

ANNEX 16



**PROPOSED DEVELOPMENTS COVERED BY THE DEVELOPMENT BRIEF FOR
THE THERMAL TREATMENT FACILITY AT MARSA**

ENVIRONMENTAL PLANNING STATEMENT UPDATE



Version I: May 2013



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Quality Assurance

**Proposed Developments Covered by the Development Brief for the Marsa
Thermal Treatment Facility
Environmental Planning Statement Update
May 2013**

Report for: **WasteServ Malta Ltd**

Revision Schedule

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Adi Associates Environmental Consultants Ltd, Malta, prepared this Environmental Planning Statement Update.

The Environmental Impact Assessment Regulations, 2007, Sections 28(3) and 29(1) require each of the Consultants to declare that they carried out the study or part thereof, that they take responsibility for statements and conclusions contained in their reports or part thereof, and that they have no personal or financial interest in the proposed development.

We declare that Adi Associates Environmental Consultants Ltd has no personal or financial interest in the proposed development.

Adi Associates has coordinated this EIS and has provided technical input to specific parts of the Statement as identified in the previous page.

Adi Associates Environmental Consultants Ltd takes responsibility for statements and conclusions contained in the parts of the report prepared directly by its staff. However, statements made and conclusions drawn by the independent sub-consultants who prepared the baseline studies reproduced in the Technical Appendices and which informed the Environmental Statement remain the responsibility of the individual sub-consultants.



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I. INTRODUCTION

BACKGROUND

- I.1. This document reports the results of the Environmental Impact Assessment Update commissioned by WasteServ Malta Ltd (hereinafter referred to as ‘the applicant’) to support its proposal for modification and upgrade of the Thermal Treatment Facility at Albert Town, in Marsa.
- I.2. The Thermal Treatment Facility (TTF) was originally granted under planning application PA 02201/01, and specifically to treat animal waste; the facility was installed and started operating in 2007. An EIA was undertaken in relation to this application (by AIS Environmental and SLR Consulting).
- I.3. The facility was later modified and upgraded following a subsequent development permit issued in 2007 (under PA 03201/07); this permit allowed for the additional treatment of hazardous waste, including clinical waste. An update of the original EIA was undertaken at this stage (by Adi Associates Environmental Consultants Ltd).
- I.4. In June 2011, the applicant submitted to MEPA a “*Proposal for a Development Brief for the Marsa Thermal Treatment Facility*”. On the basis of the description of the proposal given in this document, the Malta Environment and Planning Authority (MEPA) subsequently requested a further update of the EIA in order to assess the impacts of the proposal. A planning application has been submitted to MEPA in relation to part of the current proposal notably the autoclave, generator and wastewater treatment plant. The tracking number is I48880.
- I.5. The scope of this EIA Update, therefore, is to assess those environmental aspects as a result of the proposed changes to the TTF that may impact differently than determined in the original EIA and the 2007 EIA Update.
- I.6. The operation of the current TTF facility is governed by an Integrated Pollution and Prevention Control (IPPC) Permit (IP 0004/07). In order to support the proposed changes, WasteServ have also applied to renew and vary this permit.
- I.7. Hereafter in this EIA Update, the proposal is referred to as ‘the Scheme’. A full description of the Scheme is provided in **Chapter 4**.

MEPA’s requirements for the EIA Update

- I.8. MEPA’s requirements for EIA Update identified the studies to be carried out, as follows:
 - *Air quality given the likely increase in trips to and from the site during the operational phase;*
 - *Noise impacts during the operational phase given the likely increase in trips to and from the site;*

- *Contamination of surface water runoff from spillages;*
- *Health impacts from use of the equipment;*
- *Noise and vibration impacts from the new equipment; and*
- *Cumulative effects.*

PURPOSE OF THE EIA

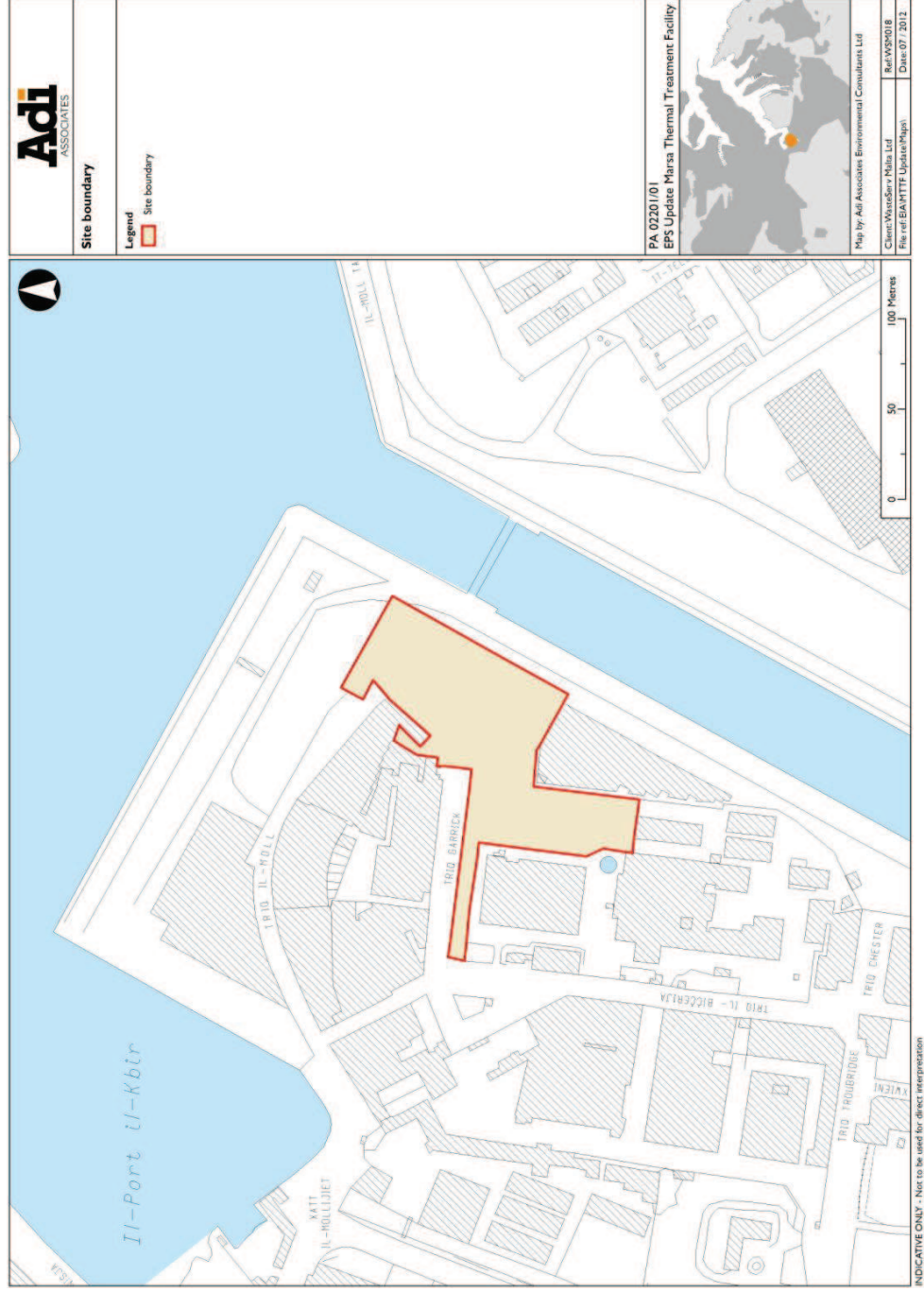
- I.9. EIA is the process of systematically assessing the likely significant environmental impacts of development proposals. EIA also ensures that the significance of these impacts, and the scope for reducing them, is clearly understood by both the public and MEPA before a decision is made on whether or not the development should be approved.

STRUCTURE OF THE EIA

- I.10. Following this introduction, the EIA Update is structured as follows

- Chapter 2: EIA Methodology
- Chapter 3: Justification for the Scheme
- Chapter 4: Description of the Scheme
- Chapter 5: Legislation and Policy Context
- Chapter 6: Noise and Vibration
- Chapter 7: Emissions
- Chapter 8: Summary of Key Impacts, Cumulative Effects and Mitigation

Figure I.1: Site location



2. EIA METHODOLOGY

INTRODUCTION

- 2.1. This chapter sets out the broad methodology that was used for the EIA Update. It outlines the key stages that were followed, in line with EIA best practice. The chapter also explains how the significance of impacts was assessed, and how this was a consistent process throughout the EIA.

The EIA Process

- 2.2. The current guidance on the EIA process is contained in the *Environmental Impact Assessment (EIA) Regulations, 2007*. MEPA directed that an EIA Update be prepared for the Scheme.

Terms of Reference

- 2.3. MEPA did not issue formal Terms of Reference for this EIA Update. Instead, a brief set of requirements was issued, which identified the need for studies in relation to air quality, noise, contamination of runoff, health impacts, and noise and vibration impacts, and an analysis of the cumulative effects in relation to these aspects.
- 2.4. Notably, vibration was scoped out of the assessment as the Scheme is not expected to result in vibration.

EIA APPROACH

- 2.5. Good practice necessitates that EIA be treated as an iterative process, rather than a one-off, post-design environmental appraisal. In this way, the findings from the EIA can be fed into the design process, resulting in a more environmentally sensitive project. This approach was adopted for this EIA Update.
- 2.6. Baseline surveys for the specialist EIA topics were undertaken by the Consultants based on the Area of Influence (Aol) agreed with MEPA for each topic area. A detailed assessment of the Scheme's impact on the features present within the Aol was undertaken and any potential environmental benefits of the Scheme were identified.

SIGNIFICANCE OF IMPACTS

- 2.7. Assessment of the significance of impacts arising from a development is a key stage in the EIA process. This judgement is critical in informing the decision-making process. However, defining significance can be difficult. In general terms, environmental significance involves assessing the amount of change to the environment perceived to be acceptable to the community (Sippe, 1999¹).

¹ Sippe R (1999) 'Criteria and Standards for Assessing Significant Impact' in Petts J 'Handbook of Environmental Impact Assessment, Volume I.

- 2.8. The following criteria were used in this EIA Update to assess the significance of an impact:
- Type of impact (adverse / beneficial);
 - Extent and magnitude of impact;
 - Direct or indirect impact;
 - Duration of impact (short term/long term; permanent / temporary);
 - Comparison with legal requirements, policies and standards;
 - Sensitivity of receptor (residential dwelling, farm, etc.);
 - Probability of impact occurring (certain, likely, uncertain, unlikely, remote);
 - Reversibility of impact;
 - Scope for mitigation/enhancement (very good, good, none); and
 - Residual impacts.
- 2.9. Using these criteria, the significance of the impacts arising from the Scheme was categorised, as follows:
- **Not significant;**
 - **Minor significance;** and
 - **Major significance.**
- 2.10. Definitions of the meaning of the “significance categories” above in relation to each topic area are included in the topic area chapters (see **Chapters 6 and 7**). However, in general terms, if an impact is “not significant”, it is considered to be environmentally acceptable; an impact of “minor significance” infers an impact that is considered to be manageable; and an impact of “major significance” infers an impact that is considered to be environmentally damaging such as to require that the Scheme be redesigned or that mitigation measures be put in place to minimise the impact.
- 2.11. The EIA Update identifies the significance of predicted impacts and, following the proposed mitigation measures, the significance of any residual impacts. A summary of the identified significant impacts is included in **Chapter 8**. The recommended mitigation measures, and the residual impacts, are described in respect of each topic area, at the end of the relevant chapter.

UNCERTAINTY

- 2.12. The EIA process is designed to enable good decision-making based on the best possible information about the environmental implications of a development. There will always be some uncertainty in predicting potential impacts, as to the exact nature

and scale of the impacts. This arises through shortcomings in information, doubts, or lack of certainty on the likelihood that an incidence would occur, and / or due to the limitations of the prediction process itself. Where uncertainties have arisen, and where they remain, this is clearly stated in the EIA Update.

PRESENTATION OF THE EIA UPDATE

2.13. The EIA Update is divided into three main parts following this chapter.

2.14. Part 1 comprises **Chapters 3 to 5**:

- **Chapter 3** provides a justification for the Scheme;
- **Chapter 4** provides a detailed description of the Scheme and its surroundings;
- **Chapter 5** summarises the relevant legislation and policy context, including planning policies.

2.15. Part 2 comprises **Chapters 6 to 8**, which describe the potential environmental impacts of the Scheme in relation to each of the topic areas. Each of the chapters is structured as follows:

- Introduction: identifying the key issues and how the chapter relates to MEPA's requirements;
- Assessment methodology: summarising the methods used (desk study, surveys, consultations, etc.) in undertaking the baseline survey;
- Existing conditions: a summary of the existing baseline situation and trends irrespective of the Scheme; and
- Assessment of impacts associated with the Scheme, identifying :
 - Potential impacts: a summary of the potential impacts of the Scheme;
 - Prediction and significance of impacts: a prediction of the likely impacts of the Scheme against the baseline situation and an assessment of the significance of the impacts;
 - Mitigation measures: a summary of potential mitigation / enhancement measures, to offset any identified adverse impacts;
 - Residual impacts: a clear statement of those impacts that still have an impact following mitigation, indicating the significance of the residual impact; and
 - Summary: a summary table of the impacts.

3. JUSTIFICATION FOR THE SCHEME

INTRODUCTION

- 3.1. This chapter explains the Scheme in terms of the objectives it seeks to achieve, the benefits it would offer, and the perceived justification for the development.

OBJECTIVES OF DEVELOPMENT

- 3.2. A number of operational issues have been encountered in the period since the coming into operation of the TTF; these issues have often necessitated shut downs for maintenance purpose. The primary objective with the modifications and upgrade envisaged by the Scheme is to address a number of identified problem areas. The purpose of the Scheme, therefore, is to improve the TTF in the interests of efficiency of operation and the creation of additional capacity for the treatment of hazardous waste.

BENEFITS OF THE SCHEME

- 3.3. The Scheme will have a number of specific benefits, including:
- Increased range of complementary services provided at the TTF, through the introduction of an autoclave plant (facilitating the carrying out of rendering processes), which will serve to improve the efficiency of the facility.
 - Provision of adequate and purpose-built storage facilities and reorganisation / distribution of storage facilities, which will improve safety of operation as well as increase the efficiency of the TTF.
 - Facilitate the increased treatment of waste of higher calorific value, which will reduce the fuel consumed by the incinerator and improve the cost effectiveness of the facility.
 - The incineration of hazardous waste before going to landfill reduces the volume of such waste and therefore reduces the land use requirements of the hazardous waste landfill.
 - Rendering will result in potential uses of the recovered fats and steam generated.
 - Wheel wash facilities will ensure that the vehicles carrying fallen animals are disinfected upon leaving the facility.
 - A waste water treatment plant will treat water which has very high BOD, COD, suspended solids, total dissolved solids, nitrogen and phosphates.

JUSTIFICATION FOR THE SCHEME

- 3.4. Section 4 of the original EIA outlined the policy and legislative justification for an incinerator on this site. The EIA was accepted by MEPA and a development permit was subsequently issued for the incinerator. On this basis, since there is no change

of use, the Scheme is justified by the fact that planning permission for the treatment of various waste streams exists.

3.5. The extension of the TTF is also driven by legislative requirements emanating from a number of regulations including:

- EC Regulation 1069/2009 laying down health rules concerning Animal By-Products and derived products not intended for human consumption, as well as its accompanying implementing Regulation 142/2011;
- Council Directive 2000/76/EC for the incineration and co-incineration of waste;
- Council Directive 1999/31 on the landfill of waste;
- Council Decision 93/98/EEC and 97/640/EC for the control of trans-boundary movements of hazardous waste and their disposal; and
- Council Directive 2008/98/EC.

Animal By-Products

3.6. Animal by-products (APBs) are regulated due to the fact that they pose a potential risk to public and animal health and the environment. In response to various crises affecting the safety of public and animal health and the environment in 2002, the European Commission introduced very strict rules for the collection, traceability, transport, processing and safe disposal of ABPs (EC Reg. 1774/2002). Following revisions, the new legislation (EC) 1069/2009 laying down health rules concerning Animal By-Products and derived products not intended for human consumption, as well as its accompanying implementing Regulation 142/2011 were approved by the European Parliament and the Council of the European Union and have been in force since the 4th March 2011. The provisions of the new Animal By-Products legislation include issues that are relevant to the livestock and farming community, the collection and disposal industry, incinerator operators, sea fish and shellfish industries, the pharmaceutical industry, the catering industry, food establishments, retailers, supermarkets, butcheries, the Government and non-Governmental Organisations, and the enforcement Authorities – Veterinary Services amongst others.

3.7. Animal By-Products have been divided into three categories, each representing a different level of risk associated with the waste material:

Category 1 Material which is the highest risk, and consists principally of material that is considered a TSE risk, such as Specified Risk Material. Pet animals, wild animals, zoo and circus animals and experimental animals are also classified as Category 1 material. Catering waste from all forms of international transport (i.e. which has come from outside the EU) is also Category 1.

Category 2 Material is also high risk material and includes fallen stock, manure and digestive content. Category 2 is also the default status of any animal by-product not

defined in Regulation (EC) 1069/2009 as either Category 1 or Category 3 material. Category 2 material includes manure, non-mineralised guano and digestive tract content, ABPs collected during the treatment of waste water, ABPs containing residues of authorised substances or contaminants exceeding the permitted levels as referred to in Directive 96/23/EC, products of animal origin which have been declared unfit for human consumption due to the presence of foreign bodies in those products, products of animal origin - other than Category 1 material - that are imported or introduced from a third country or dispatched to another Member State and fail to comply with Community veterinary legislation, animals and parts of animals that died other than being slaughtered, fetuses, oocytes, embryos and semen which are not destined for breeding purposes and dead-in-shell poultry.

Category 3 Material consists of low risk materials including parts of animals that have been passed fit for human consumption in a slaughterhouse but which are not intended for consumption, either because they are not parts of animals that we normally eat or for commercial reasons. They also include former foodstuffs and domestic kitchen waste (within the scope of the Regulations).

- 3.8. Different waste streams must be handled accordingly and have different uses, depending on which category they fall under.
- 3.9. In addition to regulations (EC) 1069/2009 and (EC) 142/2011, disposal of ABPs and derived products should take place also in accordance with:
- Environmental Legislation for the Land-filling and Waste Incinerator Directive 2000/76/EC for incineration and co-incineration of waste;
 - Council Directive 1999/31 on the landfill of waste; and
 - Council Decision 93/98/EEC and 97/640/EC for the control of trans-boundary movements of hazardous waste and their disposal.

Waste Water Legislation

- 3.10. Processing plants processing Category 1 material and other premises where specified risk material is removed, as well as slaughterhouses and processing plants processing Category 2 material shall have a pre-treatment process for the retention and collection of animal material as an initial step in the treatment of wastewater. All animal material retained in the pre-treatment process in premises shall be collected and transported as Category 1 or Category 2 material and disposed of in accordance with Regulation (EC) No 1069/2009. Wastewater having passed the pre-treatment process in premises and wastewater from other premises handling or processing Animal By-Products shall be treated in accordance with Union legislation, without restrictions in accordance with this Regulation. The disposal of Animal By-Products, including blood and milk, or derived products through the wastewater stream shall be prohibited. However, Category 3 material comprising of centrifuge or separator sludge may be disposed of through the wastewater stream, provided that it has been subject to one of the treatments for centrifuge or separator sludge set out in Part III

of Section 4 of Chapter II of Annex X of Regulation 142/2011 **Error! Bookmark not defined..**

DEMAND FOR THE SCHEME

- 3.11. The scheme will improve the performance of the Thermal Treatment Facility by:
- Improving the incineration of ABP with lower fossil fuel consumption
 - Increasing the capacity for incineration of other hazardous waste especially the contaminated shredded wood being stored at Ghallis pending treatment;
 - Providing a backup treatment facility to TTF eliminating the dependency on freezing waste when TTF is off for maintenance
 - Improving storage facilities;
 - Utilizing the waste thermal heat for pre-treatment of ABP rather than being disposed in the environment.
- 3.12. The Scheme will also provide facilities to disinfect outgoing vehicles and the water used in the process to be treated.

