



IP 0006/13

WEEE TREATMENT FACILITY AT WEEE RECYCLE 4U COMPANY LIMITED, HAL FAR

APPLICATION FOR IPPC PERMIT

VOLUME 1: IPPC APPLICATION FORMS



Version 6: April 2020



Report Reference:

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Quality Assurance

WEEE Treatment Facility at WEEE Recycle 4U Company Limited, Hal Far
Application for IPPC Permit: Volume 1
 March 2020

Report for: WEEE Recycle 4U Company Limited

Revision Schedule

Rev	Date	Details	Prepared by	Reviewed by	Approved by
00	Nov. 2015	Submission to client	Rachel Decelis Consultant	Rachel Xuereb Director	Adrian Mallia Managing Director
01	Nov. 2018	Consolidated IPPC application	Rachel Decelis Senior Consultant	Rachel Xuereb Director	Adrian Mallia Managing Director
02	May 2019	Final consolidated IPPC application	Rachel Decelis Senior Consultant	Rachel Xuereb Director	Adrian Mallia Managing Director
03	Jan. 2020	Update to company name	Rachel Decelis Senior Consultant	Rachel Xuereb Director	Adrian Mallia Managing Director
04	Mar. 2020	Update to company address, site boundary	Rachel Decelis Senior Consultant	Rachel Xuereb Director	Adrian Mallia Managing Director
05	Apr. 2020	Updated permitting status	Rachel Decelis Senior Consultant	Rachel Xuereb Director	Adrian Mallia Managing Director

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PART A

Form IPPC Part A – application for a permit, variation, transfer or surrender**For Malta Environment & Planning Authority Use Only**

Data received

Fee received: Yes No

Amount received

Name assigned to installation

 **Application for a permit, variation, transfer or surrender****Integrated Pollution Prevention and Control (IPPC)**

Industrial Emissions (IPPC) Regulations 2013

Introduction to Part A**When to use this form**

Use this form if you are sending an application to the MEPA under the Industrial Emissions (IPPC) Regulations, 2013.

The form is to be used for applications made in respect of both 'installations' and 'mobile plant' (and in the rest of the form, the term 'installation' also covers 'mobile plant' where appropriate).

Before you start to fill in this form

There may be two or more operators in a single installation. Each operator will need a permit, each obtained by a separate application. Your applications will principally relate to the part of the installation under your control, but will also need to include some information on the rest of the installation. This will help us to assess the operation of the whole installation. The term "installation", when used in this application form (and elsewhere) may refer to either the whole or part of the installation, depending on the nature of the information we are seeking to obtain.

Which parts of the form to fill in

The form is in five parts but we usually only send you the parts you need to fill in. Everyone has to fill in Part A, and prepare and sign a covering letter at the end of their application.

The other parts you need to fill in depends on the type of application you are making:

- To apply for a new permit – fill in Parts A and B;
- To vary an existing permit – fill in Parts A and C;
- To transfer all or part of an existing permit to someone else – fill in Parts A and D. This should be a joint application by the transferor and the transferee;
- To surrender all or part of an existing permit – fill in Parts A and E.

Other documents we need to see

There are a number of other documents you will need to send us with your application. Each time a request for documents is made in the application form you will need to record a document reference number for the document or documents that you are submitting in the box provided on the form for this purpose.

Please also mark the document(s) clearly with this reference number and either the application reference number if you know it or your existing permit number. If you do not have either of these, please use the name of the installation.

If you know your Application Reference Number, please enter it into the box below:

Using continuation sheets

In the case of questions required to be answered on the application form itself, please use a continuation sheet if you need extra space; but please indicate clearly on the form that you have done so by stating a document reference number for that continuation sheet. Please also mark the continuation sheet itself clearly with the information referred to above.

Copies

Please submit 1 hard copy and 1 soft copy of the application form and all supporting information. A soft copy of the application form must also be submitted to the consultees identified in Regulation 19(2) of Legal Notice 10 of 2013. A signed delivery note must be enclosed with the application to MEPA.

If you need help and advice

We have made the application form as straightforward as possible, but please get in touch with us on tel: 2290 7229 or 2290 7231 or email: ippc@mepa.org.mt if you need any advice on how to set out the information we need.

A1 About your application

A1.1 What type of application are you making?

- new permit
- variation of an existing permit
- transfer of an existing permit
- surrender of an existing permit

A1.2 Name of the installation

WEEE Recycle 4U Company Limited

Please tell us if this name is:

- already agreed with the MEPA; or
- one that you are proposing.

A1.3 Please give the address of the site of the installation, and a map or plan showing the site of the installation and the location of the installation on the site

Street Address	HHF 040	
	Hal Far Industrial Estate	
Locality	Hal Far	Post Code BBG 3000

Appendix 1: Site plan.

A1.4 Give details of any existing permit(s) for the installation.

Please give details of any applicable waste management licences, planning permits, environmental permits or sewer discharge permits. Include permit number(s), type(s) and date(s) of issue, and submit copies.

Appendix 2: ERA and PA Permits / Applications:

- Environmental Permits: EP 009/10/K. EP 033/18/A
- End-of Waste Permit for wood: EoW 001/15 (an updated end-of-waste application, including retesting of wood, will be submitted to ERA once the new site is operational)
- Planning permits: PA 0441/16 & PA 05335/18, PA 6212/19 (only the non-executable permit has been issued so far)

Appendix 4: Sewer discharge application

A2 Authorised contacts

It will help us to have someone who we can contact directly with any questions about your application. The person you name should have the authority to act on your behalf.

A2.1 Who can we contact about your application?

This could be an agent rather than the operator.

Name

Charles Galea

Position

Director

Address

Street Address	WEEE Recycle 4U Company Limited	
	93	
	Old Railway Road	
Locality	St Venera	Post Code SVR 9014

Phone Number 21445190 / 99496645

Fax Number 21445188

Email address elecpro@eplmalta.com

A2.2 Operational contact

If different to the above, please identify the person we should contact to discuss operational matters on an ongoing basis.

Name

Charles Galea

Position

Director

Address

Street Address	WEEE Recycle 4U Company Limited	
	93	
	Old Railway Road	
Locality	St Venera	Post Code SVR 9014

Phone Number 21445190 / 99496645

Fax Number 21445188

Email address elecpro@eplmalta.com

A3 About the operator

Please provide the information requested below about the 'operator', which means:

- for applications for a new permit – the person who it is proposed will have control over the installation in accordance with the permit (if granted),
- for applications for a variation, transfer or surrender – the person who currently has control over the installation in accordance with the permit.

If you are applying for a transfer, we will ask for more information relating to the proposed new operator (transferee) in Part D.

Legal status of operator

A3.1 Is the operator an individual, a group of individuals, a partnership or a company/corporate body?

- Individual (sole trader) or group of individuals: go to question A3.2.
- Partnership: go to question A3.3.
- Company or corporate body: go to question A3.5.

Individual applicants

A3.2 Please give us the following details.

Where more than one person is applying (other than as a partnership) we need details of each person.

Continue on separate sheets if necessary.

Full Name	
<input type="text"/>	
ID Card/Passport No.	
<input type="text"/>	
Trading/business name (if any)	
<input type="text"/>	
Business address	
Street Address	<input type="text"/>
	<input type="text"/>
	<input type="text"/>
Locality	Post Code
<input type="text"/>	<input type="text"/>
Phone Number	
<input type="text"/>	

Fax Number
<input type="text"/>

Email address
<input type="text"/>

Now go to question A4, What to do next.

Applications from partnerships

A3.3 Who is applying?

We can only issue permits to named individuals, not to a partnership name. We therefore need details of each person in the partnership.

Continue on separate sheets if necessary.

Person	
Full Name	
<input type="text"/>	
ID Card/Passport No.	
<input type="text"/>	
Principal place of business	
Street Address	<input type="text"/>
	<input type="text"/>
	<input type="text"/>
Locality	Post Code
<input type="text"/>	<input type="text"/>

Contact Numbers	
Phone Number	
<input type="text"/>	
Fax Number	
<input type="text"/>	
Email address	
<input type="text"/>	

Person	
Full Name	
<input type="text"/>	
ID Card/Passport No.	
<input type="text"/>	
Principal place of business	
Street Address	<input type="text"/>
	<input type="text"/>
	<input type="text"/>
Locality	Post Code
<input type="text"/>	<input type="text"/>

Contact Numbers

Phone Number

Fax Number

Email address

Person

Full Name

ID Card/Passport No.

Principal place of business

Street Address	
Locality	Post Code

Contact Numbers

Phone Number

Fax Number

Email address

A3.4 Please give us the following details about the partnership.

Name of partnership (if there is one)

Principal place of business

Street Address	
Locality	Post Code

Contact Numbers

Phone Number

Fax Number

Email address

Now go to question A4, What to do next.

Companies or other corporate applicants

A3.5 Please give us the following details.

Full name of company or corporate body.

WEEE Recycle Ltd

Trading/business name (if different)

n/a

Registered office address

Street Address	93
	Old Railway Road
Locality	St Venera Post Code SVR 9014

Company registration number

C 72396

Date of formation of company

1st October 2015

- For applications from companies, please provide a copy of the certificate of incorporation or registration and any certificates of subsequent name changes.

Document reference number

Appendix 3: Company Registration Certificate

- For applications from other corporate bodies, please provide evidence of status.

Document reference number

n/a

A3.6 Is the operator a subsidiary of a holding company?

No

Yes name of ultimate holding company

--

Registered office address

Street Address		
Locality		Post Code

Principal office address (if different)

Street Address		
Locality		Post Code

Company registration number

--

A4 What to do next

Now you need to fill in the other Parts of this form available online.

If you are applying for

- A new permit – fill in Part B;
- A variation – fill in Part C;
- A transfer – fill in Part D;
- A surrender – fill in Part E.

PART B

Form IPPC Part B: Application for a New Permit



For MEPA use only

Application reference:

Use this part of the form if you are applying for a new permit. Please read carefully Appendix I attached with this application.

B1 About the installation

Please fill in the installation table below with details of all the activities and operators at the whole installation, even if you are applying for a permit in respect of only part of the installation.

In **Column 1: Activities in “the stationary technical unit”**, please describe all activities listed in Schedule 1 of the Industrial Emissions (IPPC) Regulations that are proposed to be carried out.

For **Directly associated activities**, please identify any directly associated activities proposed to be carried out on the same site which:

- have a technical connection with the activities in the stationary technical unit; and
 - could have an effect on pollution.
- These could include, for example, boilers, generators, water purification systems, scrubbers and other air purification systems.

In **Column 2: Annex I references**, write the category the installation falls under in Schedule 1 of the Industrial Emissions (IPPC) Regulations (LN 10 of 2013), e.g. 1.1, 5.3(b)(i).

In **Column 3: Operator**, write the name of the operator for each activity (if you are the operator yourself, write “Applicant”).

B1.1 The installation and its activities

COLUMN 1 Activities in the “stationary technical unit”	COLUMN 2 Schedule 1 references	COLUMN 3 Operator
Storage of Waste Electrical and Electronic Equipment (WEEE) and batteries	5.5	WEEE Recycle 4U Co. Ltd
Directly associated activities		
Degassing of certain WEEE		WEEE Recycle 4U Co. Ltd
WEEE dismantling		WEEE Recycle 4U Co. Ltd
Crushing of non-hazardous recyclable waste		WEEE Recycle 4U Co. Ltd
Breaking of CRT screens		WEEE Recycle 4U Co. Ltd
Fluorescent tube crushing		WEEE Recycle 4U Co. Ltd
Storage of wood		WEEE Recycle 4U Co. Ltd
Maintenance of vehicles		WEEE Recycle 4U Co. Ltd

B1.2 Non-technical summary

Please provide a non-technical summary of the proposed installation activities.

Document reference number:

B1 About the installation *continued*

B1.3 Why is the application being made?

- the installation is new;
- it is an existing installation for which a 'substantial change' is proposed which would necessitate an IPPC permit;
- the installation is existing (in operation before 7 January 2013) and did not require a permit under the IPPC Regulations, LN 234/02 but requires an IPPC permit under the Industrial Emissions (IPPC) Regulations (LN 10/13).

B1.4 Site maps and reports

Please provide:

B.1.4.1

A site report, providing a history of the site (including current and past uses) and describing the condition of the site of that part of the installation in respect of which you are applying for a permit, and, in particular, identifying any substance in, on or under the land which may constitute a pollution risk. A baseline report assessing the state of the groundwater and land may also be required by the Authority.

Document reference number for the report:

Volume 2, Chapter 2; Volume 3: Land & groundwater risk assessment

B1.4.2

A suitable map (or maps) showing the location of the site of the installation, and the area of the site covered by the site report and which an IPPC permit is being applied for. The outline of the site should be clearly marked in colour, and the surroundings of the site should be included in the map.

Document reference number for map(s):

Volume 2, Chapter 2

B1.4.3

Suitable block plans, properly labelled, showing the location and nature of the various activities being proposed on that site.

Document reference number for plans:

Volume 2, Chapter 2

All maps and plans submitted shall be to scale, using a scale rule. Soft copies of plans should be submitted in .pdf format only.

B2 Your proposed techniques

B2.1 Environmental Management System

Provide details of your proposed management techniques and environmental management system (EMS). An EMS can take the form of a standardised system (e.g. EN ISO 14001:1996; EMAS) or a non-standardised ("customised") system, provided that is properly designed and implemented.

Document reference number:

Volume 2, Chapter 3

B2.2 Proposed activities

B2.2.1 Describe the proposed installation activities.

Document reference number:

Volume 2, Chapter 3

B2.2.2 Describe the proposed techniques and measures to prevent and reduce waste and emissions of substances and heat (including during periods of start-up or shut-down, momentary stoppage, leak or malfunction).

Document reference number:

Volume 2, Chapter 3

B2.2.3 Submit a flow diagram summarising the proposed installation activities.

Document reference number:

Volume 2, Chapter 3

B2.2.4 Include a comparison of the proposed activities with relevant BAT conclusions published by the European Commission, where these have been published.¹

Document reference number:

Volume 2, Chapter 3

B2.2.5 Include an outline of the main alternatives considered to the proposed technology, techniques and measures.

Document reference number:

Volume 2, Chapter 3

¹ Available from <http://eippcb.jrc.es/reference/> and/or <http://ec.europa.eu/environment/air/pollutants/stationary/ied/implementation.htm>

B2 Your proposed techniques *continued*

B2.3 Raw materials

Identify the raw and auxiliary materials, and any other substances that you propose to use, including fuels.

Give details of quantities proposed to be used annually and submit respective MSDS sheets.

Identify the storage location of these materials on a site layout plan and give details on:

- Maximum storage capacity;
- Containment measures (including bunding capacity, where applicable);
- Protective measures (including security).

Document reference number:

Volume 2, Chapter 3

B2.4 Ozone depleting substances and fluorinated greenhouse gases

Provide a list of equipment using ozone depleting substances and fluorinated greenhouse gases, with a fluid charge of 3 kg or more.

For each equipment, identify the type of equipment (hermetically-sealed systems, fixed systems or mobile systems), its use (firefighting, refrigeration/air-conditioning or high-voltage switchgear), charge (in kg) and the type of substance (e.g. R22, R407c, R134a).

Document reference number:

Not applicable – none planned.

B2.5 Maintenance

Provide a proposed maintenance programme for the installation, and a template for keeping records of maintenance.

Document reference number:

Volume 2, Chapter 3

B2.6 Energy

B2.6.1: Provide a breakdown of the proposed annual energy consumption, highlighting the main energy-consuming equipment, and generation by source and end-use (including information on energy generated on site, if applicable).

B2.6.2: Describe the proposed basic measures for improvement of energy efficiency.

Document reference number:

Volume 2, Chapter 3

B2.7 Water

Provide a breakdown of the proposed annual water consumption by source and end-use.

Document reference number:

Volume 2, Chapter 3

B2.8 Risk assessment

Describe the documented system proposed to be used to identify, assess and minimise the environmental risks and hazards of accidents and their consequences.

Include:

- (a) emergency plans in case of fire and other emergencies (e.g. explosions);
- (b) plans for actions to be taken in case of failure of abatement equipment;
- (c) plans for actions to be taken in case of other environmentally relevant incidents (e.g. spillages, gas leakage).

Provide certification from a competent company or engineer that the relevant fire safety procedures and equipment are in place.

Certification and fire plans shall include the presence of emergency firefighting water supplies for use by the Civil Protection Department.

Document reference number:

Volume 2, Chapter 3

B2.9 Training

Please submit a proposal for a training programme and a proposed template for keeping training records. Please submit the name of the technically competent person on site who will be responsible for such training.

Document reference number:

Volume 2, Chapter 3

B2 Your proposed techniques *cont.*

B2.10 Cessation

Submit an outline decommissioning plan describing the draft proposed measures upon definitive cessation of activities, to avoid any pollution risk and return the site of the installation to a satisfactory state (including relevant measures for the design and construction of the installation). This plan shall include:

- A qualitative assessment of the potential for contamination of land and groundwater pollution which might arise from the historical and current processes carried out at the installation.
- A draft waste management strategy including:
 - The identification and characterisation of sources, types of wastes (including equipment, tanks, fuels and by-products);
 - Criteria for segregation of wastes;
 - Proposed treatment, conditioning, transport, storage and disposal/recovery methods;
 - Potential reuse/recycling of such wastes.

Document reference number:

Volume 2, Chapter 3

B2.11 Multi-operator installations

Where you are not the only operator of the installation, describe the proposed techniques and measures (including those to be undertaken jointly by yourself and other operators) for ensuring satisfactory operation of the whole installation.

Document reference number:

Not applicable

B3 Your proposed emissions

B3.1 Waste²

B3.1.1: Characterise (using the European Waste Catalogue code, in accordance with LN 184 of 2011 as amended³) and quantify each waste stream from the installation.

Document reference number:

Volume 2, Chapter 4

² For installations carrying out waste management activities (activities listed in "Section 5: Waste management" of Annex I of the Industrial Emissions Directive), please use this section to document both incoming and outgoing waste.

³ <http://www.mepa.org.mt/file.aspx?f=6289>.

B3 Your proposed emissions *cont.*

B3.1.2: Describe the proposed measures for waste management, storage and handling. Indicate the storage location of wastes on a site layout plan and give details on:

- Maximum storage capacity;
- Containment measures (including bunding capacity, where applicable);
- Protective measures (including security).

Document reference number:

Volume 2, Chapter 4

B3.1.3: Describe how each waste stream is, in order of priority and in accordance with Directive 2008/98/EC, prepared for re use, recycled, recovered or disposed of. If you propose any disposal, explain why recovery is technically and economically impossible and describe the measures planned to avoid or reduce any impact on the environment.

Give details on authorised disposal/recovery facilities proposed to be used for each waste. If any on-site recovery of waste is proposed, provide details.

For each waste, give details on off-site transportation, including registered waste carriers/brokers to be used.

Document reference number:

Volume 2, Chapter 4

B3.2 Emissions to Groundwater

Could there be a discharge to groundwater from the installation?

Yes No

If yes, explain how the requirements of the Protection of Groundwater against Pollution and Deterioration Regulations (LN 108 of 2009) have been addressed, and submit a map showing the proposed location of such emissions.

Document reference number:

B3 Your proposed emissions *continued*

B3.3 Emissions to Sewer

B3.3.1: Does the installation have (or is proposing to have) a sewer connection?

Yes No

Please submit a block plan of the site, showing the proposed layout of sewer connections and any other drains (colour-coded), as well as the proposed discharge point(s).

Document reference number:

B3.3.2: Does the installation have (or is proposing to have) a cesspit?

Yes No

Please provide certification by an independent, warranted engineer showing that the cesspit is in line with the requirements of Schedule 1 Activity 43 of LN 106 of 2007 (as may be amended).

Document reference number:

To be provided after construction

B3.3.3: Does the installation have a Sewer Discharge Permit?

Yes No

Please submit a copy of the permit, or of the submitted application if the permit has not yet been issued.

Document reference number:

Appendix 4

B3.3.4: Could the installation involve the release of any Schedule A or Schedule B substance into the sewers?

Yes No

If yes, explain how the requirements of LN 139 of 2002 have been addressed.

Document reference number:

Chapter 4

B3.4 Emissions to the Sea

Identify if there may be a direct discharge to coastal (up to 1 nautical mile from the coast line) or territorial waters.

Yes No

If any are identified, explain how the requirements of the Discharge of Dangerous Substances Regulations (LN 213 of 2001) and the Water Policy Framework Regulations (LN

194 of 2004 as amended by LN 24 of 2011) have been addressed.

Include details of the source, any treatment proposed prior to discharge, composition and maximum volumes (in m³/day) discharged.

Document reference number:

In addition, please submit a block plan of the site, showing the proposed discharge point to the sea. Indicate the geo-referenced coordinates for discharge to sea.

Document reference number:

B3.5 Rainwater

Describe how rainwater is handled on site. Attach a site drainage map indicating rainwater capture and harvesting/discharge.

Document reference number:

Volume 2, Chapter 4

B3.6 Emissions to Air

Identify if there may be emissions of substances to air.

Yes No

If any are identified, submit details of each emission point, the nature and the proposed quantities of substances emitted from each point and treatment/abatement measures. A block plan of the site showing each emission point should be submitted.

For each boiler/generator, submit the following details: rated thermal input, energy output, date of manufacture, stack height, fuel type and annual fuel consumption.

Document reference number:

Volume 2, Chapter 4

B3 Your proposed emissions *continued*

B3.7 Odour emissions

Identify if there may be emissions of odour.
Yes No

If any are identified, submit details of the main sources of odour, and the proposed techniques and measures for control of odour.

Document reference number:

B3.8 Emissions to Land

Identify if there may be emissions of substances to land.
Yes No

If any are identified, submit details of the nature and the proposed quantities of substances emitted to land, as well as a map showing the proposed location of such emissions.

Document reference number:

B3.9 Noise

Describe:

B3.9.1: The main sources of noise and vibration (including infrequent sources) of the proposed installation;

B3.9.2: The proposed techniques and measures for control of noise;

B3.9.3: The nearest noise sensitive locations and distance away from the site (a site map shall also be submitted for this purpose); and

B3.9.4: Relevant environmental noise measurement surveys which have been undertaken (monitoring shall be according to the latest revisions of ISO1996 and the rating of industrial noise affecting residential areas shall be according to BS 4142; monitoring shall be carried out exclusively using type 1 sound level meter).

Document reference number:

Volume 2, Chapter 4

B3.10 Monitoring

Describe the proposed measures for monitoring emissions including any environmental monitoring. The following must be specified:

B3.10.1: The location of each proposed monitoring point (plotted on a suitably-labelled block plan of the site);

B3.10.2: The substances (in each environmental medium) which are proposed to be monitored;

B3.10.3: The frequency with which monitoring is proposed to take place;

B3.10.4: The proposed measurement methodology, which should be a standard methodology, such as EN or ISO standard, or equivalent;

B3.10.5: The proposed procedure for evaluation of the results.

Document reference number:

Volume 2, Chapter 4

B3.11 Emissions & waste summary

By means of a mass flow diagram, summarise the emissions and waste described in sections B3.1, B3.2, B3.3, B3.4, B3.6, and B3.8 of this application.

Document reference number:

Volume 2, Chapter 3 (section B2.2.3)

B4 Impact on the environment

B4.1 Environmental effects

Provide an assessment of the potential significant environmental effects (including transboundary effects) of the foreseeable emissions.

Document reference number:

Volume 2, Chapter 5

B4.2 Effects on other sites

Provide an assessment of whether the installation is likely to have a significant effect on another site in Malta and, if it is, provide an assessment of the implications of the installation for that site.

Document reference number:

Volume 2, Chapter 5

B5 Environmental statements

B5.1 Environmental statement

Has the development of the installation (or any subsequent change or extension of the development) required an environmental statement (EIS or EPS) under LN 204 of 2001 on the assessment of the effects of certain public and private projects on the environment?

Yes No

If yes, please supply a copy of the environmental statement submitted and details of any decision made.

Document reference number:

Volume 2, Appendix 5

B6 Statutory consultees

We will use the information in this section to identify who we must consult about your proposals.

B6.1 Local council

In which area is the installation located? If premises are on a boundary please give the names of all the relevant authorities.

Birżebbuġa

B6.2 Other sites

Are there any other sites which may be affected by emissions from the installation? (Refer also to your answer to B4.2).

Yes No

If yes, please give the names of the sites:

B6.3 Port Authority

Could the installation involve the release of any substance into a harbour managed by a port authority?

Yes No

If yes, please name the port authority:

B7 Planning status

B7.1 Planning status

Which of the following applies to the proposed installation activities?

We cannot issue a permit unless one of the following applies. Please tick the applicable answer and submit a copy of the relevant documents.

You have planning permission.

Document reference number:

Appendix 2

You have a certificate of lawful existing use or development.

Document reference number:

Planning permission is not required - please say why and enclose written confirmation from the Planning Directorate at MEPA.

Document reference number:

If you have submitted an application for planning permission which has not yet been determined, please provide a copy of the application.

Document reference number:

B8 Technically competent person

Technically competent person

We need to make sure that whoever holds the permit is a 'technically competent person'. This includes consideration of relevant offences, technical competence and financial provision.

B8.1 Relevant offences

Has the operator, or any other 'relevant person' been convicted of any relevant offence?

A 'relevant person' includes each partner, director, manager, company secretary or any similar officer or can be an employee, such as a proposed technically competent person.

Yes No

Please provide a recent police conduct certificate for the nominated technically competent person/s.

Document reference number:

Appendix 6

B8.2 Technically competent management

Who will provide the technically competent management for the installation?

Please give details for each person and provide written evidence.

Responsible person 1:

Full Name: Charles Galea
Position: Managing Director
Date of employment: May 2007 (EP Ltd)
Mobile number: 99496645

Document reference number for copies of CV and relevant qualifications:

Appendix 7

Responsible person 2:

Full Name: Collins Kyereme
Position: WEEE Operator and TCP
Date of employment: June 2013 (EP Ltd)
Mobile number: 9907 6176

Document reference number for copies of CV and relevant qualifications:

Appendix 7

B8 Technically competent person cont.

Responsible person 3:

Full Name:
Position:
Date of employment:
Mobile number:

Document reference number for copies of CV and relevant qualifications:

Responsible person 4:

Full Name:
Position:
Date of employment:
Mobile number:

Document reference number for copies of CV and relevant qualifications:

B8.3 Management of other installations

Are any of these 'Responsible people' already providing the technically competent management at other IPPC installations or at sites licensed under the environmental provisions of the Environment and Development Planning Act, 2010?

Yes No

If yes, please use a separate sheet to give details of these people. For each person we need to know the:

- site/installation name and address;
- licence/permit reference number.

Document reference number for this information:

Appendix 8

B9 Expenditure plan

B9.1 Expenditure plan

Please provide a plan of the estimated expenditure for each phase of the following specified activities.

The plan should include the likely costs of:

- monitoring (emission/discharge and ambient monitoring);
- clearing the installation (including drainage systems) of all wastes;
- remedial action in the event of the failure of pollution control systems.

We recognise that this plan may need to be revised before the issue of the final permit.

Document reference number for expenditure plan:

Appendix 9

B10 What to do next

Please read Appendix I, then prepare and sign a covering letter to attach to your application form.

Appendix I Data Protection Clause

In terms of the Data Protection Act (Chapter 440 of the Laws of Malta), we will process any personal and/ or sensitive data supplied on/ in this submission or subsequently supplied by yourself, whether orally or in writing, for all or any of the following purposes:

1. The proper processing of your submission;
2. Internal management, research and statistics;
3. The protection and promotion of our legitimate interests and the proper conduct of our obligations arising under any law or statutory instrument; and
4. To make public the necessary information as specified in the relevant law and/or instrument.

Relevant data will be disclosed or shared as appropriate with all our employees and with other third parties if pertinent to any of the purposes listed above.

You have the right to require that we provide you with access to your **personal data** as well as the right to rectify, or, in appropriate circumstances, erase/edit any inaccurate, incomplete or immaterial personal data which is being processed. However, you are required to inform us immediately of any alterations relating to your personal data which we are processing.

By sending your submission, you confirm that you are giving your explicit consent, in terms of the Data Protection Act, on behalf of yourself and all the other persons specified in this submission for the Authority to process your respective personal information as outlined above and you confirm that you have brought this Data Protection notice to the attention of these other persons and obtained their respective consents.

We undertake to implement appropriate measures and safeguards for the purpose of protecting the confidentiality, integrity and availability of all personal data processed.



Appendix 1: Site Plan



Location of site

Legend

Site boundary

IPPC application for WEEE Recycle 4U Co. Ltd,
Hal Far



Map by: en-sure monitoring

Client: Mr. Charles Galea

Ref:ES_WEE001

File ref:IPPC\WEEE Recycle

Date: 3 / 2020



Appendix 2: ERA and PA Permits / Applications

Environmental Permit

Environment Protection Act (CAP. 549)

Permit number

EP 009/10/K

The Environment and Resources Authority (hereinafter the Authority; the Competent Authority or ERA) in exercise of its powers under the Environment Protection Act (CAP. 549) hereby authorises:

Electronic Products Ltd.

Company registration number: **C 21306**

(hereinafter “the Operator” or “the Permit Holder”),
Of / Whose Registered Office (or principal place of business) is at

**93, Old Railway Track,
Santa Venera**

to carry out waste management activities related to WEEE at:

**Garages 12, 27 & 28
Ta' Maggi,
Industrial Zone
Zabbar**

to the extent authorised by and subject to the conditions of this Permit.

This permit is valid for **two (2) years** from the date below. An application for renewal of this permit is to be submitted at least six weeks prior to expiry of this permit.

Signed

Date

Prof Victor Axiak Chairman	Permit Issued: 14 / 05 / 2018
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Authorised to sign on behalf of the Competent Authority

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Conditions

1 General

The Permitted Installation shall, subject to the conditions of this Permit, be managed, controlled and operated as described in the Application, or as otherwise previously agreed in writing by the Authority.

Status Log

Detail	Date
<i>Application EP</i>	11 May 2010
<i>Permit Issued</i>	26 August 2010
<i>Permit Variation</i>	30 March 2011
<i>Permit Variation</i>	01 August 2011
<i>Permit Variation</i>	26 March 2013
<i>Permit Renewal</i>	25 September 2013
<i>Permit Variation</i>	08 July 2014
<i>Permit Renewal</i>	18 August 2015
<i>Permit Variation</i>	20 October 2015
<i>Permit Renewal</i>	28 January 2016
<i>Permit Renewal</i>	08 November 2016
<i>Permit determined by ERA Board</i>	11 May 2018

1.1 Permitted Activities

1.1.1 The Operator is authorised to carry out the activities and the associated activities specified in Table 1.1.1.

Activity	Description of specified activity	Limits of specified activity
Storage of waste fluorescent tubes and bulbs	Storage of waste florescent tubes and bulbs	From receipt of storage waste to dispatch of waste to authorised facilities either locally or abroad
Storage and dismantling of Waste Electrical and Electronic Equipment (WEEE)	Storage and dismantling of specified types of WEEE as per condition 2.2.1 including but not limited to degassing of units containing refrigerant gases excluding dismantling of unit carcasses containing insulation panels	From receipt of waste to dispatch of dismantled WEEE components to authorised facilities either locally or abroad
Treatment of Waste Electrical and Electronic Equipment (WEEE)	Treatment of specified types of WEEE as per condition 2.2.1, 2.2.5, 2.2.6 and 2.2.7	From receipt of waste to dispatch of treated WEEE components to authorised facilities either locally or abroad

Recovery of refrigerant gases from refrigeration circuits and extraction of waste compressor oil from WEEE refrigeration equipment and air conditioning units	Extraction of refrigerant gases from WEEE and extraction of waste compressor oil. The process includes the separation of the resultant gases and oils into separate fractions for disposal, resale or reuse.	From extraction of gases and storage in specified refillable containers to either disposal at a Commission approved destruction facility or for resale/reuse as recovered refrigerant (HFC R134a only) From extraction to storage and dispatch of extracted compressor oil to authorised facilities either locally or abroad.
Storage of waste batteries	Storage of waste batteries with EWC codes as specified in the permit	From receipt of waste to dispatch of waste batteries to authorised facilities either locally or abroad.

1.2 Site

- 1.2.1 The activities authorised under condition 1.1.1 shall not extend beyond the garages indicated by the Operator (garages 12, 27 & 28) at Ta' Maggi Industrial Park, at the facility shown on the Site Plan & Site Map in Schedule 2 to this Permit.

