton Neurology & Neuro | 1.10 km (NW) |
| Doctors | Copplehouse Medical Centre | 0.60 km (N) |
| Nursery | Gingerbread Cottage Day Nursery | 0.50 km (N) |
| | Buckels Nursery | 0.50 km (N) |
| Nursing Home | Alt Park Nursing & Residential Home | 0.90 km (SW) |

# 5 Potential Environmental Effects Without Mitigation

## 5.1 Construction Phase

### *5.1.1 Activities and Plant*

The whole proposed development consists of the MRF building and an extension to the earth bunding along the north site boundary (see Figure 8.2). Given the size of the development (approximately 18,500 $m^2$) and its potential to have significant effects on sensitive receptors, it is considered that the development presents a high risk of construction phase dust impacts according to Mayor of London and London Councils guidance (see Table 3.1).

Some potential for dust nuisance is possible. As the greatest potential for nuisance problems associated with dust deposition / soiling is likely to be within 100 m of the maximum extent of construction site perimeter, the main effects from the construction of the proposed development on sensitive receptors along the northern boundary may result from the extension to the earth bunding along the north site boundary. The construction of the proposed MRF may cause limited incidences of increased dust deposited on those receptor locations.

During the construction phase, the development has the potential to impact on local air pollution concentrations, specifically nitrogen dioxide ($NO_2$) from construction vehicles and plant, and $PM_{10}$ as a result of construction and fabrication activities undertaken onsite and emissions from construction vehicles and plant. Potential impacts on levels of dust deposition / soiling are also associated with construction activities, such as dust generation from earthworks and re-suspension caused by vehicle movements in the vicinity of the development.

### *5.1.2 Road Traffic Assessment*

Construction traffic data are not currently available for the development. However, the number of vehicles in the construction phase is closely associated with the scale of the construction of the proposed development. Given the size of the construction of the proposed development, it is unlikely that the impact of traffic during the construction phase on local air quality will be significant.

The effects of construction traffic on air quality will be re-considered when detailed construction traffic data are available, and if the construction period is greater than six months.

## 5.2 Operational Phase

Once the proposed development is in operation it may have the potential to cause dust / $PM_{10}$ and odour nuisance to local sensitive receptors as a result of the MRF process activities.

As the proposed development does not involve the chemical or biological treatment of any waste, it is not anticipated that there will be any associated MRF process emissions other than natural ventilation of the buildings.

### 5.2.1 *Dust Assessment*

Recyclate processing at the proposed development will be wholly contained within the proposed MRF building.

The proposed development is not likely to give rise to significant amounts of dust. It is possible that dust could be generated when recyclable material is tipped, moved or sorted and dust may be generated from the yard surface (through vehicle movements) during dry and windy weather. However, this is considered to be insignificant.

To minimise any potential dust issues a dust suppression system will be installed, and fast cycle opening/closing doors will prevent significant fugitive releases from the MRF building.

### 5.2.2 *Odour Assessment*

As all recyclate material should be odourless and non-putrescible it is considered that the proposed MRF at Gillmoss is not likely to give rise to significant amounts of odour.

All recyclable material will be handled within the proposed MRF building and there will be no external storage of recyclates. All doors to the facility will operate on a fast open and close operation to ensure that they are open for the shortest practical time and to prevent fugitive releases.

### 5.2.3 *Road Traffic Assessment*

All access to the proposed development site is from the existing access, Stonebridge Lane, via an internal road. The number of HGVs delivering and collecting materials for the proposed development is shown in Table 5.1.

*Table 5.1 - Annual Average Daily Traffic (AADT) Two-way HGV Flows Associated with the Proposed Development at Gillmoss.*

| **Hour** | 8-9 | 9-10 | 10-11 | 11-12 | 12-13 | 13-14 | 14-15 | 15-16 | 16-17 | 17-18 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **HGV Movements per hour** | 6 | 15 | 14 | 17 | 14 | 17 | 14 | 7 | 6 | 0 | 110 |

In addition to the HGVs, it is anticipated there will be additional trips associated with site staff. It is anticipated there will be 78 staff at the proposed facility, so approximately 156 AADT light duty vehicles assuming all staff travel by car individually.