4. DESCRIPTION OF THE SCHEME

INTRODUCTION

- 4.1. This chapter describes the Scheme. It explains the purpose of the Scheme and includes a description of the Scheme Site and its surroundings.

PURPOSE OF THE SCHEME

- 4.2. The purpose of the Scheme is to modify and upgrade the TTF site by introducing a pre-treatment facility for the animal tissue waste prior to the Incineration process as well as other Ancillary facilities. This is done in the interests of efficiency of operation and the creation of a back-up facility for the treatment of animal tissue waste which is more efficient than thermal treatment.
- 4.3. The Scheme includes the installation of an autoclave plant which will allow for the rendering of category 1, 2 and 3 animal tissue waste and thereby a reduction in the quantity of raw animal waste treated by incineration. This will, in turn, increase the capacity for the treatment of other high calorific value which requires thermal destruction as the only possible way of destruction.
- 4.4. The Scheme also involves the extension of the current site of the MTTF. Access to this additional land will result in a more efficient layout, and the creation of new facilities required to address operational issues and constraints. Such facilities include a waste water treatment plant and purpose built storage facilities both for waste received as well as for consumables consumed by the various facilities.

SITE DESCRIPTION

- 4.5. The Scheme Site is located in Albert Town, in Marsa, and within the administrative area of Marsa Local Council.
- 4.6. The existing TTF occupies an area of approximately 1,050 m² to the northeast of the civil abattoir. It is proposed to extend the site of the facility further to the northeast, to include an additional 4,100 m² of land which is currently occupied by a waste management facility also operated by the applicant (known as the Temporary Marsa Storage and Sorting Facility). The northernmost portion of the extended site is reclaimed land.
- 4.7. The civil abattoir has been in existence since 1897; it was modified and upgraded over the years, most notably in the period since the early 1970s. In 2004, a mobile incinerator was introduced to the abattoir, to deal with animal wastes. The current TTF was installed on site in 2007.
- 4.8. **Figure 4.1** illustrates the location to the Scheme Site.
- 4.9. The access routes to the TTF are illustrated in **Figure 4.2**. Site ingress and egress is via the controlled main gate of the facility on Triq il-Moll, at the north eastern corner of the site.

Surrounding land uses

- 4.10. The land uses within 200 m of the Scheme Site are illustrated in **Figure 4.3**. The land use survey was carried out in July 2012.
- 4.11. The area surrounding the site is characterised by a range of different land uses; the predominant land use is industrial and storage development.
- 4.12. The public abattoir occupies a large site immediately south and west of the Scheme Site. The Malta Shipyards is located to the north of and along the eastern boundary of the site. Primarily used for ship construction, this area includes a welding school and a heavy plant servicing unit. A large area to the west of the Scheme Site is occupied by the Government Works Division (offices and workshops).
- 4.13. Another large area to the immediate west of this is occupied by the Marsa Open Centre, which is used to house refugees; this site was previously the Marsa Trade School. Abutting this to the west is an open stormwater channel.
- 4.14. There are a significant number of vacant properties in the area, and buildings in a bad state of disrepair; some of the buildings are used as workshops for carnival floats. These include warehouses / stores / garages, as well as residential properties. There is a significant concentration of vacant properties in the area north of the Scheme Site, between Triq il-Moll and Triq Garrick (see **Figure 4.4**).
- 4.15. Buildings still in use in this area include cold stores, an ice vendor and a substation along Triq Garrick, and a carpenter, sales office and an importer of timber / building materials along Triq il-Moll.

Figure 4.1: Location of Scheme Site, public abattoir and Thermal Treatment Facility

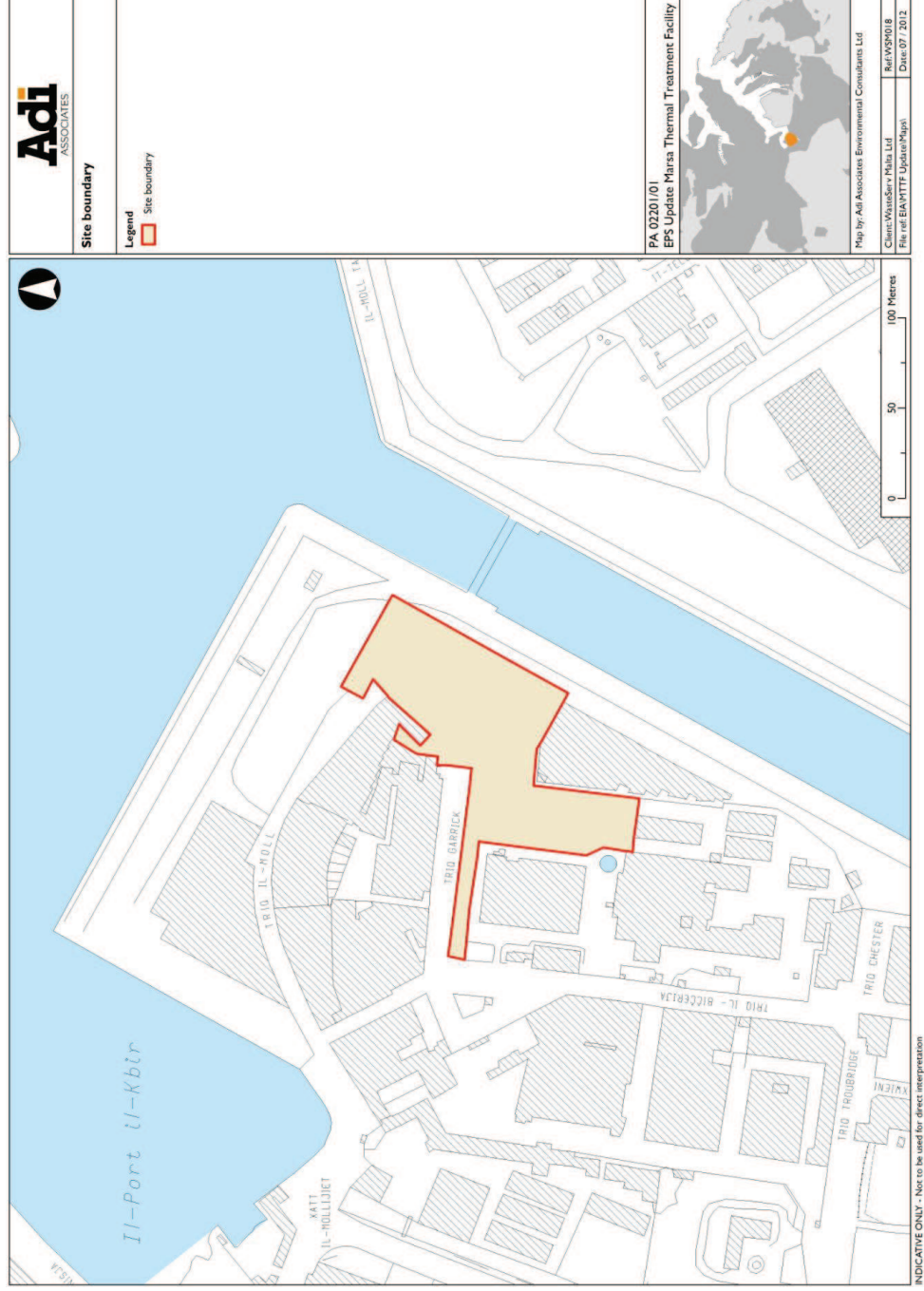


Figure 4.2: Block plan showing existing site layout

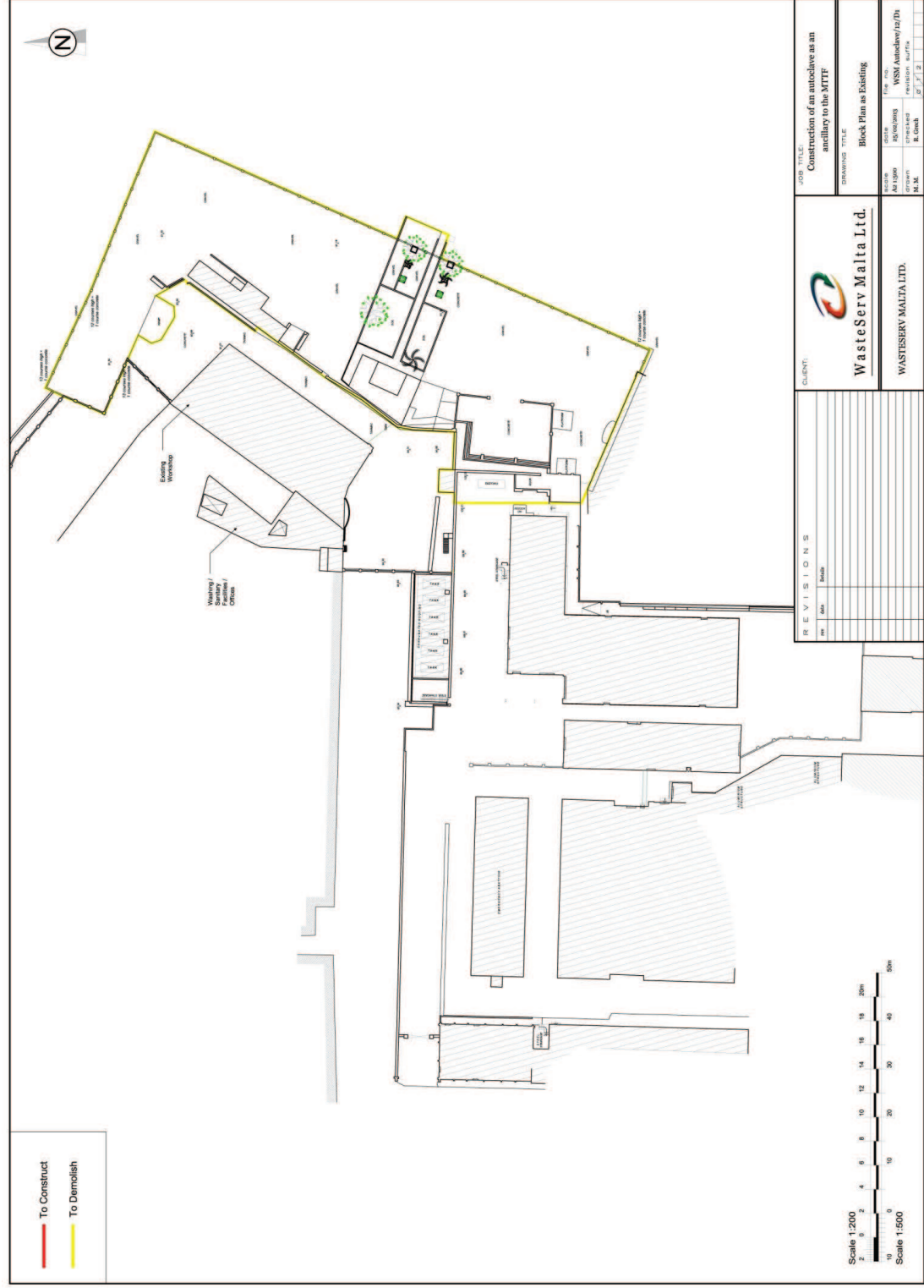


Figure 4.3: Current land uses in the surrounding area

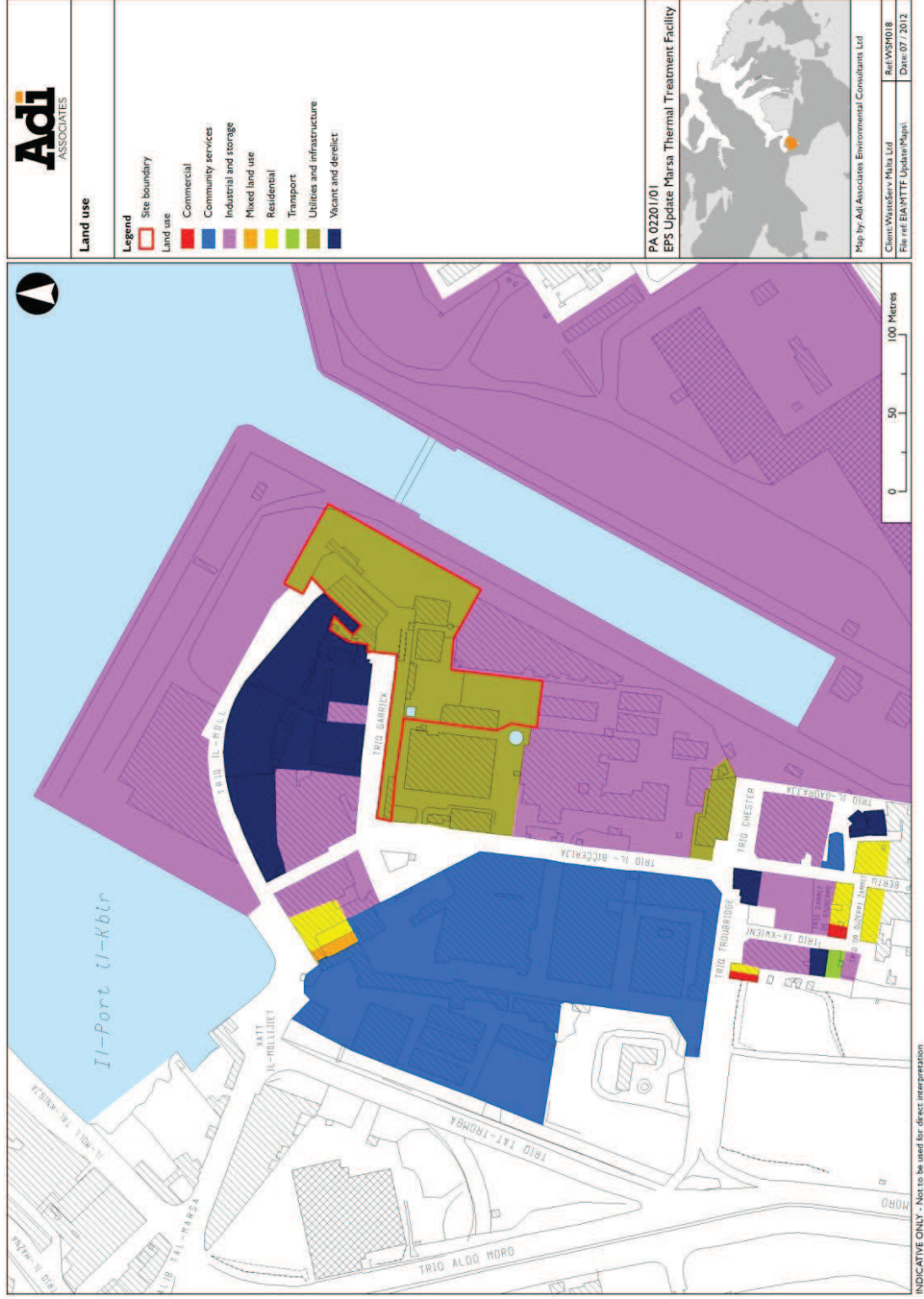


Figure 4.4: Vacant properties



- 4.16. South of the site, along Triq ix-Xwieni, there are a number of large garages which appear to be in use (one as a panel beater). Two recently built properties on this street comprise garages at ground floor but both are vacant on the upper levels. There are a number of warehouses / cold stores related to meat importers, together with related offices and sales areas located on Triq il-Princep Bertu.
- 4.17. There is an informal parking area located south of the Scheme Site, along Triq Troubridge.
- 4.18. A brackish water reverse osmosis (RO) plant abuts the southern boundary of the abattoir site (see **Figure 4.5**). This has been decommissioned and a new fish market (pixkerija) is being constructed.

Figure 4.5: Marsa Reverse Osmosis Plant



- 4.19. There is limited residential development in the area; the largest residential

concentration is located approximately 250m south of the Scheme Site, along Triq il-Princep Bertu and Triq Dr Guzeppi Zammit (see **Figure 4.6**).

- 4.20. There are two bars in the area – one along Triq ix-Xwieni and the other close to Xatt il-Mollijiet, to the northwest of the site.
- 4.21. There is a Church and the premises of Fondazzjoni Suret il-Bniedem along Triq il-Princep Bertu. The latter provides services for the homeless.

Figure 4.6: Residential properties



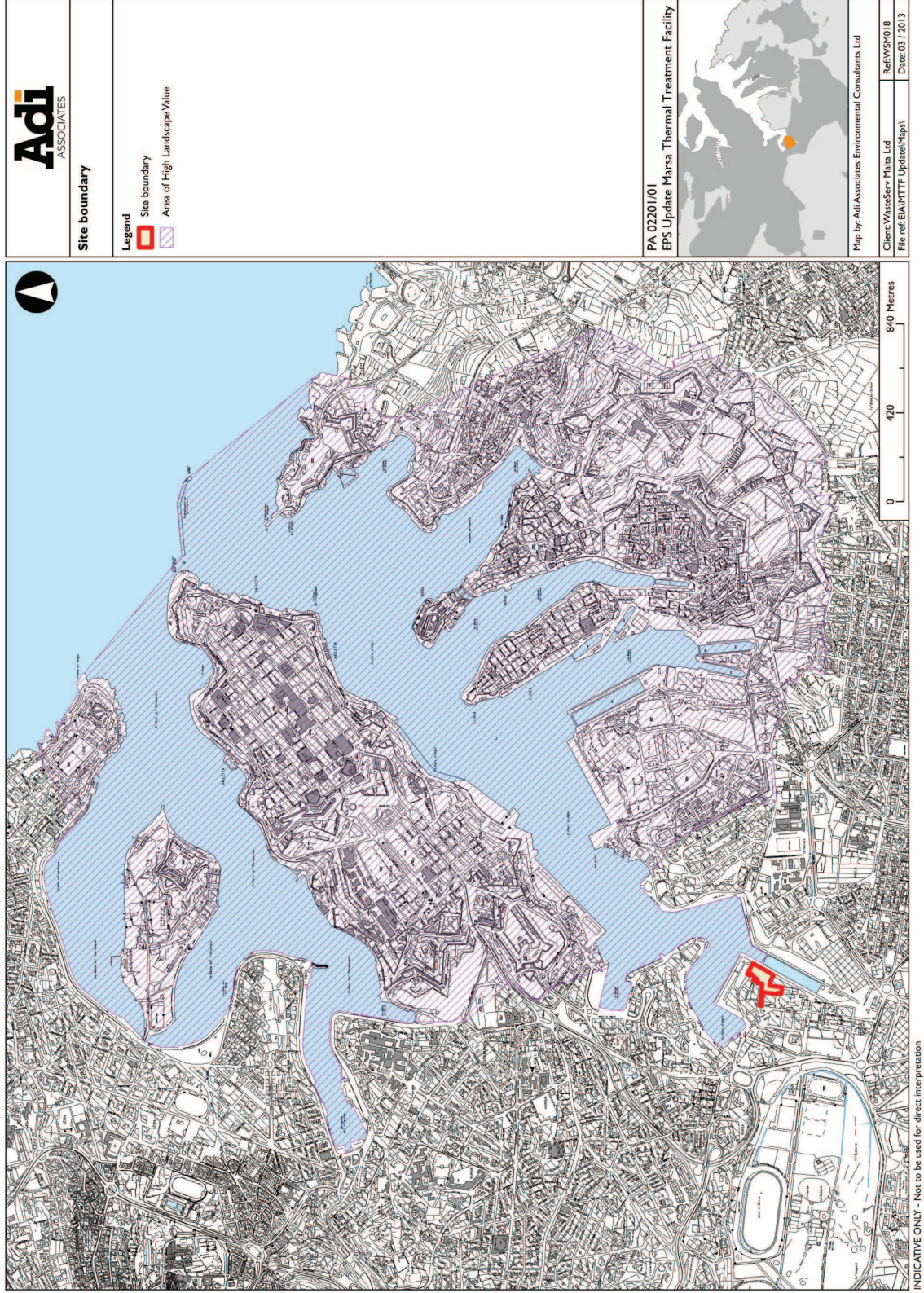
Cultural heritage

- 4.22. A number of sites in the area have been protected for their cultural heritage value. Details of these cultural heritage sites are given in **Table 4.1**.
- 4.23. The only protective designation that relates to the Scheme Site is the Area of High Landscape Value (AHLV) (GN 133/01) in relation to the Harbour Fortifications, which covers the entire Grand Harbour (see **Figure 4.7**). The Scheme Site lies just outside of this AHLV.