1.3 General Conditions

- 1.3.1 The conditions and obligations of this permit are without prejudice to any other regulation, code of practice, conditions or requirements requested by other Authorities or entities, including but not limited to, the Planning Authority, Occupational Health and Safety Authority, Transport Malta and the Malta Resources Authority.
- 1.3.2 This permit is granted saving third party rights. The Permit Holder is not excused from obtaining any other permission required by law.
- 1.3.3 In these conditions and their interpretation, all terms shall have the same meaning as that assigned to them in Subsidiary Legislation 549.63, the Waste Regulations.
- 1.3.4 The Permit Holder is to be legally responsible and accountable for managing the site in all its various aspects, thus ensuring that the waste management activity for which he has been granted a permit is carried out in accordance with the provisions as per Subsidiary Legislation 549.63 as amended, and other related legislation, as well as all the conditions of this permit.
- 1.3.5 The site must be well secured to minimise the opportunity for unauthorised entry. An employee is to be present at all times during the operational hours of the facility; and the premises must be closed and secured when no operations are taking place on site.
- 1.3.6 The company shall maintain a register of third party complaints. The register shall record the name and address of the complainant(s), the date, location, source and nature of the complaint and the corrective action undertaken, where such action proves necessary.

- 1.3.7 All plant, equipment and technical means used in operating the Permitted Installation shall be maintained in good operating condition and without causing significant polluting emissions, potentially polluting leaks and spillages. The operator shall keep maintenance records as per section 4.3.
- 1.3.8 The Permitted Installation shall be managed, controlled, supervised and operated by staff who are aware of the importance of environmental protection and suitably trained on the requirements of this Permit, in particular on those permit conditions relevant to their duties. All staff shall be provided with adequate training and written operating instructions to enable them to effectively carry out their duties. Such training shall be recorded as per condition 4.3.3.
- 1.3.9 The Authority may, on the joint application of an operator and a proposed transferee, transfer to the proposed transferee the environmental permit the transfer of the permit will also necessitate the transfer of environmental obligations and liabilities.
- 1.3.10 The Authority shall carry out regular compliance checks that vary in frequency according to the site's compliance with the permit conditions. Any such checks carried out by the Authority may be made at the Permit Holder's financial expense.
- 1.3.11 The Authority's representatives are empowered to inspect every part of the site and ask for any closed or locked areas to be opened. They are also entitled to be given any proof, documentation, plans, receipts or any other records which these Authority representatives may request.
- 1.3.12 The Authority may add, amend substitute or revoke any of the conditions of this permit after notifying the Permit Holder of its intention and after describing the changes to the Permit Holder. This, without prejudice to any prevailing circumstances that would preclude the Authority from following such a procedure.
- 1.3.13 The validity of this permit is until **14 May 2020**. The Permit Holder is able to renew the permit upon application with the Authority expressing his/her intention at least six (6) weeks prior to the expiry of the permit. The permit will be considered renewed once the official renewed permit is issued by the Authority.
- 1.3.14 This permit is issued against a bank guarantee of **€6,100 (Financial Guarantee Number G38TFC50731 dated 09 February 2018)** which shall be renewed annually. This guarantee will have to be maintained throughout the lifetime of the permit. Following renewal and/or variations to this permit, the Authority may require amendments to the Bank Guarantee.
- 1.3.15 The Authority may take part or all of the bank guarantee if the Permit Holder fails to take the necessary action, in cases of non-compliance with these permit conditions, the Act or any subsidiary legislation thereof, or in cases where environmental integrity is threatened. This bank guarantee is without prejudice to any environmental liabilities that may ensue through failure to adhere with permit conditions or any other works/activity carried out on site. Should the Authority forfeit the Bank Guarantee either in part or in full, the operator shall ensure that this is replenished without undue delay.
- 1.3.16 A copy of this permit shall be available at all times at the site office, including any Variation Notices or amendments to it.
- 1.3.17 The Authority may suspend or revoke this environmental permit or part of this environmental permit where significant mismanagement of the site is observed or any of the permit conditions are not respected after a written warning is given by the Authority or in any eventuality that gives the Authority enough reason to suspend or revoke this permit.
- 1.3.18 The operator may apply with the Authority for the release of the Bank Guarantee, which shall be released subject to the full compliance of the permit conditions, as confirmed by the Authority.

1.3.19 The Authority may request monitoring and/or review of operational practices and/or commission audits on the installation as deemed necessary to address any circumstances that may affect quality of the surrounding environment. Any required monitoring and/or audits shall be carried at the expense of the Permit Holder.

1.3.20 Without prejudice to condition 1.3.19, the authority may take any action deemed necessary including but not limited to the suspension of any activity/operation until investigations are concluded.

1.4 Operational Changes

1.4.1 The operator may apply for a variation in permit and shall seek the Authority's written agreement prior to any operational changes, by sending to the Authority

- a) Written notice of the details of the proposed change, including an assessment of its possible effects (including changes in emissions and waste production) on risks to the environment from the Permitted installation;
- b) Any relevant supporting information (e.g. chemical/fuel consumption, technical details, changes in the type/use of substances/mixtures, etc.);
- c) Any relevant supporting assessments and drawings, and;
- d) The proposed implementation date.

1.4.2 Any such change shall only be implemented following the issue of a variation of the permit by the Authority.

1.5 Improvement Programme

1.5.1 The Operator shall complete the improvements specified in Table 1.5.1 by the date specified in that table.

Table 1.5.1: Improvement programme		
Reference	Requirement	Deadline
1	Submission of methodology for the handling and storage of fluorescent tubes, bulbs and CRTs on site. This methodology is also to include a contingency procedure in the event of breakage of fluorescent tubes, bulbs and CRTs whilst handling and storage as per conditions 2.2.5 and 2.2.6.	Within 3 months of issue of permit

2. Site Infrastructure and Operations

2.1 Site Infrastructure

2.1.1 During non-operating hours the site shall be firmly closed and totally inaccessible to third parties, both by vehicle and on foot.

2.1.2 The designated quarantine area is to be maintained within the site boundary to temporarily hold unpermitted waste that may enter the site (refer to Section 3). A non leaking skip or similar contained structure can be utilised for the temporary storage of unpermitted waste.

- 2.1.3 All handling, storage and treatment of materials or waste shall take place only in areas with impervious ground and where thorough clean up and site reinstatement can be readily undertaken.
- 2.1.4 The site shall be clearly identified by a site identification board, which shall be replaced as soon as it is damaged or the information is no longer readable from a distance. The site identification board shall be located at the site entrance and shall contain the following information:
- a. The company name and address
 - b. Permit Holder's name
 - c. List of authorised activities on site
 - d. 24 hour emergency mobile number
 - e. Permit Number (making it clear this site is permitted by the Authority)
 - f. Opening hours of the site
- 2.1.5 Only equipment as indicated during the application process can be used on site. Any changes will require a variation to this permit and authorization from the Authority.
- 2.1.6 The infrastructural set up of for the WEEE storage and treatment areas shall be carried out in compliance with the technical requirements set out in Schedule 8 of Subsidiary Legislation 549.89, the Waste Management (Electrical and Electronic Equipment) Regulations. As a minimum all the listed requirements have to be implemented at the permitted facility.

2.2 Permitted Operations on Site

- 2.2.1 Only waste streams as set out in the European Waste Catalogue codes in Schedule 1 can be accepted and processed on site, according to the approved methods as set out during the application process.

With regards to WEEE, no treatment or recovery of the WEEE accepted on site is to be carried out with the exception of dismantling and separation. Only the following type of WEEE may be accepted and dismantled on site:

- Toner cartridges;
- Vending machines;
- Monitors and TV sets;
- Small household appliances;
- Large household appliances (except for fridges & freezers);
- Computers, computer towers & related IT equipment.

Fridges, freezers and geysers may also be accepted on site for storage prior to export only (no processing may take place). All other types of WEEE are strictly prohibited.

- 2.2.2 Small equipment (Category 5) as per Schedule 3 and Schedule 4 of Subsidiary Legislation 549.89, the Waste Management (Electrical and Electronic Equipment Regulations, as amended can also be accepted and processed on site. Equipment falling under any other category of this Annex, apart from those listed in 2.2.1 cannot be accepted or processed on site.
- 2.2.3 In the case of WEEE containing refrigerant gases, only storage, and removal of gases and waste compressor oils is allowed, as set out in Section 3.2.2 of this permit and as specified in the waste codes set out in the permit.
- 2.2.4 Insulation panels which could potentially contain fluorinated greenhouse gasses or ozone degraded substances shall not be dismantled but sent in their entirety to a facility permitted to accept such waste.

- 2.2.5 WEEE containing Cathode Ray Tubes (CRTs) may only be treated using the same methodology as submitted as part of the application to vary the permit and within the designated area on site. A method statement on the storage of this waste including a contingency procedure for accidental breakage whilst handling and storage prior to treatment is to be submitted for the approval of the Authority as per Table 1.5.1.
- 2.2.6 In the case of fluorescent tubes, only storage is allowed. No dismantling or crushing of these items may take place. A method statement on the storage of this waste including a contingency procedure for accidental breakage whilst handling and storage is to be submitted for the approval of the Authority as per Table 1.5.1.
- 2.2.7 WEEE materials being treated in the "E-Scrap" machinery are limited to small household appliances. No materials containing hazardous components such as fluorescent bulbs or mercury switches can be treated using this equipment.
- 2.2.8 The total combined quantity of WEEE, fluorescent tubes, waste batteries and any other hazardous waste arising from these processes stored at the permitted facility shall not exceed 49 tonnes at any given time. The operations on site are to strictly abide by the site layout plan for operations (processing and any storage) in the permitted garages as indicated during the renewal process of this permit.
- 2.2.9 Storage of waste batteries is to be carried out indoors (not open to the elements) in areas with impermeable ground in order to facilitate the clean up of potential spills.
- 2.2.10 Storage and dismantling of toner cartridges and vending machines is to be carried out according to the method statements submitted to the Authority during the application process.
- 2.2.11 The Permit Holder is to ensure that the waste is organised into the designated areas, labelled and visible physical delineation of the waste storage areas shall be put in place.

3. Operating Conditions

3.1 Emissions

3.1.1 Emissions to Air

- 3.1.1.1 No emissions to air shall take place from the Permitted Installation.
- 3.1.1.2 The processing of CRT units must be contained in an approved enclosed space with an appropriate filtration system as approved by ERA.
- 3.1.1.3 All abatement equipment, units utilised to degas WEEE and ducting (including filters) shall be cleaned, maintained, and where necessary, replaced, on a regular basis and according to manufacturer specifications.

3.1.2 Effluent Discharges

- 3.1.2.1 No discharges to surface water or groundwater shall take place from the Permitted Installation
- 3.1.2.2 No discharges to the foul sewer (other than from domestic sewage or equivalent) shall take place from the Permitted Installation.
- 3.1.2.3 The Operator shall undertake all necessary measures and precautions to prevent spillage of raw materials, intermediates, products, waste and any other materials.

- 3.1.2.4 All process and storage areas must be appropriately contained.
- 3.1.2.5 Rainwater shall not be discharged into the sewer. Foul sewer drains must be strictly segregated from storm water drains.

3.1.3 Emissions to Land

- 3.1.3.1 No emission from the Permitted Installation shall be made to land.
- 3.1.3.2 In the event of contamination of land, the operator shall notify the Authority within 24 hours, forward a decontamination plan for the Authority's approval and execute it within an agreed time frame.

3.2 Waste

3.2.1 General Waste Acceptance, Storage and Handling

- 3.2.1.1 The Permit Holder shall apply the precautionary principle to safeguard the environment whilst carrying out the permitted activities and shall immediately refuse the entry of waste that is suspected to be in breach of the conditions of this permit.
- 3.2.1.2 The Permit Holder shall ensure that all waste management operations authorised in accordance with this Permit are carried out in an orderly manner and in such a way as to cause the least possible disturbance to the surroundings and the least possible adverse impact to third parties.
- 3.2.1.3 All wastes shall be stored within their designated and controlled storage area(s) prior to ultimate disposal. Any waste that is rejected as part of the processing of waste and/or any unpermitted wastes that may inadvertently enter the site must be stored in a clearly defined and contained quarantine area (Condition 2.1.2) and not be mixed with other wastes on site.
- 3.2.1.4 All wastes leaving the site after storage and/or processing must only be sent to facilities licensed to accept the individual waste stream, either locally or abroad.
- 3.2.1.5 No storage of waste destined for disposal is permitted for a period exceeding 12 months.
- 3.2.1.6 No storage of waste destined for recovery is permitted for a period exceeding 3 years.
- 3.2.1.7 Should the operator wish to process other types of WEEE besides those indicated during the variation application process, the operator must obtain another variation to permit from the Competent Authority prior to any further WEEE types being accepted or processed on site.
- 3.2.1.8 No waste shall be handled beyond the boundary of the permitted garages. Storage, processing or repackaging of waste in the common area of the industrial complex is strictly prohibited. Movements of packaged waste outside of the permitted garage within the common area of the industrial complex for the purpose of loading may not commence prior to the arrival of the truck/container on site.
- 3.2.1.9 The Operator shall maintain records of the weight of each waste consignment received and/or removed from the site, and such data is to be collected using a properly calibrated scale. Operator is to submit details of the scale used, together with its location and calibration details. Records of waste weighed prior to loading

onto the vehicle from the point of collection may be accepted in lieu of on site weighing.

- 3.2.1.10 The Permit Holder shall ensure to issue a receipt/certificate for every consignment of wastes accepted and removed on Site indicating the date and time of the consignment and the weight of the waste received. Each receipt/certificate shall indicate the site name and permit number, as well as bearing a unique sequential number. Where applicable, this also applies to any Recycling Certificates issued by the operator.
- 3.2.1.11 Drums and containers of waste compressor oils and gases shall be stored in designated and secure storage areas (in closed containers to avoid release of ODS or f-gas). Any recovered refrigerant gas shall not be stored in disposable containers. Storage areas shall be bunded or otherwise designed so that surface and ground waters cannot be contaminated by spillages. Should drip trays be used in lieu of a fixed bunded structure, the drip trays must be able to hold at least 25% of the total storage capacity of the drums.
- 3.2.1.12 Only registered waste carriers as per activity 38 of schedule 1 of Subsidiary Legislation 549.45, the Waste Management (Activity Registration) Regulations are allowed to transport waste to and from this site.
- 3.2.1.13 All wastes leaving the site after storage and/or processing must only be sent to facilities licensed to accept the individual waste stream, either locally or abroad. In this regard, the Operator shall only make use of disposal/recovery sites that are duly permitted by the Competent Authority, as set up in Subsidiary Legislation 549.63, the Waste Regulations or by authorized waste management facilities abroad.
- 3.2.1.14 Transboundary movement of waste shall be carried out in accordance with the following regulations, as amended from time to time:
- (a) Regulation (EC) N° 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste;
 - (b) Commission Regulation (EC) N° 1418/2007 of 29 November 2007 concerning the export for recovery of certain waste listed in Annex III or IIIA to Regulation (EC) N° 1013/2006 of the European Parliament and of the Council to certain countries to which the OECD Decision on the control of transboundary movements of waste does not apply, and
 - (c) Any other applicable legislation.
- 3.2.1.15 All hazardous waste transferred off the site shall be accompanied by a valid hazardous waste Consignment Permit issued by ERA. Each consignment under the consignment permit shall be accompanied by a Consignment Note.
- 3.2.1.16 Hazardous wastes shall be stored in a labelled, closed container(s) within a designated and controlled storage area(s) prior to ultimate disposal. Wastes of different natures shall not be mixed in the same container.
- 3.2.1.17 Disposal certificates shall be kept on record and made available for inspection for a period of at least 4 years from date of their issue.
- 3.2.1.18 The operator shall strictly adhere to the Method Statements for the WEEE facility submitted as part of the application process. Any change in this method statement shall be subject to approval by the Authority.
- 3.2.1.19 Only refrigerant gas R134a can be collected for resale. All other refrigerant gases collected from the degassing of WEEE and from the oil filtering equipment must be exported as waste to a Commission approved destruction facility. Such facilities must

be in line with destruction technologies listed in Annex 7 of EC Regulation No. 1005/2009.

3.2.2 Waste Treatment

- 3.2.2.1 All degassing and extraction of waste oils from compressors from processing of refrigeration equipment and air conditioning units shall be undertaken on an impermeable pavement or in self contained and or bunded area.
- 3.2.2.2 No carcass destruction of WEEE shall be carried out on site other than those mentioned in the Degassing Method Statement dated 07 April 2014 in the application process.
- 3.2.2.3 All plant and all equipment used on site utilised in connection with specified waste management operations shall be operated and maintained with the objective of preventing potentially polluting leaks and spillage of wastes.
- 3.2.2.4 Each tank, drum or other mobile container used to hold wastes associated with the operation of the plant (particularly refrigerant gases and oils) shall be clearly and unambiguously labelled regarding its contents, unless the contents are clearly identifiable by visual inspection as well as inspected and maintained as per condition 3.2.2.8 below.
- 3.2.2.5 In the event of damage or deterioration to a container that is, or is likely to cause, a leak, that container shall be repaired or replaced immediately as per condition 3.2.2.8 below.
- 3.2.2.6 Loading and unloading of waste refrigeration equipment shall be undertaken in a manner to prevent release of ODS and fluorinated greenhouse gases.
- 3.2.2.7 Containers for storage of refrigerants and residual materials shall be inspected daily for leaks.
- 3.2.2.8 Containers found to be leaking shall either be immediately transferred to a larger over-container or shall have their contents immediately transferred to an alternative container.
- 3.2.2.9 Containers used for refrigerant gas intended for resale must be refillable and in line with Directive 2010/35/EU on transportable pressure equipment.
- 3.2.2.10 Minor spillages of waste compressor oil shall be cleaned up immediately.
- 3.2.2.11 In the case of major spillages of waste compressor oil which are causing or are likely to cause polluting emissions to the environment, immediate action shall be taken to contain and clean the spillage and prevent liquid from entering surface water drains and impermeable ground.
- 3.2.2.12 Products and equipment containing ozone depleting substances (ODS) and fluorinated greenhouse gases (F-Gas) shall be transported to the site in such a way so as not to damage parts which contain such substances. The permit holder shall conform with this condition from the point of collection of such equipment until all ODS and F-Gases are extracted from this equipment and stored for destruction.
- 3.2.2.13 All installation, maintenance and servicing of equipment containing Fluorinated Greenhouse Gases shall abide by the requirements of Regulation (EU) No 517/14 on fluorinated greenhouse gases and repealing Regulation (EC) No. 842/06, Commission Regulation (EC) Nos 1516/07, 304/08, 306/08, 307/08, 1191/14, 2065/15, 2066/15, 2067/15, 2068/15, 876/16 and Subsidiary Legislation 549.55, the Regulations on Certain Fluorinated Greenhouse Gases.

- 3.2.2.14 For all equipment installed on site utilising Ozone Depleting Substances or Fluorinated Greenhouse Gases, information pertaining to installation, maintenance and servicing shall be provided when any equipment is replaced by new equipment. The authority shall be notified in this regard and details provided on the new equipment installed.
- 3.2.2.15 Upon decommissioning of all equipment containing substances falling within the scope of EC Regulation No. 1005/09 on substances that deplete the Ozone Layer and Subsidiary Legislation 549.58, the Regulations on substances depleting the ozone Layer, together with Regulation (EU) No 517/14 on fluorinated greenhouse gases and repealing Regulation (EC) No. 842/06. In instances where such substances are utilised in foam and insulation panels, the waste gas shall be treated as hazardous waste and any foam containing components needs to be disposed of at specialised facilities where possible ODS/ F gas can be extracted prior to disposal.
- 3.2.2.16 Drainage of the refrigeration cooling system shall be undertaken in a manner that results in the removal of 99% of the oil and refrigerant from the cooling circuit and compressor being collected and stored in a sealed container.
- 3.2.2.17 Upon removal of waste compressor oil from the cooling system it shall be placed immediately in a suitable sealed container to prevent fugitive loss of controlled substances.
- 3.2.2.18 Following the drainage of the cooling system the compressor unit shall be removed from the refrigerator unit and placed into a sealed container.
- 3.2.2.19 The operator shall strictly adhere to the works method statement as submitted to the Authority as part of the application and variation processes. Any change in this works method statement shall be subject to an application for a variation of the permit.
- 3.2.2.20 Processing as per conditions 3.2.2.16 – 3.2.2.19 shall be undertaken in a manner to ensure fugitive emissions from the degassing of the refrigeration cooling system are collected.
- 3.2.2.21 Waste oils collected from WEEE received on site, must be stored and treated according to oil type. No mixing of different oils is permitted at any stage of the process (i.e. prior to filtering, within the machinery, or following removal from machinery for reuse, resale or disposal).
- 3.2.2.22 At least one (1) suitable work station for dismantling of WEEE must be set up, equipped with the necessary tools and proper component segregation bins.

4. Site Management

4.1 Staff obligations and Responsibilities

- 4.1.1 All employees authorised by the Permit Holder to undertake the waste management activities on his/her behalf, shall be fully conversant with the obligations of this permit and shall be individually aware of their responsibilities and liabilities in observing the conditions of this permit. They shall be provided with adequate professional technical development and training and written operating instructions to enable them to effectively carry out duties.
- 4.1.2 One member of the staff shall be nominated as the Technically Competent Person (TCP) of the site, whereby this person is to physically represent the Permit Holder during the times when the Permit Holder will not be available.

- 4.1.3 The TCP is responsible for the implementation of all the obligations stipulated in this permit, must supervise the rest of the staff on site and is completely responsible to ascertain that all permit conditions are being adhered to and that unauthorised waste does not enter the site.
- 4.1.4 In the event of any short or long periods of sick leave or vacation leave taken by the TCP, for a period exceeding 10 days, the Permit Holder is obliged to find a replacement for that member of staff without delay.
- 4.1.5 All the staff on site shall be fully aware of the procedures to be taken to contain any environmental hazard, which may arise related to the activities being carried out on site.

4.2 Accident Prevention and Control

- 4.2.1 The submitted Emergency Response Plan shall be maintained containing details of the location, nature and quantity of chemicals, oils and fuels stored, any special hazards, a drawing showing location of drains and the emergency phone numbers of the operator and relevant authorities. It shall also include actions to be taken in the case of incidents which could affect the environment, such as fires and chemical/fuel spills. The emergency plan shall indicate that accidental releases of chemicals and fires caused by chemicals are to be managed as specified in the respective MSDS sheets.
- 4.2.2 In the case of an accident (including fire, chemical spills, etc.), the Operator shall follow the Emergency Response Plan referred to in Condition 4.2.1 and, in the case that such accident could be regarded as causing environmental damage or as posing a threat of environmental damage, the Operator shall notify the Authority and CPD within 24 hours.

4.3 Site Records & Archive

- 4.3.1 A site daily operations log shall be kept on site in which the following information shall be recorded on a daily basis:
 - (a) Total amount of waste in kilos accepted on site
 - (b) Total amount of waste in kilos removed from site for disposal or further treatment
 - (c) Total amount of waste in kilos refused entry on site
 - (d) Total amount in kilos of unaccepted material sent to the quarantine area and by which registered waste carrier it was transported
 - (e) Copies of consignment notes used for waste received/removed from site
 - (f) Any incidents that took place on site such as mechanical faults in the machinery or equipment used on site, any spills, fires, etc and the remedial action taken
 - (f) Names of visitors to the site
 - (g) Any other incidents that the Permit Holder deems important to record.

Each record shall be compiled within 24 hours of the relevant event. The records kept in the site operations log shall be made available for inspection at any time when the Authority representatives request to inspect them.

- 4.3.2 The Operator shall ensure that all records required to be made by this Permit and any other records made by it in relation to the operation of the Permitted Installation shall:
 - (a) be made available for inspection by the Authority upon request;
 - (b) be supplied to the Authority on demand and without charge and in the format requested;
 - (c) be legible;

- (d) indicate any amendments which have been made and shall include the original record wherever possible; and
- (e) be retained at the Permitted Installation, or other location agreed by the Authority in writing, for a minimum period of 3 years from the date when the records were made, unless otherwise agreed in writing.

4.3.3 The Operator shall maintain a record of the skills and training requirements for all staff whose tasks in relation to the Permitted Installation may have an impact on the environment and shall keep records of all relevant training.

4.4 Closure and Decommissioning

4.4.1 In the event of cessation of business activity on the site, all wastes (including machinery, tanks, equipment) and hazardous materials must be removed from the site such that any pollution risk is avoided and the site is returned to a satisfactory state. The Operator shall notify the Authority at least three months prior to taking action, and shall submit a decommissioning plan to the Authority for approval. The Authority's approval is required prior to the commencement of the decommissioning works.

4.4.2 When deemed necessary the Authority may require the permit holder to take such additional measures as it considers necessary with respect to after care obligations in relation, but not limited to the remedial action, rehabilitation, and monitoring of the waste management or waste production site.

4.4.3 A finalised version of the Decommissioning Plan shall be submitted to the Authority for approval not later than 10 days after the Authority is notified of the intention to decommission the site.

4.4.4 The approved Decommissioning Plan shall be implemented within 12 months of final cessation or decommissioning of the Permitted activities or part thereof or according to a timeframe as may be agreed with the Authority.

4.5 Reporting

4.5.1 The Operator shall submit to the Authority an Annual Environmental Report (AER) of the previous year by not later than end of March of each year, providing the information listed in Schedule 3 of this Permit and in the format specified therein.

4.5.2 An independent auditor shall be engaged by the Operator to certify all of the waste reporting required by this permit, in line with the Audit Procedures - Terms of Reference found in Schedule 4 of this permit. The Authority may carry out any such audits on the installation itself as deemed necessary at the expense of the Operator in line with condition 1.3.19.

4.5.3 In the event where operations cease temporarily, the TCP or Permit Holder are obliged to notify the Authority within two (2) days and are also to inform the Authority with regards to when the works are intended to resume.

Schedule 1

List of Incoming Permitted Waste on Site

08 03 17*	waste printing toner containing dangerous substances
15 01 01	paper and cardboard packaging
16 02 11*	discarded equipment containing chlorofluorocarbons, HCFC, HFC
16 02 13*	discarded equipment containing hazardous components other than those mentioned in 16 02 09 to 16 02 12
16 02 15*	hazardous components removed from discarded equipment
16 02 16	components removed from discarded equipment other than those mentioned in 16 02 15
16 06 01*	lead batteries
16 06 02*	NI-CD batteries
20 01 21*	fluorescent tubes and other mercury-containing waste
20 01 23*	discarded equipment containing chlorofluorocarbons
20 01 35*	discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components

N.B: Incoming wastes may also leave the site as Outgoing Waste (including separate fractions resulting from permitted processes on site), except where it is otherwise explicitly specified in the permit.

Schedule 2 Site Map



Fig. 2.1: Site showing extent of industrial complex in red for the carrying out of the activities specified in condition 1.1.1. The extent of the site boundary is indicative and should not be used for interpretation purposes.



Fig. 2.2: Site Layout showing permitted units for Electronic Products Ltd. operations in red, for the carrying out of the activities specified in condition 1.1.1. The extent of the site boundary is indicative and should not be used for interpretation purposes.

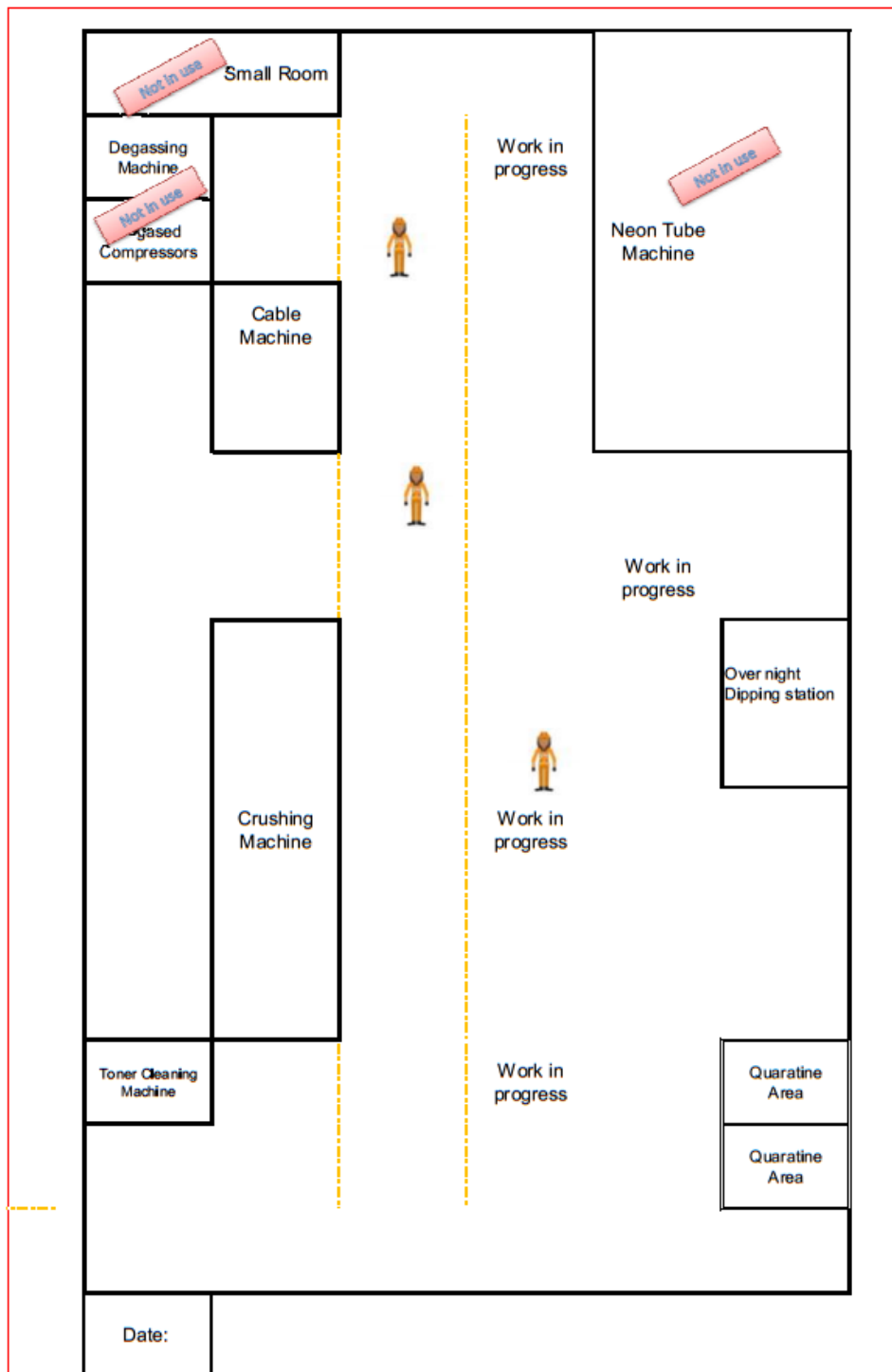


Fig 2.4: Internal site layout plan of garage 28 for the carrying out of the activities specified in condition 1.1.1. The extent of the site boundary is indicative and should not be used for interpretation purposes.

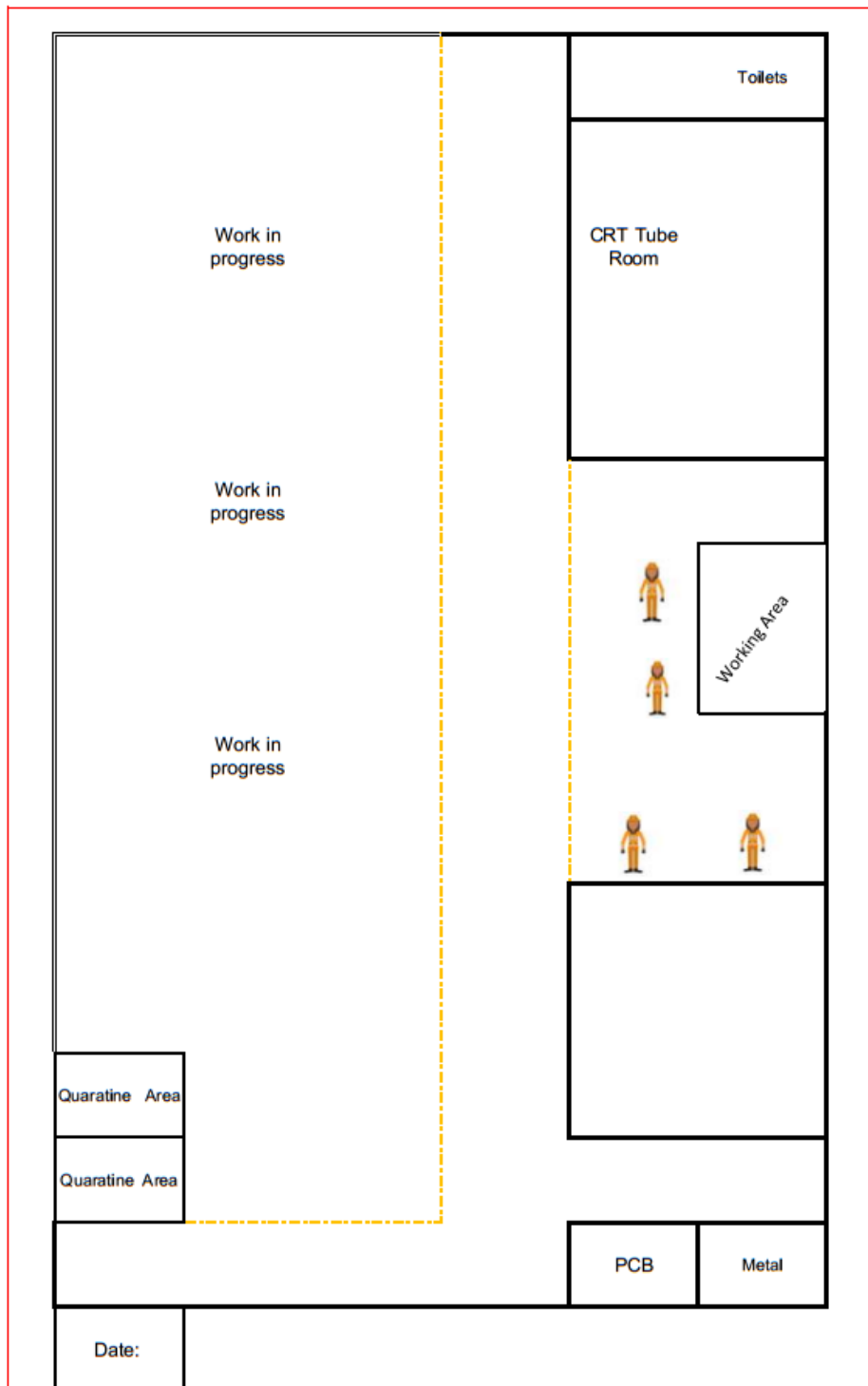


Fig 2.5: Internal Site layout plan of garage 29 for the carrying out of the activities specified in condition 1.1.1. The extent of the site boundary is indicative and should not be used for interpretation purposes.