Applying the DMRB scoping level criteria, provided in Section 3.1.1, the total additional HGV traffic two-way flows of 110 AADT, and the total additional traffic (LDV and HGV) two-way flows of 266 AADT assuming all staff use the same route to the site, are below the respective HGV criteria threshold of 200 AADT and the total traffic flow criteria threshold of 1000 AADT. Because the predicted increase in total traffic is less than the DMRB scoping level criteria, the effect of traffic associated with the proposed development is considered as insignificant with respect to local air quality. Furthermore, the HGVs will be arranged to spread out relatively evenly over the day, with a peak at 11:00-14:00, which is outside the local AM and PM peak periods. Thus, it is unlikely the short-term local air quality will be affected.

# 6 Mitigation

## 6.1 Construction Phase

The most effective way to manage and prevent dust and $PM_{10}$ generation and re-suspension is through effective control of the potential source. In order to minimise the potential high risk construction phase impacts, a number of 'best practice' mitigation methods will be implemented throughout the duration of the construction phase (including times when the site is closed at weekends, overnight and public holidays etc.) as appropriate.

Mitigation measures will include the following:

Site Planning

- Erect solid barriers to site boundary;
- No bonfires;
- Plan site layout – machinery and dust causing activities should be located away from sensitive receptors;
- All site personnel to be fully trained;
- Trained and responsible manager on site during working times to maintain logbook and carry out site inspections; and
- Hard surface site haul routes.

Construction traffic

- All vehicles to switch off engines – no idling vehicles;
- Effective vehicle cleaning and specific fixed wheel washing on leaving site and damping down of haul routes;
- All loads entering and leaving site to be covered;
- No site runoff of water or mud;
- On-road vehicles to comply to set emission standards;
- All non road mobile machinery (NRMM) to use ultra low sulphur tax- exempt diesel (ULSD) where available and be fitted with appropriate exhaust after-treatment from the approved list;
- Minimise movement of construction traffic around site; and
- Hard surfacing and effective cleaning of haul routes and appropriate speed limit around site.

Site Activities

- Minimise dust generating activities;
- Use water as dust suppressant where applicable;

- Cover, seed or fence stockpiles to prevent wind whipping;
- Re-vegetate earthworks and exposed areas; and
- If applicable, ensure concrete crusher or concrete batcher has the permit to operate.

Monitoring of emissions during the construction phase will also be considered in the management of operations to ensure that, with the application of 'best practice' mitigation methods, the dust deposition levels do not exceed twice that of the baseline deposition.

Detailed mitigation measures to control construction traffic will be discussed with LCC to establish the most suitable access route for the site traffic. The most effective mitigation will be achieved by ensuring that construction traffic passage along sensitive roads (residential roads, congested roads, via unsuitable junctions, etc) is minimised and that vehicles are kept clean and sheeted when on public highways (through the use of wheel washers, etc). Timing of large-scale vehicle movements to avoid peak hour traffic on the local road network will also be beneficial. Construction traffic will be restricted to the same site access as waste vehicles accessing the existing WTS; from the south along Stonebridge Lane via the A580, therefore avoiding the Copplehouse residential area.

A nominated member of the construction team (e.g. Site Manager) will also act as a point of contact for residents who may be concerned about elevated deposition of dust. The contact details for this nominated team member will be forwarded to the Environmental Health Department of LCC before the construction phase begins.

These measures will be incorporated in to the Construction Environmental Management Plan (CEMP) once the contractor has been appointed.

It is recommended that liaison with LCC be maintained throughout the construction process, and any reported incidents of dust deposition / soiling and / or $PM_{10}$ concentrations at nearby residential properties are forwarded to the Environmental Health Department of LCC. If complaints are received from local residents, these will be documented in a diary or log held on site by the Site Manager. Any complaints or comments received will also be forwarded to MWDA.