Table 4.1: Cultural heritage features in Marsa

Feature	Category	Grade of Protection	GN No.
Letter Box (PB4514 – Triq il-Princep Albert)	Engineering	Grade 1	829/07
Underground, bombproof Powerstation	Architecture	Grade 2	22/12
Villa Violette	Architecture	Grade 2	628/08
Telephone Booth (TB4513 – Triq is-Salib tal-Marsa)	Engineering	Grade 2	829/07
Letter Box (PB4512 – Triq is-Salib tal-Marsa)	Engineering	Grade 2	829/07

Figure 4.7: Scheduled Area of High Landscape Value



DESCRIPTION OF THE SCHEME

- 4.24. The Scheme involves an extension to the TTF. The extension will take in some 4,100 m² of land which is currently occupied by the Temporary Marsa Storage and Sorting Facility (this facility is covered by PA 05115/07 and an environmental permit WM 00012/07 and is operated by the applicant). This land is fully surfaced and partially bunded. The extension will take place in two phases: Phase I and Phase II. These are described below.
- 4.25. The current site layout is illustrated in **Figure 4.2** above. **Figures 4.8 to 4.12** illustrate further details for Phase I while **Figure 4.13** illustrates the block plan for phase II.
- 4.26. The details of the Scheme, including a detailed explanation of the operational processes, are outlined in the '*Proposal for a Development Brief for the Marsa Thermal Treatment Facility*' prepared by the applicant and submitted to MEPA in June 2011. This was updated in December 2011 through the clarifications required as part of the IPPC permitting process. The layout of the Scheme has changed since this 'Development Brief' was submitted. The main elements of the Scheme are explained below.

Phase I

- 4.27. As shown in **Figures 4.8 and 4.9**, phase I of the development comprises the installation of an Autoclave Plant for the treatment of animal tissue waste consisting of two separate lines for the treatment of Category 1 and Category 2 and 3 material in line with regulations (EC) 1069/2009 and (EC) 142/2011. Furthermore, it will also include a waste water treatment plant for all the effluent generated within the TTF and the new Autoclave lines. This is a necessity in order to comply with *Legal Notice 139 of 2002*. This will also include the installation of a back-up boiler to produce the necessary steam for the operation of the Autoclave Plant which will be used when the TTF is switched off for maintenance. All abattoir waste originating from the Civil Abattoir will be pumped through airtight stainless steel pipework from the Civil Abattoir directly to the storage silos at the Autoclave Facility to avoid the transport of this waste using wheely bins and hence reduce odour generation. The facility will include active carbon filters for the neutralisation of odours generated within the TTF and the Autoclave Facility.
- 4.28. For all the new installations to be constructed within the building line, some old existing structures need to be demolished together with some excavation works. Furthermore, Garrick Street will be opened again linking with Triq il-Mollijiet at Marsa. A new storage building needs to be constructed both for the storage of consumables needed for the daily operations of the facility as well as storage for RDF waste and other waste that will be treated at the TTF. The site used for the Autoclave Plant will be linked to the TTF although the Autoclave Plants will have their own access entrance separate from that of the TTF.
- 4.29. The main components of Phase I are:

- Autoclave Equipment whereby the slaughter waste received from the private waste producers such as private slaughterhouses and farmers will be delivered to the Autoclave facility in wheely bins. If the material is categorised under Category 1, it will be unloaded in the Facility authorised for the treatment of Category 1 and if the waste is categorised as Category 2 or 3, it will be unloaded into the Category 2 Facility. Waste will be delivered in wheely bins and unloaded into a shredder hopper. From the Silo, the shredded material is pumped into the Autoclave Batch Cooker. Waste from the Civil Abattoir will be shredded at the Abattoir and will be pumped through pipework from the Abattoir to the Autoclave Facility Silo.
- Steam from the TTF is pumped to the autoclave cooker whereby heat is transferred from the steam to the waste. With this heat, water is evaporated leaving a sterilised material mix of bone meal and meat meal and animal fat. When the TTF is switched off for maintenance, the back-up boilers will be switched on to operate the Autoclave Plant. Once the water has evaporated, the by-product is either pumped into the Incinerator Kiln. Otherwise, the animal fat is separated from the bone meal and meat meal. The dry matter is stored in Jumbo Bags while the animal fat is stored in heated silos and used as a fuel for the back-up boiler.
- Diesel Stand-by Boiler is required to provide the necessary steam needed by the Autoclave Plant at the correct pressure and temperature in the absence of steam from the Incinerator when the latter is switched off for maintenance.
- The evaporated steam generated from the animal tissue waste will pass through a heat exchanger. Clean hot water is produced and used for the TTF or the Civil Abattoir while the condensate waste water will be pumped to the Waste Water Treatment Plant together with the other effluent from the TTF facility, bin washing facility, wheel washer and other waste waste produced from the Plant. The treatment of the water will itself generate an amount of sludge which will be incinerated on site.
- Active Carbon Filter will filter the ambient air inside the Autoclave Plant shed, waste shredder area and any waste storage and handling areas to ensure that no odours are released in the environment.
- Emergency Generator will keep the Plant in operation in case there is an electricity failure or black-out from Enemalta.
- Relocation of the weighbridge office and weighbridge.

Autoclave plant

- 4.30. The autoclave plant is an alternative treatment process in line with regulations (EC) 1069/2009 and (EC) 142/2011 which is less energy demanding when compared to the incineration process. The by-products produced following the rendering process can be used as a fuel for the TTF which will result in less fossil fuel consumption at the TTF. Furthermore, eliminating the water from the waste prior to incineration will

reduce the damages on the refractory of the rotary kiln due to thermal shocks. This facility will be a back-up facility for Malta apart from the TTF. Waste heat energy currently being generated from the TTF will be used for the pre-treatment of animal tissue waste. The Autoclave facility will remove the dependency on reefer storage in case of TTF stoppages for maintenance and hence reduce the electrical costs for storage. Odours will be eliminated especially during thawing of old stored abattoir waste.

- 4.31. The autoclave is located immediately to the east of the existing incinerator building. It occupies an area of approximately 735 m². It is anticipated that the facility can treat approximately 11,224 tonnes of animal by products (APB) as follows:
- Category 1 material: 1,800 tonnes;
 - Category 2 material: 6,000 tonnes;
 - Category 3 material: 60 tonnes; and
 - Contingency: 3,364 tonnes.
- 4.32. The proposed plant involves the setting up of two autoclave lines to process animal waste in two separate batches, the first containing only Category 1 waste and the second containing Category 2 and 3 waste². An autoclave, or steam sterilizer, is an insulated pressure chamber in which saturated pressurized steam is used to elevate the temperature and hence sterilize (decontaminate) the infectious waste while separating the moisture from the solid part and animal fat. The bone and meat meal from Category 1 waste is then sent to incineration. The bone and meat meal from Category 2 and 3 is fit for anaerobic digestion but since quantities are very small, transport costs will make this unfeasible. Since there is no licensed Digestion Plant that can accept this waste, it will be incinerated in the adjacent Plant.
- 4.33. The autoclave will comprise three equal cookers each having a capacity of 5,000 litres. Two cookers working in parallel will be used for the treatment of Category 2 and 3 while the third one will be used for the treatment of Category 1.
- 4.34. Currently material from the abattoir is taken in bins to the TTF where it is shredded and then incinerated. With the introduction of the autoclave, this system will change because the animal waste generated at the abattoir will be shredded on site (i.e. at the Civil Abattoir itself) and the shredded material will be pumped to the autoclave. The shredded material will be temporarily stored in the refrigerated silos before transfer to the autoclave since the autoclave is a batch treatment process. These silos will hold a particular waste category: either Category 1 material or categories 2 and

² Definition of Categories 1, 2, and 3 Animal Products and By-Products according to the European Legislation (EC) 1069/2009.

3.

- 4.35. Slaughtering waste from private slaughterhouses will be delivered directly to the autoclave in sealed bins. The route of vehicles will be as shown in **Figure 4.9**. The material will be emptied into a stainless steel hopper or silo, depending on the category of the material; the material will be shredded before being pumped into the autoclave.
- 4.36. The rendering process will separate off bone meal / meat meal from animal fat; this mix will be poured into a percolator where the fat will be separated by gravity, pumped to a decanter to remove any solid particles and then stored in a settling tank. The bone meal / meat meal mix will subsequently be passed through a filter press to remove any entrapped fat, leaving a very dry product. This material will then pass through a crusher to produce a fine odourless powder, which will then be stored in bags or silos. The final product will be incinerated.
- 4.37. Blood collected will initially be treated in a blood coagulator (sterilised and approximately 50% of the water evaporated off). The blood sludge by-product will be incinerated or sent for digestion. The blood coagulator is found within the existing incinerator building and is not part of the Autoclave Project.
- 4.38. Feathers and pig hair will necessarily be treated separately from the other animal by-products; this type of waste requires only sterilisation and drying. Sheep wool and cow hides cannot be rendered. Hence they will be directly incinerated.
- 4.39. Steam generated from the TTF will supply the Autoclave with the heat needed to treat the slaughtering waste; the autoclave will consume all the heat energy produced at the TTF boiler. A spare boiler is required to produce steam for the autoclave when the TTF is on shutdown.
- 4.40. In terms of odour abatement, two types of measures will be used to control odours generated at different locations at the facility. To control dust and very strong odours, a fog installation system will be installed directly on the point of origin. The operating principle of this technology is by spraying treated water through fine nozzles at very high pressure at 70bar. This will suppress dust and control odours. Furthermore, an air circulating system will be installed together with Bulk Filter Vessels with activated carbon to eliminate odours generated inside the building. Air generated inside the waste treatment building will be circulated through the activated carbon filters to neutralise the odours.
- 4.41. Additionally, all doors of the Facility will include automatic shutter doors that will be closed at all times and only opened when employees need to access the site; air curtains will ensure that air that may be odorous will remain inside the building and will be re-circulated through the activated carbon filters. All activities will be taking place in enclosed sheds. This will reduce the problem of contaminated surface run-offs during rainfall and avoid uncontrolled odours generated.

Waste water treatment plant

- 4.42. In addition to a blood coagulator that was added to the TTF in 2012, a wastewater treatment plant is proposed to be installed adjacent to the autoclave plant. This plant will cater for the treatment of all wastewater generated from the blood coagulator as well as waste water from the autoclave plant including the condensate from the autoclave as well as all the waste water generated from the washing of the plant and vehicles and bins. Sludge generated from the waste water treatment plant will be incinerated.
- 4.43. Currently all wastewater generated by the facility is collected in a cesspit that has a volume of 7.79m³. All the liquid waste produced from the shredding of animal waste is diverted to this cesspit. From the cesspit the waste water, including blood, is pumped into the blood coagulator and mixed with blood, to be treated. Modifications carried out on the TTF services include the deviation of all wastewater produced at the TTF including waste water from the bins washing facility and the rain water that falls on the ground to the same cesspit.
- 4.44. A waste water treatment plant is proposed in order to deal with an existing problem with the discharge of waste water generated by the TTF. This waste water is currently not compliant with *Legal Notice 139 of 2002: Sewer Discharge Control Regulations*, due to its high Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD) values and levels of suspended solids, total dissolved solids, nitrogen and phosphates.
- 4.45. The proposed treatment plant will include:
- 3mm mechanical coarse screen;
 - 1mm mechanical drum screen;
 - Primary/sludge storage tank (3m diameter x 4m long) – may require emptying once weekly depending on solids in influent;
 - One biological tank (3m diameter x 7m long) complete;
 - Second biological tank (3m diameter x 11m long) complete;
 - Third biological tank and settlement tank combo (3m diameter x 11m long);
 - Sludge return pump (external not submerged);
 - pH meter + chemical dosing (will need to raise the pH);
 - Hack Lange DO meter;
 - Diffused air in each of the three biological tanks; and
 - Aeration blowers (duty only).

Shredded wood /refuse-derived fuel products store

- 4.46. Shredded wood is currently co-incinerated with the animal waste in order to absorb moisture and increase the calorific value of the waste mix; this reduces diesel consumption. The wood is usually in the form of waste pallets. It is proposed to construct a storage area in which these pallets can be stored and shredded.
- 4.47. Certain other materials are used as a fuel source for the TTF, which may include certain waste streams derived from the Materials Recovery Facility in Marsascala. Furthermore, certain other, sensitive products are currently incinerated at the TTF (security documentation, uniforms, etc). The proposed 120 m² store will also be used to house refuse-derived fuel products as well as this more sensitive material. It will be equipped with a fire detection system.

Paints store

- 4.48. The TTF currently deals with water based waste paints; water-based paints are incinerated, while solvent-based paints are stored at the facility prior to their exportation abroad. The two types of paints must be stored separately; again, a well ventilated room with adequate fire detection facilities will allow for proper separation and controlled storage; the 120 m² facility will also be bunded.

Bicarbonate store

- 4.49. The TTF has a dry flue gas scrubber whereby sodium bicarbonate (NaHCO₃) and activated carbon (C) is used to remove the hazardous substances in the flue gas generated from the incineration process. It is proposed to store these products, together with other bulky items (refractory material that may be needed during maintenance) in this new storage area that has an area of approximately 120 m².

Pharmaceutical store

- 4.50. Pharmaceutical waste is treated at the TTF on a regular basis - either in powder form or in blister packs. This waste stream must necessarily be stored in a secured area. The proposed 120 m² store will include a quarantined area where pharmaceutical waste that cannot be accepted will be stored until it can be returned to the producer.

Bottom ash store

- 4.51. Bottom ash from the incineration process must be stored on site until it cools down to a temperature where it can be safely transported to landfill. The proposed storage area (approximately 160 m²) will take the form of a ventilated shed built from a galvanised steel structure and covered with light weight panels where the full container can be parked for a few days.

Filter cake silo

- 4.52. Currently the filter cake (hazardous material in powder form) is transferred from the incinerator by hand, into bags which are then manually transferred to a storage container. It is proposed to install an automatic transfer system, whereby the filter

cake is transferred pneumatically from the filter hopper to a 10m³ storage silo. A bulk trailer will empty the silo every week and transport to other EU countries for final disposal.

Container storage area

- 4.53. The TTF receives consignments of waste which has been confiscated at the port (normally delivered in 40 foot containers). These containers are stored on site for several days. It is proposed to create an open storage area to accommodate four such containers.

Other ancillary facilities

- 4.54. A number of other, ancillary facilities are to be provided as part of the Scheme, including:
- Storage area for clean bins (to accommodate up to 83 bins).
 - New wheel wash facilities.

Phase II

- 4.55. In addition to the facilities provided in Phase I, Phase II also provides better circulation, better pedestrian access, increased space for loading / unloading, more office space and additional storage. Demolition of the existing storage / workshop building on the opposite side of the road shall be carried out. This will enable the widening of the road to accommodate two-lane traffic comfortably. An additional piece of land is expected to be expropriated from third parties to accommodate offices and related ancillary facilities. In view of the better traffic circulation envisaged in Phase II, the entrance / exit points of CAT 1, 2 and 3 will be modified. Specific space for boiler ash and bottom ash storage is being allocated. In the entrance / exit area next to the weighbridge land, which is currently outside MEPA road alignment, has to be procured so as to provide better circulation, better parking facilities and a good access to the boiler ash and boiler ash stores. A pedestrian bridge together with a staircase and lift linking the high-level incinerator area to the low-level proposed autoclave are also proposed. These are shown in **Figure 4.13**.