Schedule 3**Annual Environment Report and Submissions****Important note**

By this submission, you confirm that you give your explicit consent for the entire contents of this Annual Environment Report to be made available on the Authority's public website.

S3.1 Introduction

Environmental Permit Number	
Reporting Year (Calendar Year: 1 January to 31 December)	
Name and locality of Site	
Brief description of activities at the site	

S3.2 Waste Records

As per condition 4.5.1 the Operator shall submit to the Authority information on waste records of the previous year by not later than end of March of each year, providing the information listed in the ERA website and in the format specified therein (<http://era.org.mt/en/Pages/Waste-Management-Reporting-Templates.aspx>).

S3.3 Submission of Certifications

Condition Number	Documentation
1.5.1	Submission of improvement programme
4.5.1	Submission of Waste records every year
4.5.2	Submission of Audit Report every year

Applicant's declaration

I declare that, to the best of my knowledge, all the above information is correct and substantiated.

.....
Name
(in block letters)

.....
ID Card Number

.....
on behalf of / in my own name
(in block letters)

.....
Signature

.....
Date

Schedule 4

Terms of Reference for Compliance Audits related to Annual Reporting for Authorised Waste Facilities

- S4.1 The auditor shall be independent (i.e. an auditor who would be eligible for appointment as company auditor), certified, and approved by the Authority. The auditor shall have access to in-house environmental expertise or otherwise appoint a consultant having environmental expertise to assist him.
- S4.2 The auditor would be required to certify all the information reported to the Authority by the Authorised Waste Facility as specified in the ERA permit itself.
- S4.3 A sound auditing procedure for traceability, monitoring, and control shall be in place for all the authorised waste managed on site in relation to the Waste Management permit or an Environmental permit.
- S4.4 The audit trail shall cover all waste from the point of acceptance of waste into the facility to the end recovery or disposal facility (local or foreign).
- S4.5 Proper records and documentation shall be kept where authorised waste are sent to duly authorised interim storage facilities, pending transfer to an authorised end disposal/recovery facilities. In such cases, proof is to be provided, as regards to that the authorised waste has been transferred to an authorised end disposal/recovery facility within a maximum of twelve (12) calendar months from the end of the annual reporting period.

The points overleaf shall be covered by the auditors in such audits, providing a detailed report of their findings. The Authority may request clarifications and further information from the auditors other than that provided in the audit report.

#	Nature and extent of audit procedures	Timing	Done by and date	W/P ref
1	<p>Objective: To confirm that there is a signed receipt for every waste transfer received at the site</p> <ul style="list-style-type: none"> Choose a random sample of 10% of the signed receipts for every waste transfer received at the site for each quarter within the calendar year and confirm that all waste entries are covered by an issued signed receipt. 			
2	<p>Objective: To ensure that an adequate audit trail is maintained to ensure that when a particular waste stream is being treated it can be traced back to its waste generator</p> <ul style="list-style-type: none"> Choose a random sample of 10% of the total waste being treated and ensure that its origin can be traced back. 			
3	<p>Objective: To confirm that any hazardous waste movements from the site (entry & exit) are covered with a hazardous waste consignment permit and consignment note</p> <ul style="list-style-type: none"> In cases of movement within the island of Malta, choose a random sample of 10% of the total no. of hazardous waste movements into and out of the site and confirm that all such movements are covered by a valid hazardous waste consignment permit and a waste consignment note. Confirm also that the relevant EWC code has been used. 			
4	<p>Objective: To confirm that any hazardous waste movements from the site (entry & exit) are covered with relevant TFS documentation of the Waste Shipments Regulation in cases of export</p> <ul style="list-style-type: none"> In cases of export, choose a random sample of 10% of the total no. of hazardous waste movements out of the site and the relevant TFS movement forms and confirm that all such movements are covered by valid relevant documentation. Confirm also that the relevant EWC code has been used. In the case of waste broker usage, ensure that the waste brokers used are registered with ERA as such. 			

5	<p>Objective: To confirm that any movement of non-hazardous waste movements from the site being sent for treatment abroad are covered by the relevant Annex VII documentation of the Waste Shipments Regulation in cases of export</p> <ul style="list-style-type: none"> Choose a random sample of 10% of the total no. of non-hazardous waste movements into and out of the site are covered by valid relevant documentation and/or records. Confirm also that the relevant EWC code has been used. In the case of waste broker usage, ensure that the waste brokers used are registered with ERA as such. 			
6	<p>Objective: To verify whether the quantities reported by the Waste Facility make reasonable sense</p> <ul style="list-style-type: none"> Choose a random sample of 10% of the total amount of waste being handled at the facility and confirm that all waste entries (in and out of the site) reported are verified by relative documentation and/or records. 			
7	<p>Objective: To ensure that the waste vehicles used by the authorised facility to transfer the waste to other permitted sites are registered with ERA</p> <ul style="list-style-type: none"> Obtain a list of approved waste carriers from ERA and confirm that the ones used by facility are registered with ERA. 			
8	<p>Objective: To ensure that, in cases where waste is transferred from the facility to other waste management facilities, locally or abroad, the waste management facilities used would either be approved by ERA or the Competent Authority of the Country of Destination</p> <ul style="list-style-type: none"> Obtain a list of locally approved waste management facilities from ERA and confirm that the ones used by the facility are approved and authorised by ERA. Obtain a copy of the permits of any foreign authorised waste management facilities which have been utilised. An original copy of the permit and an approved translated version of the permit is to be presented to ERA. 			
9	<p>Objective: To ensure that the declared quantities of waste exported during the previous calendar year were actually received at the authorised facilities and declared to ERA</p> <ul style="list-style-type: none"> Obtain all certificates received from recycling facilities and confirm that these have all been declared to ERA prior to shipment Confirm arithmetical correctness of all reported data in this regard. 			

10	Objective: To identify the waste being treated both locally and abroad, and ensure that it has been recovered appropriately <ul style="list-style-type: none">• Ensure that all relevant documentation, including but not limited to, the hazardous waste consignment permit and consignment note applications, are available in case of local treatment.• Identify the materials exported according to the EWC Code and review actual documentation (including bills of lading) confirming an audit trail showing that the waste has been sent to a recovery facility as per permit requirements.			
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END OF PERMIT

Environmental Permit

Environment Protection Act (CAP. 549)

Permit number
EP 033/18/A

Approved Docs:
EP033/18/DOC1
EP033/18/DOC2
EP033/18/DOC3
EP033/18/DOC4
EP033/18/DOC5

The Environment and Resources Authority (hereinafter the Authority; the Competent Authority or ERA) in exercise of its powers under the Environment Protection Act (CAP. 549) hereby authorises:

Mr. Charles Galea obo Electronic Products Ltd.

Company registration number: **C 21306**

(hereinafter "the Operator" or "the Permit Holder"),
Of / Whose Registered Office (or principal place of business) is at

**93, Old Railway Track,
Santa Venera**

to carry out waste management activities related to WEEE at:

WEEE Recycle 4U
HHF 040,
Hal Far Industrial Estate
Hal Far

to the extent authorised by and subject to the conditions of this Permit.

This permit is valid for **two (2) years** from the date below. An application for renewal of this permit is to be submitted at least three (3) months prior to expiry of this permit.

Signed

Date

Prof Victor Axiak Chairman	Permit Issued: 29 / 03 / 2019
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Authorised to sign on behalf of the Competent Authority

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Conditions

1 General

The Permitted Installation shall, subject to the conditions of this Permit, be managed, controlled and operated as described in the Application, or as otherwise previously agreed in writing by the Authority.

Status Log

Detail	Date
<i>Application EP</i>	24 September 2018
<i>Permit determined by ERA Board</i>	08 th March 2019

1.1 Permitted Activities

1.1.1 The Operator is authorised to carry out the activities and the associated activities specified in Table 1.1.1.

Table 1.1.1		
Activity	Description of specified activity	Limits of specified activity
Storage of waste fluorescent tubes and bulbs	Storage of waste florescent tubes and bulbs	From receipt of waste and storage, to dispatch of waste to authorised facilities either locally or abroad
Storage and dismantling of Waste Electrical and Electronic Equipment (WEEE)	Storage and dismantling of specified types of WEEE as per condition 2.2.1 including but not limited to degassing of units containing refrigerant gases excluding dismantling of unit carcasses containing insulation panels	From receipt of waste to dispatch of dismantled WEEE components to authorised facilities either locally or abroad
Disassembly of waste toners and recovery/disposal of powder mixture and other components	Storage and dismantling of waste toners including but not limited to removal of powder mixture	From receipt of waste to dispatch of dismantled toner components to authorised facilities either locally or abroad
Treatment of Waste Electrical and Electronic Equipment (WEEE)	Treatment of specified types of WEEE as per condition 2.2.1, 2.2.5, 2.2.6 and 2.2.7	From receipt of waste to dispatch of treated WEEE components to authorised facilities either locally or abroad
Recovery of refrigerant gases from refrigeration circuits and extraction of waste compressor oil from WEEE refrigeration equipment and air conditioning units	Extraction of refrigerant gases and extraction of waste compressor oil from WEEE. The process includes the separation of the resultant gases and oils into separate fractions	From extraction of gases and storage in specified refillable containers to either disposal at a Commission approved destruction facility or for resale/reuse as

	for disposal, resale or reuse.	recovered refrigerant (HFC R134a only) From extraction to storage and dispatch of extracted compressor oil to authorised facilities either locally or abroad.
Storage of waste batteries	Storage of waste batteries with EWC codes as specified in the permit	From receipt of waste to dispatch of waste batteries to authorised facilities either locally or abroad.

1.2 Site

- 1.2.1 The activities authorised under condition 1.1.1 shall not extend beyond the Site, as shown on the Site Plan & Site Layout plan in Schedule 2 to this Permit.

1.3 General Conditions

- 1.3.1 The conditions and obligations of this permit are without prejudice to any other regulation, code of practice, conditions or requirements requested by other Authorities or entities, including but not limited to, the Planning Authority, Occupational Health and Safety Authority, Transport Malta and the Regulator for Energy and Water Services (REWS)
- 1.3.2 This permit is granted saving third party rights. The Permit Holder is not excused from obtaining any other permission required by law.
- 1.3.3 In these conditions and their interpretation, all terms shall have the same meaning as that assigned to them in Subsidiary Legislation 549.63, the Waste Regulations.
- 1.3.4 The Permit Holder is to be legally responsible and accountable for managing the site in all its various aspects, thus ensuring that the waste management activity for which he has been granted a permit is carried out in accordance with the provisions as per Subsidiary Legislation 549.63 as amended, and other related legislation, as well as all the conditions of this permit.
- 1.3.5 The site must be well secured at all times.
- 1.3.6 The company shall maintain a register of third party complaints. The register shall record the name and address of the complainant(s), the date, location, source and nature of the complaint and the corrective action undertaken, where such action proves necessary.
- 1.3.7 All plant, equipment and technical means used in operating the Permitted Installation shall be maintained in good operating condition and without causing significant polluting emissions, potentially polluting leaks and spillages. The operator shall keep maintenance records as per section 4.3.
- 1.3.8 The Permitted Installation shall be managed, controlled, supervised and operated by staff who are aware of the importance of environmental protection and suitably trained on the requirements of this Permit, in particular on those permit conditions relevant to their duties. All staff shall be provided with adequate training and written operating instructions to enable them to effectively carry out their duties. Such training shall be recorded as per condition 4.3.3.

- 1.3.9 Upon the joint application of an operator and a proposed transferee, the Authority may transfer the environmental permit to the proposed transferee. The transfer of the permit will not relieve any of the operators from his environmental obligations and liabilities.
- 1.3.10 The Authority may carry out regular compliance checks that vary in frequency according to the site's compliance with the permit conditions. Any checks or audits carried out by the Authority may be made at the Permit Holder's financial expense.
- 1.3.11 The Authority's representatives are empowered to inspect every part of the site and ask for any closed or locked areas to be opened. They are also entitled to be given any proof, documentation, plans, receipts or any other records which these Authority representatives may request.
- 1.3.12 The Authority may add, amend substitute or revoke any of the conditions of this permit after notifying the Permit Holder of its intention and after describing the changes to the Permit Holder. This, without prejudice to any prevailing circumstances that would preclude the Authority from following such a procedure.
- 1.3.13 The validity of this permit is until **29th March 2021**. The Permit Holder is able to renew the permit upon application with the Authority expressing his/her intention at least three (3) months prior to the expiry of the permit. An application for the renewal of the Permit will only be accepted by the Authority subject but not limited to Condition 4.5.1 being fulfilled. The permit will be considered renewed once the official renewed permit is issued by the Authority.
- 1.3.14 In accordance to the provisions of S.L. 549.63, this permit is issued against a bank guarantee of **€6,600 (Financial Guarantee Number G38TFC56155 dated 20 March 2019)** which shall be renewed annually. This guarantee will have to be maintained throughout the validity of the permit. Following renewal and/or variations to this permit, the Authority may require amendments to the Bank Guarantee.
- 1.3.15 The Bank Guarantee shall remain in place for the duration of validity of this permit and shall only be released upon confirmation of full compliance with the permit conditions by the Authority.
- 1.3.16 The Authority may take part or all of the bank guarantee if the Permit Holder fails to take necessary action or fails to fulfil his legal obligations under the Act or its subsidiary legislation thereof, in cases of non-compliance with these permit conditions, or in cases where environmental integrity is threatened. This bank guarantee is without prejudice to any environmental liabilities incurred by the permit holder through failure to adhere to permit conditions or any other works/activity carried out on site. Should the Authority forfeit the Bank Guarantee either in part or in full, the operator shall ensure that this is replenished without undue delay in any case not exceeding 2 months from the date of forfeiture.
- 1.3.17 In cases where the bank guarantee does not cover the expenses incurred by the Authority to take any remedial action on the Permit Holder's behalf, the Permit Holder is to financially reimburse the Authority of all the expenses incurred within.
- 1.3.18 A copy of this permit shall be available at all times at the site office, including any Variation Notices or amendments to it.
- 1.3.19 The Authority may suspend or revoke this environmental permit or part of this environmental permit where significant mismanagement of the site is observed or any of the permit conditions are not respected after a written warning is given by the Authority or in any eventuality that gives the Authority enough reason to suspend or revoke this permit.

1.3.20 The Authority may request monitoring and/or review of operational practices and/or commission audits on the installation as deemed necessary to address any circumstances that may affect quality of the surrounding environment. Any required monitoring and/or audits shall be carried at the expense of the Permit Holder.

1.3.21 Without prejudice to condition 1.3.20, the authority may take any action deemed necessary including but not limited to the suspension of any activity/operation until investigations are concluded.

1.4 Operational Changes

1.4.1 The operator may apply for a variation in permit and shall seek the Authority's written agreement prior to any operational changes, by sending to the Authority

- a) Written notice of the details of the proposed change, including an assessment of its possible effects (including changes in emissions and waste production) on risks to the environment from the Permitted installation;
- b) Any relevant supporting information (e.g. chemical/fuel consumption, technical details, changes in the type/use of substances/mixtures, etc.);
- c) Any relevant supporting assessments and drawings, and;
- d) The proposed implementation date.

1.4.2 Any such change shall only be implemented following the issue of a variation of the permit by the Authority. Should the operator wish to process other types of WEEE and/or other type of waste besides those indicated during the application process, the operator must obtain another variation to permit from the Competent Authority prior to any further WEEE types being accepted or processed on site.

1.5 Improvement Programme

1.5.1 The Operator shall complete the improvements specified in Table 1.5.1 by the date specified in that table, and shall send written notification of the date of completion of each requirement to the Authority within 10 working days of the completion of each such requirement.

Table 1.5.1: Improvement programme		
Reference	Requirement	Deadline
1	Submission of methodology for the handling and storage of fluorescent tubes, bulbs and CRTs on site. This methodology is also to include a contingency procedure in the event of breakage of fluorescent tubes, bulbs and CRTs whilst handling and storage as per conditions 2.2.5 and 2.2.6.	Within 3 months of issue of permit
2	Implementation of the designated quarantine area as per condition 2.1.2	Within 3 months of issue of permit
3	Affixation of Site notice as per condition 2.1.4	Within 3 months of issue of permit

1.6 Pre Operational Conditions

- 1.6.1 No breakages of CRTs shall commence until such time that the area is fitted with the abatement equipment listed in the application and confirmed by the Authority.

2. Site Infrastructure and Operations

2.1 Site Infrastructure

- 2.1.1 During non-operating hours the site shall be firmly closed and totally inaccessible to third parties, both by vehicle and on foot.
- 2.1.2 The designated quarantine area is to be implemented within the site boundary to temporarily hold unpermitted waste that may enter the site (refer to Section 3). A non leaking skip or similar contained structure can be utilised for the temporary storage of unpermitted waste.
- 2.1.3 All handling, storage and treatment of materials or waste shall take place only in areas with impervious ground and where thorough clean up and site reinstatement can be readily undertaken.
- 2.1.4 The site shall be clearly identified by a site identification board, which shall be replaced as soon as it is damaged or the information is no longer readable from a distance. The site identification board shall be located at the site entrance and shall contain the following information:
- a. The company name and address
 - b. Permit Holder's name
 - c. 24 hour emergency mobile number
 - d. Permit Number (making it clear this site is permitted by the Authority)
- 2.1.5 Only equipment as indicated during the application process can be used on site. Any changes will require a variation to this permit and authorization from the Authority.
- 2.1.6 The infrastructural set up of for the WEEE storage and treatment areas shall be carried out in compliance with the technical requirements set out in Schedule 8 of Subsidiary Legislation 549.89, the Waste Management (Electrical and Electronic Equipment) Regulations. As a minimum all the listed requirements have to be implemented at the permitted facility.

2.2 Permitted Operations on Site

- 2.2.1 Only waste streams as set out in the European Waste Catalogue codes in Schedule 1 can be accepted and processed on site, according to the approved documents as set out during the application process.

With regards to WEEE, only the following type of WEEE may be accepted and dismantled on site:

- Toner Cartridges;
- Monitors and TV sets;
- Small equipment;
- Large equipment (except for fridges & freezers);
- Computers, computer towers & related IT equipment.

Fridges, freezers and water heaters may also be accepted on site for storage only (no processing may take place) prior to transfer to authorised facilities locally or abroad. All other types of WEEE are strictly prohibited.

- 2.2.2 Small equipment (Category 5) as per Schedule 3 and Schedule 4 of Subsidiary Legislation 549.89, the Waste Management (Electrical and Electronic Equipment Regulations, as amended) can also be accepted and processed on site with the exception of luminaries which can only be accepted for storage. Equipment falling under any other category of this Annex, apart from those listed in 2.2.1 cannot be accepted or processed on site.
- 2.2.3 In the case of WEEE containing refrigerant gases, the only permitted activity is the removal of gases and waste compressor oils, as set out in Section 3.2.2 of this permit and as specified in the waste codes set out in the permit.
- 2.2.4 Insulation panels which could potentially contain fluorinated greenhouse gases or ozone degraded substances shall not be dismantled but sent in their entirety to a facility permitted to accept such waste.
- 2.2.5 WEEE containing Cathode Ray Tubes (CRTs) may only be treated using the same methodology as submitted as part of the application as set out in the approved document EP033/18/DOC2 and within the designated area on site. A method statement on the storage of this waste including a contingency procedure for accidental breakage whilst handling and storage prior to treatment is to be submitted for the approval of the Authority as per Table 1.5.1.
- 2.2.6 In the case of fluorescent tubes, only storage is allowed. No dismantling or crushing of these items may take place. A method statement on the storage of this waste including a contingency procedure for accidental breakage whilst handling and storage is to be submitted for the approval of the Authority as per Table 1.5.1.
- 2.2.7 The total combined quantity of WEEE, fluorescent tubes, waste batteries and any other hazardous waste arising from these processes stored at the permitted facility shall not exceed 49 tonnes at any given time as per calculations in EP033/18/DOC5. The operations on site are to strictly abide by the site layout plan for operations as indicated during the application process of this permit.
- 2.2.8 Storage of waste batteries is to be carried out indoors (not open to the elements) in areas with impermeable ground in order to facilitate the clean up of potential spills.
- 2.2.9 Storage and dismantling of toner cartridges is to be carried out according to the approved document EP033/18/DOC4 submitted to the Authority during the application process.
- 2.2.10 The Permit Holder is to ensure that the waste is organised into the designated areas, labelled and visible physical delineation of the waste storage areas shall be put in place.

3. Operating Conditions

3.1 Emissions to Air

- 3.1.1 No emissions to air shall take place from the Permitted Installation.
- 3.1.2 The processing of CRT units must be contained in the approved enclosed space with the proposed appropriate filtration system as approved by ERA in method statement EP033/18/DOC2.

- 3.1.3 All processes which generate significant levels of airborne contaminants beyond the site boundary shall be fitted with abatement measures designed in such a way as to avoid local impacts.
- 3.1.4 Emissions to air shall arise from the emission points specified in Table 3.1.1, as per the description in the submitted EP application.

Table 3.1.1

Emission reference	Source
Source 1	Processing of CRT Tubes (HEPA filter)

- 3.1.5 All abatement equipment utilised to degas WEEE and ducting (including filters) shall be cleaned, maintained, and where necessary, replaced, on a regular basis and according to manufacturer specifications.

3.2 Effluent Discharges

- 3.2.1 No discharges to surface water or groundwater shall take place from the Permitted Installation
- 3.2.2 No discharges to the foul sewer (other than from domestic sewage or equivalent) shall take place from the Permitted Installation.
- 3.2.3 The Operator shall undertake all necessary measures and precautions to prevent spillage of raw materials, intermediates, products, waste and any other materials.
- 3.2.4 All process and storage areas must be appropriately contained.
- 3.2.5 Rainwater shall not be discharged into the sewer. Foul sewer drains must be strictly segregated from storm water drains.

3.3 Emissions to Land

- 3.3.1 No emission from the Permitted Installation shall be made to land.
- 3.3.2 In the event of contamination of land, the operator shall notify the Authority within 24 hours, forward a decontamination plan for the Authority's approval and execute it within an agreed time frame.

3.4 General Waste Acceptance, Storage and Handling

- 3.4.1 The Permit Holder shall apply the precautionary principle to safeguard the environment whilst carrying out the permitted activities and shall immediately refuse the entry of waste that is suspected to be in breach of the conditions of this permit.
- 3.4.2 The Permit Holder shall ensure that all waste management operations authorised in accordance with this Permit are carried out in an orderly manner and in such a way as to cause the least possible disturbance to the surroundings and the least possible adverse effects to third parties.
- 3.4.3 All wastes shall be stored within the designated and controlled storage area(s) prior to ultimate disposal. Any unpermitted wastes that may inadvertently enter the site must be stored in a clearly defined and contained quarantine area (Condition 2.1.2) and not be mixed with other wastes on site.
- 3.4.4 All wastes leaving the site after storage and/or processing must only be sent to facilities licensed to accept the individual waste stream, either locally or abroad.

- 3.4.5 In the case of waste that is sent for treatment or recovery to another facility locally or abroad, the audit trail shall cover all waste from the point of generation or collection to the end recovery or disposal facility.
- 3.4.6 No storage of waste destined for disposal is permitted for a period exceeding 12 months. No storage of waste destined for recovery is permitted for a period exceeding 3 years.
- 3.4.7 The operator is to prevent litter or other wastes escaping from the site boundaries particularly during loading/unloading. Any such escape of waste shall be collected immediately upon detection.
- 3.4.8 No waste shall be handled beyond the boundary of the permitted facility.
- 3.4.9 The permit holder shall also ensure and take all precautions in his competence to avoid any leakages or spills from liquid material that can cause environmental harm. Waste liquid tanks and drums found to be leaking or damaged shall either be immediately transferred to a larger over-container or shall have their contents immediately transferred to an alternative tank/drum.
- 3.4.10 Only registered waste carriers as per activity 38 of schedule 1 in S.L. 549.45, the Waste Management (Activity Registration) Regulations (unless exempt) are allowed to transport waste to and from this site.
- 3.4.11 Waste produced at the Permitted Installation shall be recycled, reused or recovered unless technically and/or economically impossible.
- 3.4.12 Prior to initiating any waste export procedure, the operator shall check with the Competent Authority in the country of export, to ensure that the correct export code/s according to the relevant Annexes of Regulation No 1013/2006 on shipments of waste are being applied.
- 3.4.13 Should the operator require the services of a waste broker, it shall be ensured that any such broker is a duly registered waste broker in accordance with S.L. 549.45.
- 3.4.14 Without prejudice to condition 3.4.11, transboundary movement of waste shall be carried out in accordance with the following regulations, as amended from time to time:
 - a. Regulation (EC) N° 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste as implemented through S.L. 549.65;
 - b. Commission Regulation (EC) N° 1418/2007 of 29 November 2007 concerning the export for recovery of certain waste listed in Annex III or IIIA to Regulation (EC) N° 1013/2006 of the European Parliament and of the Council to certain countries to which the OECD Decision on the control of transboundary movements of waste does not apply; and
 - c. Any other applicable legislation.
- 3.4.15 The Permit Holder shall ensure to issue a receipt / certificate for every consignment of wastes accepted and removed on Site indicating the date and time of the consignment and the weight of the waste received. Each receipt / certificate shall indicate the site name and permit number, as well as bearing a unique sequential number. Where applicable, this also applies to any Recycling Certificates issued by the operator.
- 3.4.16 Disposal and/or recovery certificates and any documentation related to transfer of waste to and from the site and/or related to its end disposal and/or recovery shall be kept on record and made available for inspection for a period of at least 5 years from

date of their issue. Copies of such certificates shall be submitted on an annual basis as part of the AER.

- 3.4.17 The Permit Holder shall maintain records of the weight of each waste consignment received and /or removed from the site, and such data shall be collected using a properly calibrated scale. Operator is to submit details of the scale used, together with its location and calibration details. Records of waste weighed prior to loading onto the vehicle from the point of collection may be accepted in lieu of onsite weighing.
- 3.4.18 All hazardous waste transferred to and from the site shall be accompanied by a valid hazardous waste Consignment Permit issued by ERA. Each consignment under the consignment permit shall be accompanied by a Consignment Note.
- 3.4.19 The Permit Holder shall submit to the Competent Authority the complete copy of any consignment note for each consignment of waste at the end of each calendar month for movements that occurred in the previous month to the Authority as per requirements of Regulation 14 of SL 549.63 unless this is being submitted electronically through the Authority's web portal.
- 3.4.20 The operator shall strictly adhere to the approved documents for the WEEE facility submitted as part of the application process. Any change in this method statement shall be subject to approval by the Authority.

3.5 Waste Treatment

- 3.5.1 All degassing and extraction of waste oils from compressors from processing of refrigeration equipment and air conditioning units shall be undertaken on an impermeable pavement or in self contained and or bunded area.
- 3.2.2 Drums and containers of waste compressor oils and gases shall be stored in designated and secure storage areas (in closed containers to avoid release of ODS or f-gas). Any recovered refrigerant gas shall not be stored in disposable containers. Storage areas shall be bunded or otherwise designed so that surface and ground waters cannot be contaminated by spillages. Should drip trays be used in lieu of a fixed bunded structure, the drip trays must be able to hold at least 25% of the total storage capacity of the drums.
- 3.2.3 Only refrigerant gas R134a can be collected for resale. All other refrigerant gases collected from the degassing of WEEE and from the oil filtering equipment must be exported as waste to a Commission approved destruction facility. Such facilities must be in line with destruction technologies listed in Annex 7 of EC Regulation No. 1005/2009.
- 3.2.4 All plant and all equipment used on site utilised in connection with specified waste management operations shall be operated and maintained with the objective of preventing potentially polluting leaks and spillage of wastes.
- 3.2.5 Each tank, drum or other mobile container used to hold wastes associated with the operation of the plant (particularly refrigerant gases and oils) shall be clearly and unambiguously labelled regarding its contents, unless the contents are clearly identifiable by visual inspection as well as inspected and maintained as per condition 3.2.9 below.
- 3.2.6 In the event of damage or deterioration to a container that is, or is likely to cause, a leak, that container shall be repaired or replaced immediately as per condition 3.2.9 below.
- 3.2.7 Loading and unloading of waste refrigeration equipment shall be undertaken in a manner to prevent release of ODS and fluorinated greenhouse gases.

- 3.2.8 Containers for storage of refrigerants and residual materials shall be inspected daily for leaks.
- 3.2.9 Containers found to be leaking shall either be immediately transferred to a larger over-container or shall have their contents immediately transferred to an alternative container.
- 3.2.10 Containers used for refrigerant gas intended for resale must be refillable and in line with Directive 2010/35/EU on transportable pressure equipment.
- 3.2.11 Minor spillages of waste compressor oil shall be cleaned up immediately.
- 3.2.12 In the case of major spillages of waste compressor oil which are causing or are likely to cause polluting emissions to the environment, immediate action shall be taken to contain and clean the spillage and prevent liquid from entering surface water drains and impermeable ground.
- 3.2.13 Products and equipment containing ozone depleting substances (ODS) and fluorinated greenhouse gases (F-Gas) shall be transported to the site in such a way so as not to damage parts which contain such substances. The permit holder shall conform with this condition from the point of collection of such equipment until all ODS and F-Gases are extracted from this equipment and stored for destruction.
- 3.2.14 All installation, maintenance and servicing of equipment containing Fluorinated Greenhouse Gases shall abide by the requirements of Regulation (EU) No 517/14 on fluorinated greenhouse gases and repealing Regulation (EC) No. 842/06, Commission Regulation (EC) Nos 1516/07, 304/08, 306/08, 307/08, 1191/14, 2065/15, 2066/15, 2067/15, 2068/15, 876/16 and Subsidiary Legislation 549.55, the Regulations on Certain Fluorinated Greenhouse Gases.
- 3.2.15 For all equipment installed on site utilising Ozone Depleting Substances or Fluorinated Greenhouse Gases, information pertaining to installation, maintenance and servicing shall be provided when any equipment is replaced by new equipment. The authority shall be notified in this regard and details provided on the new equipment installed.
- 3.2.16 Upon decommissioning of all equipment containing substances falling within the scope of EC Regulation No. 1005/09 on substances that deplete the Ozone Layer and Subsidiary Legislation 549.58, the Regulations on substances depleting the ozone Layer, together with Regulation (EU) No 517/14 on fluorinated greenhouse gases and repealing Regulation (EC) No. 842/06. In instances where such substances are utilised in foam and insulation panels, the waste gas shall be treated as hazardous waste and any foam containing components needs to be disposed of at specialised facilities where possible ODS/ F gas can be extracted prior to disposal.
- 3.2.17 Drainage of the refrigeration cooling system shall be undertaken in a manner that results in the removal of 99% of the oil and refrigerant from the cooling circuit and compressor being collected and stored in a sealed container.
- 3.2.18 Upon removal of waste compressor oil from the cooling system it shall be placed immediately in a suitable sealed container to prevent fugitive loss of controlled substances.
- 3.2.19 Following the drainage of the cooling system the compressor unit shall be removed from the refrigerator unit and placed into a sealed container.
- 3.2.20 The operator shall strictly adhere to the approved document EP033/18/DOC3 as submitted to the Authority as part of the application. Any change in this works method statement shall be subject to an application for a variation of the permit.

- 3.2.21 Processing as per conditions 3.2.17 – 3.2.20 shall be undertaken in a manner to ensure fugitive emissions from the degassing of the refrigeration cooling system are collected.
- 3.2.22 Waste oils collected from WEEE received on site, must be stored and treated according to oil type. No mixing of different oils is permitted at any stage of the process (i.e. prior to filtering, within the machinery, or following removal from machinery for reuse, resale or disposal.
- 3.2.23 At least one (1) suitable work station for dismantling of WEEE must be set up, equipped with the necessary tools and proper component segregation bins.