## 6.2 Operational Phase

The doors of the proposed development will remain closed at all times except for the entry and exit of vehicles.

In the event that odours are detected inside the MRF building, sniff tests shall be undertaken at the boundaries of the site for any smells from the development when odour emissions are likely. If any materials are causing noticeable smells at the site boundaries they shall be contained or removed from the site as soon as practicable.

All storage and sorting of recyclables shall be carried out inside the MRF building.

Incorporation of the above measures will ensure that dust and odour nuisance at receptor locations is unlikely.

# 7 Conclusions and Recommendations

## 7.1 Construction Phase

As the size of proposed development is 18,500 $m^2$, it is anticipated that, without mitigation, the construction phase for the proposed development presents a high risk of dust soiling. With the mitigation measures recommended in Section 6, the risk will be reduced to a short term temporary minor adverse level.

The impact of traffic during the construction phase on local air quality is likely to be insignificant.

## 7.2 Operation Phase

### *7.2.1 Dust / Odour*

The proposed development at Gillmoss will not give rise to significant amounts of dust and odours. The impact of the proposed development on air quality is likely to be insignificant.

### *7.2.2 Traffic Emissions*

The traffic impact on air quality associated with the proposed development is likely to be insignificant.

### *7.2.3 Monitoring Requirement*

In the event that odours are detected inside the MRF building, sniff tests shall be undertaken at the boundaries of the site for any smells from the development when odour emissions are likely. If the origin of the odour is identified as being from the proposed development, appropriate measures will be identified to eliminate or contain the odour.