Figure 4.8: Scheme block plan indicating Phase I



Figure 4.9: Detailed plan for Phase I

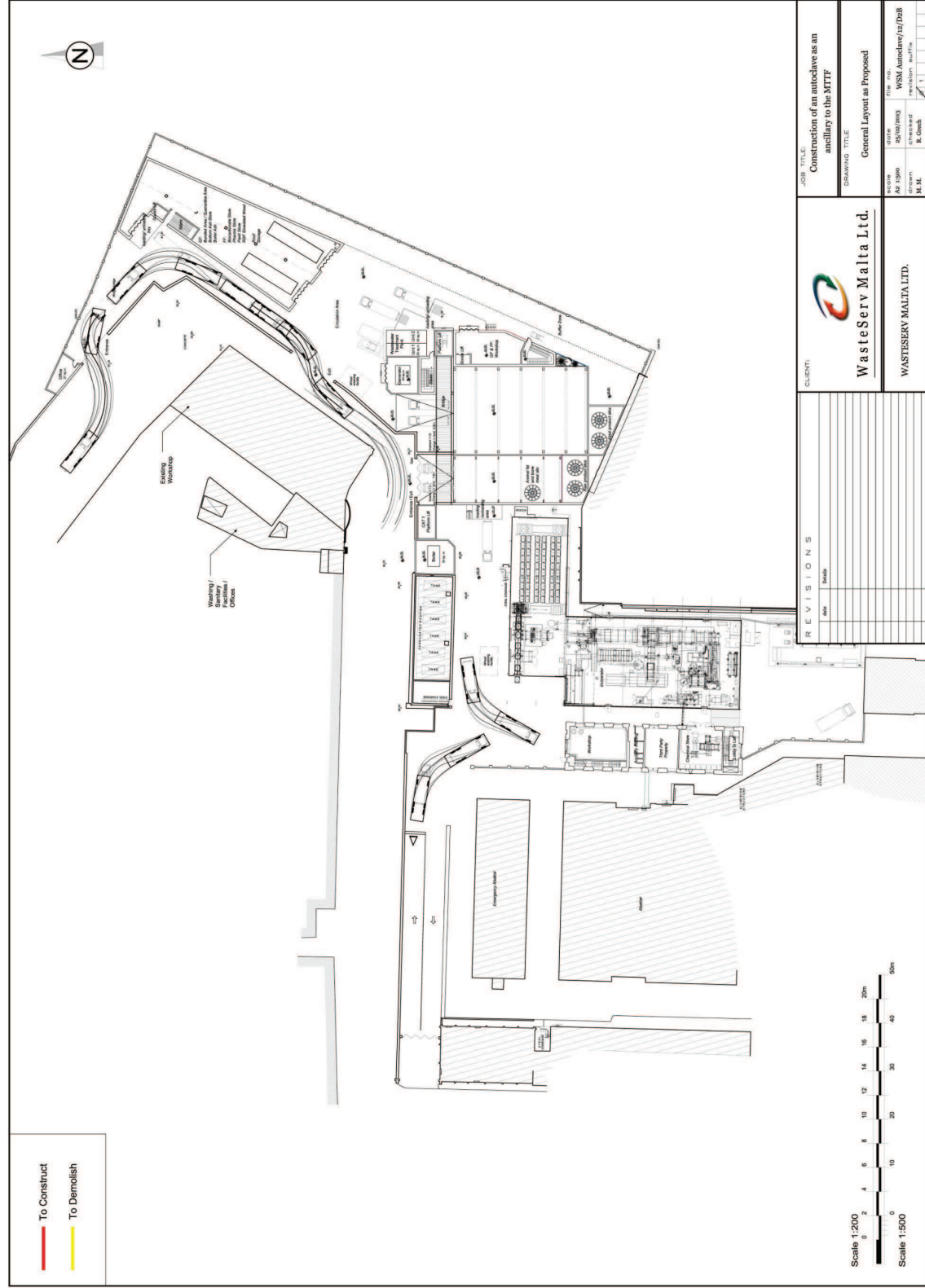


Figure 4.10: Ground floor as proposed

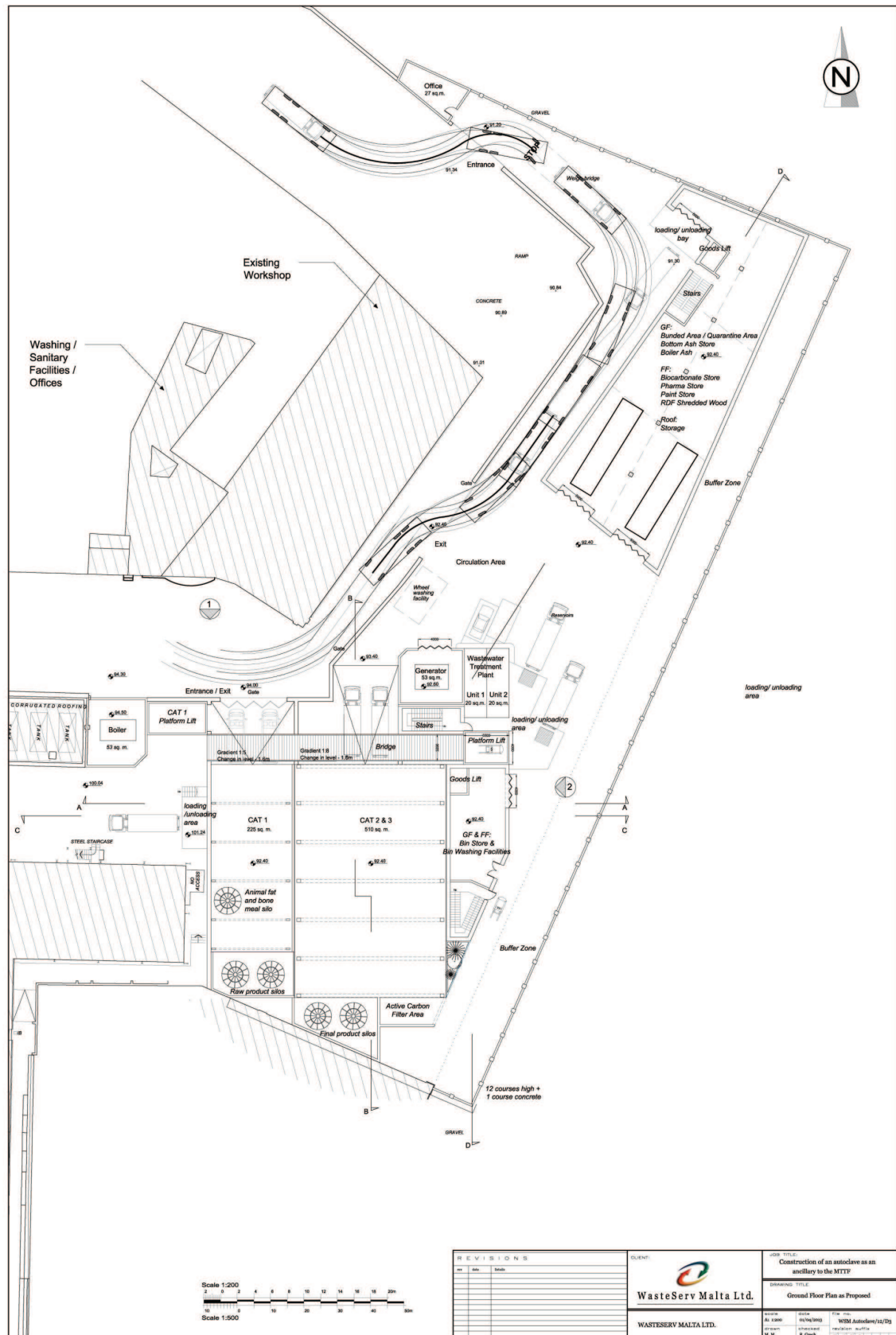


Figure 4.11: Elevations and sections

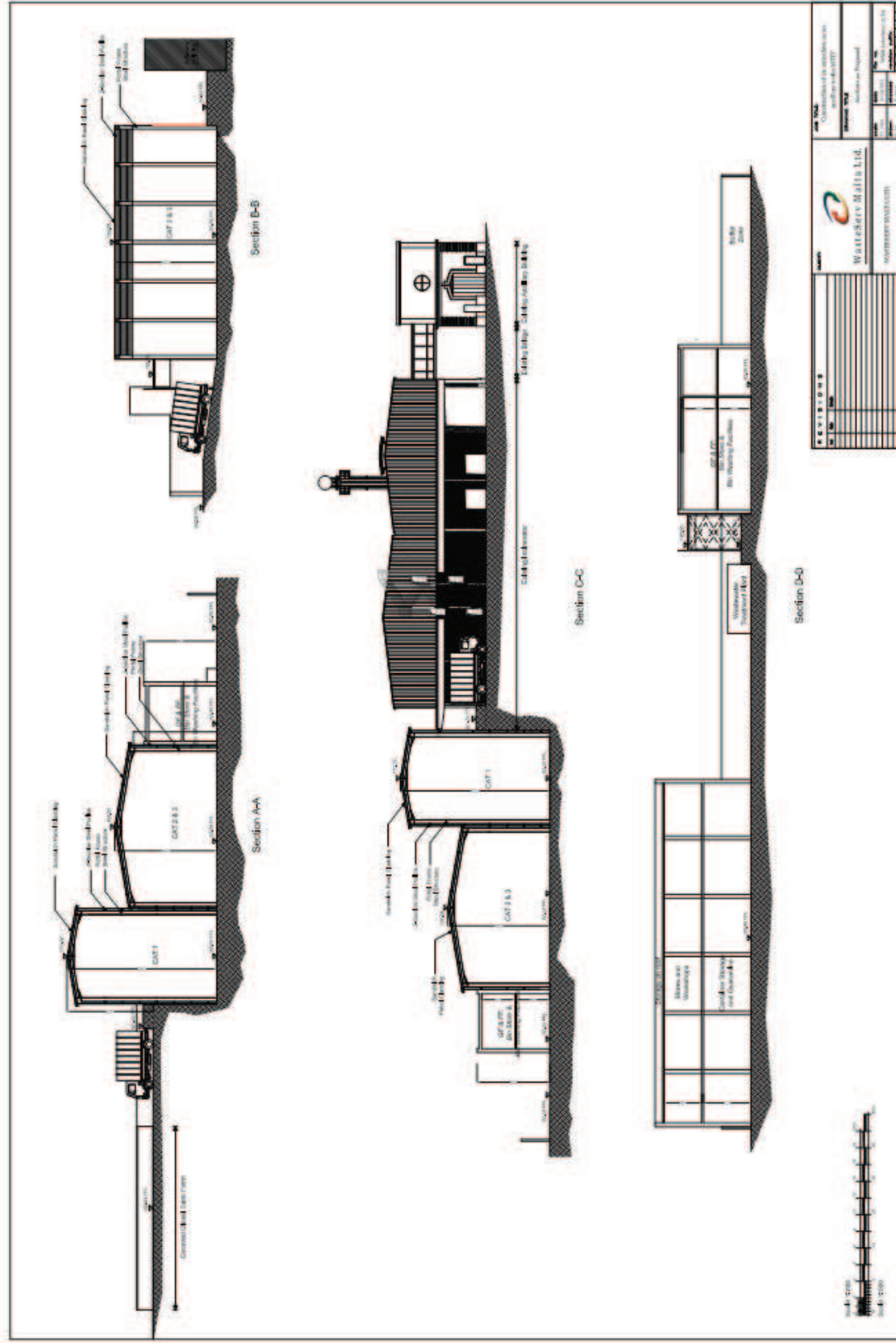


Figure 4.12: Further elevations

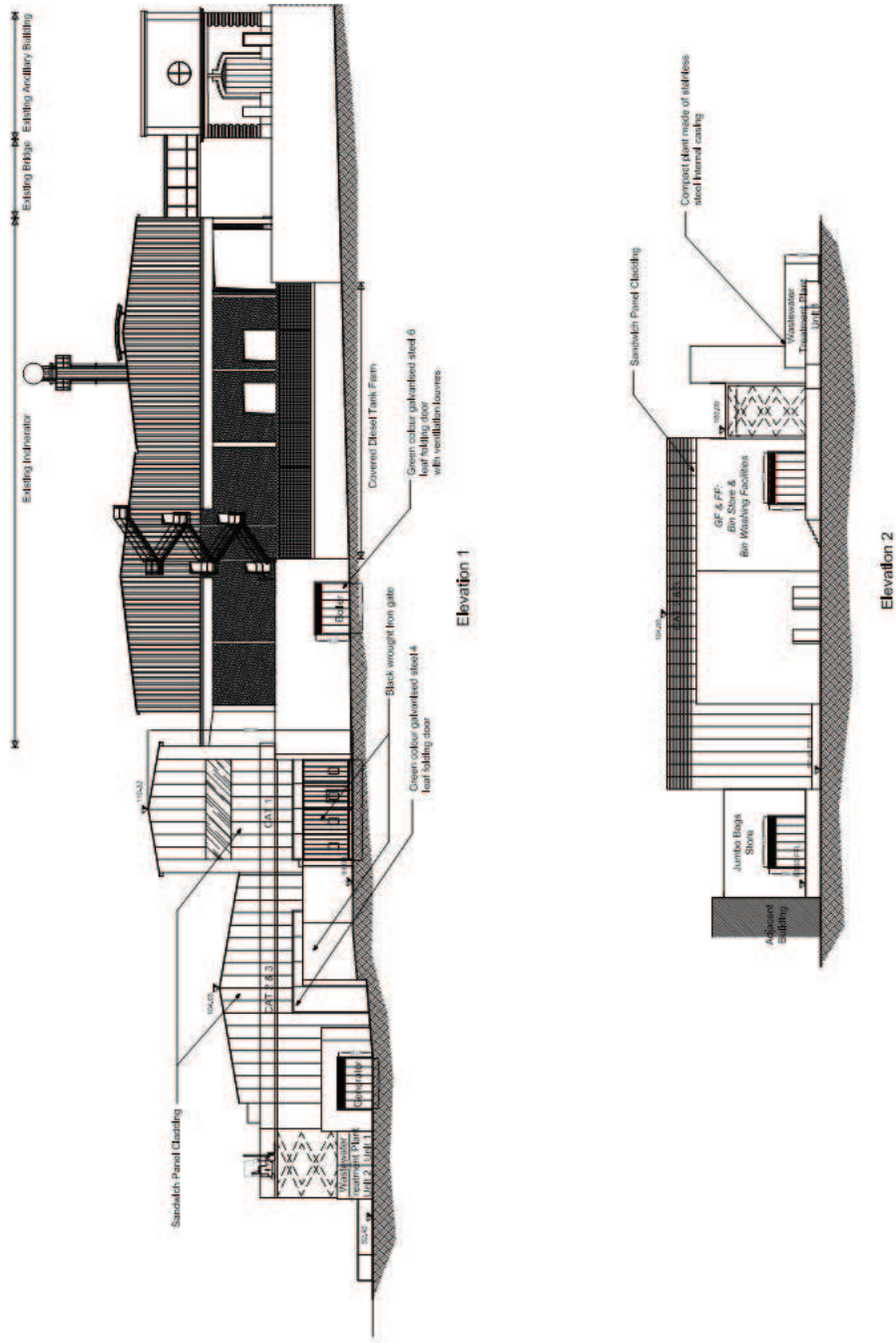
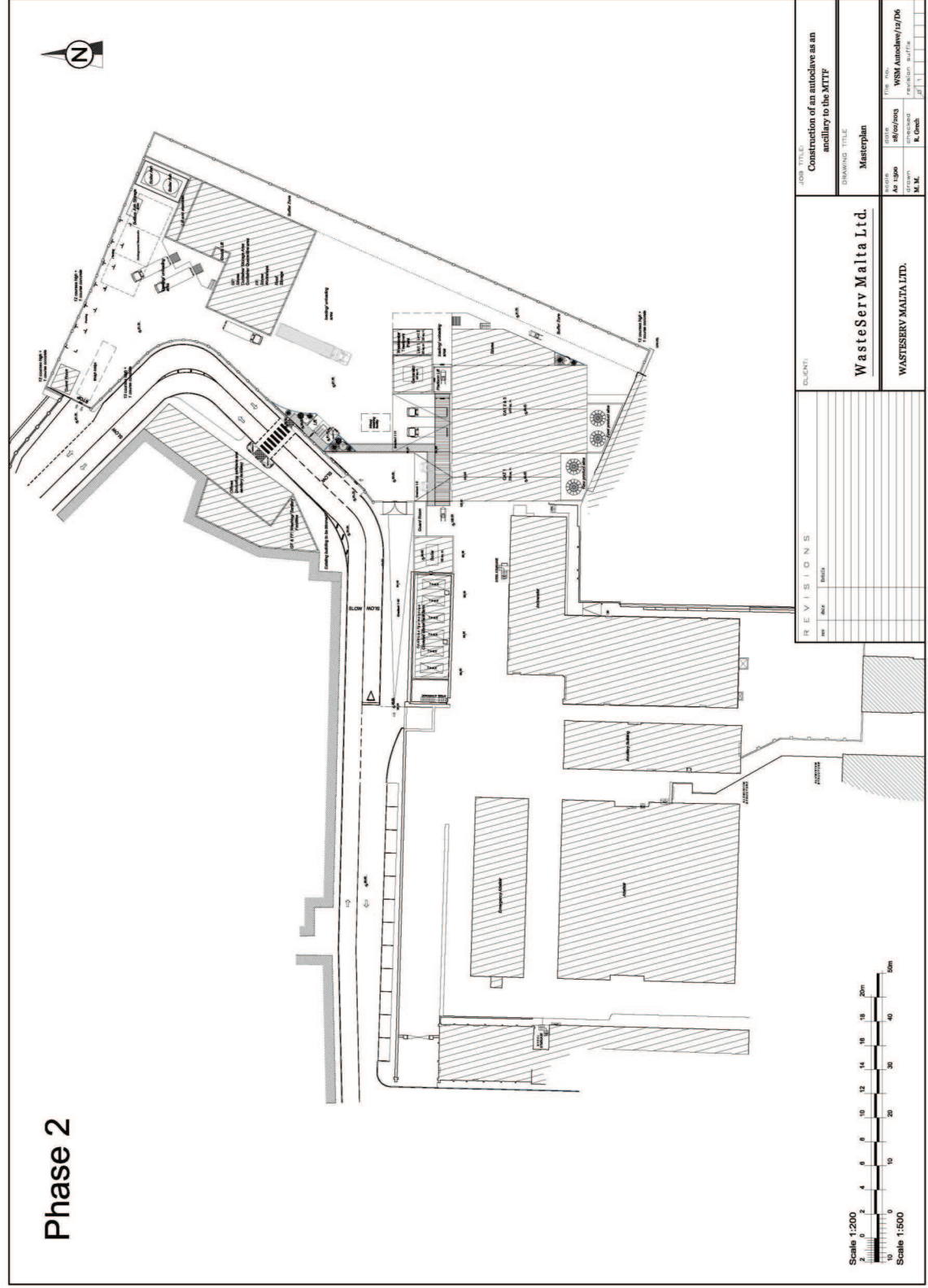


Figure 4.13: Block plan for Phase II



Traffic and access

- 4.56. Licensed waste carriers transport all of the waste processed by the TTF. There are currently twenty deliveries a day, on average. It is estimated that there will only be an additional 1-2 trips a day as a result of the Scheme. This is because the incinerator will be able to treat an additional 8,000 tonnes of non-animal waste (mainly shredded wood).
- 4.57. The current access routes to the Scheme Site are illustrated on **Figure 4.8** above. There will be no change to this arrangement as a result of the Scheme.

Services

- 4.58. The Scheme will make use of the existing infrastructure on site and will not require additional services.

CONSTRUCTION

Construction timing and phasing

- 4.59. The construction phase of the Scheme is expected to take approximately 12 months. It is envisaged that procurement will take place in 2013 and infrastructural works will start during beginning of 2014 following by the installation of the equipment. Commissioning of the plant is expected in the first quarter of 2015.
- 4.60. Normal working hours will be from 7.00 am - 5.00 pm on weekdays and 7.00 am - 1.30 pm on Saturdays; no work will be undertaken on Sundays and Public Holidays unless unforeseen circumstances arises that may result in major delays on the execution of this project.

Construction management

- 4.61. A detailed Construction Management Plan (CMP) will be provided by the contractor awarded responsibility for the works. This will detail the layout of the site during the construction phase and the measures to be put in place to mitigate impacts from construction, as well as the safety measures. The CMP will also include a monitoring programme, if this is required.
- 4.62. A broad description of the construction management required in respect of raw materials, plant and equipment, personnel, and waste management can be summarised at this stage, and is provided hereunder.

Raw materials

- 4.63. The main raw materials likely to be used in the construction of the Scheme are mainly concrete and concrete blocks and light weight panels for the category 1 and category 2 and 3 sheds. **Table 4.2** details the types and quantities of the main raw materials.

Table 4.2: Estimate of the raw materials required for the Scheme

Item	Approximate Quantities
Sandwich panels for lightweight CAT 1 and CAT 2 sheds	3000m ²
Concrete (for floor and ceiling slabs for stores, workshops and other structures)	1500m ³
Hollow core concrete blocks	4500m ²

Plant and equipment

4.64. The following plant and machinery is likely to be required:

- 1 long reach excavator with tilting bucket and hammer;
- 1 excavator with tilting bucket and hammer;
- 1 trencher;
- 2, 16 wheel tipper truck;
- 1 wheel shovel;
- 1 side loader;
- 1 mobile crane;
- 1 tower crane;
- 1 Bull dozer with ripper;
- 1 Pile drilling machine;
- 2 Ready mix concrete trucks;
- 1 Concrete pump;
- 1 Paver;
- 1 Scarifying machine; and
- 1 Road roller.

4.65. It is noted that not all this equipment will be used simultaneously. It is anticipated that the excavators, trencher, tipper trucks, pile drilling machine, wheel shovel and side loader will be mostly used during the initial stages of Phase I. The mobile crane, tower crane, bull dozer, ready mix concrete trucks and concrete pump shall be used mostly during the final stages of Phase I and beginning of Phase II while the scarifying machine, paver and road roller will be mainly used during the final stages of Phase II.

4.66. The access route(s) to the Scheme Site for heavy vehicles during the construction phase will be identified in the detailed CMP. Access to the site itself will be through

the entrance at the north eastern part of the site from Triq il-Moll; construction traffic will not use the main entrance of the abattoir, in order to ensure that the operation of the abattoir is not compromised.

Personnel

- 4.67. The Scheme is expected to employ a maximum of two persons during the construction phase.

Waste management

- 4.68. The main waste streams likely to be generated during the construction phase of the Scheme are likely to be excavation material (approximately 5,000 m³) and general construction waste, such as waste stone, concrete brick off-cuts, waste cement and concrete wash-out, etc from clearing the site. It is estimated that this will amount to 5,000 m³.
- 4.69. These wastes will be properly separated in dedicated skips (including a skip for hazardous waste, which may include oily rags, batteries, empty paint or solvent containers, etc) and carted away for recycling or treatment / disposal (depending on the waste stream) by licensed waste contractors. The removal of hazardous wastes from the site will follow MEPA's hazardous waste consignment permit procedures.