4. Site Management

4.1 Staff obligations and Responsibilities

- 4.1.1 All employees authorised by the Permit Holder to undertake the waste management activities on his/her behalf, shall be fully conversant with the obligations of this permit and shall be individually aware of their responsibilities and liabilities in observing the conditions of this permit. They shall be provided with adequate professional technical development and training and written operating instructions to enable them to effectively carry out duties.
- 4.1.2 One member of the staff shall be nominated as the Technically Competent Person (TCP) of the site, whereby this person is to physically represent the Permit Holder during the times when the Permit Holder will not be available.
- 4.1.3 The TCP is responsible for the implementation of all the obligations stipulated in this permit, must supervise the rest of the staff on site and is completely responsible to ascertain that all permit conditions are being adhered to and that unauthorised waste does not enter the site.
- 4.1.4 In the event of any short or long periods of sick leave or vacation leave taken by the TCP, for a period exceeding 10 days, the Permit Holder is obliged to find a replacement for that member of staff without delay.
- 4.1.5 All the staff on site shall be fully aware of the procedures to be taken to contain any environmental hazard, which may arise related to the activities being carried out on site.

4.2 Accident Prevention and Control

- 4.2.1 An Emergency Response Plan shall be maintained containing details of the location, nature and quantity of chemicals, oils and fuels stored, any special hazards, a drawing showing location of drains and the emergency phone numbers of the operator and relevant authorities. It shall also include actions to be taken in the case of incidents which could affect the environment, such as fires and chemical/fuel spills. The emergency plan shall indicate that accidental releases of chemicals and fires caused by chemicals are to be managed as specified in the respective MSDS sheets.
- 4.2.2 In the case of an accident (including fire, chemical spills, etc.), the Operator shall follow the Emergency Response Plan referred to in Condition 4.2.1 and, in the case that such accident could be regarded as causing environmental damage or as posing a threat of environmental damage, the Operator shall notify the Authority within 24 hours.

- 4.2.3 Spillages of chemicals or other hazardous material shall receive immediate attention to prevent escape to drain, surface water or land. Spilled material shall be disposed of in an appropriate manner. Kits for the collection of liquid and powder spills shall be available on site at strategic locations.
- 4.2.4 Small leaks or spills shall be cleared up immediately by the application of absorbent materials. All used absorbent materials shall be disposed of as hazardous waste at facilities permitted to accept such waste. Transfer of this waste shall be carried out as per conditions specified in section 3.4 of this permit.
- 4.2.5 The operator shall have in storage an adequate supply of suitable absorbent material to absorb any spillage.

4.3 Site Records & Archive

- 4.3.1 A site daily operations log shall be kept on site in which the following information shall be recorded on a daily basis:
 - (a) Total amount of waste in kilos accepted on site
 - (b) Total amount of waste in kilos removed from site for disposal or further treatment
 - (c) Total amount of waste in kilos refused entry on site
 - (d) Total amount in kilos of unaccepted material sent to the quarantine area and by which registered waste carrier it was transported
 - (e) Copies of consignment notes used for waste received/removed from site
 - (f) Any incidents that took place on site such as mechanical faults in the machinery or equipment used on site, any spills, fires, etc and the remedial action taken
 - (g) Any other incidents that the Permit Holder deems important to record.

Each record shall be compiled within 24 hours of the relevant event. The records kept in the site operations log shall be made available for inspection at any time when the Authority representatives request to inspect them.

- 4.3.2 The Operator shall ensure that all records required to be made by this Permit and any other records made by it in relation to the operation of the Permitted Installation shall:
 - (a) be made available for inspection by the Authority upon request;
 - (b) be supplied to the Authority on demand and without charge and in the format requested;
 - (c) be legible;
 - (d) indicate any amendments which have been made and shall include the original record wherever possible; and
 - (e) be retained at the Permitted Installation, or other location agreed by the Authority in writing, for a minimum period of 3 years from the date when the records were made, unless otherwise agreed in writing.
- 4.3.3 The Operator shall maintain a record of the skills and training requirements for all staff whose tasks in relation to the Permitted Installation may have an impact on the environment and shall keep records of all relevant training.
- 4.3.4 So as to assist the operator in complying with these permit conditions and formalising procedures required by this permit, the Authority recommends the establishment of an Environment Management System (EMS). An EMS can take the form of a standardised system (e.g. EN ISO 14001:1996 or EMAS) or a non-standardised ("customised") system, provided that is properly designed and implemented. Guidance for a non-standardised ("customised") system is included in schedule 5 of this permit.

4.4 Closure and Decommissioning

- 4.4.1 In the event of cessation of operations on the site, all wastes (including machinery and associated equipment) and hazardous materials (including chemicals) must be removed from the site such that any pollution risk is avoided and the site is returned to a satisfactory state. The Operator shall notify the Authority immediately upon a decision being taken to cease business activity. In the case of full decommissioning, applicant shall submit a decommissioning plan in accordance with the terms of reference provided by the Authority for approval by the relevant Authorities. The obligations arising from the permit shall subsist until the Authority confirms in writing that the implementation of the decommissioning plan has been implemented to its satisfaction.
- 4.4.2 A finalised version of the Decommissioning Plan shall be submitted to the Authority for approval not later than 10 days after the Authority is notified of the intention to decommission the site.
- 4.4.3 The approved Decommissioning Plan shall be implemented within 12 months of final cessation or decommissioning of the Permitted activities or part thereof or according to a timeframe as may be agreed with the Authority.
- 4.4.4 When deemed necessary the Authority may require the permit holder to take such additional measures as it considers necessary with respect to after care obligations in relation, but not limited to the remedial action, rehabilitation, and monitoring of the waste management or waste production site.

4.5 Reporting

- 4.5.1 The Operator shall submit to the Authority an Annual Environmental Report (AER) of the previous year by not later than end of March of each year, providing the information listed in Schedule 3 of this Permit and in the format specified therein.
- 4.5.2 An independent auditor shall be engaged by the Operator to certify all of the waste reporting required by this permit, in line with the Audit Procedures - Terms of Reference found in Schedule 5 of this permit. The Authority may carry out any such audits on the installation itself as deemed necessary at the expense of the Operator in line with condition 1.3.20.
- 4.5.3 In the event where operations cease temporarily, the TCP or Permit Holder are obliged to notify the Authority within two (2) days and are also to inform the Authority with regards to when the works are intended to resume.
- 4.5.4 All reports and written and/or verbal notifications required by this Permit shall be made and sent to the Authority using the contact details notified in writing to the Operator by the Authority. The Authority shall be informed within 24 hours in the event of an environmental hazard or major incidents.

Schedule 1

List of Incoming Permitted Waste on Site

08 03 17*	waste printing toner containing hazardous substances
16 02 11*	discarded equipment containing chlorofluorocarbons, HCFC, HFC
16 02 13*	discarded equipment containing hazardous components other than those mentioned in 16 02 09 to 16 02 12
16 06 01*	lead batteries
16 06 02*	NI-CD batteries
20 01 21*	fluorescent tubes and other mercury-containing waste
20 01 23*	discarded equipment containing chlorofluorocarbons
20 01 35*	discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components

N.B: Incoming wastes may also leave the site as Outgoing Waste (including separate fractions resulting from permitted processes on site), except where it is otherwise explicitly specified in the permit.

Schedule 2

Site Map



Fig. 2.1: Site showing extent of industrial complex in red for the carrying out of the activities specified in condition 1.1.1. The extent of the site boundary is indicative and shall not be used for interpretation purposes.

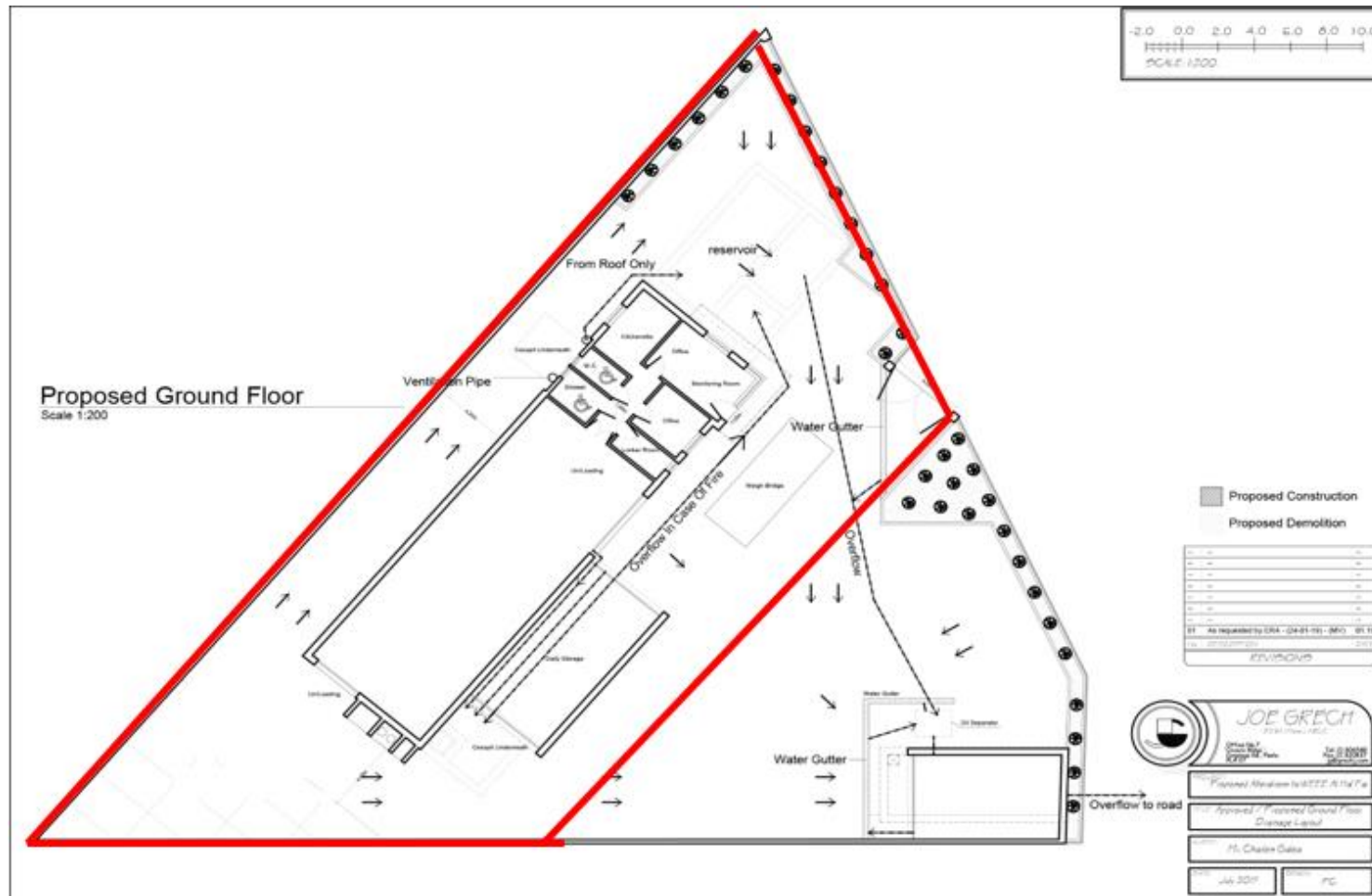


Fig. 2.2: Site Layout showing ground floor in red for Electronic Products Ltd. operations for the carrying out of the activities specified in condition 1.1.1. The extent of the site boundary is indicative and shall not be used for interpretation purposes.

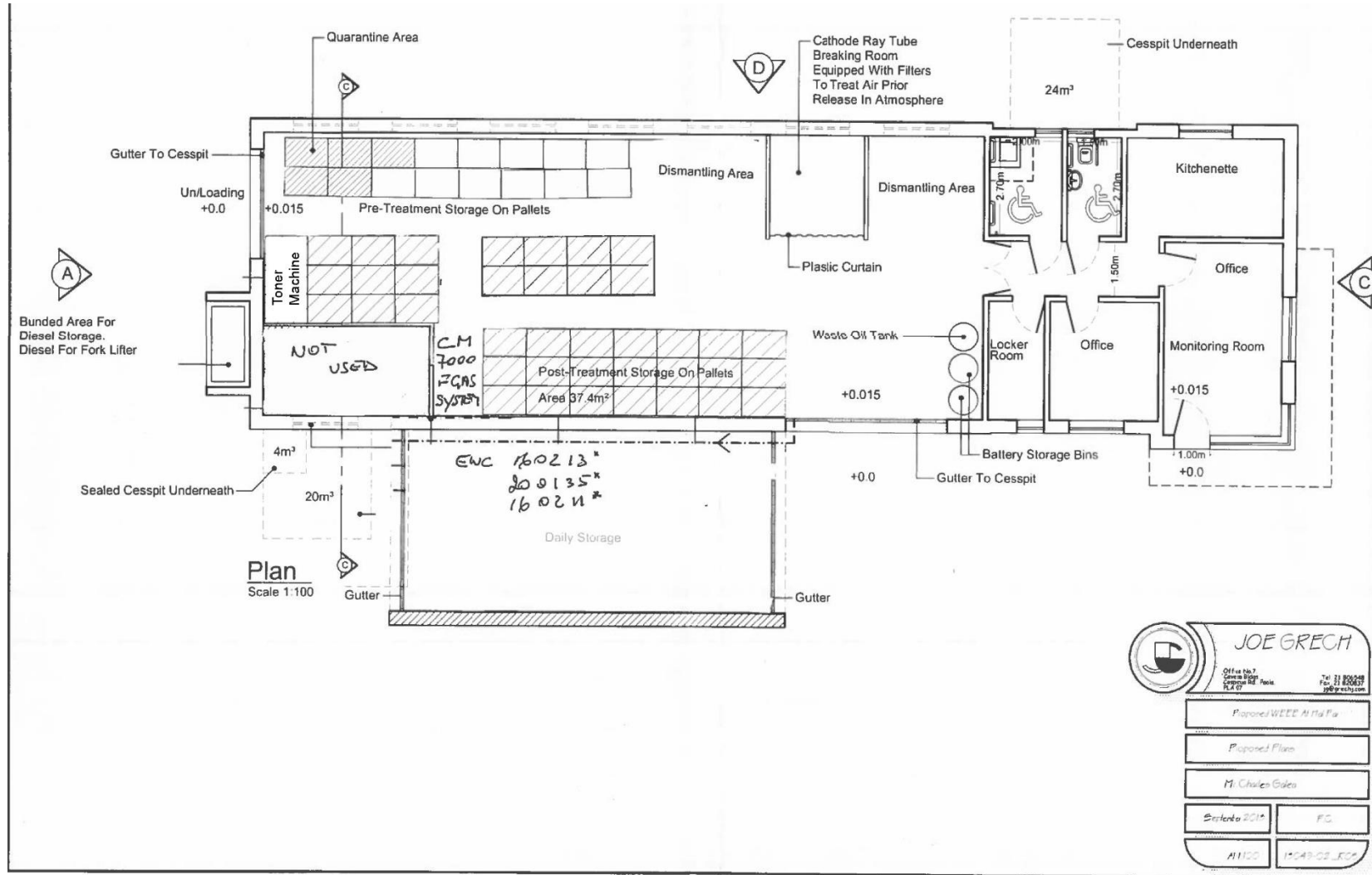


Fig 2.3: Internal Site layout plan for the carrying out of the activities specified in condition 1.1.1. The extent of the site boundary is indicative and shall not be used for interpretation purposes.

Schedule 3**Annual Environment Report and Submissions****Important note**

By this submission, you confirm that you give your explicit consent for the entire contents of this Annual Environment Report to be made available on the Authority's public website.

S3.1 Introduction

Environmental Permit Number	
Reporting Year (Calendar Year: 1 January to 31 December)	
Name and locality of Site	
Brief description of activities at the site	

S3.2 Waste Records

As per condition 4.5.1 the Operator shall submit to the Authority information on waste records of the previous year by not later than end of March of each year, providing the information listed in the ERA website and in the format specified therein (<http://era.org.mt/en/Pages/Waste-Management-Reporting-Templates.aspx>).

S3.3 Submission of Certifications

Condition Number	Documentation
1.5.1	Submission of improvement programme
4.5.1	Submission of Waste records every year
4.5.2	Submission of Audit Report every year

Applicant's declaration

I declare that, to the best of my knowledge, all the above information is correct and substantiated.

.....
Name
(in block letters)

.....
ID Card Number

.....
on behalf of / in my own name
(in block letters)

.....
Signature

.....
Date

Schedule 4

Terms of Reference for Compliance Audits related to Annual Reporting for Authorised Waste Facilities

- S4.1 The auditor shall be independent (i.e. an auditor who would be eligible for appointment as company auditor), certified, and approved by the Authority. The auditor shall have access to in-house environmental expertise or otherwise appoint a consultant having environmental expertise to assist him.
- S4.2 The auditor would be required to certify all the information reported to the Authority by the Authorised Waste Facility as specified in the ERA permit itself.
- S4.3 A sound auditing procedure for traceability, monitoring, and control shall be in place for all the authorised waste managed on site in relation to the Waste Management permit or an Environmental permit.
- S4.4 The audit trail shall cover all waste from the point of acceptance of waste into the facility to the end recovery or disposal facility (local or foreign).
- S4.5 Proper records and documentation shall be kept where authorised waste are sent to duly authorised interim storage facilities, pending transfer to an authorised end disposal/recovery facilities. In such cases, proof is to be provided, as regards to that the authorised waste has been transferred to an authorised end disposal/recovery facility within a maximum of twelve (12) calendar months from the end of the annual reporting period.

The points overleaf shall be covered by the auditors in such audits, providing a detailed report of their findings. The Authority may request clarifications and further information from the auditors other than that provided in the audit report.

#	Nature and extent of audit procedures	Timing	Done by and date	W/P ref
1	<p>Objective: To confirm that there is a signed receipt for every waste transfer received at the site</p> <ul style="list-style-type: none"> Choose a random sample of 10% of the signed receipts for every waste transfer received at the site for each quarter within the calendar year and confirm that all waste entries are covered by an issued signed receipt. 			
2	<p>Objective: To ensure that an adequate audit trail is maintained to ensure that when a particular waste stream is being treated it can be traced back to its waste generator</p> <ul style="list-style-type: none"> Choose a random sample of 10% of the total waste being treated and ensure that its origin can be traced back. 			
3	<p>Objective: To confirm that any hazardous waste movements from the site (entry & exit) are covered with a hazardous waste consignment permit and consignment note</p> <ul style="list-style-type: none"> In cases of movement within the island of Malta, choose a random sample of 10% of the total no. of hazardous waste movements into and out of the site and confirm that all such movements are covered by a valid hazardous waste consignment permit and a waste consignment note. Confirm also that the relevant EWC code has been used. 			
4	<p>Objective: To confirm that any hazardous waste movements from the site (entry & exit) are covered with relevant TFS documentation of the Waste Shipments Regulation in cases of export</p> <ul style="list-style-type: none"> In cases of export, choose a random sample of 10% of the total no. of hazardous waste movements out of the site and the relevant TFS movement forms and confirm that all such movements are covered by valid relevant documentation. Confirm also that the relevant EWC code has been used. In the case of waste broker usage, ensure that the waste brokers used are registered with ERA as such. 			

5	<p>Objective: To confirm that any movement of non-hazardous waste movements from the site being sent for treatment abroad are covered by the relevant Annex VII documentation of the Waste Shipments Regulation in cases of export</p> <ul style="list-style-type: none"> Choose a random sample of 10% of the total no. of non-hazardous waste movements into and out of the site are covered by valid relevant documentation and/or records. Confirm also that the relevant EWC code has been used. In the case of waste broker usage, ensure that the waste brokers used are registered with ERA as such. 			
6	<p>Objective: To verify whether the quantities reported by the Waste Facility make reasonable sense</p> <ul style="list-style-type: none"> Choose a random sample of 10% of the total amount of waste being handled at the facility and confirm that all waste entries (in and out of the site) reported are verified by relative documentation and/or records. 			
7	<p>Objective: To ensure that the waste vehicles used by the authorised facility to transfer the waste to other permitted sites are registered with ERA</p> <ul style="list-style-type: none"> Obtain a list of approved waste carriers from ERA and confirm that the ones used by facility are registered with ERA. 			
8	<p>Objective: To ensure that, in cases where waste is transferred from the facility to other waste management facilities, locally or abroad, the waste management facilities used would either be approved by ERA or the Competent Authority of the Country of Destination</p> <ul style="list-style-type: none"> Obtain a list of locally approved waste management facilities from ERA and confirm that the ones used by the facility are approved and authorised by ERA. Obtain a copy of the permits of any foreign authorised waste management facilities which have been utilised. An original copy of the permit and an approved translated version of the permit is to be presented to ERA. 			
9	<p>Objective: To ensure that the declared quantities of waste exported during the previous calendar year were actually received at the authorised facilities and declared to ERA</p> <ul style="list-style-type: none"> Obtain all certificates received from recycling facilities and confirm that these have all been declared to ERA prior to shipment Confirm arithmetical correctness of all reported data in this regard. 			

<p>10</p>	<p>Objective: To identify the waste being treated both locally and abroad, and ensure that it has been recovered appropriately</p> <ul style="list-style-type: none"> • Ensure that all relevant documentation, including but not limited to, the hazardous waste consignment permit and consignment note applications, are available in case of local treatment. • Identify the materials exported according to the EWC Code and review actual documentation (including bills of lading) confirming an audit trail showing that the waste has been sent to a recovery facility as per permit requirements. 			
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Schedule 5

Minimum requirements for an Environment Management System (EMS)

Within three (3) months of issue of the permit, the Operator shall submit an EMS which shall include, as a minimum, the following elements:

1. Management and Reporting Structure

This shall in particular include the name of the person who will be responsible for managing environmental aspects of the installation. Relevant qualifications and experience shall be listed, together with contact details (including a mobile number for emergency purposes).

2. Environmental Objectives and Targets

The section shall include a review of all operations and processes, a commitment by the operator to continuous improvement, and identification of priority areas where improvement to the operations is necessary and practicable, such as:

- a. recycling of materials;
- b. minimisation of waste;
- c. efficient use of resources (especially water and energy);
- d. use of biodegradable chemicals;
- e. minimising use of solvents;
- f. procedures to minimise noise disturbance to neighbours;

Targets shall be set for priority areas identified (e.g. minimising waste generation by ___% annually).

3. Environmental Management Programme (EMP)

This shall include a time schedule for achieving the Environmental Objectives and Targets prepared under point 2 above. The time schedule shall cover a period of 5 years. The EMP shall include:

- a. designation of responsibility for targets;
- b. the means by which they may be achieved;
- c. the time within which they may be achieved.

Targets and performance shall be reviewed annually as part of the EMS.

4. Documentation

A system of documentation shall be established to ensure that records are kept of the priority areas chosen according to point 2. In addition, the operator shall issue a copy of the environmental permit to all relevant personnel whose duties relate to any condition of the permit.

5. Corrective Action

The operator shall establish procedures to ensure that corrective action is taken shall the specified requirements of the environmental permit not be fulfilled. The responsibility and authority for initiating further investigation and corrective action in the event of a nonconformity with the environmental permit shall be defined.

6. Awareness and Training

The operator shall establish and maintain procedures for identifying training needs, and for providing appropriate training, for all personnel whose work can have an effect on the environment. Appropriate records of training shall be maintained.

7. Maintenance Programme

The operator shall establish and maintain a programme for maintenance of all plant and equipment based on the instructions issued by the manufacturer/supplier or installer of the equipment. Appropriate record keeping and diagnostic testing shall support this maintenance programme.

The licensee shall clearly allocate responsibility for the planning, management and execution of all aspects of this programme to appropriate personnel.

END OF PERMIT



Application No: EoW 001/15

Date: 13 July 2015

Applicant:

Name: Mr. Charles Galea
o.b.o. Electronic Products Ltd

Address: Electronic Products Ltd
Ta' Maggi Industrial Estate
Zabbar

Company Registration No.: C21306

Environmental Permit No.: EP009/10

Application Type: End-of-waste status

Date Received: 3 June 2015

Proposal: Application for end-of-waste criteria for waste wood to be used as animal bedding and absorbent

The Authority hereby acknowledges end-of-waste status for waste wood (animal bedding) in terms of the Waste Regulations, 2011, as published by Legal Notice 184 of 2011, in accordance with the application described above, subject to the conditions specified in this document numbered from pages 1 to 7.

Approved by:

A handwritten signature in black ink, appearing to read 'Perit Vincent Cassar', written in a cursive style.

Perit Vincent Cassar

Chairman

Malta Environment and Planning Authority

1. Officer's Report

Background

In accordance with sub-regulation (2) of regulation 6 laid down in The Waste Regulations, L.N. 184 of 2011, where end-of-waste criteria have not been set at Community level, it is up to the competent authority to decide on a case by case basis whether a certain waste has ceased to be a waste.

For a waste to cease to be a waste it must comply with the provisions laid down in regulation 6 of L.N. 184 of 2011, quoted hereunder for ease of reference:

"6. (1) Waste shall cease to be waste within the meaning of regulation 4 when it has undergone a recovery, including recycling, operation and complies with the following conditions:

- (a) the substance or object is commonly used for specific purposes;
- (b) a market or demand exists for such a substance or object;
- (c) the substance or object fulfils the technical requirements for the specific purposes and meets the existing legislation and standards applicable to products;
- (d) the use of the substance or object will not lead to overall adverse environmental or human health impacts; and
- (e) the substance or object shall be accompanied by a declaration as set out in Schedule 10.

(2) Where end-of-waste criteria have not been set at Community level, the competent authority shall decide on a case by case basis whether a certain waste has ceased to be a waste and may also develop specific criteria for certain waste streams. The criteria developed by the competent authority shall include limit values for pollutants where necessary and shall take into account any possible adverse environmental effects of the substance or object.

(3) In cases where, legislation and standards applicable to products do not exist for a recovered waste, the holder is to declare that legislation and standards applicable to products do not exist for that substance or object.

(4) In cases where, the substance or object is to be further treated to remove foreign materials prior to being used as a raw material in an industrial process, that substance or object shall not cease to be a waste within the meaning of regulation 4.

(5) Waste which ceases to be waste in accordance with sub-regulation (1) of this regulation, shall also cease to be waste for the purpose of the recovery and recycling targets set out in the Packaging and Packaging Waste Regulations, 2006, Electrical and Electronic Equipment Regulations, 2007, End of Life Vehicles Regulations, 2004 and Batteries and Accumulators Regulations, 2010 and other relevant Community legislation when the recycling or recovery requirements of that legislation are satisfied."

b
DC

Policy Context

The relevant policy documents are:

- L.N. 184 of 2011 and amendments thereto as laid down in S.L. 504.37

Consultations

No consultations were carried out.

Position

Following the review of the documentation submitted by the applicant it was concluded that:

- since the recycling operation is carried out in an authorised facility;
- since the substance is commonly used for specific purposes;
- since a market exists for such a substance;

the material may be declassified from being a waste and therefore no longer subject to legislation regulating waste, further provided that:

- (i) the recycled animal bedding resulting from the treatment process complies with the requirements laid down in section 2 to this report and any other applicable standards;
- (ii) the recycled animal bedding fulfils the technical requirements for the specific purposes and meets existing national and Union legislation and standards applicable to animal bedding products; and
- (iii) the use of the substance or object as animal bedding will not lead to overall adverse environmental or human health impacts.

Furthermore, as end-of-waste criteria for wood to be used as animal bedding have not yet been set on a European Level, the end-of-waste approval by the Malta Environment and Planning Authority does not automatically imply that the recycled wood is not a waste for other EU Member States and third countries.

In this context, in the case of exports the applicant is to ensure that the countries of transit and country of destination do not classify the substance as waste under their national legislation.

Conclusion

In view of the documentation received and the comments and issues mentioned above, recycled wood waste to be used as animal bedding may no longer be considered as waste.

DC

2. Recommendation

APPROVE – subject to the following conditions:

- a) This procedure/approval would no longer be valid once end-of-waste criteria for waste wood to be used as animal bedding and absorbent would be established by the EU.
- b) This procedure/approval is valid only for the processing of the following EWC code: 19 12 07 wood (other than that mentioned in 19 12 06) deriving from mechanical treatment of waste.
- c) The applicant shall maintain a record for each consignment by issuing a “Statement of Conformity with the End-of-Waste Criteria” (Annex I) with each consignment. These documents shall be kept for a minimum of three years and made available on request to the Competent Authority.
- d) The applicant is to submit a copy of all the Statements of Conformity as laid down in Annex 1 issued in a particular year together with the facility’s annual report to be submitted to MEPA in accordance with EP009/10
- e) The applicant shall ensure that the wood resulting from the recovery operation is of grade A¹, that is “clean” recycled wood.
- f) The applicant shall ensure that the percentage of the non-wood component² in the material is less than or equal to 0.5% of the air dry weight for particles less than 1 mm in any dimension. There shall be no particles in the tested sample that are greater than 1 mm in any dimension.
- g) The applicant shall ensure that the recovered wood, shall not display any of the hazardous properties listed in Annex III to Directive 2008/98/EC. The recovered wood shall comply with the concentration limits laid down in Commission Decision 2000/532/EC, and not exceed the concentration limits laid down in Annex IV of Regulation 850/2004/EC of the European Parliament and of the Council.
- h) The applicant shall ensure that the recovered wood does not contain absorbed oil, solvents, paint, nails or other metal fixings that can be detected by visual inspection.
- i) The applicant shall ensure that hazardous waste shall not be used as input.
- j) The applicant shall ensure that the input waste approved by this application should have been treated to separate the wood from the non-wood components. The wood resulting from these operations shall be kept separate from any other waste.
- k) All treatment (sorting, separating, cleaning, shredding) needed to prepare the waste wood for direct use as animal bedding and absorbent shall have been completed.
- l) The quality of the recovered wood to be used as animal bedding shall comply with the following parameters³:

¹ WRAP PAS111 (2012): Specification for the requirements and test methods for processing waste wood

² A **non-wood component** is any material different from wood, which is present in recovered wood, and can be separated using dry sorting techniques. Examples of non-wood components are metals, plastic, glass, textiles, earth, sand, ash, dust, wax, bitumen, ceramics, rubber, fabric, paper and cardboard and synthetic organic substances.

³ WRAP (2007), Recycled plasterboard paper as animal bedding - Plasterboard technical report, UK.

Parameter	Content	Note
Particle size	To be agreed with the customer.	<i>The producer should ensure that material size does not cause discomfort to animals when trodden on.</i>
Moisture content	Less than 15%	<i>All bedding should be dry as harmful bacteria require a damp environment to proliferate. Straw bedding typically has a moisture content of 15%. The moisture content can be derived from the percentage dry oven matter.</i>
Biological contamination	<ul style="list-style-type: none"> • Escherichia coli (E. coli) • Salmonella spp. <p>in the recovered wood shall not exceed the upper limits laid down in table 1 - Biological testing – Test methods and upper limits.</p>	<p><i>Pathogens present in recycled wood can pose a risk to human and animal health.</i></p> <p><i>Salmonella spp. and Escherichia coli (E. coli) are commonly used indicator species for human and animal pathogens.</i></p> <p><i>Sample biological testing for the presence of pathogens shall be carried out on recycled wood intended for animal bedding and porous surface applications only.</i></p> <p><i>Where sample testing is to be carried out, it should be carried out by an independent third party laboratory.</i></p>
Chemical contamination	<ul style="list-style-type: none"> • No detectable contamination (e.g. by oils, solvents, wet paint). • Heavy metal content shall not exceed the thresholds laid down in Table – 2: Maximum tolerable level for heavy metal concentrations in cattle diets in point m. 	
Other materials	<p>Non-wood component in the material shall less than or equal to 0.5% of the air dry weight for particles less than 1 mm in any dimension. There shall be no particles in the tested sample that are greater than 1 mm in any dimension.</p>	<i>Physical contaminants such as sharps, metal objects, glass, wood shards, plastic straps or ties, plastic film or bags, foil or plastic membranes on the wood not only have the potential to cause injury to the cows, but could also create litter when spreading the resulting slurry.</i>

m) For every 200 kg of waste wood treated, a test so as to determine whether the recovered wood complies with the parameters laid down in section 2(m) is to be carried out by an independent laboratory.

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If the cows ingest heavy metals from the contaminated recovered wood, there could be potential for harm to the cows and for heavy metals to be transferred to the milk⁴.

Table 1: Biological testing – Test methods and upper limits⁵

Parameter	Test method	Unit	Upper limit
Escherichia coli (E. coli)	ISO 16649-2	CFU/g fresh mass	1,000 (One Thousand)
Salmonella spp.	Schedule 2, Part II of EN ISO 6579	25g fresh mass	Absent

Table 2: Maximum tolerable level for heavy metal concentrations in cattle diets⁶

Heavy metal	Maximum tolerable level (ppm)
Cadmium	0.5
Copper	115
Lead	30
Mercury	2

3. Duration of approval

- 3.1 This approval shall be valid as from its date of issuance until 31 December 2017.
- 3.2 Approval shall be valid until the period referred to in point 3.1, but shall be withdrawn in the event of untimely reporting or any other breach of the conditions laid down in this document. An application for renewal shall be submitted to the Authority not less than thirty (30) working days before the expiry of the validity of this approval.
- 3.3 Before this approval can be wholly or partially surrendered, an application for this surrender of the Approval shall be made by the Holder.