# 8 Drawings

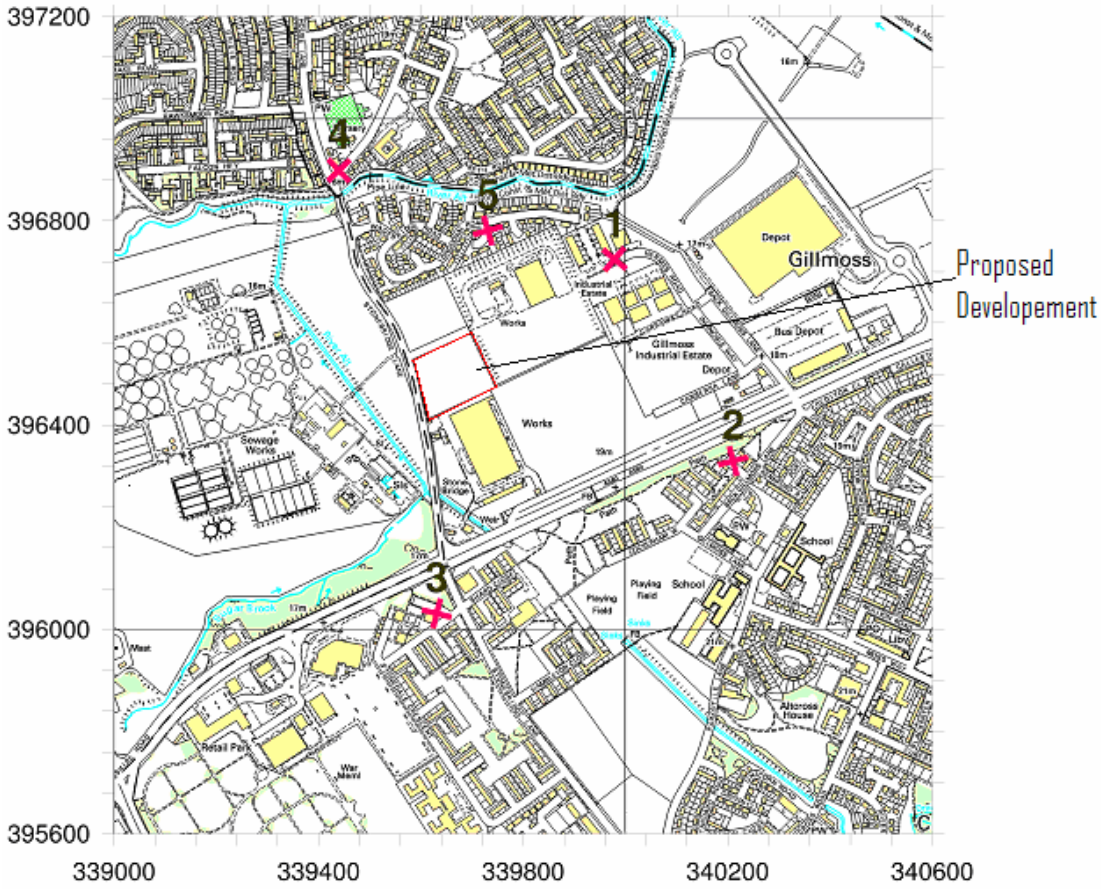


*Figure 8.1 - Location of the Proposed Development with Monitoring Sites in the Vicinity*[ii]

[ii] Mapping correct at dates of monitoring


*Figure 8.2 - Layout of the Proposed Development*

# 9 Consultation with LCC

**From:** Farrell, Paul - Environmental Health [mailto:PaulD.Farrell@liverpool.gov.uk]
**Sent:** Wednesday, October 01, 2008 2:26 PM
**To:** Nigel Bellamy
**Cc:** Simon Goldsmith
**Subject:** Proposed Recycling Centre at Gilmoss

Nigel, following my site visit this morning to the recycling facility at Bidston and the subsequent discussions with the MWDA Site Manager, I can confirm that on behalf of the Environmental Protection unit of Liverpool City Council we have no objection to the proposed facility at Gilmoss with regards to air quality (in particular odour), or noise breakout from the recycling operation.

Regards

Paul

**Paul Farrell**
Team Leader
Environmental Protection Unit
Public Protection Division
Personal callers only
1-7 Brougham Terrace
West Derby Rd
Liverpool
L6 1JH
Correspondence address
Regeneration
Liverpool City Council
Municipal Buildings
Dale Street
LIVERPOOL L2 2DH

☎ +44(0)151 225 6253

+44(0)151 225 6039

mob 0773 8604 100

www.liverpool.gov.uk

Liverpool - European Capital of Culture 2008

Support SmokeFree Liverpool and campaign for a smokefree England by emailing your MP at www.smokefreeliverpool.com/html/publicindividualresources/emailmp.php

# 10 References

[1] Highways Agency, Design Manual for Roads and Bridges, Volume 11, Section 3, Part 1 Air Quality HA 207/07, July 2007

[2] Kukadia, V., Upton, S. L. and Hall, D. J.; Control of dust from Construction and Demolition Activities. BRE (Feb 2003).

[3] Quality of Urban Air Review Group: Airborne Particulate Matter in the United Kingdom – Third Report of the Quality of Urban Air Review Group. Prepared for the Department of the Environment (May 1996).

[4] Arup Environmental and Ove Arup and Partners: The Environmental Effects of dust from Surface Mineral Workings Volume 2. Prepared for Department of the Environment Minerals Division (Dec 1995).

[5] The Control of Dust and Emissions from Construction and Demolition: Best Practice Guidance, London Councils, November 2006.

[6] Highways Agency, Design Manual for Roads and Bridges, Volume 11, Section 3, Part 1 Air Quality HA 207/07, July 2007.

[7] Highways Agency, Design Manual for Roads and Bridges, Volume 11, Section 3, Part 1 Air Quality HA 207/07, July 2007.

[8] The Environment Act (1995) Part IV Air Quality. Cn 25

[9] Environmental Agency: Monitoring of particulate matter in ambient air around waste facilities. Technical Guidance Document (Monitoring) M17 2004, p25.