SCHEME OPERATION

- 4.70. The detailed operations of the TTF were explained in detail in the original EIS for the incinerator and the subsequent EIA Update, and the operations in respect of the changes envisaged by the Scheme are explained in detail in the '*Proposal for a Development Brief for the Marsa Thermal Treatment Facility*' prepared by the applicant and submitted to MEPA in June 2011 and are summarised above. Furthermore, the operation of the current TTF facility is governed by an IPPC Permit (IP 0004/07).
- 4.71. Waste acceptance of fallen animals is on a 24/7 basis.
- 4.85. Normal working hours will be from 06:00 – 12:00 and 12:30-18:00 on weekdays and from 6:00 – 12:00 on Saturdays and Sundays; fallen animals will be accepted from 6:00 – 12:00 and 12:30-18:00 and 18:30 – 22:00 from Monday till Sunday.
- 4.72. Hazardous waste is accepted from Monday till Friday from 6:00 – 12:00 and from 12:30 - 18:00.
- 4.73. It is envisaged that the TTF will continue to operate 24 hours a day, 7 days a week, with a short period of shut down each month to allow for general maintenance. Once a year, the facility shut downs for a longer 7 – 12 day period to allow for more specific maintenance. During this shut down period, abattoir waste is treated in the Autoclave Plant. No other waste apart from clinical waste is accepted and stored on site during shut down; clients are advised beforehand of the scheduled shut down period.

5. LEGISLATION AND POLICY CONTEXT

INTRODUCTION

- 5.1. This chapter considers the relevance of international and national legislation and Maltese planning policy to the Scheme, and the compatibility and impact of the Scheme with / on this legislation and policy. The chapter also considers the policies of Government Ministries, where relevant, and outlines those European Union (EU) Directives and Regulations, and other international obligations, that are applicable to the Scheme.
- 5.2. The legal basis for MEPA's request for the preparation of an EIA Update is the *Environmental Impact Assessment (EIA) Regulations, 2007* (LN 114 of 2007).

INTERNATIONAL LEGISLATION

- 5.3. International legislation relevant to the development proposals takes the form of international treaties and conventions to which Malta is a signatory. In view of Malta's accession to the EU in 2004, EU Directives are also relevant.
- 5.4. There are no international treaties or conventions relevant to the Scheme.

European Legislation

- 5.5. The treaty establishing the European Community (Article 174) indicates that members should pursue the preservation, protection and improvement of the quality of the environment, aim at a high level of environmental protection and apply policies "...based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source"³.
- 5.6. The relevant EU Directives include *Directive 85/337/EEC* (amended by *Directive 97/11/EU*) on the assessment of the effects of certain public and private projects on the environment, that has been promulgated by the Maltese EIA Regulations (LN 114

³ Article 174 (ex Article 130r)

1. Community policy on the environment shall contribute to pursuit of the following objectives:
 - Preserving, protecting and improving the quality of the environment;
 - Protecting human health;
 - Prudent and rational utilisation of natural resources;
 - Promoting measures at international level to deal with regional or worldwide environmental problems.
2. Community policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Community. It shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay.

In this context, harmonisation measures answering environmental protection requirements shall include, where appropriate, a safeguard clause allowing Member States to take provisional measures, for non-economic environmental reasons, subject to a Community inspection procedure.

of 2007), the *Waste Incineration Directive* that has been promulgated by the Maltese *Waste Management (Incineration) Regulations* (LN 336 of 2001). Air quality directives and the *Integrated Pollution Prevention and Control (IPPC) Directive* are also relevant.

Industrial Emissions Directive

- 5.7. The Industrial Emissions Directive (IED) is a recast of 7 existing pieces of legislation; its aim is to achieve significant benefits to the environment and human health by reducing harmful industrial emissions across the European Union, in particular through better application of Best Available Techniques. The IED entered into force on 6 January 2011.
- 5.8. The IED is the successor of the IPPC Directive and in essence, it is about minimising pollution from various industrial sources throughout the EU. Operators of industrial installations operating activities covered by Annex I of the IED are required to obtain an integrated permit from the authorities in the EU countries.
- 5.9. The IED is based on several principles, namely (1) an integrated approach, (2) best available techniques, (3) flexibility, (4) inspections and (5) public participation.
- 5.10. The integrated approach means that the permits must take into account the whole environmental performance of the plant, covering e.g. emissions to air, water and land, generation of waste, use of raw materials, energy efficiency, noise, prevention of accidents, and restoration of the site upon closure.
- 5.11. Should the activity involve the use, production or release of relevant hazardous substances, the IED requires operators to prepare a baseline report before starting an operation of an installation or before a permit is updated having regard to the possibility of soil and groundwater contamination, ensuring the integrated approach.
- 5.12. The permit conditions including emission limit values (ELVs) must be based on the Best Available Techniques (BAT), as defined in the IPPC Directive. BAT conclusions (documents containing information on the emission levels associated with the best available techniques) shall be the reference for setting permit conditions.
- 5.13. The IED contains certain elements of flexibility by allowing the licensing authorities to set less strict emission limit values in specific cases. Such measures are only applicable where an assessment shows that the achievement of emission levels associated with BAT as described in the BAT conclusions would lead to disproportionately higher costs compared to the environmental benefits due to geographical location or the local environmental conditions or the technical characteristics of the installation.
- 5.14. The IED contains mandatory requirements on environmental inspections. Member States shall set up a system of environmental inspections and draw up inspection plans accordingly. The IED requires a site visit shall take place at least every 1 to 3 years, using risk-based criteria.
- 5.15. The Directive ensures that the public has a right to participate in the decision-making process, and to be informed of its consequences, by having access to: permit

applications in order to give opinions, permits, results of the monitoring of releases and the European Pollutant Release and Transfer Register (E-PRTR). In E-PRTR, emission data reported by Member States are made accessible in a public register, which is intended to provide environmental information on major industrial activities. E-PRTR has replaced the previous EU-wide pollutant inventory, the so-called European Pollutant Emission Register (EPER).

- 5.16. The IED has been transposed into national legislation through a number of legal notices. Of particular relevance is Legal Notice 10 of 2013: Industrial Emissions (Integrated Pollution Prevention and Control) Regulations, 2013.
- 5.17. Operators of installations covered by IPPC have to apply for a permit from the Regulator prior to operation, and must consider all the environmental impacts associated with the installation. It is clear that once a permit has been granted under IPPC, operators have a significant responsibility for monitoring emissions and supplying the Regulator with the data required to check compliance with the permit. The IPPC Directive demands that monitoring and control are carried out through the operator's duty to introduce self-monitoring, and the permit application should be made available to the public. The TTF is already covered by an IPPC permit. The applicant has applied to modify this permit to include the Scheme.

Regulation (EC) No 1069/2009, Commission Regulation (EU) No 142/2011 and No 749/2011

- 5.18. This Regulation controls the use of animal by-products and derived products in order to prevent and minimise risks to public and animal health. It specifies the different categories reflecting the different level of risk to public and animal health.

Article 8

Category I material

Category I material will comprise the following animal by-products:

- (a) *entire bodies and all body parts, including hides and skins, of the following animals:*
- (i) *animals suspected of being infected by a TSE in accordance with Regulation (EC) No 999/2001 or in which the presence of a TSE has been officially confirmed;*
 - (ii) *animals killed in the context of TSE eradication measures;*
 - (iii) *animals other than farmed and wild animals, including in particular pet animals, zoo animals and circus animals;*
 - (iv) *animals used for experiments as defined by Article 2(d) of Directive 86/609/EEC without prejudice to Article 3(2) of Regulation (EC) No 1831/2003;*

- (v) *wild animals, when suspected of being infected with diseases communicable to humans or animals;*
- (b) *the following material:*
 - (i) *specified risk material;*
 - (ii) *entire bodies or parts of dead animals containing specified risk material at the time of disposal;*
- (c) *animal by-products derived from animals which have been submitted to illegal treatment as defined in Article 1(2)(d) of Directive 96/22/EC or Article 2(b) of Directive 96/23/EC;*
- (d) *animal by-products containing residues of other substances and environmental contaminants listed in Group B(3) of Annex I to Directive 96/23/EC, if such residues exceed the permitted level laid down by Community legislation or, in the absence thereof, by national legislation;*
- (e) *animal by-products collected during the treatment of waste water required by implementing rules adopted under point (c) of the first paragraph of Article 27:*
 - (i) *from establishments or plants processing Category 1 material; or*
 - (ii) *from other establishments or plants where specified risk material is being removed;*
- (f) *catering waste from means of transport operating internationally;*
- (g) *mixtures of Category 1 material with either Category 2 material or Category 3 material or both.*

Article 9

Category 2 material

Category 2 material will comprise the following animal by-products:

- (a) *manure, non-mineralised guano and digestive tract content;*
- (b) *animal by-products collected during the treatment of waste water required by implementing rules adopted under point (c) of the first paragraph of Article 27:*
 - (i) *from establishments or plants processing Category 2 material; or*
 - (ii) *from slaughterhouses other than those covered by Article 8(e);*

- (c) *animal by-products containing residues of authorised substances or contaminants exceeding the permitted levels as referred to in Article 15(3) of Directive 96/23/EC;*
- (d) *products of animal origin which have been declared unfit for human consumption due to the presence of foreign bodies in those products;*
- (e) *products of animal origin, other than Category 1 material, that are:*
 - (i) *imported or introduced from a third country and fail to comply with Community veterinary legislation for their import or introduction into the Community except where Community legislation allows their import or introduction subject to specific restrictions or their return to the third country; or*
 - (ii) *dispatched to another Member State and fail to comply with requirements laid down or authorised by Community legislation except where they are returned with the authorisation of the competent authority of the Member State of origin;*
- (f) *animals and parts of animals, other than those referred to in Article 8 or Article 10,*
 - (i) *that died other than by being slaughtered or killed for human consumption, including animals killed for disease control purposes;*
 - (ii) *foetuses;*
 - (iii) *oocytes, embryos and semen which are not destined for breeding purposes; and*
 - (iv) *dead-in-shell poultry;*
- (g) *mixtures of Category 2 material with Category 3 material;*
- (h) *animal by-products other than Category 1 material or Category 3 material.*

Article 10

Category 3 material

Category 3 material shall comprise the following animal by-products:

- (a) *carcasses and parts of animals slaughtered or, in the case of game, bodies or parts of animals killed, and which are fit for human consumption in accordance with Community legislation, but are not intended for human consumption for commercial reasons;*

- (b) *carcasses and the following parts originating either from animals that have been slaughtered in a slaughterhouse and were considered fit for slaughter for human consumption following an ante-mortem inspection or bodies and the following parts of animals from game killed for human consumption in accordance with Community legislation:*
 - (i) *carcasses or bodies and parts of animals which are rejected as unfit for human consumption in accordance with Community legislation, but which did not show any signs of disease communicable to humans or animals;*
 - (ii) *heads of poultry;*
 - (iii) *hides and skins, including trimmings and splitting thereof, horns and feet, including the phalanges and the carpus and metacarpus bones, tarsus and metatarsus bones, of animals, other than ruminants requiring TSE testing, and ruminants which have been tested with a negative result in accordance with Article 6(1) of Regulation (EC) No 999/2001;*
 - (iv) *pig bristles;*
 - (v) *feathers;*
- (c) *animal by-products from poultry and lagomorphs slaughtered on the farm as referred to in Article 1(3)(d) of Regulation (EC) No 853/2004, which did not show any signs of disease communicable to humans or animals;*
- (d) *blood of animals which did not show any signs of disease communicable through blood to humans or animals obtained from the following animals that have been slaughtered in a slaughterhouse after having been considered fit for slaughter for human consumption following an ante-mortem inspection in accordance with Community legislation:*
 - (i) *animals other than ruminants requiring TSE testing; and*
 - (ii) *ruminants which have been tested with a negative result in accordance with Article 6(1) of Regulation (EC) No 999/2001;*
- (e) *animal by-products arising from the production of products intended for human consumption, including degreased bones, greaves and centrifuge or separator sludge from milk processing;*
- (f) *products of animal origin, or foodstuffs containing products of animal origin, which are no longer intended for human consumption for commercial reasons or due to problems of manufacturing or packaging defects or other defects from which no risk to public or animal health arise;*

- (g) *pet food and feeding stuffs of animal origin, or feeding stuffs containing animal by-products or derived products, which are no longer intended for feeding for commercial reasons or due to problems of manufacturing or packaging defects or other defects from which no risk to public or animal health arises;*
- (h) *blood, placenta, wool, feathers, hair, horns, hoof cuts and raw milk originating from live animals that did not show any signs of disease communicable through that product to humans or animals;*
- (i) *aquatic animals, and parts of such animals, except sea mammals, which did not show any signs of disease communicable to humans or animals;*
- (j) *animal by-products from aquatic animals originating from establishments or plants manufacturing products for human consumption;*
- (k) *the following material originating from animals which did not show any signs of disease communicable through that material to humans or animals:*
 - (i) *shells from shellfish with soft tissue or flesh;*
 - (ii) *the following originating from terrestrial animals: hatchery by-products, eggs, egg by-products, including egg shells,*
 - (iii) *day-old chicks killed for commercial reasons;*
- (l) *aquatic and terrestrial invertebrates other than species pathogenic to humans or animals;*
- (m) *animals and parts thereof of the zoological orders of Rodentia and Lagomorpha, except Category 1 material as referred to in Article 8(a)(iii), (iv) and (v) and Category 2 material as referred to in Article 9(a) to (g);*
- (n) *hides and skins, hooves, feathers, wool, horns, hair and fur originating from dead animals that did not show any signs of disease communicable through that product to humans or animals, other than those referred to in point (b) of this Article;*
- (o) *adipose tissue from animals which did not show any signs of disease communicable through that material to humans or animals, which were slaughtered in a slaughterhouse and which were considered fit for slaughter for human consumption following an ante-mortem inspection in accordance with Community legislation;*
- (p) *catering waste other than as referred to in Article 8(f).*

The proposed autoclave is designed to treat Category 1, 2, and 3 animal by-products

as described in **Chapter 4**.

NATIONAL LEGISLATION

The Constitution of Malta

Declaration of principles

- 5.19. The Constitution of Malta (Section 9) declares that the State will safeguard the landscape and the historical and artistic patrimony of the Nation. These are the only aspects of the environment referred to in the Constitution, underlining the importance of the landscape and historical heritage.

Environment and Development Planning Act 2010 (Act X of 2010)

- 5.20. This Act consolidates and updates the provisions of the Development Planning Act 1992 (as amended) and the Environment Protection Act 2001. Act X of 2010 provides for regulation and control in the protection of the environment and in the planning and management of development.
- 5.21. The Act stipulates that *“It shall be the duty of every person together with the Government to protect the environment and to assist in the taking of preventive and remedial measures to protect the environment and manage natural resources in a sustainable manner”*.
- 5.22. Various duties fall to the Government. Those relevant to the Scheme are:
- “4(a) to manage the environment in a sustainable manner by integrating and giving due consideration to environmental concerns in decisions on socioeconomic and other policies;*
 - 4(b) to take such preventive and remedial measures as may be necessary to address and abate the problem of pollution and any other form of environmental degradation in Malta and beyond, in accordance with the polluter pays principle and the precautionary principle;*
 - 4(e) to apply scientific and technical knowledge and resources in determining matters that affect the environment;*
 - 4(f) to ensure the sustainable management of wastes and to promote waste reduction and the proper use, reuse and recovery of matter and energy;*
 - 4(g) to safeguard biological diversity;*
 - 4(h) to combat all forms of pollution;*
 - 4(i) to consider the environment as the common heritage and common concern of humankind; and*
 - 4(j) to provide incentives leading to a higher level of environmental protection”*.

- 5.23. The Act makes provision for the establishment of an authority to implement the duties of Government under the Act – the Malta Environment and Planning Authority (MEPA). MEPA’s principle duties include:
- the formulation and implementation of plans and policies relating to the promotion of sustainable development, protection and management of the environment, and the sustainable management of natural resources;
 - the promotion of proper planning and sustainable development, and the control of development in accordance with the approved plans and policies;
 - advising the Minister responsible for the Environment on environmental standards, guidelines and the making of regulations;
 - issuing licences or permits as may be required to control and manage activities having an impact on the environment;
 - monitoring the quality of the environment, and establishing methodologies and maintaining and disseminating information related to the environment; and,
 - ensuring that Environmental Audits and Environmental Assessments as may be prescribed are properly carried out.
- 5.24. In determining an application for development permission, MEPA is required to have regard to:
- Development plans;
 - Planning policies;
 - Representations from the public; and
 - Any other material consideration the Authority deems relevant.
- 5.25. The Structure Plan Policies relevant to the Scheme are explained below, and their implications on the Scheme highlighted.
- 5.26. In making an application for development permission an applicant must certify to MEPA that he is the owner of the site, or that he has notified the owner of his intention to apply for development permission, and that the owner has granted his consent to the development, or he is authorised to carry out the development under any other law or through an agreement with the owner.
- 5.27. The Environment and Development Planning Act also empowers MEPA to Schedule *“areas, buildings, structures and remains of geological, paleontological, cultural, archaeological, architectural, historical, antiquarian or artistic or landscape importance as well as areas of natural beauty, ecological or scientific value”*.

Malta Resources Authority Act, 2001

- 5.28. The Malta Resources Authority Act 2001 established the Malta Resources Authority and assigns it a number of functions in relation to the regulation of the water, minerals, and energy sector.
- 5.29. The Minister responsible for resources may, among others, also make regulations for the granting, renewal, transfer, suspensions, and cancellation of licences, permits, or other authorisations.
- 5.30. The regulations currently in force under the Malta Resources Authority Act that are relevant to the Scheme are the Water Policy Framework Regulations, which have been reviewed above.

Environmental Management Construction Site Regulations, 2007

- 5.31. The aim of these Regulations is to limit environmental degradation through construction management practices that cause least nuisance to neighbours, minimise risk to workers, and safeguard private and public property. The Regulations came into force on 1st November 2007.
- 5.32. The Regulations apply to “...any construction, water mining, or any other disturbances to the soil, including land clearing, scraping, ground excavation, land levelling, grading, cut and fill operations, and ancillary activities that include travel to the construction site, travel on access roads to and from the construction site and demolition activities”.
- 5.68. The Schedules within the Regulations provide requirements for reducing nuisance to neighbours through:
- Erection of a site notice containing details of the owner, site manager, architect and contractor;
 - Conditions for cutting of stone and bricks on site;
 - Transportation of loose material;
 - Obstruction of pavements;
 - Hazards to vehicular traffic;
 - Cleaning of the site and its immediate vicinity;
 - Rodent control;
 - Hoardings around development sites;
 - Covered ways and barricades;
 - Safe passage past the site;
 - Nuisance abatement, including construction times; and

- Control of dust emissions.
- 5.33. Technical guidelines and specifications are also provided for minimisation of noise and vibration levels; health and hygiene, including waste management; hazardous materials handling; and point source pollution from storm water.
- 5.34. The Regulations apply to any construction site, except where the Minister has exempted such development under the provisions of Schedule VI 'Exemptions'.
- 5.35. Regard has been given to the requirements of the Regulations in addressing the construction impacts of the Scheme.

The Water Services Corporation Act, 1991

- 5.36. This Act (Act XXIII of 1991) established the Water Services Corporation (WSC). Among other functions, the WSC was charged with conservation of water resources and with the promotion of the safe disposal of wastewaters and the reasonable use of water. Following the establishment of the Malta Resources Authority (MRA), most of the regulatory functions of the WSC have been assumed by the MRA.

Legal Notices

- 5.37. The Regulations in force under the Environment and Development Planning Act include the following Legal Notices that are relevant to the Scheme:
 - **Legal Notice I of 1994:** Environment Protection (Preventative and Remedial Measures) Regulations, which empowers the Director of the Environment Protection Department (EPD) to inspect the development area or any vehicles on the site for suspected violations of the Act.

Waste Management

- **Legal Notice 106 of 2007:** Waste Management (Activity Registration) Regulations and **Legal Notice 184 of 2011:** The Waste Regulations. These Regulations regulate the production and disposal of hazardous and non-hazardous wastes. The Regulations aim to control all operations relating to the production and management of waste and promote sound waste management practices so as to safeguard human health and the environment.