⁴ WRAP (2007), Recycled plasterboard paper as animal bedding - Plasterboard technical report, UK.

⁵ WRAP PAS111 (2012): Specification for the requirements and test methods for processing waste wood

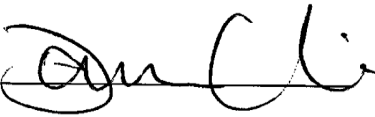
⁶ Source: AFES Circular 126, Agricultural & Forestry Experimental Station, University of Alaska Fairbanks.

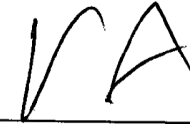
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This report to the Chairperson of the Malta Environment and Planning Authority has been prepared and endorsed by:

Officer: JARREN GORDINA

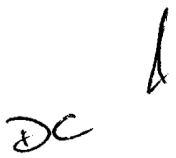
Endorsed by: KEVIN MERCIECA

Signature: 

Signature:  Kevin Mercieca
Unit Manager

Date: 29 JULY 2015

Date: 29 JULY 2015.

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Annex I

Statement of Conformity with the End-of-Waste Criteria

1.	Producer/importer of the recovered paper: Name: Address: Contact person: Telephone: Fax: E-mail:
2.	a) Content of non-wood components, in percentage points of air dry weight: b) Origin of the material (tick where appropriate) <input type="checkbox"/> Multi-material origin, such as from comingled collection <input type="checkbox"/> Mono-material origin, such as from source-separated collection
4.	Quantity of the consignment in kg.
5.	This consignment meets the criteria/conditions referred to in Approval EOW 001/15.
7.	The material in this consignment is intended exclusively for the use of animal bedding, and where applicable, also for the use as an absorbent.
8.	Declaration of the producer of the recovered wood: I certify that the above information is complete and correct and to my best knowledge: Name: Signature: _____ Date: _____

Handwritten initials: DC and a stylized signature.

Mr Damian Whitehead
obo MIP Ltd
Gwardamangia Hill
Pieta` MEC 0001

Date: 28 October 2016
Our Ref: PA/00441/16

Application Number: PA/00441/16
Application Type: Full development permission
Date Received: 6 December 2014
Approved Documents: PA 441/16/1A/1F/1G/1H/21A/21B; and supporting documents:
Engineer's report: PA 441/16/31A
Environmental Health Directorate: PA 441/16/44A
CPD conditions: PA 441/16/59A
Accessibility report: PA 441/16/59B
CMP requirements: PA 441/16/113B

Location: HHF 040, Hal-Far, Qasam Industrijali, Birzebbugia, Malta
Proposal: Removal of dumped material & construction of industrial unit for the recycling /treatment of weee.

Development Planning Act, 2016 Full Development Permission

The Planning Authority hereby grants development permission in accordance with the application and documents described above, subject to the following conditions:

- 1 The executable version of the permission shall only be issued after Environment and Resources Authority's approval of the monitoring strategy.
- 2 The proposed development qualifies for an Environmental Permit with the Environment and Resources Authority's Environmental Permitting and Industry Unit. No operations shall commence on site prior to the approval of the Environmental Permit.
- 3
 - a) This development permission is valid for a period of FIVE YEARS from the date of publication of the decision in the press but will cease to be valid if the development is not completed by the end of this validity period.
 - b) This permission relates only to the development as specifically indicated on the approved drawings. This permission does not sanction any other illegal development that may exist on the site.
 - c) Copies of all approved drawings and documents shall be available for inspection on site by Planning Authority officers at all reasonable times.

PA/00441/16

Print Date: 20/04/2017

d) The development shall be carried out in complete accordance with the approved drawings, documents and conditions of this permission. Where a matter is not specified, then the conditions of this permission and of Development Control Design Policy, Guidance and Standards 2015 shall apply.

e) Before any part of the development hereby permitted commences, the enclosed green copy of this development permission shall be displayed on the site. This must be mounted on a notice board, suitably protected from the weather and located not more than 2 metres above ground level at a point on the site boundary where it is clearly visible and can be easily read from the street. The copy of the permission must be maintained in a good condition and it shall remain displayed on the site until the works are completed.

f) A Commencement Notice is to be submitted to the Planning Authority, by the permit holder on behalf of the applicant, at least FIVE DAYS prior to the date of commencement of works or utilisation of the permission. Failure to submit the Commencement Notice (with all fields correctly completed) or to submit it within the required timeframe shall invalidate the Notice and shall result in the imposition of fines according to Schedule D of Legal Notice 277 of 2012, or its amendments, or its replacements. In addition, **if the applicant fails to submit the Commencement Notice or the Commencement Notice submitted is invalid, the relative permission shall be considered as never having been utilised** - Article 72(4) of the Development Planning Act (2016).

g) All building works shall be erected in accordance with the official alignment and official/existing finished road levels as set out on site by Planning Authority's Land Surveyor. The Setting Out Request Notice must be submitted to the Land Survey Unit of Planning Authority when the setting out of the alignment and levels is required.

h) Where an officially schemed street, within the development zone, bordering the site is unopened or unformed, it shall be opened up and brought up to its proper, approved and official formation levels prior to the commencement of any development hereby being permitted.

i) The development shall be carried out in accordance with the provisions of the Environmental Management Construction Site Regulations, Legal Notice 295 of 2007 (or subsequent amendments). Any hoarding shall be erected in accordance with Schedule 2 of the same Regulations.

j) New development on vacant or redeveloped sites shall be provided with a water cistern to store rainwater run-off as required by the Energy Performance of Buildings Regulations (2012) [published through Legal Notice 376 of 2012 and any amendments thereto].

k) No steps, ramps or street furniture are to be constructed on or encroached onto the public pavement or road.

l) Any doors and windows, the lower edge of which is less than 2m above road level, and any gates shall not open outwards onto a public pavement or road.

m) Where present, window grilles (including 'pregnant' windows), sills, planters and other similar elements which are part of or fixed to the facade of buildings, the lower edge of which is less than 2 metres above road level, shall not project more than 0.15 metres from the facade over a public pavement or street.

n) Air conditioning units shall not be located on the facades of the building which are

visible from the street or a public space.

o) There shall be no service pipes, cables or wires visible on the front elevation or on any other elevations of the building which are visible from the street or public space.

4 **1. Reserved matters**

Construction works

All works shall be subject to a comprehensive Construction Management Plan (CMP) and a Works Monitoring Programme in line with the general recommendations arising from the Environmental Impact Statement. In this regard, no works shall commence on site prior to the approval of the following by the ERA:

- (a) A comprehensive Construction Management Plan (CMP), in accordance with the Terms of Reference being included in approved document **PA 441/16/113B**. The CMP shall include a comprehensive method statement for all works.
- (b) A list of approved sites for disposal, re-use or recycling of the excavated material. In the absence of available sites, the applicant shall require a separate development permit for the management or disposal of this excavated material.
- (c) A monitoring strategy (sampling method statement) for land and groundwater investigation is submitted and approved by ERA. Moreover, the commencement of construction works shall also be subject to confirmation of collection of the samples in line with the approved methodology.

The above submissions shall comply with all the parameters set out in the conditions of this permit, and their approved version shall be considered as an integral aspect of the permit specifications which need to be complied with.

2. Environmental Permitting

- (a) No operations on site shall commence prior to the issue of the IPPC permit by the ERA Board.

3. Other conditions

Waste management

- Inert waste material resulting from excavation/ demolition may be reused as fill material within the site as long as such reuse is in line with the approved plans and other conditions of this permit, or shall be deposited at facilities duly permitted by the Authority and in accordance with the Waste Management Regulations (Legal Notice 184 of 2011, as amended, S.L.504.37) and the Waste Management (Activity Registration) Regulations (Legal Notice 106 of 2007, S.L.504.78).
- All operations concerning the management of waste are subject to the Waste Management Regulations (Legal Notice 184 of 2011, as amended, S.L.504.37) and the Waste Management (Activity Registration) Regulations (Legal Notice 106 of 2007, S.L.504.78).
- Any wastes generated during construction works shall be separated according to the

different waste streams as per EWC codes as defined in Commission Decision 2000/532/EC, and deposited in sites permitted by the Authority to accept such wastes.

- No storage or processing of WEEE shall be permitted in areas which are not impermeable or roofed over.
- All operations on site must comply with the Best Available Techniques (BAT) conclusions defined in the respective Best Available Techniques Reference Documents (BREFs) issued by the European Commission.

Runoff and effluent management

- No rainwater runoff, or wastewater other than sewage, shall be discharged into the sewer.
- All measures shall be adopted to avoid pollution of the surrounding terrestrial environment, including through the action of runoff from potentially contaminated areas.

External lighting

External lighting of the development shall be kept to a minimum and shall be appropriately shaded, and (except where indispensable for safety purposes) shall consist exclusively of low-key full cut-off down-lighters of low wattage in order to reduce light pollution. Globes and up-lighters are not allowed. Intruder-triggered switching shall be used wherever possible. Lighting of surrounding areas (including rural roads) beyond the operational precincts is strictly prohibited.

- 5
 - a) The façade(s) of the building shall be constructed in local un-rendered and unpainted stone, except where other materials/finishes are indicated on the approved drawings.
 - b) All the apertures and balconies located on the façade(s) of the building shall not be in gold, silver or bronze aluminium.
 - c) Where a front garden is imposed, the 'solid part' of the boundary wall in the front garden shall not be higher than 1.4 metres above the external finished road level. Where the road is sloping, the wall shall be stepped accordingly. Any pillars or gateposts shall not exceed a height of 2.25 metres.
 - d) The height of the services on the roof of the building shall not extend beyond the approved height of the uppermost parapet wall.
- 6 Where a loading bay is indicated on the approved drawings, loading and unloading shall take place solely within the premises, and not from/on the public pavement or street.
- 7 The development hereby permitted shall be subject to Final Compliance (Completion) Certification, verifying that the development has been carried out in full accordance with the approved drawings, documents and conditions imposed in this development permission. Prior to the issue of any compliance certificate on any part of this development, the applicant shall submit to the Planning Authority, in relation to that part of the building:

(i) clearance from the National Commission for Persons with Disability verifying that the development fully satisfies the accessibility standards and/or any conditions imposed by the Commission in supporting document PA 441/16/59B.

Note: Should a partial compliance certificate be requested, a Bank Guarantee of EUR 50,000 shall apply to ensure that KNPD clearance is obtained

(ii) certification from a qualified engineer confirming that the development fully satisfies the requirements specified in supporting document PA 441/16/31A;

(iii) certification from a qualified engineer confirming that the external lighting is in line with approved drawing PA 441/16/1H and condition 9 of this development permission.

8 The conditions imposed and enforced by the Civil Protection Department are at supporting document PA 441/16/59A. The architect/applicant is required to contact the Civil Protection Department, throughout the implementation of the development hereby approved, to ensure conformity with the imposed conditions. A copy of the relative correspondence / clearance shall be submitted to the Planning Authority accordingly.

9 The conditions imposed and enforced by the Environmental Health Directorate are at supporting document PA 441/16/44A. The architect/applicant is required to contact the Environmental Health Directorate, throughout the implementation of the development hereby approved, to ensure conformity with the imposed conditions. A copy of the relative correspondence / clearance shall be submitted to the Planning Authority accordingly.

10 Landscaping of the site shall be implemented in its entirety within the first planting season following completion of the development hereby approved, in accordance with the approved plans, unless the prior Planning Authority approval in writing has been obtained to depart from these details.

No compliance certificate (partial or full) shall be issued on part, or the whole, of the development hereby approved prior to the implementation of the landscaping scheme in its entirety.

11 The development is not to be a source of light pollution, especially at night. To this effect:

- (i) lighting should be strictly limited to within the developed part of the site;
- (ii) the development hereby being permitted should not be considered as a justification for the lighting of the access roads, tracks and paths leading to the site or other lighting beyond the site boundary;
- (iii) the lighting has to be from any peripheral landscaping inward, so as to be screened as much as possible by the landscaping itself; and
- (iv) all exterior lighting installed on site is to be of the downward-pointing, full cut-off type. No luminaire globes or uplighters are accepted.

In terms of Article 72(3) of the Development Planning Act, 2016, the execution and validity of this permission is automatically temporarily **suspended** and no works as approved by the said development permission may commence before the lapse of the time period established in Article 13

of the Environment and Planning Review Tribunal Act and subsequently will remain so suspended if the Tribunal so decides in accordance with the Environment and Planning Review Tribunal Act.

Where the approved drawings and/or documents are dimensioned, then the declared dimensions shall prevail over the actual size as depicted on the approved drawings and/or documents.

Developers are advised to check the invert level to the sewer main with the Water Services Corporation as they would have to make their own arrangements where a gravity service connection is not possible. In these cases, the architect has to indicate the solutions envisaged and to indicate on the plan what needs to be carried out and obtain approval from WSC. Developers are further reminded that connection of storm water into main sewers is not allowed.

If the declaration of ownership, as contained in the application form, is determined as incorrect by a Court of Law, then the said Court of Law can declare this development permission as null and void. This development permission does not remove or replace the need to obtain the consent of the land/building owner to this development before it is carried out. Furthermore, it does not imply that consent will necessarily be forthcoming nor does it bind the land/building owner to agree to this development. Where the land/building is owned or administered by the Government of Malta a specific clearance and agreement must be obtained for this development from the Land and/or Estate Management Departments.

This development permission is granted saving third party rights. This permission does not exonerate the applicant from obtaining any other necessary permission, license, clearance or approval required from any Government department, local council, agency or authority, as required by any law or regulation.

This development permit does not authorise any storage of substances listed in Occupational Health and Safety Authority Act (Cap. 424) - Control of Major Accident Hazards Regulations, 2003, as amended, in quantities that would render this site an establishment within scope of these regulations. The storage and handling of said substances may require a new or amended development permission in line with current policies and regulations.

For any non-residential uses hereby being approved, prior to commencement of any works on site or any eventual permitted change of use, the applicant shall be required to contact the Environment and Resources Authority to obtain any necessary operational permit or registration. This requirement does not apply to Class 2B, 2C, 4A and 4B uses as listed in the Development Planning (Use Classes) Order 2014, or its subsequent amendments.

This decision is being published on 9 November 2016.

Joseph Borg
Board Secretary
Planning Board

Notes to Applicant and Perit

Right for reconsideration

Where applicable, you have a right to submit a request for reconsideration to the Authority in terms of regulation 14 of Legal Notice 162 of 2016.

Right for appeal

You have a right to submit an appeal, against the decision, to the Environment and Planning Review Tribunal in terms of Article 13 of the Environment and Planning Review Tribunal Act, 2016.

Time limits

Requests for reconsideration or appeals must be made within 30 days from the publication of the decision notification in the local press as required by regulation 14(1) of Legal Notice 162 of 2016.

Fees to submit a request for reconsideration or appeal

In either case, there is a fee to be paid which should accompany the request for reconsideration or the appeal. The fees are as follows:

For reconsideration - 3% of the Development Permit Fee paid in respect of the original application, subject to a minimum of €69.88.

For appeal - 5% of DPF (Development Permit Fee) paid in respect of the original application, subject to a minimum of €150 + €50 administrative fee (LN 112 of 2016).

Submission of request for reconsideration or appeal

With regards to requests for reconsideration, Form PA 4/16 must be used for submission. All fields of the Form must be filled in as appropriate. Requests for reconsideration can only be submitted electronically.

With regards to appeals, as required by Article 13 of the Environment and Planning Review Tribunal Act, 2016, the submission must include the detailed grounds for appeal and the requests being made by the appellant. Appeals must be submitted physically at the offices of the Environment and Planning Review Tribunal, St. Francis Ditch, Floriana.

Important Notice

In view of the provisions of Article 72(4) of the Development Planning Act (2016), a Commencement Notice is to be submitted to the Planning Authority, by the perit on behalf of the applicant, at least FIVE DAYS prior to the date of commencement of works or utilisation of the permission. Failure to submit the Commencement Notice (with all fields correctly completed) or failure to submit it within the required timeframe shall invalidate the Notice and shall result in the imposition of fines according to Schedule D of Legal Notice 277 of 2012, or its amendments, or its replacements. In addition, if the applicant fails to submit the Commencement Notice or the Commencement Notice submitted is invalid, the relative permission shall be considered as never having been utilised.

-PADCN-

To: Mr Damian Whitehead
obo MIP Ltd
Gwardamangia Hill
Pieta` MEC 0001

Date: 10 October 2017
Our Ref: PA/00441/16
Perit Ref: 13049

Dear Sir/Madam,

Application Number: PA/00441/16
Location: HHF 040, Hal-Far, Qasam Industrijali, Birzebbugia, Malta
Proposal: Removal of dumped material & construction of industrial unit
for the recycling /treatment of weee.

Development Planning Act, 2016
Minor Amendment to Permission PA/00441/16
in terms of regulation 15 of Legal Notice 162 of 2016

Reference is made to the request for minor amendments, to the above quoted development permission, submitted on 22 May 2017.

The changes you propose are acceptable as a minor amendment to the development permission .
The following drawings/documents are being endorsed:

PA441/16/MA/179B/179C/179D/179E/199A & PA441/16/MA/190A (Eng Report - not sent)

This endorsement relates only to the changes described in your application form and specifically indicated on the drawings/documents. Any other changes from the original permission, which may be shown on the drawings/documents but which are not referred to in your application form, are not endorsed or accepted.

Consequently, this endorsement is **only** for the proposed development as specifically indicated and does not cover any other development or sanctions any illegal development which may exist on site, even if shown on the drawings/documents.

Please note that the conditions and amendments in the original permission remain valid and are therefore applicable to the development as amended, including the condition on the validity period of the permission. The other provisions of regulation 15 of Legal Notice 162 of 2016 also apply.

Yours faithfully

Jeffrey Vella
for Executive Chairperson

-PAABMADcn-

To: Perit Joseph Grech
Mr Charles Galea

Date: 19 October 2018
Our Ref: PA/05335/18
Perit Ref: 17059

Dear Sir/Madam,

Application Number: PA/05335/18
Location: HHF040, Qasam Industrijali Hal-Far, Birzebbugia, Malta
Proposal: Proposed Alterations and extension to development approved by PA 0441/16. Extensions consists of daily storage & fleet maintenance garage

Post Decision Requirements

The above-mentioned application for development permission was approved on 19 October 2018. You are requested to submit a written acknowledgement from the Environment and Resources Authority (ERA) confirming that an application for a variation/environmental registration has been submitted and validated by ERA. Such submission by the applicant shall not be later than 3 calendar weeks from the issuing of the non-executable development permit.

In order for the Planning Authority to issue an Executable Development Permission, which would enable works on site to commence, the outstanding matters described above require to be **settled within 6 months** from the date of this letter.

The Non-Executable permit shall be valid from the publication date by the Department of Information (DOI) **and does not entitle you to commence any works on site.**

Once any outstanding matters are settled, the Executable Development Permission, together with the approved plans and documents, shall be issued and shall be valid as per the Non-Executable permission.

If any matter shall remain unsettled after six (6) months from the date of this letter, the Non-Executable Permit shall be withdrawn and the application shall be automatically dismissed.

Yours faithfully,

Myriam Saia
Planning Commission Secretariat

No development may be carried out under the powers of the following development permission.

Ma jista' jitwettaq l-ebda żvilupp bis-saħħa tas-segwentu permiss għall-iżvilupp.

Mr Charles Galea

Date: 8 April 2020
Our Ref: PA/06212/19

Application Number: PA/06212/19
Application Type: Full development permission
Date Received: 23 July 2019
Approved Documents: PA 6212/19/1A/1E/1F/1G/70B/70C/70D and
Supporting Documents
PA 6212/19/1J - Engineer's Report
PA 6212/19/60A - Accessibility Audit Report
PA 6212/19/37A - Water Services Corporation

Location: HHF040 & HHF042, Qasam Industrijali Hal-Far, Hal Far, Birzebbuga
Proposal: Proposed extension to development already approved by PA 5335/18, including store and refrigeration recycling area. Application also to include to sanction shifting & extension of garage Class 5B

Development Planning Act, 2016
Non Executable — Full Development Permission

The Planning Authority hereby grants development permission in accordance with the application and documents described above, subject to the following conditions:

1 a) This development permission is valid for a period of FIVE YEARS from the date of
PA/06212/19 Print Date: 14/04/2020

publication of the decision in the press but will cease to be valid if the development is not completed by the end of this validity period.

b) This permission relates only to the development as specifically indicated on the approved drawings. This permission does not sanction any other illegal development that may exist on the site.

c) Copies of all approved drawings and documents shall be available for inspection on site by Planning Authority officers at all reasonable times.

d) The development shall be carried out in complete accordance with the approved drawings, documents and conditions of this permission. Where a matter is not specified, then the conditions of this permission and of Development Control Design Policy, Guidance and Standards 2015 shall apply.

e) Before any part of the development hereby permitted commences, the enclosed green copy of this development permission shall be displayed on the site. This must be mounted on a notice board, suitably protected from the weather and located not more than 2 metres above ground level at a point on the site boundary where it is clearly visible and can be easily read from the street. The copy of the permission must be maintained in a good condition and it shall remain displayed on the site until the works are completed.

f) A Commencement Notice is to be submitted to the Planning Authority, by the permit holder on behalf of the applicant, at least FIVE DAYS prior to the date of commencement of works or utilisation of the permission. Failure to submit the Commencement Notice (with all fields correctly completed) or to submit it within the required timeframe shall invalidate the Notice and shall result in the imposition of fines according to Schedule D of Legal Notice 277 of 2012, or its amendments, or its replacements. In addition, **if the applicant fails to submit the Commencement Notice or the Commencement Notice submitted is invalid, the relative permission shall be considered as never having been utilised** - Article 72(4) of the Development Planning Act (2016).

g) All building works shall be erected in accordance with the official alignment and official/existing finished road levels as set out on site by Planning Authority's Land Surveyor. The Setting Out Request Notice must be submitted to the Land Survey Unit of Planning Authority when the setting out of the alignment and levels is required.

h) Where an officially schemed street, within the development zone, bordering the site is unopened or unformed, it shall be opened up and brought up to its proper, approved and official formation levels prior to the commencement of any development hereby being permitted.

i) The development shall be carried out in accordance with the provisions of the Environmental Management Construction Site Regulations, Legal Notice 295 of 2007 (or subsequent amendments). Any hoarding shall be erected in accordance with Schedule 2 of the same Regulations.

j) New development on vacant or redeveloped sites shall be provided with a water cistern to store rainwater run-off as required by the Energy Performance of Buildings Regulations (2012) [published through Legal Notice 376 of 2012 and any amendments thereto].

k) No steps, ramps or street furniture are to be constructed on or encroached onto the public pavement or road.

l) Any doors and windows, the lower edge of which is less than 2m above road level, and any gates shall not open outwards onto a public pavement or road.

m) Where present, window grilles (including 'pregnant' windows), sills, planters and other similar elements which are part of or fixed to the facade of buildings, the lower edge of which is less than 2 metres above road level, shall not project more than 0.15 metres from the facade over a public pavement or street.

n) Air conditioning units shall not be located on the facades of the building which are visible from the street or a public space.

o) There shall be no service pipes, cables or wires visible on the front elevation or on any other elevations of the building which are visible from the street or public space.

2 a) The façade(s) of the building shall be constructed in local un-rendered and unpainted stone, except where other materials/finishes are indicated on the approved drawings.

b) All the apertures and balconies located on the façade(s) of the building shall not be in gold, silver or bronze aluminium.

c) The height of the services on the roof of the building shall not extend beyond the approved height of the uppermost parapet wall.

3 Where a loading bay is indicated on the approved drawings, loading and unloading shall take place solely within the premises, and not from/on the public pavement or street.

4 The development hereby permitted shall be subject to Final Compliance (Completion) Certification, verifying that the development has been carried out in full accordance with the approved drawings, documents and conditions imposed in this development permission. Prior to the issue of any compliance certificate on any part of this development, the applicant shall submit to the Planning Authority, in relation to that part of the building:

(i) clearance from the National Commission for Persons with Disability verifying that the development fully satisfies the accessibility standards and/or any conditions imposed by the Commission in supporting document PA 6212/19/60A;

Note: Should a partial compliance certificate be requested, a Bank Guarantee of EUR 50,000 shall apply to ensure that KNPD clearance is obtained

(ii) certification from a qualified engineer confirming that the development fully satisfies the requirements specified in supporting document PA 6212/19/1J.

5 The conditions imposed and enforced by the Water Services Corporation are at supporting document PA 6212/19/37A. The architect/applicant is required to contact the Water Services Corporation, throughout the implementation of the development hereby approved, to ensure conformity with the imposed conditions. A copy of the relative correspondence issued by the Water Services Corporation shall be submitted to the Planning Authority accordingly.

- 6 Landscaping of the site shall be implemented in its entirety within the first planting season following completion of the development hereby approved, in accordance with the approved plans, unless the prior Planning Authority approval in writing has been obtained to depart from these details.

No compliance certificate (partial or full) shall be issued on part, or the whole, of the development hereby approved prior to the implementation of the landscaping scheme in its entirety.

7 **Conditions imposed and enforced by other entities**

A. Where construction activity is involved:

(a) the applicant shall:

(i) Appoint a Project Supervisor for the Design Stage and a Project Supervisor for the Construction Stage and any such appointment shall be terminated, changed or renewed as necessary. The same person may be appointed to act as project supervisor for both the design and construction stage, if that person is competent to undertake the duties involved and

(ii) Keep a health and safety file prepared by the Project Supervisor for the Design Stage.

(b) When the construction works related to this application are scheduled to last longer than thirty working days and on which more than twenty workers are occupied simultaneously, or on which the volume of work is scheduled to exceed five hundred person-days, the project supervisor **shall communicate a prior notice to the Occupational Health and Safety Authority (OHSA) at least four calendar weeks before commencement of works.**

(c) The Project Supervisor for the Design Stage shall **draw up a health and safety plan** which sets out the occupational health and safety rules applicable to the construction activities concerned, outlining the measures to ensure cooperation between different contractors and shall also include specific measures concerning occupational risks that may be present at this site.

B. Where the development concerns a change of use to a place of work, the applicant shall obtain a Perit's declaration that the building conforms to the requirements of LN 44 of 2002.

C. Where the development concerns a place of work:

The applicant shall:

(i) obtain a Perit's declaration that the necessary requirements arising out of LN 44 of 2002 have been included in the plans and drawings; and

(ii) obtain a Perit's declaration that the building conforms to the requirements of LN 44 of 2002.

D. The development is to strictly adhere to the 'Design Guidelines on fire safety for buildings in Malta' to ensure that all Fire Safety measures and provisions are addressed as indicated in the Design Guidelines on Fire Safety for Buildings in Malta, published by the DCID in 2004, (or other relevant standard, provided it is approved by the Civil

Protection Department), Policies, and the Laws and Regulations of Malta.

E. Prior to laying of water and wastewater services in the road, the development shall comply with the requirements of Legal Notice 29/10 Part III (Roads in inhabited Areas) Clause 12.

F. In the event of an accidental discovery in the course of approved works, any cultural heritage feature discovered should not be damaged or disturbed and the Superintendence is to be immediately informed of such discovery. Any cultural heritage features discovered are to be investigated, evaluated and protected in line with the Cultural Heritage Act 2019 (CAP 445). The discovery of cultural heritage features may require the amendment of approved plans.

In terms of Article 72(3) of the Development Planning Act, 2016, the execution and validity of this permission is automatically temporarily **suspended** and no works as approved by the said development permission may commence before the lapse of the time period established in Article 13 of the Environment and Planning Review Tribunal Act and subsequently will remain so suspended if the Tribunal so decides in accordance with the Environment and Planning Review Tribunal Act.

Where the approved drawings and/or documents are dimensioned, then the declared dimensions shall prevail over the actual size as depicted on the approved drawings and/or documents.

Developers are advised to check the invert level to the sewer main with the Water Services Corporation as they would have to make their own arrangements where a gravity service connection is not possible. In these cases, the architect has to indicate the solutions envisaged and to indicate on the plan what needs to be carried out and obtain approval from WSC. Developers are further reminded that connection of storm water into main sewers is not allowed.

If the declaration of ownership, as contained in the application form, is determined as incorrect by a Court of Law, then the said Court of Law can declare this development permission as null and void. This development permission does not remove or replace the need to obtain the consent of the land/building owner to this development before it is carried out. Furthermore, it does not imply that consent will necessarily be forthcoming nor does it bind the land/building owner to agree to this development. Where the land/building is owned or administered by the Government of Malta a specific clearance and agreement must be obtained for this development from the Land and/or Estate Management Departments.

This development permission is granted saving third party rights. This permission does not exonerate the applicant from obtaining any other necessary permission, license, clearance or approval required from any Government department, local council, agency or authority, as required by any law or regulation.

This development permit does not authorise any storage of substances listed in Occupational Health and Safety Authority Act (Cap. 424) - Control of Major Accident Hazards Regulations, 2003, as amended, in quantities that would render this site an establishment within scope of these regulations. The storage and handling of said substances may require a new or amended development permission in line with current policies and regulations.

For any non-residential uses hereby being approved, prior to commencement of any works on site or any eventual permitted change of use, the applicant shall be required to contact the Environment and Resources Authority to obtain any necessary operational permit or registration. This requirement does not apply to Class 2B, 2C, 4A and 4B uses as listed in the Development Planning (Use Classes) Order 2014, or its subsequent amendments.

This decision is being published on 22 April 2020.

Lorna Vella
Secretary Planning Commission
Within Development Scheme

Notes to Applicant and Perit — Non Executable Permit

Non Executable Permit

Upon the full submission of the pending requirements, within the stipulated timeframe, the full development permit will be issued where validity of the permit shall remain as advised in the Non Executable Permit. If the pending requirements are not submitted within the time frame identified, the non-executable permission will be dismissed.

Right for reconsideration

Where applicable, you have a right to submit a request for reconsideration to the Authority in terms of regulation 14 of Legal Notice 162 of 2016.

Right for appeal

You have a right to submit an appeal, against the decision, to the Environment and Planning Review Tribunal in terms of article 13 the Environment and Planning Review Tribunal Act, 2016.

Time limits

Requests for reconsideration or appeals must be made within 30 days from the publication of the decision notification in the local press as required by regulation 14(1) of Legal Notice 162 of 2016.

Fees to submit a request for reconsideration or appeal

In either case, there is a fee to be paid which should accompany the request for reconsideration or the appeal. The fees are as follows:

For reconsideration - 3% of the Development Permit Fee paid in respect of the original application, subject to a minimum of €69.88.

For appeal - 5% of DPF (Development Permit Fee) paid in respect of the original application, subject to a minimum of €150 + €50 administrative fee (LN 112 of 2016).

Submission of request for reconsideration or appeal

With regards to requests for reconsideration, Form PA 4/16 must be used for submission. All fields of the Form must be filled in as appropriate. Requests for reconsideration can only be submitted electronically.

With regards to appeals, as required by Article 13 of the Environment and Planning Review Tribunal Act, 2016, the submission must include the detailed grounds for appeal and the requests being made by the appellant. Appeals must be submitted physically at the offices of the Environment and Planning Review Tribunal, St. Francis Ditch, Floriana.

-PANeDCN-



Appendix 3: Company Registration Certificate

COMPANIES ACT, 1995

MALTA

CERTIFICATE OF REGISTRATION LIMITED LIABILITY COMPANY

(PURSUANT TO SECTION 77)

WEEE Recycle 4U Company Limited

Name of Company

47, Old Railway Road, Santa Venera SVR 9014, Malta

Registered Office

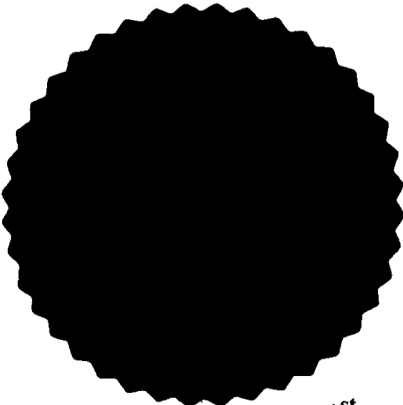
C 72396

Registration Number

This is to certify that the above-mentioned Company
has been registered by the Registrar of Companies as a
Limited Liability Company on the

1st October 2015

Date of Registration



Joseph Farrugia

f/ Registrar of Companies

Dated this **1st** day of **October** 20 **15**



Company Details

Company Registration Number **C 72396** - **WEEE Recycle 4U Company Limited**

Company Registration Number	C 72396
Company Name	WEEE Recycle 4U Company Limited
Registration Date	Oct 01, 2015
Registered Office	93, OLD RAILWAY TRACK
City/Locality	SANTA VENERA SVR 9014
Country	MALTA



Appendix 4: Sewer Discharge Permit Application

DM 172
7



Triq Hal Qormi, Hal Luqa LQA 9043
Freephone: (+356) 8007 6400 Fax: (+356) 2244 3900
E-mail: customercare@wsc.com.mt Website: www.wsc.com.mt

Application for a Public Sewer Discharge Permit (based on L.N. 139 of 2002 Schedule D)

SECTION A

I CHARLES GALEA (Full Name), I.D. Card number 71546007
residing at AMITIE TRIQ IL-BARRISA
ZABBAR
telephone 21445190 fax _____ mobile 99496645
e-mail ELECPRO@EPC.MALTA.COM
as representative of WEEE RECYCLE 4U LTD
am applying for a permit to discharge effluent into the public sewer, during the one year period
from

DD	MM	YY
----	----	----

 to

DD	MM	YY
----	----	----

Address of premises from which effluent will be discharged:
MH040 HAL FAR INDUSTRIAL
ESTATE HAL FAR

The following is a brief outline of activities/processes envisaged to be carried out at the above premises during the above mentioned period:
RECYCLING OF WEEE
WASTE ELECTRICAL ELECTRONIC EQUIPMENT

The substances that will be used at the above premises (not necessarily discharged in the effluent) during the said period are:

Substances	Kg
<u>ELECTRICAL + ELECTRONIC EQUIPMENT</u>	_____
<u>PRINTERS + TV'S + MONITORS</u>	_____
<u>FANS + WASHING MACHINES + BULBS</u>	_____
<u>NEON TUBES + COOKERS + TOOLS</u>	_____

The proposed point of discharge is indicated in the attached site plan, scale 1:2500, which is signed by Architect and Civil Engineer

JOE GRECH
name in BLOCK LETTERS

Declaration by Applicant (tick appropriate box)

I declare that the effluent to be discharged from the above mentioned premises is exclusively domestic sewage i.e. effluent resulting exclusively from activities related to the habitation of humans, such as the use of toilets, wash hand basins, showers and kitchen facilities.

I declare that the effluent to be discharged from the above mentioned premises is trade effluent having the same characteristics as approved in Public Sewer Discharge Permit No _____ covering the period from

DD	MM	YY
----	----	----

 to

DD	MM	YY
----	----	----

(If one of the above options are chosen, you may proceed to SECTION E)

I declare that the effluent to be discharged from the above mentioned premises is, at least partly, trade effluent, as defined in the Environment Protection (Sewer Discharge Control) Regulations, 2002. For this reason, I am supplying the following information which, I understand, shall be treated as strictly confidential:

SECTION B to be filled in for the discharge of trade effluent, please tick appropriate box/boxes

Type of industrial activity/process envisaged to take place in above premises during the year

Activity I – Manufacturing and Processing

- | | | |
|---|--|--|
| <input type="checkbox"/> Textiles & clothes | <input type="checkbox"/> Soap & detergent | <input type="checkbox"/> chemical(s) specify which |
| <input type="checkbox"/> Shoes | <input type="checkbox"/> Carpentry | _____ |
| <input type="checkbox"/> Food | <input type="checkbox"/> Glass & porcelain | _____ |
| <input type="checkbox"/> Beer | <input type="checkbox"/> Electronic components | _____ |
| <input type="checkbox"/> Wines & spirits | <input type="checkbox"/> Metal goods | _____ |
| <input type="checkbox"/> Soft drinks | <input type="checkbox"/> Batteries | _____ |
| <input type="checkbox"/> Mineral water | <input type="checkbox"/> Leather | |
| <input type="checkbox"/> Paint & pigments | <input type="checkbox"/> Tiles | <input type="checkbox"/> Other specify which |
| <input type="checkbox"/> Paper & cardboard | <input type="checkbox"/> Glue | <u>RECYCLING</u> |
| <input type="checkbox"/> Plastic & resin | <input type="checkbox"/> Explosives | _____ |
| <input type="checkbox"/> Tobacco | <input type="checkbox"/> Rubber | _____ |
| <input type="checkbox"/> Stone & marble | <input type="checkbox"/> Lime | _____ |
| <input type="checkbox"/> Carpentry | <input type="checkbox"/> Candles | _____ |

NAME OF SUBSTANCE

(a) *

(b) **

NAME OF SUBSTANCE	(a) *	(b) **
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

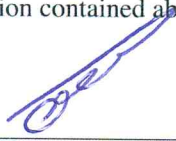
* (a) Maximum concentration in effluent, expressed in mg/L

** (b) Total amount of material to be discharged in sewerage system during year, expressed in Kg

SECTION E

I declare that the information contained above is true.

Signed



Date 11/1/18

Name in Full

CHARLES GALET



Official company/personal stamp of industrial concern

**€11.65 fee for the first application
or any subsequent application not being a renewal**

DATA PROTECTION

The information in this application form is used by the Water Services Corporation but may also be shared with Enemalta Corporation in accordance with the Water Services Corporation Act (Chapter 355) and shall be dealt with in strict confidence. You have the right to access, rectify, and where applicable, erase any data that concerns you. The Water Services Corporation guarantees fair processing of personal data. Furthermore, the Water Services Corporation will only send you information related to the Corporations' own services.

Data: 18/11/18
Date:

Nru. ta' Lirċevuta
Invoice no.

128469

Irċivejt minghand
Received from Charles Galea

is-somma ta'
the sum of Eleven Ewro
Euro

65 ċenteżmi
cents

€ 11.65

ghal
in respect of DMM 7607 (Hal-Far)

Firma
Signature G. Ghigo.
Gianluca Ghigo
Clerk

Discharge Permit Unit
IWT - Water Services Corporation
Lirċevuta mhux valida jekk iċ-ċekk ma jissarrafx.
Discharged cheques automatically invalidate this receipt.



Triq Qormi, Luqa LQA 9043
Freephone: (+356) 8007 2222
Fax: (+356) 2244 3900
E-mail: customercare@wsc.com.mt
Website: www.wsc.com.mt
VAT No. MT12435416
VAT Permit No. 71/04

Nru. ta' Ċekk
Cheque No. CASH



CSD/FIN 104/2 1x2 02/17

Rachel Decelis

From: Electronic Products Ltd [elecpro@eplmalta.com]
Sent: 06 March 2018 12:20
To: Rachel Decelis
Subject: Fwd: RE: Sewer Discharge Permit
Attachments: WaterServices.pdf

Dear Rachel

AS per below mail, and attachment for your perusal.
Chr

----- Forwarded Message -----

Subject: RE: Sewer Discharge Permit
Date: Tue, 6 Mar 2018 10:25:56 +0000
From: Trevor Giles Chircop Bray <TrevorGiles.ChircopBray@wsc.com.mt>
To: elecpro@eplmalta.com <elecpro@eplmalta.com>
CC: WSC DPU <WSC.DPU@wsc.com.mt>, Matthew Vella <Matthew.Vella@wsc.com.mt>, Anthony Gili <Anthony.Gili@wsc.com.mt>, Paula Grech Bonnici <paula.grech.bonnici@wsc.com.mt>

Dear Charles,

I confirm that an application was received by our office to apply for a Public Sewer Discharge Permit on 18/1/18. Our DMU reference is DMU 172. Please note that a permit cannot be issued yet given that the site is still under construction. Prior to the commencement of operations you are to inform us so we can set an appointment to perform an on-site inspection of the premises. Further to this, analysis of any trade effluents produced may be required.

Thanks and regards,

Trevor Chircop Bray
Managing Professional - Permitting & Reporting | Compliance & Quality | Water Services Corporation | Triq Hal Qormi, Hal Luqa LQA 9043
| email: trevorgiles.chircopbray@wsc.com.mt Tel: +356 2244 3128 ☎ Fax: +356 2244 3125

⏏ Please consider your environmental responsibility before printing this e-mail

This message is sent in confidence for the addressee only. The contents are not to be disclosed to anyone other than the addressee.

Unauthorised recipients must preserve this confidentiality and should please advise the sender immediately of any error in transmission.

-----Original Message-----

From: Electronic Products Ltd <elecpro@eplmalta.com>
Sent: 06 March 2018 09:01
To: Trevor Giles Chircop Bray <TrevorGiles.ChircopBray@wsc.com.mt>; Anthony Gili <Anthony.Gili@wsc.com.mt>
Cc: WSC DPU <WSC.DPU@wsc.com.mt>
Subject: Sewer Discharge Permit

Dear Trevor and Anthony

Further to our application for the sewer Discharge Permit in Hal Far as per receipt 128469 dated 18th January 2018.

Can you kindly send us a short note, that this application is on hold since building at site is still under construction stages.

The Company needs to present this note to ERA with its IPPC permit application, thanking you in advance, Charles Galea

--

Charles Galea
Electronic Products Ltd
WEEE Recycle IT Ltd
www.chdmalta.com
www.weerecycleltd.com

--

Charles Galea
Electronic Products Ltd
WEEE Recycle IT Ltd
www.chdmalta.com
www.weerecycleltd.com



Appendix 5: Environmental Impact Statement



TN 159436

**TNEHHAJA TA' MATERJAL MORMI U KOSTRUZZJONI TA' BINJA INDUSTRIJALI GHAR-RIĊIKLAĠĠ/TRATTAMENT TA' STEE, HHF
040, HAL-FAR, QASAM INDUSTRIJALI, BIRŻEBBUĠA**

DIKJARAZZJONI DWAR L-IMPATT AMBJENTALI

SUNT MHUX TEKNIKU

Verżjoni 1: Lulju 2015

Referenza tar-Rapport:

Adi Associates Environmental Consultants Ltd, 2015. Tnehija ta' materjal mormi u kostruzzjoni ta' binja industrijali ghar-riciklagg/trattament ta' STEE, HHF 040, Hal-far, Qasam Industrijali, Birzebbuġa. Dikjarazzjoni dwar l-Impatt Ambjentali preparata b'appoġġ għall-applikazzjoni tal-iżvilupp nru. TN 159436. San Gwann, 2015, ii + 10p.

**DIN HIJA KOPJA DIĠITALI TAR-RAPPORT.
IRRISPETTA L-AMBJENT – ŻOMMHA DIĠITALI**

Assigurazzjoni tal-Kwalità

Tnehhija ta' Materjal mormi u Kostruzzjoni ta' Binja Industrijali ghar-Riċiklaġġ/Trattament ta' STEE, HHF 040, Hal-Far, Qasam Industrijali, Birżebbuġa

Dikjarazzjoni dwar l-Impatt Ambjentali

Rapport għal: **Electronic Products Ltd**



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It is pointed out that ISO14001 certification covers the management system only and not the contents of this report.

© Adi Associates Environmental Consultants Ltd 2015

Skeda tar-Revizjoni

Rev	Data	Dettalji	Miktub minn:	Iċċekkjat minn:	Approvat minn:
00	Lulju 2015	Moghti lill-klijent	Krista Farrugia Konsulent	Rachel Xuereb Direttur	Adrian Mallia Direttur Maniġerjali

File ref: G:_Active Projects\EIA\WEE002 - WEEE Facility Hal Far\EIA\NTS Maltese.docx

**Kappara Business Centre
113 Triq Birkirkara
San Gwann SGN 4197
Tel. / Fax: 21378172 - 77**

**Email: info@adi-associates.com
Web: www.adi-associates.com**

INTRODUZZJONI

1. Din id-Dikjarazzjoni dwar l-Impatt Ambjentali (DIA) tqabbadna naghmluha minn Electronic Products Ltd, b'appogg għall-proposta tagħhom għall-kostruzzjoni ta' binja industrijali għar-riċiklaġġ/trattament ta' skart ta' tagħmir elettriku u elettroniku (STEE).
2. Wara s-sottomissjoni ta' Dikjarazzjoni Deskrittiva tal-Proġett (DDP) għall-iżvilupp propost f'Novembru 2014, l-Awtorità ta' Malta dwar l-Ambjent u l-Ippjanar (MEPA) iddeċidiet li l-iżvilupp kien jehtieg Studju dwar l-Impatt Ambjentali (SIA) skont l-Iskeda 1A, Kategorija I Taqsimiet 2.7.1.1 tar-Regolamenti dwar l-Istudju dwar l-Impatt Ambjentali, 2007 (Avviż Legali 114 tal-2007). Il-proposta tehtieg ukoll permess ta' Kontroll Integrat għall-Prevenzjoni ta' Tingis (KIPT) li jirregola l-operat tagħha.
3. Minn hawn 'il quddiem f'din id-DIA, l-iżvilupp propost qed jissejjaħ 'l-iSkema'. Il-perimetru tal-iSkema jidher fil-**Fig. 1**. Deskrizzjoni ddettaljata tal-iSkema qed tinghata f'**Kapitlu 3** tad-DIA.

Skop tad-DIA

4. L-iskop ta' din id-DIA huwa li jiġu pprezentati r-riżultati tal-iStudju dwar l-Impatt Ambjentali (SIA). SIA huwa l-proċess li bih l-impatti ambjentali importanti li probabbli jhorgu mill-proposti ta' żvilupp ikunu studjati b'mod sistematiku. SIA jiżgura wkoll li s-sinjifikat ta' dawn l-impatti, u x'possibbiltà hemm li jitnaqqsu, jinftehm

b'mod ċar kemm mill-pubbliku u kemm mill-MEPA qabel ma tittiehed deċiżjoni dwar jekk l-iżvilupp għandux jiġi approvat jew le.

Sfond tal-Iskema

5. L-Applikant bħalissa qiegħed jopera minn tliet garaxxijiet li jinsabu fiż-Żona Industrijali Ta' Magġi f'Haż-Żabbar. Ix-xogħol li qed isir bħalissa jinkludi l-aċċettazzjoni ta' STEE, is-separazzjoni ta' komponenti bl-użu ta' kraxer ewlieni (użat għal skart bla periklu) u kraxer tal-kejbil biex il-wajers tal-metall jinfirdu mill-qoxra tal-plastik u b'hekk isir iżjed faċli r-riċiklaġġ.
6. L-Applikant għandu l-ħsieb li jespandi l-operat preżenti biex jinkludi wkoll l-użu ta' kraxer tat-tubi fluworexxenti biex jiġu pproċessati tubi u lampi fluworexxenti, li huma skart perikoluż.
7. Barra minn hekk, l-Applikant għandu maħżuna iżjed minn 50 tunnellata metrika ta' STEE fil-facilità tiegħu, u għalhekk l-operat tiegħu jikkwalifika għal permess għall-Kontroll Integrat għall-Prevenzjoni tat-Tingis skont id-Direttiva dwar l-Emissjonijiet Industrijali u l-Avviż Legali 10 tal-2013, Emissjonijiet Industrijali (Prevenzjoni u Kontroll Integrat tat-Tingiz) Regolamenti, 2013. Billi hemm din il-htieġa, l-Applikant biħsiebu jiżviluppa l-facilità ġdida tiegħu biex jopera bi qbil mal-kundizzjonijiet tal-permess dwar KIPT.

Termini ta' Referenza

8. It-Termini ta' Referenza (TtR) għall-iSIA thejjew mill-MEPA b'konsultazzjoni mad-Dipartimenti tal-Gvern li għandhom x'jaqsmu. Il-verżjoni finali tat-TtR tinsab f'*Technical Appendix 1: Terms of Reference and Method Statements*.
9. It-TtR ġew ifformulati wara li l-MEPA għamlet eżercizzju dwar l-ambitu biex ikunu identifikati s-sugġetti li għandhom jiġu eżaminati fl-iSIA. It-TtR ffokaw fuq dawk l-impatti li l-MEPA kkunsidrat li aktarx ikunu sinjifikanti u, għalhekk, jeħtieġu iżjed studju. It-TtR ddeskrivew ukoll id-diversi komponenti tal-iSIA.

Dikjarazzjonijiet ta' Metodu

10. Thej jew Dikjarazzjonijiet ta' Metodu kif ikunu studjati l-impatti tal-iSkema fejn jidhlu l-oqsma ta': *geo-ambjent, pajsagġ u sbuħija tad-dehra, ekoloġija u hsejjes*.
11. Id-Dikjarazzjonijiet ta' Metodu jiddeskrivu fil-qosor ix-xogħol ta' sħarriġ bażiku li jrid jitwettag, il-metodoloġija li trid tithaddem biex jiġu studjati l-impatti mbassrin, u l-mezzi li bihom kellha tiġi ddeterminata l-importanza tal-impatti. Id-Dikjarazzjonijiet ta' Metodu kienu aċċettati mill-MEPA. Id-Dikjarazzjonijiet ta' Metodu huma riprodotti f'**Technical Appendix 1: Terms of Reference & Method Statements**.

Kif sar l-iSIA

12. Sar xogħol ta' sħarriġ bażiku b'rabta mal-oqsma tas-sugġetti tal-*geo-ambjent, pajsagġ u sbuħija tad-dehra, ekoloġija u hsejjes*, skond Area ta' Influwenza għal kull qasam ta' sugġett miftiehma b'konsultazzjoni mal-MEPA.
13. Sar studju ddettaljat tal-impatt li l-Iskema jkollha fuq il-karatteristiċi preżenti fis-Sit tal-iSkema u madwaru, u ġie identifikat kull benefiċċju ambjentali possibbli tal-Iskema.
14. Sar ukoll Studju tar-Riskji Ambjentali u ġie inkluz bħala parti mid-Dikjarazzjoni dwar l-Impatt Ambjentali (DIA).

Importanza tal-Impatti

15. L-istudju tal-importanza tal-impatti li jirrizultaw mill-Iskema huwa stadju ewlieni fil-proċess tal-iSIA. Huwa

dan il-gudizzju li jholl u jorbot biex il-proċess ta' tehid ta' deċiżjonijiet ikun wiehed infurmat. Izda jista' jkun diffiċli tiddefinixxi din l-importanza. F'termini ġenerali, l-importanza ambjentali tfisser li tistudja u tiżen l-ammont ta' tibdil ambjentali meqjus aċċettabbli għall-komunità (Sippe, 1999).

16. Il-kriterji li ntuzaw fl-iSIA biex jiġi studjat kemm huwa importanti impatt huma dawn:
 - tip tal-impatt (negattiv/benefiku);
 - firxa u kobor tal-impatt;
 - impatt dirett jew indirett;
 - kemm idum jinħass l-impatt (żmien qasir/fit-tul; permanenti/temporanju);
 - tqabbil ma' dak li jitolbu l-liġi, il-*policies* u l-*standards*;
 - kemm hu sensittiv dak li jintlaqat minnu (djar, lukanda, inhawi ta' rikreazzjoni, eċċ.);
 - probabbiltà li l-impatt iseħħ (ċert, aktarx, incert, aktarx le, remota);
 - kemm hu reversibbli l-impatt;
 - kemm hemm possibbiltà ta' mitigazzjoni/titjib (tajba ħafna, tajba, xejn); u

- impatti residwi.
17. Meta ntuzaw dawn il-kriterji, l-importanza tal-impatti li jirrizultaw mill-Iskema tqiegħdet f'kategoriji kif ġej:
- **mhux importanti**, fejn l-impatt huwa ambjentalment aċċettabbli;
 - **importanza żgħira**, fejn l-impatt jista' jkun ikkontrollat;
 - **importanza moderata** (fejn applikabbli), fejn l-impatt jista' jkun possibbli tikkontrollah f'ċerti ċirkustanzi, għalkemm aktarx jirrikjedi l-implimentazzjoni ta' miżuri mitigatorji xierqa, u
 - **importanza kbira**, fejn l-impatt jagħmel ħsara lill-ambjent u jeħtieġ disinn mill-ġdid jew miżuri mitigatorji biex jitnaqqas kemm jista' jkun.
18. Id-DIA fiha studju tal-importanza tal-impatti mbassrin u, wara l-implimentazzjoni ta' miżuri mitigatorji proposti, tal-importanza ta' xi impatti residwi. Gabra fil-qosor tal-impatti importanti identifikati tinsab f'**Kapitlu 10** tad-DIA. Il-miżuri mitigatorji rrakkomandati u l-impatti residwi huma deskritti għal kull qasam ta' suġġett, fl-aħħar tal-kapitlu rilevanti (ara **Kapitli 5** sa **8** tad-DIA). Studju tar-riskji ambjentali li jkopri t-tħaddim tal-iSkema qed jiġi ppreżentat f' **Kapitlu 9**.

Inċertezza

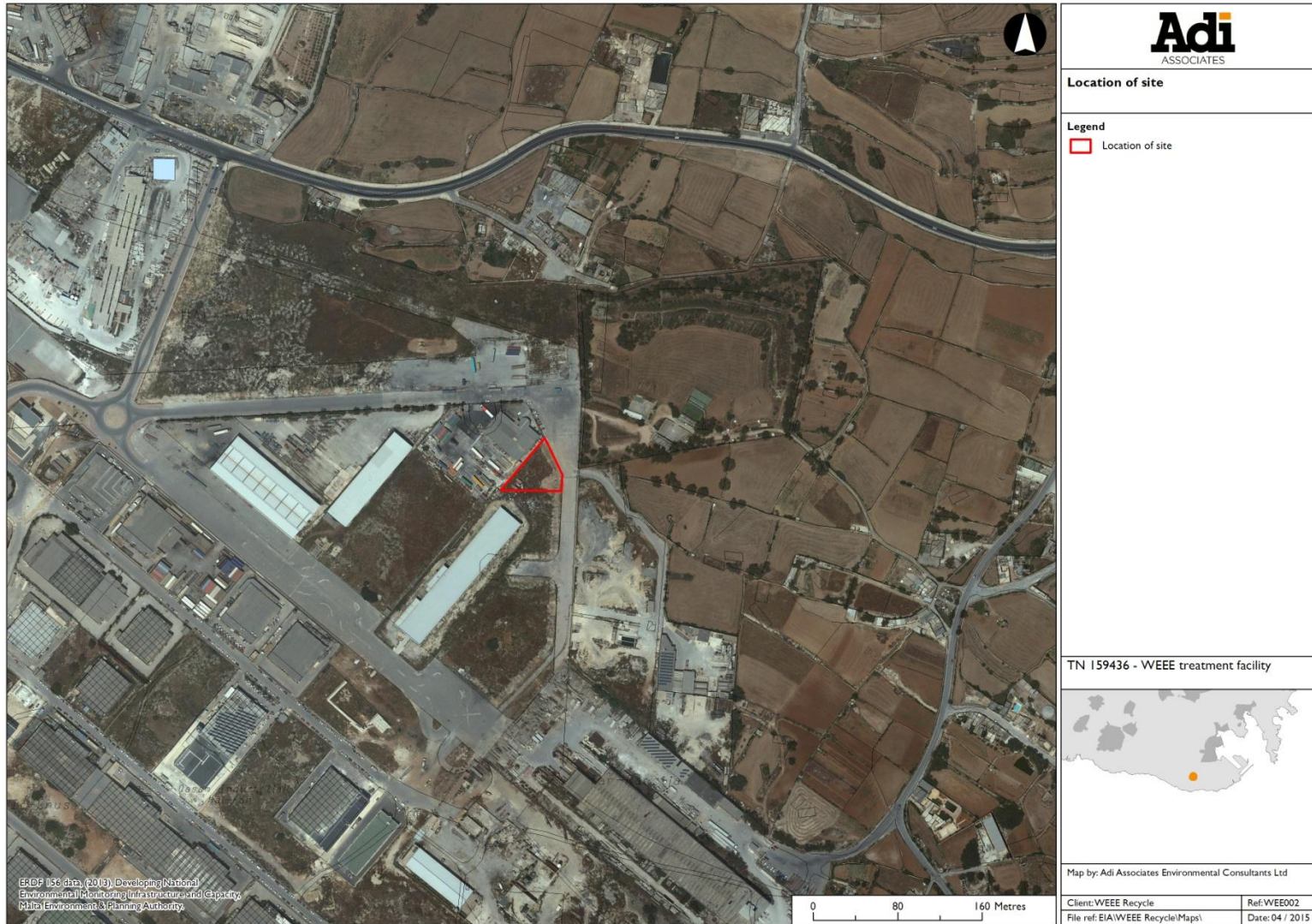
19. Il-proċess tal-iSIA huwa mfassal b'mod li jagħmilha possibbli li jittieħdu deċiżjonijiet tajbin ibbażati fuq l-aħjar informazzjoni possibbli dwar l-implikazzjonijiet ambjentali ta' żvilupp propost. Madankollu, dejjem ikun hemm xi inċertezza dwar il-kobor u n-natura eżatta tal-impatti ambjentali. Dan jiġi minn nuqqasijiet fl-informazzjoni, dubji, jew nuqqas ta' ċertezza fuq kemm hemm probabbiltà li haġa tigri, u/jew minhabba l-limitazzjonijiet tal-proċess tat-tbassir innifsu. Fejn qamu inċertezzi, u fejn baqgħu, jintqal b'mod ċar fid-DIA.

DESKRIZZJONI TAL-ISKEMA

20. L-iSkema tinsab fil-Qasam Industrijali ta' Hal Far (ara **Fig. 1**). L-iSkema hija faċilità ta' trattament u pproċessar għal skart elettriku u elettroniku. **Fig. 2** turi *block plan* tal-iSkema.
21. L-iSkema hija prinċipalment intiża għall-ħażna u t-trattament ta' dawn il-kategoriji ta' STEE:
- Tagħmir tad-dar ta' daqs medju inklużi fran microwave, fannijiet u radjaturi tal-elettriku;
 - Għodod żgħar tad-dar inklużi toasters, hdejjed tal-mogħdija, vacuum cleaners u hairdryers;
 - Tagħmir tal-IT u telekomunikazzjoni inklużi kompjuters, servers, photocopiers, mobile phones, printers, u facsimile machines;

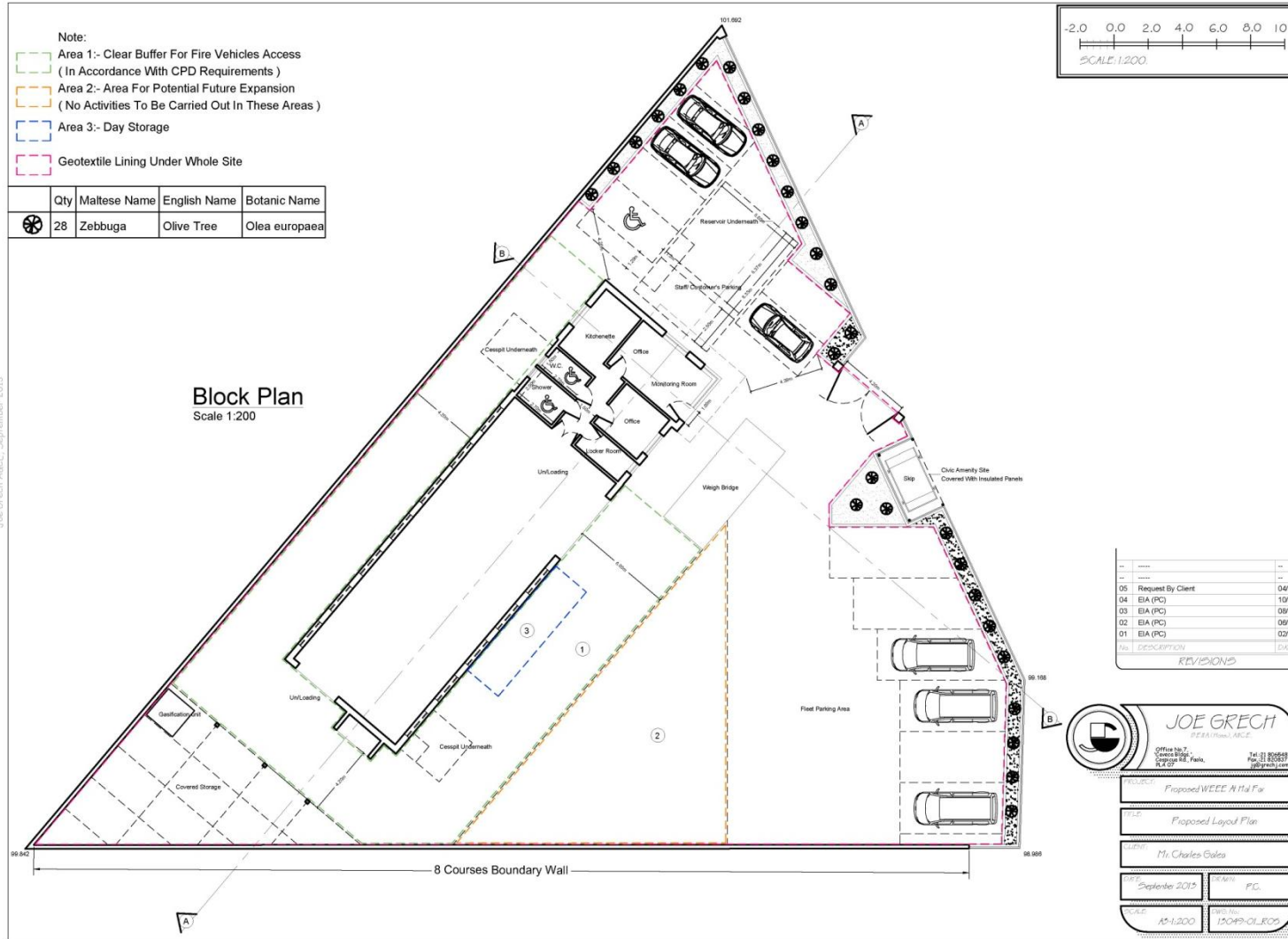
- Cathode ray tube (CRT) monitors u liquid crystal displays (LCDs);
 - Ogġetti elettronici ta' konsum inklużi DVD players, tagħmir Hi-Fi, kitarri elettrici, amplifikaturi, radjijiet u cameras;
 - CRT TVs u flat-panel TVs;
 - Tubi u dwal neon u fluworexxenti;
 - Għodod elettrici u elettronici inklużi trapani, srieraq elettrici, magni tal-ħjata, lawnmowers, sanders, nail guns, eċċ;
 - Ġugarelli, tagħmir ta' passatemn u sport inklużi video game consoles, tagħmir elettroniku għal taħriġ fiżiku, trenijiet elettrici u sistemi tat-tlielaq tal-karozzi, coin slot machines, eċċ;
 - Tagħmir mediku inklużi analizzaturi u tagħmir ta' imaging u radjoterapija;
 - Strumenti ta' monitoraġġ u kontroll inklużi smoke detectors u thermostats; u
 - Dispensaturi awtomatiċi inklużi dispensaturi tax-xorb frisk u snacks, u cash machines.
22. Ikunu aċċettati wkoll batteriji biex jinħażnu qabel ma jiġu esportati.
23. Barra minn hekk, l-iSkema sa tħaddem impjant ta' gassifikazzjoni għat-trattament tal-injam. L-iSkema tkun tinvolvi wkoll it-tqattigħ ta' skart ta' injam nadif fi bċejjeċ żgħar biex toħloq prodott li jista' jintuża biex jorqdu fuqu l-annimali jew għall-briquettes; din l-aħħar opzjoni ta' trattament tal-injam tintuża sa ma jibda jithaddem l-impjant tal-gassifikazzjoni u/jew bħala backup/riżerva għall-impjant tal-gassifikazzjoni.

Fig. 1: Post tal-iSkema



INDICATIVE ONLY - Not to be used for direct interpretation

Fig. 2: Block plan tal-iSkema



Kostruzzjoni tal-iSkema

24. Il-fazi tal-kostruzzjoni tinkludi t-tindif tas-sit, thaffir u kostruzzjoni tal-bini. Is-Soprintendenza tal-Wirt Kulturali (SWK) talbet li t-tindif tas-sit u t-thaffir tal-ħamrija/blat isiru *qabel* ma jinħareġ il-permess ta' żvilupp u jitlestha l-iSIA.

Immaniġġjar tal-Iskart waqt il-Kostruzzjoni

25. Skart iġġenerat mit-tindif tas-sit ingarr 'il barra mis-sit lejn faċilitajiet liċenzjati minn persuni rreġistrati għall-ġarr tal-iskart. Dan l-iskart kien prinċipalment fdal ta' materjal inert (aktarx minn attivitajiet ta' kostruzzjoni preċedenti fil-viċin), li ttehed f'post liċenzjat għar-radam ta' materjal inert. Kull skart ieħor mhux inert identifikat waqt it-tindif tas-sit kien isseparat skont it-tip u ntrema f'faċilitajiet oħrajn liċenzjati u awtorizzati li jilqgħu dak it-tip ta' skart.

THADDIM TAL-ISKEMA

26. It-trattament ta' kull xorta ta' STEE isir skont pjan ta' xogħol approvat mill-MEPA. B'mod ġenerali, il-proċess jinvolvi dan li ġej:
- Aċċettazzjoni ta' merkanzija u hażna f'naha mhejjija apposta;
 - Żmantellar bl-idejn u separazzjoni tal-komponenti f'tipi differenti ta' skart;
 - Ċerti komponenti jitgħaffġu bl-użu ta' wiehed minn

tliet kraxers, kif deskritt b'iktar dettall hawn taħt; u

- Hażna ta' kull tip ta' skart, isseparati skont it-tip, fi nħawi apposta qabel ma jkunu trasferiti lejn faċilitajiet awtorizzati, lokalment jew barra minn Malta.