Air Quality

- **Legal Notice 216 of 2001:** Ambient Air Quality Assessment and Management Regulations, 2001 defines and establishes objectives for ambient air quality in Malta that are designed to avoid, prevent or reduce harmful effects on human health and the environment as a whole. They establish common methods and criteria for the assessment of ambient air quality, and provide for public dissemination of information on ambient air quality. The Regulations require assessment and monitoring of air quality, the establishment of zones and agglomerations, and the preparation of action plans as appropriate.
- **Legal Notice 291 of 2002:** National Emission Ceilings for Certain Atmospheric

Pollutants Regulations stipulates that Malta must limit emissions of sulphur dioxide, nitrogen oxides, volatile organic compounds, and ammonia. It is the responsibility of the Malta Environment & Planning Authority to ensure that the limit values laid down in the Regulations are not exceeded.

The implementation of the measures contained in Legal Notices 216 of 2001 and 291 of 2002 is the responsibility of National Government. Measures implemented by the Government to fulfil its obligations may affect the Scheme; however, it is beyond the scope of this EIA to assess further these potential measures.

- **Legal Notice 224 of 2001** (as amended by L.N. 231 of 2004): Limit values for Sulphur Dioxide, Nitrogen Dioxide and Oxides of Nitrogen, Particulate Matter and Lead in Ambient Air Regulations, 2001 sets out air quality standards for Particulate Matter (PM10), SO2, NO2, NOx, and Lead.
- **Legal Notice 163 of 2002**: Limit Values for Benzene and Carbon Monoxide in Ambient Air Regulations, 2002 sets out air quality standards for Benzene and Carbon Monoxide.

Emissions from the stack are regulated through the current IPPC permit. The Scheme is not likely to affect emissions as the aim of the Scheme is to improve operational efficiency at the TTF.

Water

- **Legal Notice 194 of 2004**: Water Policy Framework Regulations, 2004 is issued under both the Environment Protection Act and the Malta Resources Authority Act. It establishes the framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater. It states that there is one water catchment district for Malta and Gozo, and that catchment area management plans must be prepared. The framework is intended to prevent further deterioration of, and to protect, enhance, and restore the status of aquatic systems. It aims to promote sustainable water use based on the long-term protection of available water resources, and to enhance the protection and improvement of the aquatic environment through specific measures to combat polluting discharges. The Regulations also deal with floods and the progressive reduction of groundwater pollution.

The Scheme will not result in any discharges into groundwater as all waste water will be collected and treated prior to discharge (see **Chapter 4**).

- **Legal Notice 203 of 2002**: Protection of Groundwater against Pollution caused by certain Dangerous Substances Regulations, 2002 focuses on the protection of groundwater and introduces the concept of List I and List II substances. The purpose of the Regulations is to eliminate pollution from List I substances and to reduce the pollution from List II substances. They provide detailed measures to control the direct and indirect discharge of List I and List II substances.

- **Legal Notice 139 of 2002:** Sewage Discharge Regulations, 2002 repeals Legal Notice 8 of 1993. It controls the discharge of effluent to the sewerage system and prohibits the discharge of effluent containing substances listed in Schedule A of the Regulations. All trade effluent must be permitted and no effluent that can damage the sewerage system can be discharged. The municipal sewage produced on site will be discharged into the sewers in accordance with an eventual Public Sewer Discharge Permit.

PLANNING POLICY

- 5.38. The Scheme does not comprise any new land use elements. All Structure Plan policies assessed in the EIA for PA2201/01 are still relevant.

A Solid Waste Management Strategy for the Maltese Islands, 2010

- 5.39. The Solid Waste Management Strategy (SWMS) provides a policy and decision-making framework for the management of wastes, and for the preparation of detailed implementation plans. It contains 9 policy principles:

(1) Sustainability – Waste will be managed in a way that does not compromise the ability of future generations to meet their own needs.

(2) Proximity – Waste should be treated or disposed of as close as possible to the point where it arises.

(3) Precautionary – Taking precautions now to avoid possible environmental damage or harm to human health in the future.

(4) Polluter Pays – Polluters and producers should bear the full responsibility and cost of the consequences of their actions.

(5) Waste Hierarchy – The Strategy will be implemented on the basis of the following preferences: (i) Waste prevention / reduction; (ii) Re-use, (iii) Recycling, (iv) Recovery, (v) Disposal.

(6) Achieve Best Practicable Environmental Option (BPEO) - Greatest benefits for the least damage to the environment as a whole.

(7) Climate Change – To explore opportunities for energy from waste and managing waste in a way that reduces green house gas (GHG) emissions.

(8) Waste as a Resource – Saving fossil fuels and new materials. For example, reuse of excavation and demolition waste for new structures.

(9) A Collective Strategy – Government will encourage partnership with all stakeholders.

- 5.40. These principles lead to a further 9 objectives that are:

- 1 - Promote Waste Minimisation*
- 2 - Improve national capacity to manage industrial solid waste, hazardous waste and maritime & aviation waste.*
- 3 - Promote producer responsibility*
- 4 - To manage Construction & Demolition Waste in a More Sustainable Manner*
- 5 - Promote Waste to Energy*
- 6 - Changing Behaviour*
- 7 - More Recycling and Separation of Biodegradable Waste*
- 8 - Reduce reliance on landfilling: Implementing preferred technologies to deal with residual waste streams*
- 9 - Cost Efficient Services.*

- 5.41. Policy Objective 2 is particularly relevant to the Scheme as it concerns the infrastructure for the management of waste. The TTF is recognised as Malta's primary facility to treat hazardous waste. The Scheme will go a long way to improve the efficiency in the treatment of hazardous and clinical waste.

Space for Waste: The Waste Management Subject Plan, 2001

- 5.42. The Waste Management Subject Plan (WMSP) provides strategic long-term direction and context to guide both Government and the private sector in waste management issues over the period to 2010. Its policies guide the strategic planning of waste and the determination of development permit applications for developments and land use changes related to waste management facilities.
- 5.43. The WMSP identifies that, with the exception of the incinerator at the Gozo abattoir, the existing waste combustion units for special wastes require replacement with more effective thermal treatment plants or alternative disposal methods because the existing combustion facilities do not satisfy the requirements of the EU Directive on emission controls from hazardous waste incinerators (89/429/EEC) and in order to provide for the safe treatment of these wastes.
- 5.44. With respect to treatment of the various waste streams, the WMSP subscribes that abattoir waste should be incinerated close to source. It also identifies the possibility of incinerating clinical waste if this is an economically feasible option. The current method of handling and treating port waste is considered inadequate and an alternative should be sought. The WMSP identifies other wastes that can be considered for incineration, provided energy recovery is an integral feature; such wastes include municipal waste, commercial and industrial wastes, and airport wastes. The Scheme proposes to incinerate all these waste types (with some energy

recovery) except municipal wastes.

5.45. The relevant policies are reviewed below.

5.46. *POLICY SWM 17: The Planning Authority will consider development proposals for thermal treatment plants with energy recovery, provided that:*

i. The proposed site is located within an established industrial area or within an area which is permitted or allocated for industrial development, or is a site that has already been disturbed by development;

ii. The highway network and site access can accommodate the traffic generated;

iii. The proposal will not give rise to unacceptable impact on local communities or the environment due to noise, dust, odour, visual impact or adverse health effects;

iv. The proposal would deal with ash residues as an integral part of the operation; and

v. Airborne emissions will be controlled according to recognised air quality emissions.

The incinerator already has planning permission and is seeking further permission to implement the proposals described in **Chapter 4**.

5.47. *POLICY SWM 18: Proposals for the thermal treatment of special wastes will be considered by the Planning Authority providing that it can be demonstrated that thermal treatment is the appropriate environmental option for the particular waste stream. In considering the most appropriate environmental option the Planning Authority will consider the waste management option that provides the most benefits or the least damage to the environment, in the long term as well as in the short term.*

The Scheme sustains this policy as it will enhance the performance of the TTF.

5.48. *POLICY SWM 27: There is a presumption against proposals that involve the landfilling of special and hazardous wastes unless it can be demonstrated that:*

i. There is a need for the development and the waste cannot be practicably disposed of in any other way;

ii. The benefits of the proposal outweigh any adverse environmental impacts which it is likely to cause;

iii. Wastes are deposited in a separate area from non-hazardous wastes using appropriate containment techniques.

The Scheme provides an alternative to disposing of special wastes to landfill therefore allowing better compliance with this policy in general.

- 5.49. *POLICY SWM29: The Planning Authority will in principle support the development of new or replacement facilities to store or process abattoir and healthcare wastes provided that the proposal will not give rise to unacceptable impact on local communities or the environment.*

The Scheme is consistent with this policy as it further enhances the performance of the TTF.

Grand Harbour Local Plan

- 5.50. The Scheme is located at Marsa and therefore falls within the Grand Harbour Local Plan (GHLP) area. The Local Plan was approved in April 2002.
- 5.51. The Scheme site is located within Albert Town. Policy GM21 designates Albert Town as an Industrial Zone and seeks to discourage housing development in this area, stating that development permission for new housing will not be given. Being an industrial use, the Scheme complies with this policy.
- 5.52. Policy GM08 describes the improvements to be made to the traffic system at Albert Town including the closure of the junctions at Triq il-Labour / Triq Princep Bertu area, entry to and exit from Albert Town to be strictly through Xatt tal-Mollijiet or Triq Troubridge and the introduction of traffic calming measures.

CONCLUSION

- 5.53. This chapter reviewed the legislation and planning policies relevant to the operation of the Scheme. It has considered the relevant laws of Malta, Government Policies, and the Policies of the Structure Plan and subsidiary planning documents, as well as, EU legislation.
- 5.54. The Scheme is in accordance with the applicable legislation that was reviewed.

6. NOISE AND VIBRATION

INTRODUCTION

- 6.1. This chapter considers the impacts arising from the construction and operation of the Scheme. The existing noise climate was established through a baseline noise survey; the location of sensitive receptors that may potentially be affected by changes to the noise environment were identified and agreed with MEPA.
- 6.2. Noise is likely to only arise during the construction phase of the Scheme. The Scheme is unlikely to result in vibration impacts, either during its construction or its operation.
- 6.3. The potential key issues related to noise arising from the construction and operation of the Scheme are:

Key Issues:

- **Effects of operation on noise sensitive receptors**

- 6.4. MEPA did not issue formal Terms of Reference for the noise assessment. MEPA's requirements for the EIA Update identified a study to be carried out, as follows:
 - *Noise impacts during the operational phase given the likely increase in trips to and from the site;*
- 6.5. The requirements of the study were clarified in MEPA's letter to the applicant on 27th October 2011 (MEPA Ref: EPD/A/RD/11/432) Annex I, item 7, as follows:
 - *An assessment of whether noise emissions from the combined existing and new proposed activities (e.g. shredding of animal by-products) could cause the level of noise emitted from the installation to exceed the background noise level by 5dB needs to be submitted. Monitoring shall be carried out according to the latest revisions of ISO 1996 and the rating of industrial noise affecting residential areas shall be according to BS 4142. Monitoring shall be performed exclusively using a type 1 sound level meter.*

Assessment Methodology

- 6.6. The Area of Influence (A of I) was determined following the noise monitoring survey, and taking in to account the maximum noise levels likely to arise from the operation of the Scheme and the distance required for the levels to fade to 5 dBA above the background levels.
- 6.7. The Area of Influence is extends to the sensitive receptors as shown in **Figure 6.1**.

Vibration

- 6.8. Vibration was scoped out of the assessment because the Scheme involves little in the way of excavation works, and the works involved in the putting in place of the Scheme are unlikely to result in vibration impacts at sensitive receptors that are above those generated by traffic.

Competence of surveyor

- 6.9. The noise (sound level) survey, and the impact assessment, was carried out by Adi Associates Environmental Consultants Ltd. Both were coordinated by Ms Rachel Xuereb, Director of Adi Associates.
- 6.10. Ms Xuereb has been trained in respect of BS 4142:1997 standard methodology and in the operation of the sound level meter and interpretation of data from it, as well as in undertaking environmental and occupational noise impact assessments. Kevin Morris of Adi Associates, who has been undertaking noise assessments for over 30 years, supervised the survey and assisted in the impact assessment.

Standards and guidance

- 6.11. There is to date no specific guidance in Malta on environmental noise in the context of land use planning⁴. In situations where standards are not available, MEPA generally makes reference to equivalent guidance from the UK and ISO standards. In respect of this project therefore, it was considered appropriate to refer to the British Standards (BS 4142⁵ and BS 5228⁶) and to the UK Government's Planning Policy Guidance Notes which clarify the applicability of these Standards to land use planning issues (*PPG 24: Planning and Noise*⁷). Reference was also made to ISO 1996⁸, in accordance with Annex II of the *Environmental Noise Directive (2002/49/EC)* and *Noise from Pubs and Clubs* (University of Salford and Hepworth Acoustics)⁹.

Identification of noise sensitive receptors

- 6.12. Key to assessing the impacts of noise arising from the operation of the Scheme is the proximity of the noise-sensitive land uses and activities. The noise monitoring location is identified in **Figure 6.1**: the property off Triq il-Princep Bertu to the

⁴ Malta transposed the Environmental Noise Directive (Directive 2002/49/EC) into national legislation through Legal Notice 426 of 2007. The Regulations designate MEPA as the competent authority for the generation of strategic noise maps, the publication of information on environmental noise, and the drawing up of action plans.

⁵ BS 4142:1997, *Method for rating industrial noise affecting mixed residential and industrial areas*, British Standards Institution.

⁶ BS 5228:1997, *Code of Practice for Noise and Vibration Control on Construction and Open Sites: Part 1 Noise*, British Standards Institution

⁷ Department of Communities and Local Government (UK), Planning Policy Guidance PPG 24, *Planning and Noise*, September 1994.

⁸ ISO 1996, *Acoustics - Description, measurement and assessment of environmental noise*, International Organisation for Standardization.

⁹ University of Salford and Hepworth Acoustics, *Noise from Pubs and Clubs*, 2005

- south of the Scheme. This monitoring location was identified in the EIA prepared for PA2201/01 wherein 4 sensitive receptors were identified (see **Figure 6.2**). This sensitive receptor is a residence; it is susceptible to day and night time noise. It is deemed the closest of the four sensitive receptors identified in the EIA that would be affected by the proposals described in the Development Brief. In the EIA, it was also the sensitive receptor that registered the lowest background noise levels without the operation of the plant.
- 6.13. It was agreed with MEPA that the worst case impact for the other noise sensitive locations (as identified in **Figure 6.2**) would also be assessed. It was also agreed that this would be done using the current baseline data at the sensitive receptor.
- 6.14. Noise was measured continuously at the following times:
- 6am to 11am;
 - 4pm to 7pm; and
 - 11pm to midnight.
- 6.15. In deciding on the monitoring periods, we were guided by the purpose of the assessment to determine whether the proposed plant would cause the background sound levels to increase by 5 db(A) or more. Given that we will be assuming that the sound emissions from the proposed plant are those emitted when all of the plant is operating at its daytime / night time modus operandi (day or night depending on whether the assessment being undertaken is the day or night impact) the sound will be constant. And given that we are assessing the worst case, we have selected monitoring periods when the background sound levels of the area around the TTF are likely to be at the lowest and, therefore, the area (and sensitive receptors) are at the most sensitive, both in the day time and at night time. In this respect, the early morning and afternoon/evening period will cover the start up /shut down time of the noisy plant of the proposed facilities, and the 11pm to midnight period will cover the quiet time.

Sound level survey protocols

- 6.16. The sound level surveys were undertaken in accordance with BS 4142:1997. Paragraphs 5.1 to 5.5 of the Standard give guidelines on measurement practice. As required by the Standard, the Type I sound level meter was calibrated.
- 6.17. To minimize the influence of reflection, the measurements were taken at a distance of 3.7m from the facade of the nearest residential property. The sound level metre was mounted on the tripod at a height of 1.3m above the ground level. Details of the measurement position (distance from any reflecting structure and height above road level) were recorded for each measurement.
- 6.18. An effective windshield was used to minimize the effects of turbulence at the microphone. The weather conditions prevailing during all measurements were also recorded.

Sound level descriptors

6.19. The sound level surveys measured and recorded the following sound level descriptors:

- $L_{Aeq(T)}$ (the equivalent continuous noise level, or energy average, over the time period of interest), where 'T' was one hour for the day time measurement and five minutes for the night time measurement;
- L_{Amax} (the maximum noise level recorded over the time period of interest);
- L_{A10} (the noise level exceeded for 10% of the time period of interest);
- L_{A90} (the noise level exceeded for 90% of the time period of interest); and
- Frequency (using one-third octave band analysis to confirm the presence of tonal noise.)

During the survey, observations were recorded by the noise assessor and attempts were made to identify the source of any significant impulsive or tonal noise. In addition, efforts were made to identify and describe acoustic events and phenomena attributable to the existing development on the site.