27. **Kapitlu 3** jiddeskrivi dettaljatament l-ipproċessar tal-iskart li sa jsir fil-faċilità.

IMPATTI AMBJENTALI IMPORTANTI U MITIGAZZJONI

28. L-impatti mbassrin tal-Iskema kienu studjati qasam qasam, skond it-TtR. Attenzjoni partikulari nġhatat lill-impatti prinċipali mbassrin u kif dawn setgħu jkunu mitigati.

Ġeo-ambjent

29. L-impatt li l-iSkema huwa mbassar li jkollha fuq il-ġeoloġija u l-ġeomorfoġija ta' taħtha fl-A ta' I huwa meqjus li jvarja minn importanza żgħira sa kbira, billi jkun hemm skavar ta' riżorsi minerali, iżda, huwa maħsub, li biss madwar 1,130 m³ ta' materjal ikun skavat mis-Sit ta' l-iSkema.
30. Kif ġie identifikat ukoll fl-istudju tar-riskji (**Kapitlu 5 u Kapitlu 9**), jista' jkun hemm impatti fuq l-ilma tal-pjan b'riżultat ta' tixrid ta' żejt/fjuwil u batteriji li joqtru. Meta jitqiesu l-kwantitajiet żgħar li sa jinħażnu fis-sit u d-distanza mill-ilma tal-pjan, aktarx li, meta jittieħdu miżuri mitigatorji, l-impatt potenzjali huwa żgħir, u kbir biss f'każi ta' tixrid kbir.

31. Għal dik li hi mitigazzjoni, billi l-iSkema tkun mibnija fuq art iebsa u impermeabbli u tinkudi separatur tal-ilma miż-żejt u lqugħ speċifiku għal skart ta' żejt, l-impatt imbassar tal-iSkema fuq l-ilma tal-pjan huwa meqjus mhux importanti meta wiehed jagħti kas ir-riskju baxx identifikat fl-istudju dwar ir-riskju li tixrid li jista' jasal sal-ilma tal-pjan.
32. L-impatti potenzjali fuq l-ilma tal-pjan minhabba merkurju depożitat 'il barra mis-sit mhumiex magħrufa (ara **Kapitlu 9**). Din il-kwistjoni qed tkun indirizzata fid-dettall waqt il-proċess ta' applikazzjoni għall-permess KIPT.
33. F'każ ta' hruq, l-impatt potenzjali mill-ilma użat għat-tifi tan-nar aktarx ikun żgħir bis-saħħa tal-miżuri mitigatorji li jittiehdu: l-ilma użat jingabar fil-fossa/ġiebjia u kull ilma li jiskula mis-sit ikun ġie trattat. Il-possibbiltà ta' hruq hija kkunsidrata rari, bis-saħħa tal-proċeduri operazzjonali li jkunu segwiti biex jillimitaw il-kwantità maħżuna ta' skart li jista' jaqbad u r-riskju ta' nirien, ara wkoll **Kapitlu 9**.

Pajsaġġ u Sbuħija tad-Dehra

34. L-impatt tal-iSkema fuq il-pajsaġġ u s-sbuħija tad-dehra tal-inħawi mhux importanti.

Ekoloġija

35. Il-bini tal-iSkema jkollu bħala riżultat it-telfa tal-ġemgħa ta' veġetazzjoni li tikber fis-sit, li hija tipika ta' art imħarbta.
36. Meta titqies il-firxa relativa ta' dil-ġemgħa veġetazzjoni

ruderali, u meta nassumu li speċi mobbli (bħar-rettili) jkunu ċċaqalqu 'l barra mis-sit waqt it-tindif, u meta nikkonsidraw ukoll il-valur ekoloġiku limitat tas-sit, it-telfa tal-ġemgħa ta' veġetazzjoni nnotata fis-sit titqies li hi ta' importanza żgħira.

Hsejjes

37. Impatti ta' hsejjes fuq elementi sensitivi minhabba l-kostruzzjoni u l-operazzjoni mhumiex importanti.

Miżuri Mitigatorji

38. Fejn kien meħtieġ, miżuri mitigatorji ġew irrakkomandati u dawn huma deskritti fl-aħħar tal-**Kapitli 5 sa 8** u f'**Kapitlu 9**. Ikun floku, u huwa rakkomandat, li dawn il-miżuri mitigatorji jitqiesu fil-kondizzjonijiet meta u jekk jinħareġ permess ta' żvilupp.
39. Il-miżuri mitigatorji jinkludu:
- Il-wiċċ kollu tas-sit jinkesa bil-konkrit li tahtu jkollu membrana ġeotessili;
 - L-art tas-sit fil-beraħ titqieghed b'mod li taqleb lejn separatur tal-ilma miż-żejt qabel ma tferra' fil-ġiebjia;
 - Ilma maħmuġ minn kull hasil tal-art fil-bini fejn ikun trattat l-iSTEE jingabar f'gandotti, jiġi ffiltrat biex jitnehhew traċċi ta' tingis, u jitwassal f'fossa taht l-art biex jerga' jintuża;
 - Fil-ġiebjia u l-fosos taht l-art jasal biss ilma tal-ħamla

jew ilma użat li jkunu ġew trattati; u

- Il-fosos ikunu impermeabbli.



TN 159436

**REMOVAL OF DUMPED MATERIAL & CONSTRUCTION
OF INDUSTRIAL UNIT FOR THE
RECYCLING/TREATMENT OF WEEE, HHF 040, HAL
FAR, QASAM INDUSTRIJALI, BIRŽEBBUĠA**

ENVIRONMENTAL IMPACT STATEMENT

NON TECHNICAL SUMMARY

Version 1: July 2015

Report Reference:

Adi Associates Environmental Consultants Ltd, 2015. Removal of Dumped Material & Construction of Industrial Unit for the Recycling / Treatment of WEEE, HHF 040, Ħal Far, Qasam Industrijali, Birżebbuġa. Environmental Impact Statement prepared in support of development application no. TN 159436. San Gwann, 2015; ii + 10 pp.

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Quality Assurance

Removal of Dumped Material & Construction of Industrial Unit for the Recycling / Treatment of WEEE, HHF 040, Hal Far, Qasam Industrijali, Birżebbuġa.

Environmental Impact Statement

Report for: **Electronic Products Ltd**



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Revision Schedule

Rev	Date	Details	Written by:	Checked by:	Approved by:
00	July 2015	Submission to client	Krista Farrugia Consultant	Rachel Xuereb Director	Adrian Mallia Managing Director

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INTRODUCTION

1. This Environmental Impact Statement (EIS) was commissioned by Electronic Products Ltd, to support its proposal for the construction of an industrial unit for the recycling/treatment of waste electrical and electronic equipment (WEEE).
2. Following the submission of a Project Description Statement (PDS) for the proposed development in November 2014, the Malta Environment and Planning Authority (MEPA) determined that the development required an EIS, in accordance with Schedule IA, Category I Sections 2.7.1.1, of the *Environmental Impact Assessment Regulations, 2007* (Legal Notice 114 of 2007). The proposal also requires an Integrated Pollution Prevention Control (IPPC) permit to regulate its operations.
3. Hereafter in this EIS, the proposed development is referred to as 'the Scheme'. The Scheme site boundary is illustrated in **Figure 1**. A full description of the Scheme is provided in **Chapter 3** of the EIS.

Purpose of the EIS

4. The purpose of this EIS is to present the findings of the Environmental Impact Assessment (EIA). 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 by MEPA before a decision is made on whether or not the development should be approved.

Background to the Scheme

5. The Applicant has been carrying out his current operations from three garages located in the Ta' Magġi Industrial Zone in Żabbar. Current operations include the receipt of WEEE, separation of components through use of a main crusher (used for non-hazardous waste) and a cable crusher to separate the metal wiring from the plastic case thus facilitating recycling.
6. The Applicant intends to expand current operations to also include the use of a fluorescent tube crusher for the processing of fluorescent tubes and lamps, which constitute hazardous waste.
7. In addition, the Applicant stores over 50 tonnes of WEEE at his facility, qualifying his operation for an Integrated Pollution and Prevention Control permit in accordance with the Industrial Emissions Directive and Legal Notice 10 of 2013, Industrial Emissions (Integrated Pollution Prevention and Control) Regulations, 2013. Given this requirement, the Applicant intends to develop his new facility to operate in line with IPPC permit conditions.

Terms of Reference

8. The Terms of Reference (ToR) for the EIA were prepared by MEPA, in consultation with the relevant Government

Departments. The final version of the ToR is available in ***Technical Appendix I: Terms of Reference and Method Statements.***

9. The ToR were formulated following a scoping exercise, undertaken by MEPA, to identify the issues to be considered in the EIA. The ToR focused on those impacts MEPA considered likely to be significant and, therefore, requiring further assessment. The ToR also described the various components of the EIA.

Method Statements

10. Method Statements were prepared to assess the impacts of the Scheme in respect of the topic areas: *geo-environment, landscape and visual amenity, ecology and noise*.
11. The Method Statements outlined the baseline survey work to be carried out, the methodology to be used to assess the predicted impacts, and the means by which the significance of the impacts would be determined. The Method Statements were agreed to by MEPA. The Method Statements are reproduced in ***Technical Appendix I: Terms of Reference and Method Statements***.

EIA Approach

12. Baseline surveys were undertaken in relation to the topic areas *geo-environment, landscape and visual amenity, ecology, and noise*, having regard to an 'Area of Influence' for each topic area, agreed in consultation with MEPA.
13. A detailed assessment of the Scheme's impact on the features present on / within the Scheme Site and in its environs was undertaken, and any potential environmental benefits of the Scheme were identified.
14. An Environmental Risk Assessment was also carried out and included as part of the Environmental Impact Statement (EIS).

Significance of Impacts

15. Assessment of the significance of impacts arising from the Scheme is a key stage in the EIA process. This judgement is critical in informing the decision-making process. However, defining significance can be challenging. In general terms, environmental significance involves assessing the amount of change to the environment perceived to be acceptable to the community (Sippe, 1999).
16. The following criteria were used in the EIA 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 dwellings, hotel, recreational areas, etc.);
 - probability of impact occurring (certain, likely, uncertain, unlikely, remote);

- reversibility of impact;
 - scope for mitigation / enhancement (very good, good, none); and
 - residual impacts.
17. Using these criteria, the significance of the impacts arising from the Scheme was categorised, as follows:
- **not significant**, where the impact is environmentally acceptable;
 - **minor significance**, where the impact is manageable;
 - **moderate significance** (where applicable), where the impact may be manageable in certain circumstances, although is likely to require implementation of suitable mitigation measures and
 - **major significance**, where the impact is environmentally damaging and requires redesign or mitigation measures to minimise it.
18. The EIS includes an assessment of the significance of predicted impacts and, following the implementation of any proposed mitigation measures, the significance of any residual impacts. A summary of the identified significant impacts is included in **Chapter 10** of the EIS. The recommended mitigation measures, and residual impacts,

are described in respect of each topic area, at the end of the relevant chapter (see **Chapters 5 to 8** of the EIS). An environmental risk assessment covering the operation of the Scheme is presented in **Chapter 9**.

Uncertainty

19. The EIA process is designed to enable good decision-making based on the best possible information about the environmental implications of a proposed development. However, there will always be some uncertainty as to the exact scale and nature of the environmental impacts. This arises through shortcomings in information, doubts, or lack of certainty on the likelihood that an incidence will 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 EIS.

DESCRIPTION OF SCHEME

20. The Scheme is located in the Hal-Far Industrial Estate (refer to **Figure 1**). The Scheme is a treatment and processing facility for electrical and electronic waste. **Figure 2** shows a block plan of the Scheme.
21. The Scheme is mainly intended for the storage and treatment of the following WEEE categories:
- Medium-sized household appliances including microwave ovens, electric fans and electric radiators;
 - Small household appliances including toasters, irons,

vacuum cleaners and hairdryers;

- IT and telecommunications equipment including computers, servers, photocopiers, mobile phones, printers, and facsimile machines;
- Cathode ray tube (CRT) monitors and liquid crystal displays (LCDs);
- Consumer electronics including DVD players, hi-fi equipment, electric guitars, amplifiers, radios and cameras;
- CRT TVs and flat-panel TVs;
- Fluorescent and neon tubes / lights;
- Electrical and electronic tools including drills, electric saws, sewing machines, lawnmowers, sanders, nail guns, etc;
- Toys, leisure and sports equipment including video game consoles, electronic fitness equipment, electric trains and car racing systems, coin slot machines, etc;
- Medical devices including analysers, imaging and radio therapy equipment;
- Monitoring and control instruments including smoke detectors and thermostats; and
- Automatic dispensers including cold drinks and snacks

dispensers, and cash machines.

22. Batteries will also be accepted for storage prior to export.
23. In addition, the Scheme will operate a gasification plant for treatment of wood. The Scheme will also involve shredding clean wood waste to generate a product that can be used for animal bedding or briquettes; the latter wood treatment option will be used until the gasification plant is commissioned and / or to act as a backup for the gasification plant.

Figure 1: Location of the Scheme

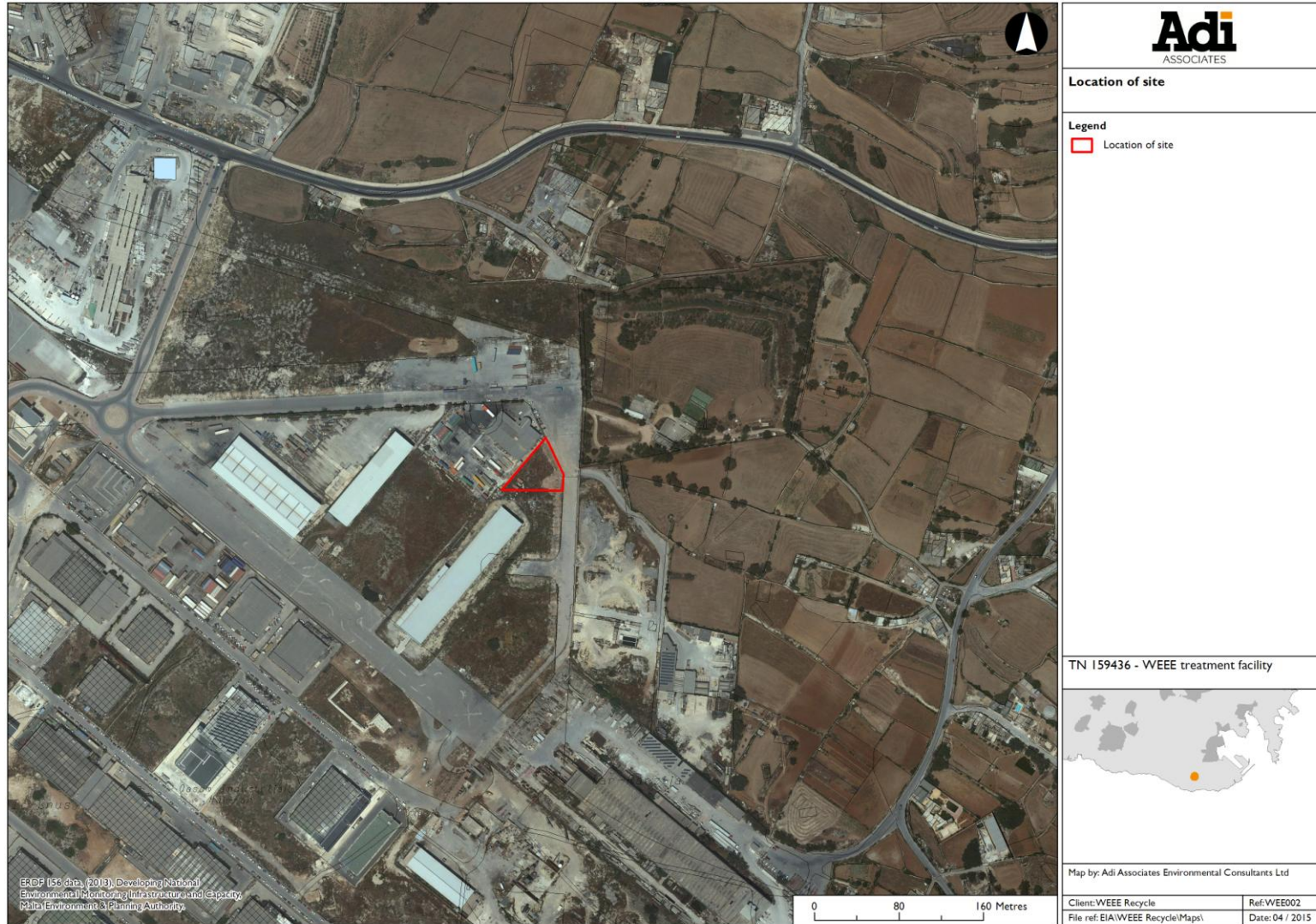
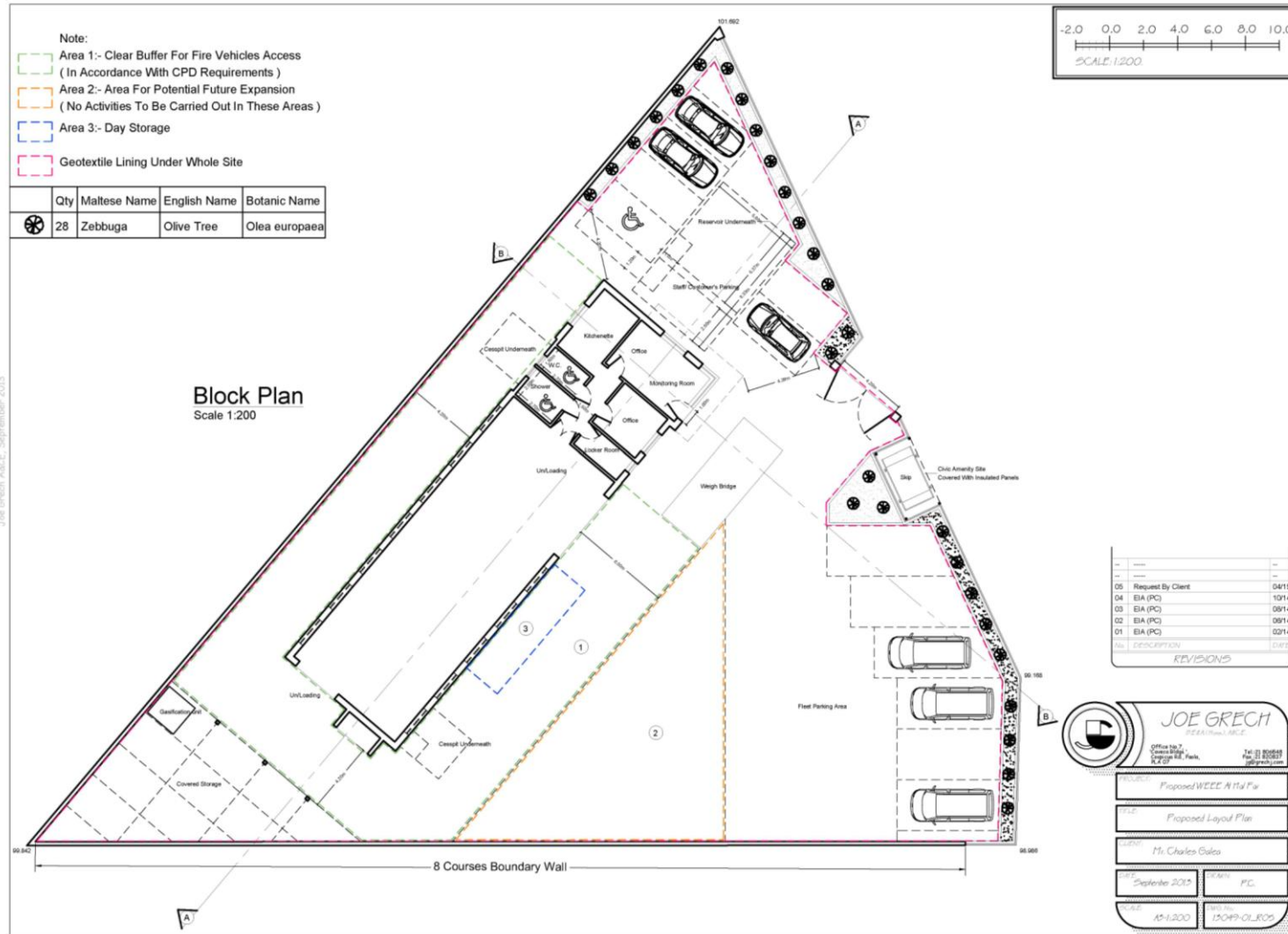


Figure 2: Block plan of the Scheme



Scheme Construction

24. The construction phase includes site clearance, excavation and building construction. The Superintendence of Cultural Heritage (SCH) required that site clearance and soil/material excavation be carried out *prior* to issuance of the development permit and completion of the EIA.

Waste Management during Construction

25. Wastes generated from site clearance were transported off-site to licensed facilities using registered waste carriers. This waste was mainly composed of inert rubble (probably from earlier construction activities in the vicinity), which was taken to a licensed inert landfill. Any other non-inert wastes identified during site clearance were segregated by type and disposed of at other licensed facilities authorised to receive that type of waste.

SCHEME OPERATION

26. Treatment of each WEEE stream will be carried out in accordance with a MEPA-approved work plan. In general, the process will involve the following steps:
- Receipt of goods and storage in a designated area;
 - Manual dismantling and segregation of components into different waste streams;
 - Crushing of certain components using one of three crushers, as described in further detail below; and

- Storage of each waste stream, segregated by type, in designated areas prior to transfer to authorised facilities, locally or abroad.

27. **Chapter 3** describes the waste processing to be carried out at the facility in detail.

SIGNIFICANT ENVIRONMENTAL IMPACTS AND MITIGATION

28. The predicted impacts of the Scheme were assessed on a topic area basis, in accordance with the ToR. Particular attention was given to the predicted principal impacts and how these could be mitigated.

Geo-environment

29. The predicted impact of the Scheme on the underlying geology and the geomorphology of the Aol is considered to be of minor to major significance, since it involves the extraction of mineral resources, however, it is envisaged that only approximately 1,130 m³ of material will be excavated from the Scheme Site.
30. As also identified in the risk assessment (**Chapter 5** and **Chapter 9**), potential impacts on the groundwater could result from spillages of oil/fuel and leakages from batteries. Given the small quantities to be stored on site and the distance to the water table it is likely that, with mitigation in place, the potential impact is minor, and major only in cases of a large spillage.

31. In terms of mitigation, given that the Scheme will include an impermeable hardstanding and oil-water interceptor, and with specific bunding in place for oily waste, the predicted impact of the Scheme on ground water is considered to be not significant given the low risk identified in the risk assessment of spillages able to reach the water table.

32. Potential impacts on ground water due to mercury deposition off-site are uncertain (refer to **Chapter 9**). This issue is being tackled in detail through the IPPC permit application process.

33. In the case of a fire, the potential impact from used firefighting water is likely to be minor because of the mitigation that is in place: used water will be collected in the cesspit / reservoir and any overflow leaving the site will have been treated. The likelihood of a fire is considered rare, due to the operational procedures that will be in place to limit the quantity of flammable waste stored and risk of fire, see also **Chapter 9**.

Landscape and Visual Amenity

34. The impact of the Scheme on the landscape and visual amenity of the area is not significant.

Ecology

35. Scheme construction will result in direct loss of the vegetation community growing on the site, which is typical of disturbed ground.

36. Given the relative extent of this ruderal community, and assuming mobile species (such as reptiles) migrated away from the site during site clearance, and also considering the limited ecological value of the site, the loss of the vegetation community recorded at the site is considered to be of minor significance.

Noise

37. Noise impacts on sensitive receptors from construction and operation are not significant.

Mitigation

38. Where appropriate, mitigation measures have been recommended and these are described at the end of **Chapters 5 to 8** and in **Chapter 9**. 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.

39. Mitigation measures include:

- The entire site surface will be covered in concrete underlain by a geotextile membrane;
- The ground in outdoor areas of the site will be laid to fall towards an oil-water interceptor before being received in the reservoir;
- Wastewater from any washing of floors in the WEEE treatment building will be collected in

gutters, filtered to remove trace contaminants, and received in an underground cesspit for reuse;

- Only treated surface water / wastewater will be received in the underground reservoir and cesspits; and
- Cesspits will be impermeable.



TN 159436

**REMOVAL OF DUMPED MATERIAL & CONSTRUCTION OF INDUSTRIAL UNIT
FOR THE RECYCLING/TREATMENT OF WEEE, HHF 040, ĦAL FAR, QASAM
INDUSTRIJALI, BIRŻEBBUĠA**

ENVIRONMENTAL IMPACT STATEMENT



Version 1: July 2015



Report Reference:

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Quality Assurance

Removal of dumped Material & Construction of Industrial Unit for the Recycling/Treatment of WEEE, HHF 040, Hal Far, Qasam Industrijali, Birżebbuġa Environmental Impact Statement July 2015

Report for: **Electronic Products Ltd**

Revision Schedule

Rev	Date	Details	Written by:	Checked by:	Approved by:
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CONSULTANTS' DECLARATION

Adi Associates Environmental Consultants Ltd, Malta, prepared this Environmental Impact Statement (EIS).

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 Environmental Consultants Ltd 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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Managing Director, Adi Associates

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APPENDICES

Appendix 1: A3 Photographs

Appendix 2: Archaeological Investigation Terms of Reference

I. INTRODUCTION

- I.1. This Environmental Impact Statement (EIS) was commissioned by Electronic Products Ltd, to support its proposal for the construction of an industrial unit for the recycling/treatment of waste electrical and electronic equipment (WEEE).
- I.2. Following the submission of a Project Description Statement (PDS) for the proposed development in November 2014, the Malta Environment and Planning Authority (MEPA) determined that the development required an EIS, in accordance with Schedule 1A, Category I Sections 2.7.1.1, of the *Environmental Impact Assessment Regulations, 2007* (Legal Notice 114 of 2007).
- I.3. Hereafter in this EIS, the proposed development is referred to as 'the Scheme'. The Scheme site boundary is illustrated in **Figure 1.1**. A full description of the Scheme is provided in **Chapter 3** of the EIS.

BACKGROUND TO THE SCHEME

- I.4. The Applicant has been carrying out his current operations from three garages located in the Ta' Magġi Industrial Zone in Żabbar. Current operations include the receipt of WEEE, separation of components through use of a main crusher (used for non-hazardous waste) and a cable crusher to separate the metal wiring from the plastic case thus facilitating recycling.
- I.5. The Applicant intends to expand current operations to include the use of a fluorescent tube crusher for the processing of fluorescent tubes and lamps, which constitute hazardous waste and which would, therefore, require the installation of an appropriate abatement system for air emissions and waste water.
- I.6. In addition, the Applicant stores over 50 tonnes of WEEE at his facility, qualifying his operation for an Integrated Pollution and Prevention Control permit in accordance with the Industrial Emissions Directive and Legal Notice 10 of 2013, Industrial Emissions (Integrated Pollution Prevention and Control) Regulations, 2013. Given this requirement, the Applicant intends to develop his new facility to operate in line with IPPC permit conditions.

PURPOSE OF THE EIS

- I.7. The purpose of this EIS is to present the findings of the Environmental Impact Assessment (EIA). EIA is the process of systematically assessing the likely significant environmental impacts of the proposals. EIA also ensures that the significance of these impacts, and the scope for reducing them, is clearly understood by both the public and by MEPA before a decision is made on whether or not the proposal should be approved.

STRUCTURE OF THE EIS

- I.8. Following this introduction, the EIS is structured as follows:
- **Chapter 2:** EIA Methodology
 - **Chapter 3:** Description of Site and Scheme
 - **Chapter 4:** Legislation and Policy Context
 - **Chapter 5:** Geo-environment
 - **Chapter 6:** Landscape and Visual Amenity
 - **Chapter 7:** Ecology
 - **Chapter 8:** Noise
 - **Chapter 9:** Environmental Risk Assessment
 - **Chapter 10:** Key Impacts, Cumulative Effects and Summary of Mitigation
 - **Appendix 1:** Baseline Photos and Photomontages
 - **Appendix 2:** Archaeological Investigation Terms of Reference
- I.9. The EIS also contains the following Technical Appendices (compiled separately as Volume 2 of the EIS):
- **Technical Appendix 1:** Terms of Reference and Method Statements
 - **Technical Appendix 2:** Geo-Environment Baseline Report
 - **Technical Appendix 3:** Noise Baseline Report
- I.10. The EIS includes a Non Technical Summary in Maltese and English.

Figure I.1: Location of the Scheme



INDICATIVE ONLY - Not to be used for direct interpretation

2. EIA METHODOLOGY

INTRODUCTION

- 2.1. This chapter sets out the broad methodology that was used in the Environmental Impact Assessment (EIA) of the Scheme. It sets out 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*. The Malta Environment and Planning Authority (MEPA) has directed that an Environmental Impact Statement (EIS) be prepared for Scheme.

Terms of Reference

- 2.3. The Terms of Reference (ToR) for the EIA were prepared by MEPA in consultation with the relevant Government Departments. The final version of the ToR is included in ***Technical Appendix I: Terms of Reference and Method Statements***.
- 2.4. The ToR were formulated following a scoping exercise, undertaken by MEPA, to identify the issues to be considered in the EIA. The ToR focused on those impacts of the Scheme considered by MEPA to be significant and, therefore, requiring further assessment, and avoiding the examination of all potential environmental impacts. The ToR also outlined the various components of the EIA.

Method Statements

- 2.5. As required by the EIA Regulations, all the Consultants involved in this EIS were approved by MEPA.
- 2.6. Method Statements were prepared in respect of the topic areas: **geo-environment; landscape and visual amenity; ecology; and noise**. The Method Statements addressed the following:
- Introduction, listing the objectives of the study and reference to the ToR;
 - Details of baseline survey methodology;
 - Description of the Area of Influence and sensitive receptors;
 - Field survey methodology, as relevant;
 - Analytical methodology;
 - Evaluation of data;
 - Identification of impacts;

- Prediction of impacts;
- Impact significance; and
- Mitigation.

2.7. All Method Statements were accepted by MEPA, and were subsequently used as the basis for carrying out the individual baseline surveys. The accepted Method Statements are included in **Technical Appendix 1: Terms of Reference & Method Statements**.

EIA approach

- 2.8. 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, leading to the production of a more environmentally sensitive project. This approach was adopted for this EIA.
- 2.9. Baseline surveys for the specialist EIA topics were undertaken by the Consultants based on the Area of Influence (Aol) and sensitive receptors agreed with MEPA for each topic area. A detailed assessment of the Scheme's impact on the features present within the Aol and on the sensitive receptors was undertaken, and any potential environmental benefits of the Scheme identified.

Significance of impacts

- 2.10. Assessment of the significance of impacts arising from the Scheme 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, 1999).
- 2.11. The following criteria were used in this EIA 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 dwellings, hotels, recreational areas, etc.);
 - Probability of impact occurring (certain, likely, uncertain, unlikely, remote);
 - Reversibility of impact;
 - Scope for mitigation / enhancement (very good, good, none); and

- Residual impacts.
- 2.12. Using these criteria, the significance of the impacts arising from the Scheme was categorised in the EIS, as follows:
- **Not significant;**
 - **Minor significance;** and
 - **Major significance.**
- 2.13. An additional criterion, describing **moderate significance** was included for the landscape and visual, as well as the noise assessments, as was considered appropriate in line with the changes being described.
- 2.14. Definitions of the meaning of the ‘significance categories’ above in relation to each topic area are included in the topic area chapters (see **Chapter 5** to **Chapter 9**). However, in general terms, if an impact is ‘not significant’, it is considered to be environmentally acceptable; an impact of ‘minor significance’ refers to an impact that is considered to be manageable; and an impact of ‘major significance’ refers to 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. For a definition of moderate significance in terms of landscape and visual assessment and noise, refer to **Chapter 6** and **Chapter 8**. However, in general terms, it is considered that a noise impact of ‘moderate significance’ refers to an impact that may be manageable in certain circumstances, although is likely to require implementation of suitable mitigation measures to minimise the impact as far as possible ensuring that the residual impact is lower than the predicted outcome.
- 2.15. The EIS includes an assessment of the significance of predicted impacts and, following the implementation of any proposed mitigation measures, the significance of any residual impacts. A summary of the identified significant impacts is included in **Chapter 10**. The recommended mitigation measures, and residual impacts, are described in respect of each topic area, at the end of the relevant chapter (see **Chapter 5** to **Chapter 9**).

UNCERTAINTY

- 2.16. The EIA process is designed to enable good decision-making based on the best possible information about the environmental implications of a proposed development. However, there will always be some uncertainty as to the exact scale and nature of the environmental 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 EIS.

3. DESCRIPTION OF SCHEME AND SITE

INTRODUCTION

- 3.1. This chapter describes the Scheme. It explains the purpose and justification for the Scheme and includes a description of the Scheme site and its surroundings.