Figure 6.1: Noise Monitoring Location

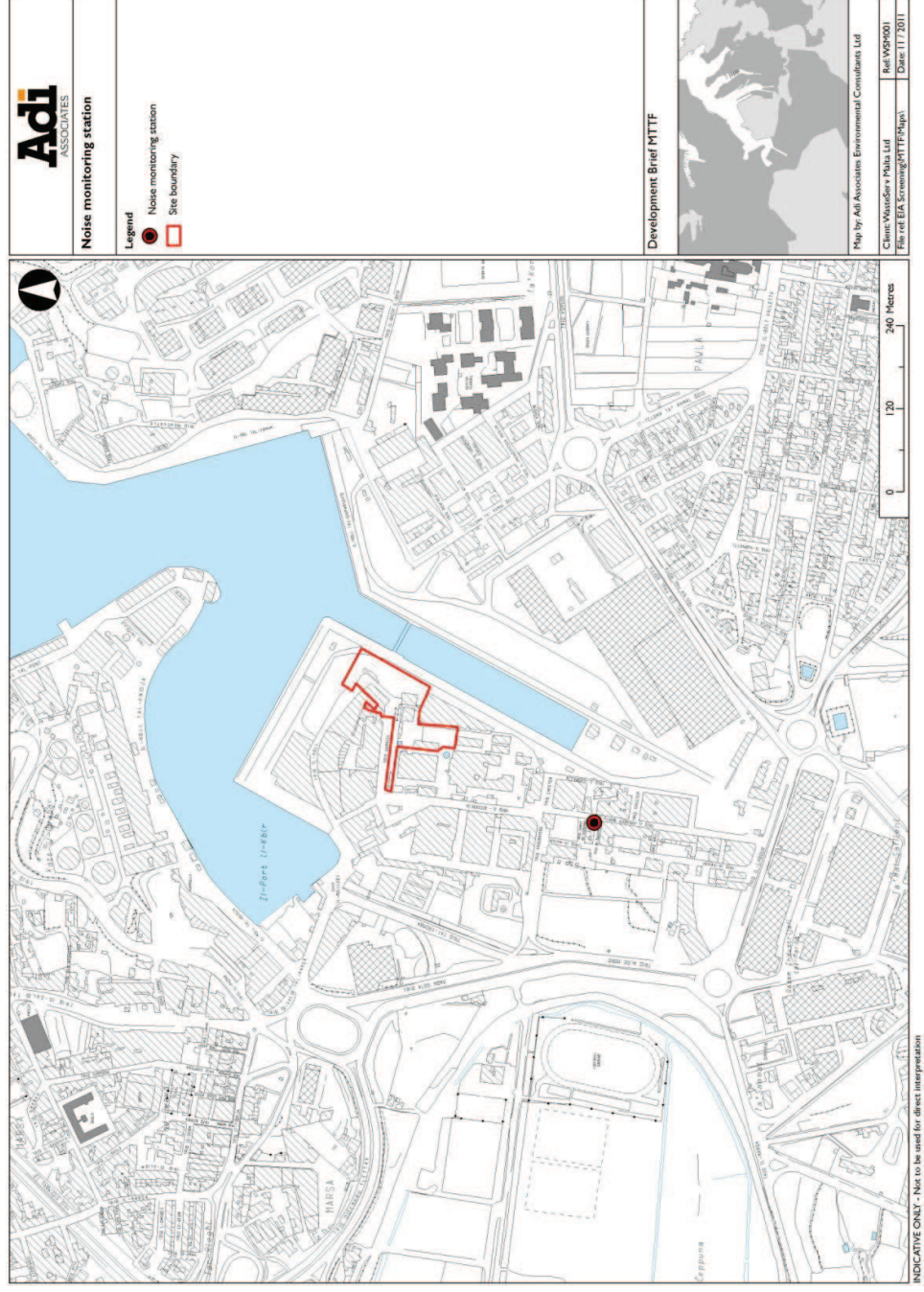
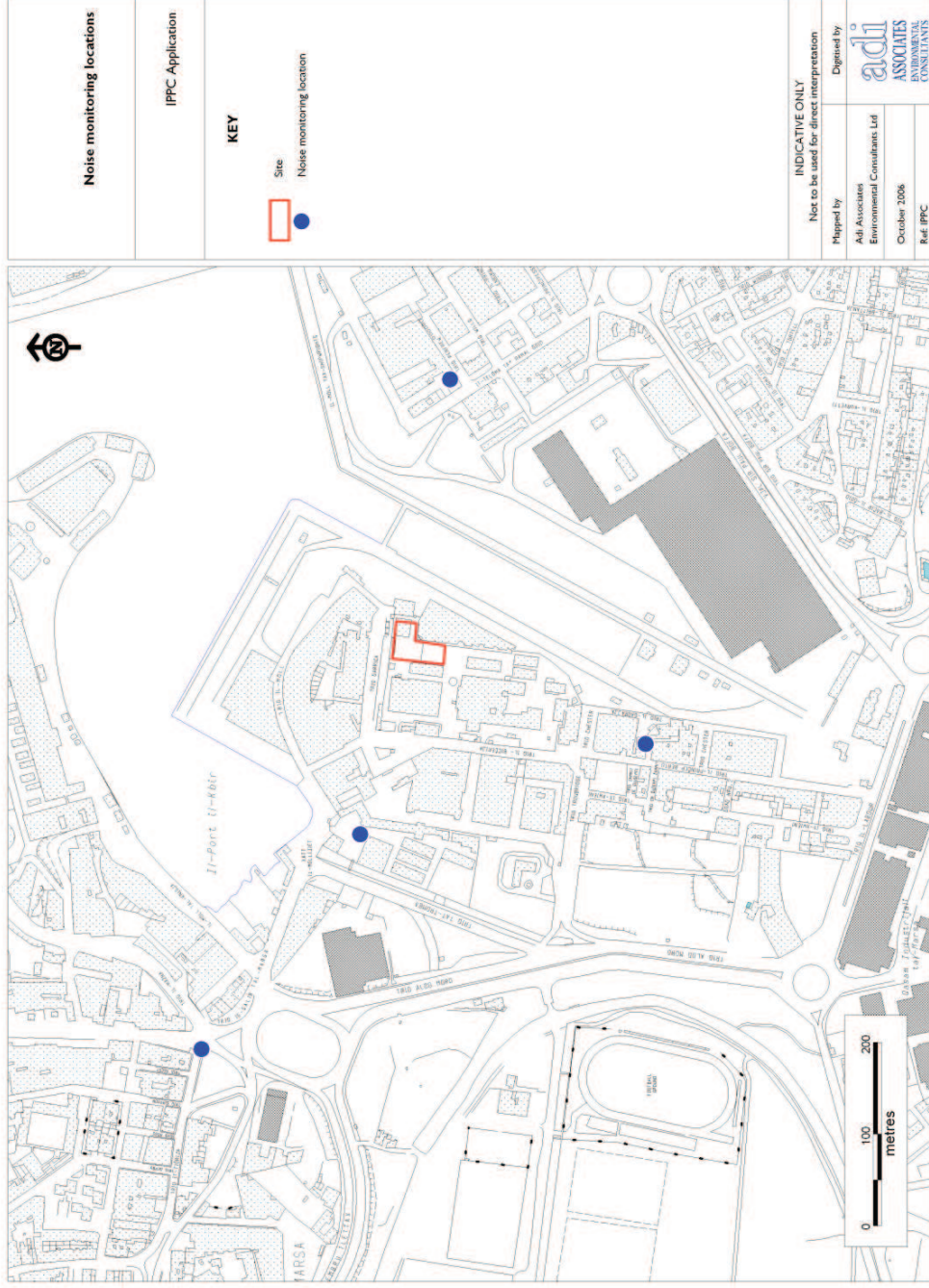


Figure 6.2: Noise sensitive receptors identified in the IPPC Application for the TTF



Sound level equipment

- 6.20. A Type I Norsonic 140 NNR (Noise Nuisance Recorder), calibrated according to BS 4142:1997, was used to take the measurements.

ENVIRONMENTAL NOISE SURVEY

- 6.21. The actual sound level measurements for each location and predominant noise sources are shown in **Table 6.1**. The parameters measured were: L_{Aeq} , L_{Amax} , L_{A10} and L_{A90} . Although not shown in the table, $L_{Aeq,60}$ (sixty minutes) is used for daytime studies while $L_{Aeq,05}$ (five minutes) is used for night-time studies in accordance with BS4142:1997.
- 6.22. During measurement it was noted that traffic on Triq Princep Bertu was particularly high due to the fact that there were road works in the area and traffic was routed through this street. The measured noise was noted to be attributable to traffic noise, mainly.

Table 6.1: Recorded sound levels at the sensitive receptor

Time	L_{Aeq} dB(A)	L_{Amax} dB(A)	L_{A90} dB(A)	L_{A10} dB(A)
6:00-7:00	62	85	51	63
7:00-8:00	66	99	52	64
8:00-9:00	64	99	52	66
9:00-10:00	67	100	53	67
10:00-11:00	67	91	54	69
16:00-17:00	67	89	53	70
17:00-18:00	69	94	55	72
18:00-19:00	67	88	54	70
23:00-00:00	56	73	52	59

- 6.23. Noise measurements that were taken in 2005¹⁰ are reproduced in **Table 6.2**.

¹⁰ AIS Environmental and SLR Consulting, 2005, Environmental Planning Statement for an Incinerator at the Public Abattoir, Marsa. Final Draft pp 82 (accepted by MEPA).

Table 6.2: Summary of noise survey results from 2005

Location	Distance from Scheme	Period	L_{Aeq60}	L_{Amax}	L_{A10}	L_{A90}	Predominant noise source
Property on the corner of Triq Renfrew to the east of the Scheme	275 metres	26/02/2002 14:03 to 15:33	69.7	93.4	70.4	53.8	Traffic
		26/02/2002 23:42 to 23:57	51.7	63.2	52.7	50.5	Equipment from nearby winery and cold storage
Property off Triq il-Princep Bertu to the south of the Scheme	245 metres	26/02/2002 12:02 to 13:32	55.5	76.3	58.1	49.8	Traffic and fan from cold storage
		26/02/2002 23:16 to 23:31	54.4	75.9	50.8	45.7	Fan from cold storage
School on Xatt il-Mallijiet to the west of the Scheme*	170 metres	27/02/2002 08:58 to 10:28	63.0**	112.4	67.1	56.6	Traffic and school activities
Property on Triq it-Tigrija to the north west of the Scheme	470 metres	27/02/2002 10:38 to 12:38	64.9	90.7	66.6	58.9	Traffic
		27/02/2002 22:55 to 23:20	62.2	84.4	62.2	55.7	Traffic

PREDICTION AND SIGNIFICANCE OF NOISE IMPACTS

Methodology

- 6.24. BS 4142:1997 provides a methodology for rating external noise levels from factories, industrial premises or fixed installations of an industrial nature, to determine the likelihood of complaints from occupants of nearby residential properties. The methodology is applicable to assessing the impacts of noise likely to arise as a result of the Scheme.
- 6.25. The methodology is based on determining the difference between the background noise level without the source (expressed as the L_{A90} - the noise level exceeded for 90% of the time period of interest) and the noise level of the source at the receiver location (expressed as the L_{Aeq} - the equivalent continuous noise level, or energy average, over the period of interest).
- 6.26. Certain acoustic features can increase the likelihood of a complaint over that expected from a simple comparison between the specific noise level and the background noise level. Where present at the monitoring location, such acoustic features are taken into account by adding 5 dB to the specific noise level to obtain the rating level. The background noise level is then subtracted from the rating level (the specific noise level plus any correction for character) and the difference used to assess the likelihood of complaints, as shown in **Table 6.3** below.

Table 6.3: BS 4142:1997 assessment criteria

Difference	Assessment	Significance
10 dB or higher	Complaints likely	Major impact
6 – 9 dB	Complaints may arise	Moderate impact
3 – 5 dB	Complaints not likely	Marginal or minor impact
Less than 3 dB	The lower the value the less likelihood of complaints	No significant impact
10 dB or higher below background	Positive indication that complaints are unlikely	Negligible impact

- 6.27. Based on the above, the following significance criteria were used to assess the significance of impacts of the operation of the Scheme on the noise climate of the NSRs:
- **Not significant** (no significant impact on the noise climate - a change of less than 3 dB to the background noise level);
 - **Minor significance** (a change of between 3 – 5 dB to the background noise level);
 - **Moderate significance** (a change of between 6 – 9 dB to the background noise level - such a change would be noticeable but would not usually give rise to widespread complaints); and
 - **Major significance** (a change of 10 dB or higher to the background noise level as assessed at the noise sensitive receptors - such a change is likely to adversely affect the sensitive noise receptors, and to give rise to widespread complaints).

IMPACT ASSESSMENT: NOISE

Potential impacts

- 6.28. The potential impacts associated with the Scheme include noise disturbance during construction and operation at the sensitive receptors.
- 6.29. Construction noise was scoped out of the assessment because of the temporary nature of the impact, the fact that the ‘construction’ mainly comprises installation of equipment and sensitive receptors are relatively far away from the installation.
- 6.30. In order to determine the cumulative noise of all the plant proposed to be installed, the sound pressure levels of all the plant was provided by the suppliers of the equipment and supplemented by on site measurements.
- 6.31. In terms of significant noise sources of the proposed installation, the noisiest equipment is the shredder. From data provided by the suppliers of the equipment it is apparent that there will be no additional noise generated by the creation of a storage area for clean bins, the establishment of a paint storage area, the fly ash silo, the sodium bicarbonate storage area, the storage area for pharmaceutical waste, and the area to be used for the cooling of bottom ash generated by the facility. Only

- minimal noise will be generated from the wastewater treatment plant, the wheel wash facility, the bin washing facility, and the storage area for clinical waste. The creation of an organised parking facility for employees and visitors will not produce additional noise as the installation is not expected to generate significant additional traffic movements.
- 6.32. The suppliers of the shredder provided noise information for it. However, the noise level provided refers to when the proposed machine is not shredding any material. This is not considered sufficient for the purposes of the assessment. Consequently, to obtain the measurements of the sound levels that the proposed shredder would generate when shredding, the consultants measured the noise level of the existing shredder that is located within the main incinerator building, and which has performance characteristics similar to the proposed shredder. The noise level was also measured when the machine wasn't working. Five minute measurements were taken.
- 6.33. The noise generated when the existing shredder was operating was 78 dBA at a distance of 5.6 metres from the shredder. It was also noted that the type of noise was not constant especially when material was being shredded – a banging noise was evident. When the shredder was off, the noise level at 5.6m from the shredder was approximately 70 dBA. It was further noted that outside the shredding room, at a distance of about 15 metres, the noise could not be heard.
- 6.34. Using data from the technical specifications of the Shredder, the worst case LA_{eq} at a distance of one metre from the shredder is 77 dBA. In order to take account of the impulse noise (i.e., the “banging” noise that is typical of the shredder when it is shredding material), BS4142:1997 section 8.2B recommends that 5dB are added to the sound pressure level. This gives the rating level at 1 metre from the shredder of 82dBA.
- 6.35. Since the shredder will be contained in a building, it is relevant to estimate the sound pressure level outside the building that would result from the shredder when it is operating. This is done by estimating the attenuation of the building. Assuming that the building is constructed using 10cm thick concrete blocks (as a worst case scenario), the sound level of the shredder at 1 metre from the façade of the sealed building is estimated to be 38dBA¹¹.
- 6.36. However, it is likely that sound will escape from the building and it is possible that the shredder could be operated with the door open; meaning that the attenuation afforded by the building itself will not be fully effective. It is estimated that at the open door of the shredder building, some 2 metres from the shredder, the sound pressure level will be 76dBA. This is based on the logarithmic relationship for the

¹¹ This is calculated using the Sound Transmission Class (STC) of a single layer of a 4 inch brick wall with no insulation. The STC of such a wall is 44 dBA (see <http://www.stcratings.com/masonry.html>). This means that this type of wall reduces the sound by 44 dBA.

- transmission of sound ($L_p = L_w - 20 \log_{10} r - 8$)¹², (with every doubling of distance the sound pressure level falls by 6 dB).
- 6.37. Using this same logarithmic relationship of attenuation over distance to estimate the noise at the sensitive receptor, the estimated noise level attenuates from 76dB(A) at the open door of the shredder to 28dBA at the noise sensitive receptor.
- 6.38. The operation of the proposed shredder will not, therefore, cause the background sound level at the noise sensitive receptor to change.
- 6.39. WasteServ, the operators of the TTF also confirmed that, as a result of the proposed additions to the facility as described in the Development Brief, additional traffic is likely to be in the order of 5 vehicles a day. Considering that the EIA was based on a traffic flow of 15-20 vehicles a day, the addition of another 5 vehicles is not expected to significantly affect the noise climate.
- 6.40. Taking account of the noise climate already pertaining at the TTF, as a worst case wherein the current shredder operates with open doors, results in a combined (current plus proposed) TTF sound emissions of 79dB(A). This sound level attenuates over distance to 31dB(A) at the noise sensitive receptor, which is significantly lower than the background noise level (L_{A90} 51 – 54dB(A) / 46 – 50dB(A) in 2012 and 2005 respectively).
- 6.41. The changes to the background noise level identified at the noise sensitive receptor were also applied to the other three noise monitoring points identified in the IPPC. These sensitive receptors are shown in **Figure 6.2**. Our surveys at the noise sensitive receptor (2012) showed that the background noise levels increased by up to 5dB(A) between 2005 and 2012. This increase is attributed to an increase in traffic resulting from traffic diversions associated with nearby road works; it is not attributed to TTF operations. Taking this into account and the fact that due to attenuation over distance noise from the TTF would not affect sound levels at the noise sensitive receptor, there are no grounds to review the 2005 background sound levels at the IPPC noise monitoring points.
- 6.42. The distance-attenuated combined sound levels of the current and proposed plant at the three noise monitoring locations are shown in **Table 6.4**. In all cases the worst case sound levels resulting from the operation of the current TTF and the proposed extensions thereto will not cause the background sound levels to increase. The impact is therefore judged to be not significant.

¹² Where L_p is the sound pressure level, L_w is the sound power level, and r is the distance.

Table 6.4: Predicted noise level at the 3 sensitive receptors

Location	Distance from Scheme	L _{A90} (as measured in 2005)	Predicted sound as a result of the TTF as its proposed extension (dBA)
Property on the corner of Triq Renfrew to the east of the Scheme	275 metres	53.8	31
		50.5	
School on Xatt il-Mallijiet to the west of the Scheme	170 metres	56.6 (daytime only)	37
Property on Triq it-Tigrija to the north west of the Scheme	470 metres	58.9	31
		55.7	

Conclusion

- 6.43. Taking a worst case scenario described above, the operation of the current and the proposed plant at the TTF is unlikely to cause the background noise level at the noise sensitive receptor to increase by 5dB(A).

Table 6.5: Summary of noise and vibration impacts

Predicted impact	Beneficial / adverse	Nature, scale and type of impact						Policy Importance	Probability of impact occurring (Likely/ unlikely/ remote/ uncertain)	Significance of Impact (Major / minor / not significant)	Proposed mitigation measures	Significance of residual impact (Major/ minor / insignificant)
		Excav'n/ Constr'n/ Oper'n	Extent of impact (nat/local /site)	Direct/ indirect	S'term/ l'term	Perm/ temp	Revers/ Irrevers					
Noise impact on sensitive receptors during operation	Adverse	Oper'n	Local	Direct	L'term	Perm	Revers	Local	Likely	Not significant	None Proposed	Not significant

7. EMISSIONS

CONSTRUCTION

- 7.1. Dust-related nuisance is assessed against the average PM₁₀ 24-hour limit value for the protection of human health, as set under *Directive 2008/50/EC* at 50µg/m³, which is not to be exceeded more than 35 times in a calendar year. The average annual limit value for the protection of human health is 40µg/m³.
- 7.2. Neither the EU nor Malta has legislation governing the deposition of dust from construction operations. The MEPA's *Minerals Subject Plan 2003* includes policies on dust amelioration related to quarry operations. These address sheeting Heavy Goods Vehicles (HGVs), wheel washing, surfacing / sweeping / watering of internal haul roads, and siting of plant and stockpiles (**POLICY DC15** and **POLICY DC18**). The *Environmental Management Construction Site Regulations 2007* (also discussed in **Chapter 5** of the EIA) includes similar provisions.
- 7.3. Data collection and estimation of dust entrainment present considerable difficulties, as acknowledged by MEPA in respect of a number of EIAs and other studies prepared by the consultants in the past.¹³

Area of Influence

- 7.4. MEPA's current approach is to secure a 100m buffer around quarries, on the basis that previous studies¹⁴ have shown that the majority of soft stone particulate emissions from a soft stone crusher were deposited within 100m of the emission source. Taking account of this, the Area of Influence (AoI) for the assessment of dust emissions was taken to be an area of 100m radius around the Scheme Site. This was also considered appropriate.

Construction emissions

- 7.5. The construction of the Scheme is likely to be completed within 12 months. The first six months will involve the construction *per se* including erection of shed and the remaining six months will include installation of equipment.
- 7.6. The main emissions during construction are likely to be dust and particulate matter generated during construction, or from the handling of construction materials. Emissions from construction vehicles and equipment are negligible.
- 7.7. The potential effects of particulates / dust are:
- Visual: dust plume, reduced visibility, coating and soiling of surfaces leading to annoyance, loss of amenity, and the need to clean surfaces; and

¹³ EIAs / studies prepared by Adi Associates Environmental Consultants Ltd for PA 1191/05, PA 03794/04, PA 00451/00, PA 00997/01, PA 01517/02, PA 04591/00, PA 2662/00 etc

¹⁴ *Environmental Planning Statement: PA5616/01 To sanction a softstone crusher and a concrete block making machine at Triq il-Belt Valletta, Mqabba*, Planning Services Consultancy 2003

- Health effects due to inhalation e.g. asthma, chest infections, or irritation of the eyes.
- 7.8. A number of other factors, such as the amount of precipitation and other meteorological conditions, will also greatly influence the amount of particulate matter generated or made airborne.
- 7.9. The majority of particles released from construction will be dust particles of diameter $>10\ \mu\text{m}$ (as opposed to PM_{10}). Dust particles greater than $10\ \mu\text{m}$ are likely to settle out relatively quickly and may cause annoyance due to their soiling capability. Previous work indicates that the majority of dust emissions typically settle within 100 metres of their source, and research shows that only 10% remain in the air at 400m away. There are no formal standards or criteria for nuisance caused by deposited particles; however, a deposition rate of $200\ \text{mg/m}^2/\text{day}$ is often presented as a threshold for serious nuisance, though this is usually only applied to long-term exposure, since people are generally more tolerant of dust for a short or defined period. Significant nuisance is likely when the dust coverage of surfaces is visible in contrast with adjacent clean areas, especially when it happens regularly.
- 7.10. Emissions of dust from site demolition, excavation and construction works are likely to occur during the construction phase of the Scheme. Given that there are no sensitive receptors within 100 metres downward of the Scheme, the impact of dust is likely to be not significant. The nearest residences are over 100 metres away and are to the south and west of the Scheme.
- 7.11. Notwithstanding, full commitment must be given to the implementation of the Environmental Management Construction Site Regulations (2007), including:
- A site manager will be appointed;
 - A site billboard / notice board will be erected;
 - Stone cutting will be undertaken in an enclosed area or using a dust extraction and collection system;
 - Loose building materials that are to be stored on site will be kept in sturdy, sealable containers;
 - Hoardings and barricades will be erected as described in Schedule II, Regulation 6;
 - Excavation will be carried out between Monday and Saturday, except public holidays, from 07:00 to 20:30;
 - Construction will be carried out on all weekdays, except public holidays, from 07:00 to 20:00, and 07:00 to 13:30 on Saturdays;
 - Dust emissions will be controlled as described in Schedule III of the Regulations;
 - The Site amenities (site office, waste management areas, storage areas, etc) will be located in a dedicated area on site; and

- Pedestrian and vehicular flow along the surrounding streets will not be interrupted. All excavation and building activity will be set back from street boundaries.
- 7.12. Schedule III of the Regulations require that the following dust mitigation measures are implemented:
- Application of water or pre-soaking and/or, chemical dust stabilizers or any other appropriate dust control technique, during construction in such a manner as to limit any generation of dust to within the site boundary;
 - Prior to leaving the site the owner must, on a daily basis, remove any spillages resulting from the construction activity along or across a public way;
 - Prior to leaving the site, the owner must ensure that on a daily basis public sidewalks and public areas within 10 metres from either side of the extremities of the construction site including sidewalks and roads are swept or vacuumed;
 - Paint chips, sanding residue, grit and dust must be prevented from coming into contact with storm-water runoff and surface water bodies;
 - Sanding activities must ensure that dust emissions are controlled by equipping all mechanical equipment with dust extraction and recovery systems and for outdoor areas – all areas be totally covered around the whole working area with material that must form a barrier against the emission of dust or particulate matter into the environment and for indoor areas – all external apertures must be boarded with an impermeable material that must form a barrier against the escape of fugitive dust emissions outdoors prior to commencing any sanding operations;
 - Mechanical fair facing of building stones is not permitted on site; and
 - Adequate facilities and measures must be undertaken to ensure that the site and its immediate vicinity are kept clean at all times during construction.
- 7.13. The mitigation measures outlined above would, in general, provide mitigation to reduce the potential impacts of the construction phase of the development.
- 7.14. It is anticipated that there will be residual impacts during the construction phase of the Scheme. This is a temporary impact for the duration of the construction phase. The significance of the residual impact is considered not significant.

ODOUR

- 7.15. As described in Chapter 4, the Scheme includes a number of odour abatement measures within the Scheme operation itself and also at the TTF. To control very strong odours, a fog installation system will be installed directly on the point of origin. The operating principle of this technology is by spraying Reverse Osmosis water through fine nozzles at very high pressure at 70bar. This will suppress dust and control odours. Furthermore, an air circulating system will be installed together with

Bulk Filter Vessels with activated carbon to eliminate odours generated inside the building. Air generated inside the waste treatment building will be circulated through the activated carbon filters to neutralise the odours.

- 7.16. Additionally, all doors of the Facility will include automatic shutter doors that will be closed at all times and only opened when employees need to access the site; air curtains will ensure that air that may be odorous will remain inside the building and will be re-circulated through the activated carbon filters.
- 7.17. These measures will ensure that odours do not reach the sensitive receptors. Odour impacts are therefore deemed to be not significant.

TRAFFIC EMISSIONS

- 7.18. MEPA's guidelines for the preparation of the EIA update include the following requirement:
- *Air quality given the likely increase in trips to and from the site during the operational phase*
- 7.19. As discussed in Chapter 6, traffic as a result of the Scheme is likely to increase only by about two vehicles a day (in addition to the current 15-20 daily vehicle trips). This increase is minimal and unlikely to generate any impact on air quality in the area. It is also noted that the trips are spread throughout the day.

SURFACE WATER RUNOFF

- 7.20. With regards to surface water runoff, the fact that treatment of waste will take place in enclosed sheds avoids generation of contaminated surface water runoff. Roof water is collected in a dedicated reservoir for reuse while contaminated runoff will go to the wastewater treatment plant as described below.
- 7.21. The operators of the TTF advise that there are different types of spillages. Major and minor spillages are defined in the Environmental Management System (EMS) document reference TTF_EP02_Emergency Preparedness & Response Procedure. A major spill is defined as a spill of volume greater than 25 litres whereas a minor spill is a spill of less than 25 litres. This EMS document details the procedures for spills. The responsibilities of the personnel at the TTF including the Facility Manager, the Operations and Plant Manager, the Head of Shift, and all the operators are detailed in the Emergency Preparedness & Response Procedure. The procedures to follow in case of a spill are summarised below.
- 7.22. When there is spillage of hazardous liquid waste, the liquid waste is stored in fire vaults or bunded areas at the solvents platform which are locked. There are spill kits which are used to control spills. Training by the Civil Protection Department to all employees at the TTF has been provided; the training addressed hazards from spills.
- 7.23. Chemicals in stores are kept on spill trays to reduce the probability of spills getting to the drains. Contaminated material such as absorbent used to control spills can be incinerated on site.

- 7.24. With regards to blood leaks, the blood is washed with water and this ends in the waste water treatment plant that will be installed as part of the Scheme.
- 7.25. The construction of the waste water treatment plant is therefore intended to treat different waste streams generated from the TTF, not just from the Scheme. Spillages will also be directed to the Waste Water Treatment Plant so that all emissions to the sewer will be in line with the requirements of Legal Notice 139 of 2002.

Table 7.1: Summary of impacts from emissions

Predicted impact	Beneficial / adverse	Nature, scale and type of impact						Policy Importance	Probability of impact occurring (Likely/ unlikely/ remote/ uncertain)	Significance of Impact (Major / minor / not significant)	Proposed mitigation measures	Significance of residual impact (Major/ minor / insignificant)
		Excav'n/ Constr'n/ Oper'n	Extent of impact (nat/local /site)	Direct/ indirect	S'term/ l'term	Perm/ temp	Revers/ Irrevers					
Impact of dust from construction on sensitive receptors	Adverse	Constr'n	Local	Direct	S'term	Perm	Revers	Local	Likely	Minor	Implementation of the Environmental Management Construction Site Regulations (2007)	Not significant

Odour emissions	Adverse	Oper'n	Local	Direct	S'term	Perm	Revers	Local	Likely	Not significant	Installation of a fog system Installation of an air circulating system together with Bulk Filter Vessels with activated carbon Use of activated carbon filters in waste water treatment plant Automatic shutter doors Air curtains	Not significant

8. SUMMARY OF KEY IMPACTS, INTERACTION BETWEEN IMPACTS AND MITIGATION

INTRODUCTION

- 8.1. The purpose of this chapter is to provide a summary of the key environmental impacts, their interaction and cumulative effects, and their mitigation. The chapter addresses the requirements set out in MEPA's guidelines to address cumulative impacts. The chapter concludes with a summary of the mitigation measures proposed in the EIA Update.

SUMMARY OF KEY IMPACTS

- 8.2. **Chapters 6 and 7** of the EIA update describe the predicted impacts of the Scheme in relation to noise and vibration and emissions, in accordance with the environmental topic areas identified in MEPA's guidelines.
- 8.3. For each predicted impact, an assessment has been made as to whether the impact is likely to be of major or minor significance, or of no significance; the criteria that were used to judge significance are described in each of the chapters. Predicted major and minor impacts have been identified, and, in the case of negative impacts, there is a description of how these could be mitigated. All the residual impacts identified are summarised in **Table 8.1** at the end of this chapter.
- 8.4. No major impacts have been identified during the assessment.

INTERACTION OF IMPACTS

- 8.5. The interaction of impacts primarily concerns the potential cumulative nature of disturbance to the Scheme, particularly during its construction and operation. The EIA Update has identified no major impacts, and it has therefore been concluded that disturbance is likely to be not significant. It is however still proposed that measures are implemented during operation as described above, for example for the control of spills and odour.

CUMULATIVE IMPACTS

- 8.6. The various impacts identified in **Chapters 6 and 7** are not expected to create particular cumulative impacts in themselves. Should other major new developments establish at the same time as the Scheme, particularly, should their construction phases overlap, there is the potential for their cumulative impacts in relation to disturbance to residents to adversely impact on the area around the Scheme Site. Having said this, there are no major developments either currently under construction in the vicinity of the site, nor in the pipeline in the near future.

MITIGATION

- 8.7. The EIA Update reports the findings of the EIA, in accordance with the ToR. The assessment in relation to noise and vibration and emissions has addressed the specific

requirements of the guidelines (as no MEPA ToR were issued) and, where appropriate, mitigation measures have been recommended; these are described at the end of **Chapters 6** and **7**, respectively. It would be appropriate for, and it is recommended that, these mitigation measures be taken account of in the conditions of any eventual development permit.

Table 8.1: Summary of impacts

Predicted impact	Beneficial/ adverse / neutral	Nature, scale and type of impact						Policy Importance	Probability of impact occurring (Likely/ unlikely/ remote/ uncertain)	Significance of impact (major, minor, not significant)		Proposed mitigation measures	Significance of residual impact (Major/ minor/not significant)	
		Constr'n / oper'n	Extent of impact (nat/local/ site)	Direct/ indirect	S'term/ l'term	Perm/ temp	Revers/ irrevers			Legislation	Scheme context			
Emissions														
Dust impact on users of site / surrounding land uses arising from construction of Scheme	Adverse	Constr'n	Local	Direct	S'term	Temp	Revers.	Local	Likely	Air quality legislation	Minor to not significant	Compliance with Environmental Management Construction Site Regs	Not Significant	
Odour impact on residential sensitive receptors arising from operation of the Scheme	Adverse	Oper'n	Local	Direct	L'term	Perm	Revers.	Local	Likely		Not significant	Air curtains and activated carbon filters	Not significant	
Noise and vibration														
Noise impact on sensitive receptors arising from of Scheme	Adverse	Constr'n	Local	Direct	S'term	Temp	Revers.	Local	Likely	n/a	Not significant	None proposed	Not significant	



**PROPOSED DEVELOPMENTS COVERED BY THE DEVELOPMENT BRIEF FOR
THE THERMAL TREATMENT FACILITY AT MARSA**

**ENVIRONMENTAL IMPACT ASSESSMENT UPDATE -
ADDENDUM**



Version 1: July 2013



Report Reference:

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Quality Assurance

Proposed Developments Covered by the Development Brief for the Marsa Thermal Treatment Facility Environmental Impact Assessment Update - Addendum July 2013

Report for: **WasteServ Malta Ltd**

Revision Schedule

Rev	Date	Details	Written by:	Checked by:	Approved by:
00	July 2013	Submission to MEPA	Rachel Xuereb Director	Adrian Mallia Director	Adrian Mallia Director

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EA 00023/12: Thermal Treatment Facility (TTF) at Triq il-Biccerija/Triq Garrick, Albert Town, Marsa

Response to comments of the Malta Environment and Planning Authority (MEPA) on the first draft of the Environmental Impact Assessment Update

17th July 2013

1. MEPA Comments

No.	Page	Para.	MEPA Comment	Adi Associates' Response dated 10 th July 2013	MEPA Response dated 11 th July 2013
Detailed Comments					
1	5, 37	2.2, 5.2	EIA Regulations, 2007 as amended by Legal Notice 438 of 2012.	Noted, thank you.	Noted.
2	5	2.6	Please note that the 'Area of Influence' for the baseline surveys were not agreed beforehand with MEPA.	Kindly note that the noise survey was undertaken as part of the IPPC requirements. A method statement was prepared by Adi Associates and this was submitted to MEPA. The Method Statement was agreed to by MEPA (as part of the IPPC permitting process).	Noted, however this should have been clearly explained in the EIA Update. In addition, even though a method statement was submitted as part of the IPPC application, method statements and proposed consultant/s should have been referred prior to the commencement of the EIA Update, as per standard good practice and in line with the EIA Regulations, 2007, as amended, with respect to the approval of individual consultants (Reg. 46d).
3	9	3.4	Kindly note that MEPA certifies an EIA not accepts or approves one.	Noted, thank you.	Noted.
4	10	3.5	Full reference to Directive 2008/98/EC	Noted, thank you.	Noted.

5	11 and 12	3.7 and 3.10	should have been provided in the report. Kindly amend typo error which states: 'Error! Bookmark not defined'.	Noted, thank you.	Noted.
6	53	6.1	The locations of the sensitive receptors were not agreed beforehand for this EIA Update with MEPA.	Kindly note that the noise survey was undertaken as part of the IPPC requirements. A method statement was prepared by Adi Associates and this was submitted to MEPA. The Method Statement was agreed to by MEPA (as part of the IPPC permitting process).	Noted, however this should have been clearly explained in the EIA Update. In addition, even though a method statement was submitted as part of the IPPC application, method statements and proposed consultant/s should have been referred prior to the commencement of the EIA Update, as per standard good practice and in line with the EIA Regulations, 2007, as amended, with respect to the approval of individual consultants (Reg. 46d).
7	54	6.9-6.10	The noise consultants were never proposed for the approval of MEPA. As per usual practice, consultants are to be referred to MEPA for their approval or otherwise prior to conducting any studies or assessments.	Kindly note that the noise survey was undertaken as part of the IPPC requirements. A method statement was prepared by Adi Associates and this was submitted to MEPA. The Method Statement was agreed to by MEPA (as part of the IPPC permitting process).	In accordance with the EIA Regulations, 2007, as amended (Reg. 46d), the EIA Coordinator is requested to submit a list of individual consultants prior to the commencement of the EIA Update for approval, as per usual practice. Given that the proposed consultants and method statement has been agreed as part of the IPPC permitting process, Ms. Rachel Xuereb under the supervision of Mr. Kevin Morris are

						being accepted to carry out the noise impact study for this proposed development.
8		55	6.18	Provide a brief description of the weather conditions.	Weather conditions were good, wind was under 3 knots, direction west and temperature ranged from 9°C to 18°C depending on the time of survey. 14 th December 2011	Noted.
9		59	6.22	Provide the date/s when the recorded sound levels were undertaken on site.		Noted.
10		63	6.39	Which EIA is it being referred to? Is it the EIA undertaken for PA 2201/01 or the previous EIA Update undertaken in 2007?	It refers to the EIA Update in 2007.	Noted.
11		67-69	Chap. 7	The EIA Update does not identify the consultant who carried out the Air Quality study. As per usual practice, consultants are to be referred to MEPA for their approval or otherwise prior to conducting any studies or assessments.	As stated in the beginning of the EIA update, Rachel Xuereb undertook all sections of the EIA update.	In accordance with the EIA Regulations, 2007 as amended (Reg. 46d), the EIA Coordinator is requested to submit a list of individual consultants prior to the commencement of the EIA Update for approval, as per usual practice. Ms. Rachel Xuereb is being accepted as the air quality consultant for this proposal given that the proposed system (autoclave) is a closed one and that no additional studies were required (only a qualitative study and no quantitative studies were asked for) for air quality, as part of the IPPC permitting process.
12		/	/	Further details in the EIA Update are required with regards to Health Impact given that this was initially on of MEPA's requirements (Pg. 1-2).	Health impacts are addressed in Chapter 7 where dust and odour are considered. Noise impacts as they relate to humans are discussed in Chapter 6.	Noted.

						No further health impacts are anticipated.	
13	8.7	75	Kindly note that no TORs were issued for the EIA Update.			Noted.	Noted.
NTS /General	/	/	The NTS does not mention anything regarding cumulative impacts resulting from the proposed development.			Since there are no cumulative impacts (see para 8.6 of the EIA Update), none are mentioned.	Noted.

2. Consultees' Comments

A. Environmental Health Directorate

Environmental Health Directorate Comments		Adi Associates' Response dated 10 th July 2013	
Applicant is to adopt best practice methods together with good site practices and ensure compliance with Environmental Management Site Regulations during Phase 11 of the project (demolition, excavation and construction phase) and to implement all proposed mitigation measures so as to cause least nuisance and mitigate adverse air impacts especially from dust dispersion, on nearby sensitive receptors in the Area of Influence and on the general public. Hence the importance of drawing up and implementation of a Construction Management Plan to ensure adherence to proper site management practices to mitigate adverse construction impacts during the construction phase and to ensure safety measures. Monitoring of construction works is also highly recommended so as to ensure implementation of all necessary mitigation measures and adherence to work practices throughout all the phases of the project. Adequate, safe and proper handling of raw materials on site should also be ensured.		Noted. This is more relevant to MEPA in terms of permit conditions.	
In view of the temporary nature of the impact, construction noise was scoped out of the assessment and noise impact during operation was assessed as being not significant while no vibration impacts are being envisaged during construction and operation of the Scheme. However the necessary mitigation measures are to be implemented should any		Noted. This is more relevant to MEPA in terms of permit conditions.	

unpredicted noise and vibration impacts arise both during construction and operation phase.	
With regards to odour emissions during operation, it is pertinent that all proposed odour abatement measures are in place to eliminate /control odours generated at different locations at the facility.	Noted. This is more relevant to MEPA in terms of permit conditions.
<p>The thermal treatment facility should be operated in accordance to the requirements of the relevant Directives and Regulations and all categories of Animal By-Products are to be strictly treated and disposed of in accordance with the relevant Animal By-Products Regulations. The IPPC permit conditions (including any further conditions which may be imposed) especially the emission limit values based on the Best Available Techniques, are to be adhered to at all times.</p> <p>All other waste such as paints, pharmaceuticals etc. incinerated at the facility, chemicals used, wastes from the incineration process and all generated waste streams are to be stored, separated and disposed of safely through the appropriate facilities and according to the necessary permits/licences. With regards to removal and disposal of any hazardous waste, adherence to regulatory codes and procedures and due diligence should be ensured.</p>	Noted. This is more relevant to MEPA.
It is also pertinent that surface water runoff be carefully managed and properly channelled and that adequate measures are taken to ensure that no water from wheel wash facilities and any general cleaning/washing runs off the site.	Noted.
Roof water collected in reservoir should not be used for human consumption or personal use.	Noted.
In the case of any spillages especially spillage of hazardous liquid waste, the relevant procedures are to be strictly followed so as to prevent adverse health impacts.	Noted.

It is recommended that all proposed mitigation measures regarding adverse impacts arising from this proposal are to be strictly implemented by applicant to mitigate any significant adverse health effects and nuisances on on-site workers, sensitive receptors in the Area of Influence and the general public.	Noted. This is more relevant to MEPA in terms of permit conditions.
The possible health effects of any residual impacts that cannot be mitigated should also be taken into consideration. Moreover any other unpredicted impacts and nuisances which may arise from this project and that may have a significant adverse effect on public health should be immediately addressed by the applicant and the necessary mitigation measures taken. Cumulative impacts should also be taken into consideration.	Noted. This is more relevant to MEPA in terms of permit conditions.
Complaints lodged by the public regarding any adverse impacts/nuisances should be immediately addressed by the applicant. All complaints lodged and actions taken are to be recorded and such records are to be readily available to the Competent Authorities when requested.	Noted. This is more relevant to MEPA in terms of permit conditions.

B. Malta Resources Authority

MRA Comments	Adi Associates' Response dated 10th July 2013
Pg 48 of document I states that "The Scheme will not result in any discharges into groundwater as all waste water will be collected and treated prior to discharge..." , hence in view to groundwater issues the MRA has no additional comments.	Noted.