PURPOSE AND OBJECTIVES OF THE SCHEME

- 3.2. The primary objective of the Scheme is to provide a facility for the preparation for recovery of WEEE.
- 3.3. The Scheme aims to:
- Develop a new purpose-built WEEE treatment facility that is equipped with air abatement, surface water management and pollution prevention measures;
 - Facilitate Malta's achievement of the minimum WEEE collection rate and WEEE recovery targets set by the Waste Management Plan for the Maltese Islands (2014-2020) and Legal Notice 204 of 2014, the Waste Management (Electrical and Electronic Equipment) Regulations.

DEMAND FOR THE SCHEME

- 3.4. In receiving and processing waste from electrical and electronic equipment resulting in an output that can largely be reused, recycled or recovered, the Scheme is directly contributing to a national collection rate of WEEE by 2021 and national reuse, recycling and recovery targets for 2018 set out in the Waste Management Plan for the Maltese Islands: A Resource Management Approach (2014-2020) as discussed in **Chapter 4**.

PLANNING POLICY CONTEXT FOR THE SCHEME

- 3.5. The Scheme is generally in line with national and planning policy, specifically: the *Structure Plan for the Maltese Islands 1990* and the *South Malta Local Plan 2006*.
- 3.6. The relevant sections of these policy documents are explained in detail in **Chapter 4** of the EIS; however, the planning policy justification for the Scheme is summarised below.

Structure Plan for the Maltese Islands

- 3.7. Structure Plan **POLICY SET 10** identifies Hal Far as an area within which major development will be undertaken also as identified in **POLICY IND 1**.
- 3.8. The Structure Plan also provides a basis for regulating the built environment and development generally. **POLICY BEN 1** and **POLICY BEN 2** provide that development should not have a deleterious impact on its surroundings. **POLICY BEN 12** provides for the request by MEPA of an EIA, in order to determine the impacts of a development and to mitigate any possible negative impacts.

South Malta Local Plan

- 3.9. The Scheme site lies within the Hal Far Industrial Estate. **POLICY SMHF01** concerns the industrial development boundary and seeks to also ensure the upgrading and improvement of the industrial development zone and ensure that negative environmental impacts are kept to a minimum and environmental considerations included during development application stage through the use of EIA and or TIS as appropriate.

SITE DESCRIPTION

Scheme site

- 3.10. The Scheme site covers an area of approximately 1,600 m². The site is located close to the eastern boundary of the Hal Far Industrial Estate. Access is through a wide surfaced road.
- 3.11. The site is currently unused, disturbed land. The site surface is covered in construction / demolition waste and the area is overgrown with vegetation.
- 3.12. The site used to form part of the taxiway / park at the former Hal Far airfield, which operated between the 1920s and the 1970s.
- 3.13. **Figure 1.1 (Chapter 1)** shows the Scheme site location. **Figure 3.1** illustrates the site as it was at the start of the planning application process.

Archaeological value

- 3.14. On issuance of the EIA Terms of Reference (by MEPA), the Applicant was also issued with Terms of Reference for site investigation from an archaeological perspective by the Superintendence of Cultural Heritage (SCH). The latter Terms of Reference required the Applicant to remove the construction/demolition waste from the Scheme site. Soil removal was also required, in the constant presence of an approved archaeologist. The SCH's Terms of Reference had also referred to the need for site excavation. However, SCH later indicated that soil removal would provide sufficient indication at this stage of whether the site is of archaeological importance.
- 3.15. As per the Terms of Reference issued by the Superintendence of Cultural Heritage on the 23rd April 2015, an archaeological investigation was requested in order to determine the cultural importance of HHF040, Hal-Far (refer to **Appendix 2** for ToR). The investigation commenced in February and was completed in June 2015. Any modern rubble or vegetation was removed in order to allow the monitor to carry out a field survey. From the field survey, the monitor retrieved one piece of non diagnostic pottery shard and one piece of bone. Following this process, the site was divided into Area A and Area B. In Area A, only sterile soil was removed and the uncovered bedrock was very friable. No features or archaeological deposits were noted in this area. In Area B, only sterile soil was removed. As this area has different gradients in the rock contours, the client opted to clean three sub areas (instead of brushing the entire area) as works had to be carried out manually. The monitor

inspected these three sub areas and no features were noted. All the necessary documentation has been submitted to Superintendence.

Figure 3.1: Scheme Site



Surrounding uses

- 3.16. A land use survey was carried out in October 2014 (refer to **Figure 3.2**). The primary land uses in the area around the Scheme site are industrial and agricultural.
- 3.17. The Scheme site is located in a block surrounded by two wide roads. This block is composed of unused and disturbed land, storage areas including a container depot, and a steel manufacturing facility (refer to **Figure 3.3**). Access to another road south of the Scheme was blocked by trailers during the survey.
- 3.18. Agricultural fields dominate the north and eastern boundaries of the area of study. There is also a residence around 170 m north of the Scheme site (refer to **Figure 3.4**).
- 3.19. The Southern Shooting Club shooting range is found immediately to the northeast of the Scheme, on the other side of the road (refer to **Figure 3.5**). To the southeast of the Scheme, concrete batching plants cover an extensive area of land (refer to **Figure 3.6**).
- 3.20. A mix of industries is located southwest of the Scheme site: pharmaceuticals, transportation, manufacturing and oil-related activities (refer to **Figure 3.7**). A vacant unit is still under construction. It is unclear whether an existing building in this area is already in use.
- 3.21. The area northwest of the Scheme site is characterised by unused land and a large open-air storage area for metal structures (rods and tubes) (refer to **Figure 3.8**).
- 3.22. A number of electricity substations are also scattered over the area of study (refer to **Figure 3.9**). The ones visible during the survey have been mapped; however, there may also be other substations within individual facilities that are not visible from the road.

Figure 3.2: Surrounding land uses

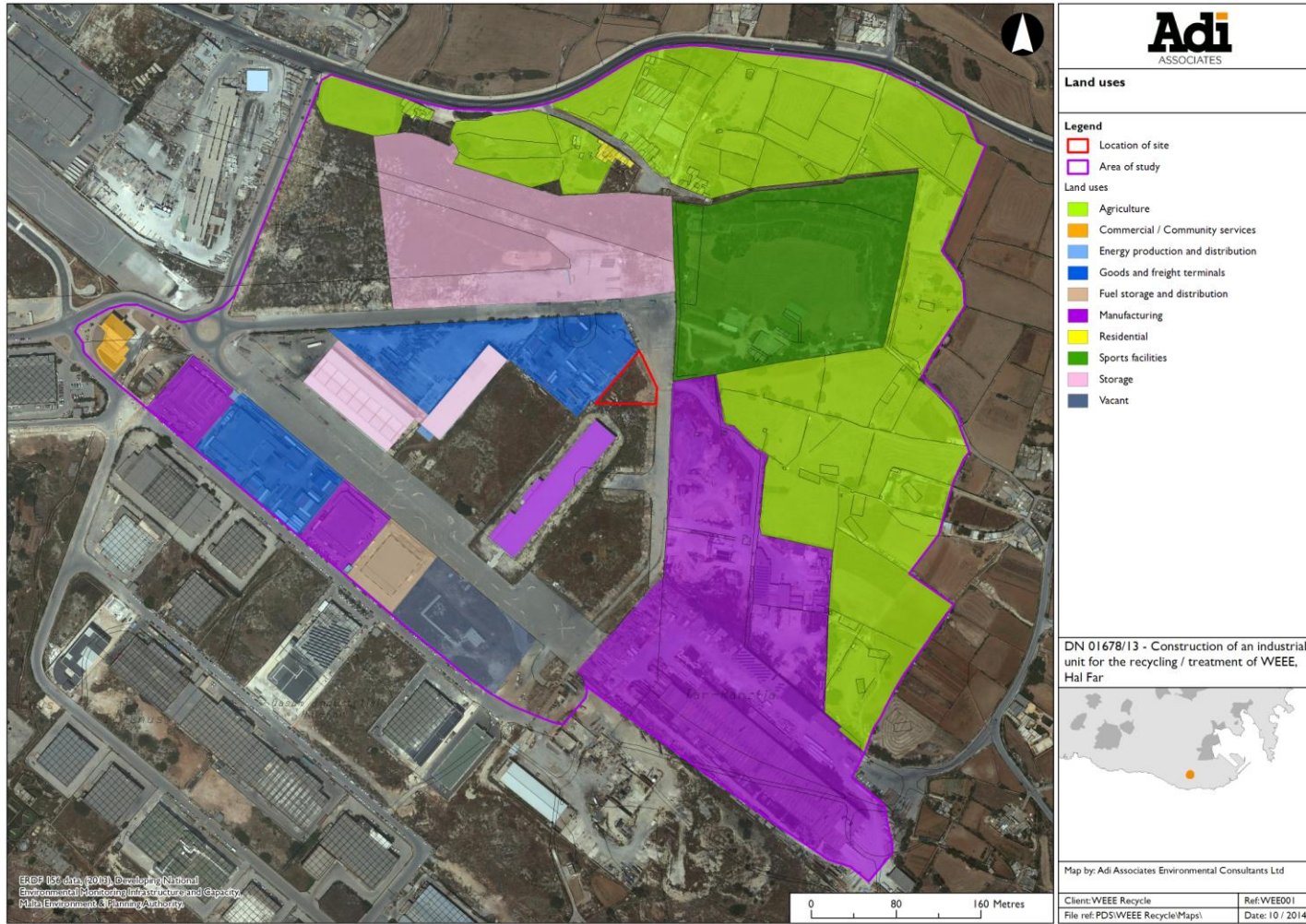


Figure 3.3: Adjacent properties to the Scheme



Figure 3.4: Agricultural fields to the southeast of the Scheme



Figure 3.5: Southern Shooting Club shooting range



Figure 3.6: Concrete batching plants



Figure 3.7: Various industrial uses



Figure 3.8: Open air storage



Figure 3.9: Electricity substations



SCHEME DESCRIPTION

- 3.23. The proposed layout of the Scheme is shown in **Figure 3.10** and **Figure 3.11**.
- 3.24. On entrance into the treatment facility, input (and output) material is weighed on the weigh bridge, and the incoming waste and outgoing materials (following processing) are inspected and sorted for segregated storage in the area marked as day storage in **Figure 3.10**. A WEEE treatment building is located almost adjacent to the weighbridge, and offices, a kitchenette and toilets (linked to a cesspit) abut the unloading hall.
- 3.25. A small skip where customers can deposit small quantities of waste outside opening hours (denoted as civic amenity site in **Figure 3.10**) is located near the entrance to the facility, within the site's footprint.
- 3.26. The WEEE treatment building will include:
- Pre-treatment storage on pallets;
 - A dismantling area for general WEEE;
 - Main crusher;
 - Cable crusher;
 - Neon tube crusher room (with air filtration and associated cesspit);
 - Containers for incoming fluorescent tubes (outside the tube crusher room for unbroken tubes, and inside the crusher room for broken tubes);
 - A cathode ray tube breaking room equipped with filters to treat the air prior to its release;
 - Post-treatment storage on pallets for dismantled WEEE components;
 - A bunded area for diesel storage;

- Battery storage bins; and
 - A waste oil tank.
- 3.27. A covered shed for storage is located at the back of the facility; the shed will also be used for basic maintenance of site vehicles. The gasification unit is also located in this area.
- 3.28. A fleet parking area as well as parking for staff and customers is available within the Scheme footprint.
- 3.29. The Scheme is mainly intended for the storage and treatment of the following WEEE categories:
- Medium-sized household appliances including microwave ovens, electric fans and electric radiators;
 - Small household appliances including toasters, irons, vacuum cleaners and hairdryers;
 - IT and telecommunications equipment including computers, servers, photocopiers, mobile phones, printers, and facsimile machines;
 - Cathode ray tube (CRT) monitors and liquid crystal displays (LCDs);
 - Consumer electronics including DVD players, hi-fi equipment, electric guitars, amplifiers, radios and cameras;
 - CRT TVs and flat-panel TVs;
 - Fluorescent and neon tubes / lights;
 - Electrical and electronic tools including drills, electric saws, sewing machines, lawnmowers, sanders, nail guns, etc;
 - Toys, leisure and sports equipment including video game consoles, electronic fitness equipment, electric trains and car racing systems, coin slot machines, etc;
 - Medical devices including analysers, imaging and radio therapy equipment;
 - Monitoring and control instruments including smoke detectors and thermostats; and
 - Automatic dispensers including cold drinks and snacks dispensers, and cash machines.
- 3.30. Batteries will also be accepted for storage prior to export.
- 3.31. In addition, the Scheme will operate a gasification plant for treatment of wood. The Scheme will also involve shredding clean wood waste to generate a product that can

be used for animal bedding or briquettes; the latter wood treatment option will be used until the gasification plant is commissioned and / or to act as a backup for the gasification plant.

- 3.32. *Olea europaea* trees will be planted in order to landscape the site as shown in **Figure 3.10**.

Figure 3.10: Scheme layout

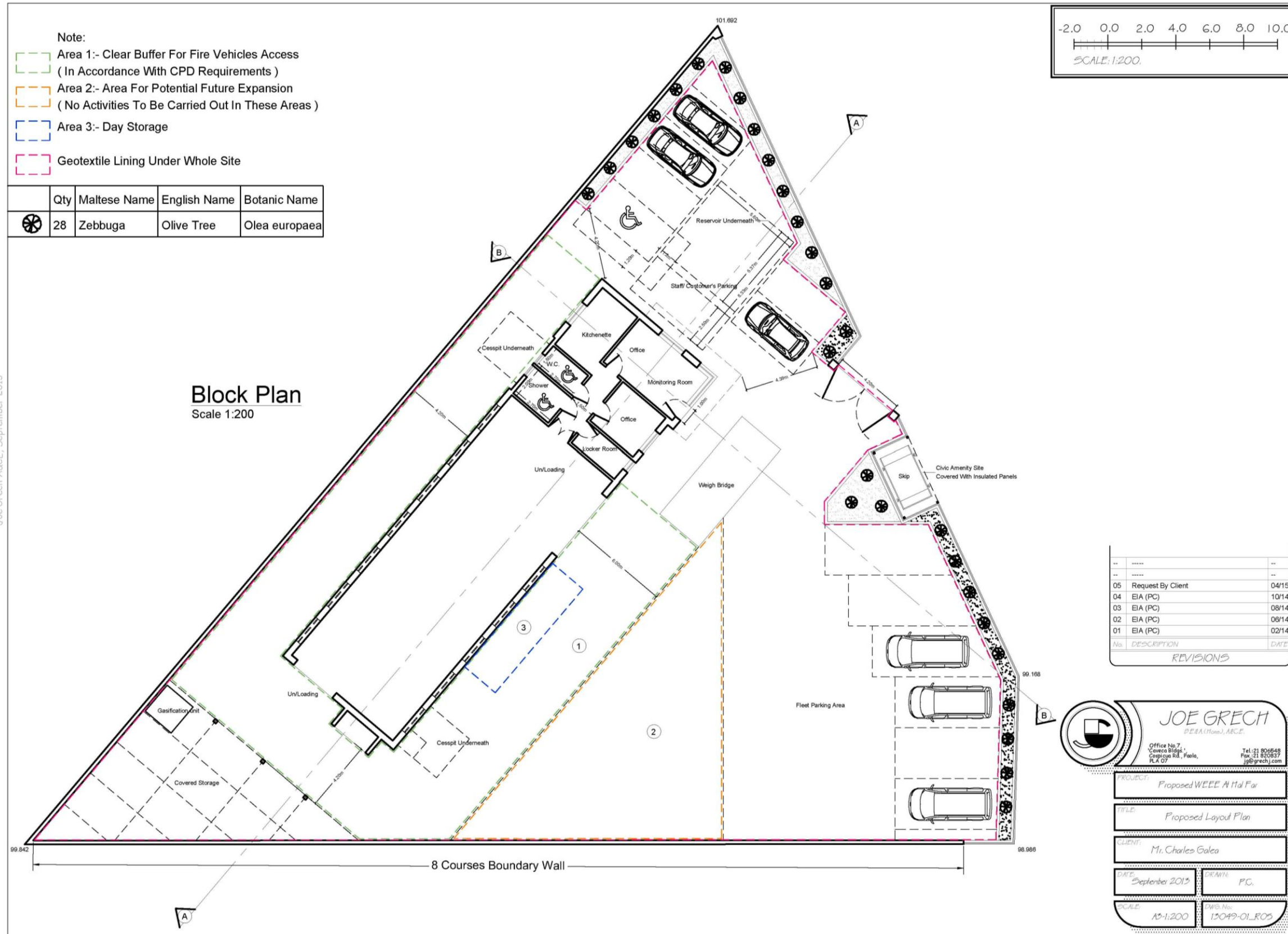
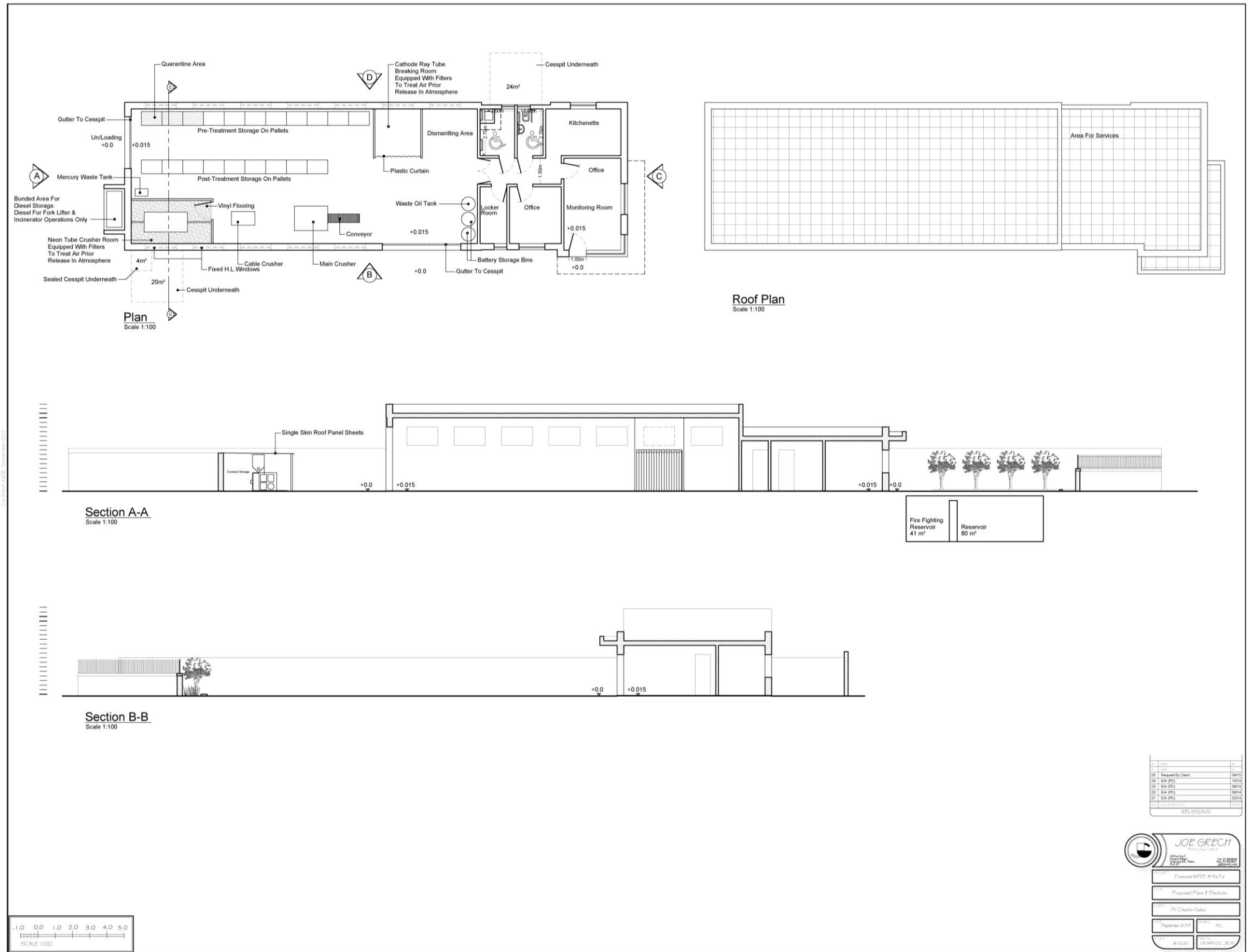


Figure 3.1 I: Scheme plans (central building) and sections



Incoming waste and raw materials

3.33. **Table 3.1** identifies the wastes to be accepted on site and the treatment method proposed.

Table 3.1: Incoming waste

EWG code	H-code ¹	Description	Estimated annual quantities	Treatment
16 02 13* 16 02 14 16 02 15* 16 02 16 08 03 17* ² 08 13 18 09 01 10 09 01 11* 09 01 12 20 01 35* 20 01 36	H5, H14	WEEE and WEEE components / parts	500 tonnes	Manual dismantling, crushing of cables and non-hazardous components
16 02 13* 20 01 35*	H5, H14	CRT televisions and monitors	300 tonnes	Dismantled and broken in CRT breaking room, gasification of wooden components (e.g. from old TVs)
16 02 13* 20 01 21*	H5/6, H14	Fluorescent tubes and bulbs	30 tonnes	Crushed in crusher room (after removing from housing, where applicable)
16 02 11* 16 02 13* 20 01 23*	H5, H14	Fridges / freezers	200 tonnes	Storage prior to export
16 06 01* 16 06 02* 16 06 03* 16 06 04 20 01 33* 20 01 34	H5/6, H8, H14	Batteries	50 tonnes	Storage prior to export
15 01 01 15 01 02 15 01 06	-	WEEE-related packaging	25 tonnes	Segregated from WEEE and sent to an authorised recycling facility
03 01 04* 03 01 05 15 01 03 17 02 01 19 12 06* 19 12 07 20 01 37* 20 01 38	H3, H5	Wood items (e.g. pallets, offcuts, wooden packaging from old TVs)	100 tonnes	Gasification; Non-hazardous wood may alternatively be shredded and sold for use as animal bedding / briquettes

¹ Applicable only when the waste is hazardous.

² Referring to toner cartridges.

3.34. The principal raw materials during operation are identified in **Table 3.2**.

Table 3.2: Raw materials

Raw material	Associated activity	Maximum quantity stored on site	Storage location and containment
Diesel	Operation of on-site forklifts and trucks	50 L	Stored in drums in a locked and bunded shed; the bund capacity will be at least 110% of the total materials stored inside it.
Engine start formula	Operation of an older truck (assists with cold diesel engine start-up)	500 mL	Locked and bunded shed; the bund capacity will be at least 110% of the total materials stored inside it.
LPG	Operation of a forklift truck	25 kg	Cylinder inside the main building, against a wall next to the waste oils tank.
Hydraulic oil	Maintenance of on-site forklifts and trucks	25 L	Stored in a drum in a locked and bunded shed.
Charcoal	Start-up of gasification plant	100 kg	Covered shed close to the gasification plant.

Waste treatment

WEEE processing

3.35. Treatment of each WEEE stream will be carried out in accordance with a MEPA-approved work plan. In general, the process will involve the following steps:

- Receipt of goods and storage in a designated area;
- Manual dismantling and segregation of components into different waste streams;
- Crushing of certain components using one of three crushers, as described in further detail below; and
- Storage of each waste stream, segregated by type, in designated areas prior to transfer to authorised facilities, locally or abroad.

3.36. Manual dismantling and segregation of components will be carried out in the dismantling area identified in **Figure 3.11**, with the exception of CRT monitors and TV sets, which will be dismantled in the purpose-built CRT breaking room. Dismantling of CRT monitors will be carried out by first dismantling the casings and circuitry, then breaking the glass neck.

3.37. Three crushers are proposed:

- **Main crusher:** This crusher (refer to **Figure 3.12**) will be used for non-hazardous waste, and is able to process a range of materials, including non-ferrous metals, plastic materials, composite materials, wood, etc. It will also be equipped with a conveyor belt to allow for manual removal of unwanted materials (e.g. iron parts) before they enter the crusher;

- Cable crusher: This crusher will facilitate the recycling of electric cables through a process of grinding and separating the plastic from the copper / aluminium components (refer to **Figure 3.13**); and
- Fluorescent tube crusher (refer to **Figure 3.14**): Fluorescent tubes and lamps will be fed into the rotating drum and crushed. Glass fragments collected at the base of the drum will then be washed with water to remove mercury, and the clean glass will be collected in jumbo bags. This activity allows clean glass to be generated and the volume of the tubes to be significantly reduced, thus reducing storage space requirements and shipping costs. The crushing area has also been purposely designed to minimise air emissions and land / groundwater contamination – the crusher will be housed inside two rooms with extensive air treatment, while wastewater will be filtered using a specialised mercury filter and stored in a sealed cesspit prior to reuse in the same process.

Figure 3.12: Main crusher



Figure 3.13: Cable crusher



Figure 3.14: Fluorescent tube crusher



- 3.38. When a WEEE stream is not covered by an approved work plan, no treatment on site will be carried out. In these cases, the waste will be stored on site (typically in the shed) prior to shipment, without any dismantling or processing. This option is planned for those categories of WEEE that the site will not be equipped to treat, such as refrigeration equipment containing ozone-depleting substances. Similarly, waste batteries will also be accepted on site for temporary storage in a bunded area in the main building prior to shipment to an authorised facility abroad. The processes will be regulated by an IPPC permit, which is being prepared concurrently with this EIS.

Wood processing

- 3.39. Wood can be processed at the Scheme in two ways:
- Used for production of syngas in a gasification plant; the syngas is then combusted in a combined heat and power (CHP) plant for the generation of heat and electricity; and / or
 - Shredded to generate a product that can be used for animal bedding or briquettes.
- 3.40. Shredding of clean waste wood for reuse will be carried out until the gasification plant is commissioned and / or to act as a backup for the gasification plant when necessary.
- 3.41. The gasification plant consists of two elements:
- A gasifier (wood carburettor) to generate syngas from wood; and
 - A combined heat and power (CHP) plant.
- 3.42. During start up, the gasifier is brought up to the required temperature (up to 1,200 °C) using charcoal.

- 3.43. When the required temperature has been reached, shredded wood is fed into the carburettor, which produces combustible gas (syngas) in a partial combustion process.
- 3.44. The gasifier is of the compact fire-bed type, and includes temperature monitoring to ensure that syngas generation is controlled. The composition of the syngas produced is shown in **Table 3.3**.

Table 3.3: Syngas composition

Component	Proportion
CO	17 - 20%
H ₂	13 - 16%
CH ₄	1 - 5%
CO ₂	7 - 12%
C _n H _n	0.1 - 0.5%
N ₂	46.5 - 61.9%

- 3.45. The syngas is cleaned in a filter equipped with an integrated self-cleaning system, and delivered to the CHP plant using dedicated pipework.
- 3.46. Inside the CHP plant, the syngas is combusted and operates the plant's motor and generator, producing electricity and heat. The surplus heat from the CHP's motor and the generator and a large proportion of the exhaust heat is transferred to the heating system via a heat exchanger, and is used to continue the gasification process.
- 3.47. The electricity produced by the generator will be fed into the national electricity grid.

Outgoing waste

- 3.48. **Table 3.4** lists the principal wastes to be generated during the operation of the Scheme.
- 3.49. Shredded wood aimed for reuse is not included in **Table 3.4** as the Applicant will apply with MEPA to consider this material as having reached end-of-waste status. Once this is accepted, the shredded wood will no longer be considered a waste.
- 3.50. As shown in **Table 3.4**, over 99% of the incoming waste is reused, recycled or recovered. Disposal is only used when it is the only practicable option.

Table 3.4: Outgoing waste

Activity	EWC code	H-code ³	Description	Estimated annual quantities	Storage and containment	Maximum quantity stored	Destination ⁴
WEEE dismantling, and crushing of non-hazardous components and cables	16 02 15*	H5/6, H14	Printed circuit boards	250 tonnes	In jumbo bags ⁵ on pallets indoors	24 tonnes	Exported to authorised recycling facility
	16 02 16						
	19 12 04	-	Plastic	100 tonnes	Designated area in shed	2 tonnes	Sent to Smart Recycling Ltd for recycling
	19 12 02	-	Ferrous metal	50 tonnes		3 tonnes	Sent to DDE Attard Ltd for recycling
	19 10 02	-	Non-ferrous metal	100 tonnes		3 tonnes	Sent to Metalco Ltd for recycling
	19 12 03						
	17 04 01	-	Copper wire	50 tonnes		3 tonnes	
	16 02 15*	H5/6, H14	Hard drives	15 tonnes	In jumbo bags on pallets indoors	1 tonne	Exported to authorised recycling facility
16 02 16							
Removal of waste packaging from WEEE	16 06 01*	H5/6, H8, H14	Batteries	50 tonnes	In battery storage bins indoors	1 tonne	
	16 06 02*						
	16 06 03*						
	16 06 04						
Paper / cardboard packaging	15 01 01	-	Paper / cardboard packaging	10 tonnes	Designated area in shed	2 tonnes	Sent to Smart Recycling Ltd for recycling
	15 01 02	-	Plastic packaging	5 tonnes		500 kg	
	15 01 06	-	Mixed packaging	10 tonnes		2 tonnes	Sent to Ghallis non-hazardous landfill for disposal
Breaking of CRT televisions and monitors	16 02 15*	H5/6, H7, H14	Glass	180 tonnes	In jumbo bags on pallets indoors	24 tonnes	Exported to authorised recycling facility
Crushing of	19 12 05	-	Clean glass from	25 tonnes	In jumbo bags on	5 tonnes	Exported to authorised recycling

³ Applicable when the waste is hazardous.

⁴ The receiving facility has been identified where this information is available, although other alternative licensed facilities may be used as the need arises.

⁵ Jumbo bags are typically stacked two high.

Activity	EWC code	H-code ³	Description	Estimated annual quantities	Storage and containment	Maximum quantity stored	Destination ⁴
fluorescent tubes / lamps			crushing of fluorescent tubes		pallets indoors / in shed		facility
Gasification	10 01 01	-	Ash	7 tonnes	Designated area in shed (closed container)	1 tonne	Sent to Ghallis non-hazardous landfill for disposal
Storage of fridges / freezers	16 02 11* 16 02 13* 20 01 23*	H5, H14	Fridges / freezers	200 tonnes	Designated area in shed	8 tonnes	Exported to authorised facility for recovery (and destruction of refrigerant)
Storage of batteries	16 06 01* 16 06 02* 16 06 03* 16 06 04 20 01 33* 20 01 34	H5/6, H8, H14	Batteries	50 tonnes	In battery storage bins indoors	1 tonne	Exported to authorised facility for recovery
Air treatment	15 02 02*	H5/6, H7, H14	Used filters	6 filters	Designated area indoors	6 filters	Exported to authorised facility for disposal
Wastewater treatment	15 02 02*	H5/6, H14	Used filters	3 filters	Designated area indoors	3 filters	Exported to authorised facility for disposal
	16 10 01* 16 10 02	H5/6, H14	Wastewater from fluorescent tube crushing cesspit	<2 m ³	Sealed cesspit	2 m ³	Normally reused; however, if discharge is required the wastewater will be tested and either: (a) discharged to the sewerage network if found to be below the WSC discharge limit; or (b) exported to an authorised facility if not.
Surface water management	13 05 07*	H3, H5/6, H7, H14	Oils collected by interceptor	5 L	Designated banded waste oils drum indoors	5 L	Sent to Waste Oils Co. Ltd for recovery

Activity	EWC code	H-code ³	Description	Estimated annual quantities	Storage and containment	Maximum quantity stored	Destination ⁴
Maintenance of on-site vehicles and machinery	15 02 02*	H3, H5, H7, H14	Oily rags	5 kg	Designated banded waste oils drum indoors	5 kg	Sent to Waste Oils Co. Ltd for recovery
	13 02 06* 13 01 11*	H5/6, H7, H14	Engine oils Hydraulic oils	50 L	Designated banded waste oils drum indoors	50 L	Sent to Waste Oils Co. Ltd for recovery
Administration facilities	20 03 01	-	Mixed domestic waste	800 kg	Offices	5 kg	Sent to Ghallis non-hazardous landfill for disposal
	20 01 01 20 01 02 20 01 39 20 01 40	-	Recyclable domestic waste	1,000 kg	Offices	10 kg	Sent to Sant' Antnin Waste Treatment Plant for recycling

SCHEME CONSTRUCTION

Construction activities

- 3.51. The construction phase includes site clearance, excavation and building construction. The Superintendence of Cultural Heritage (SCH) required that site clearance and soil/material excavation be carried out *prior* to issuance of the development permit and completion of the EIA. On direction from MEPA, the Applicant operated in accordance with the Terms of Reference for an Archaeological Investigation at the Scheme site. The Terms of Reference are included in **Technical Appendix I: Terms of Reference and Method Statements**. On the insistence of the Superintendence of Cultural Heritage, therefore, the site clearance and excavation aspects of the construction phase were carried out outside of development permit conditions and prior to the completion of the EIA. Therefore, these activities are mentioned retroactively in the EIA.

Timing

- 3.52. Clearing of the site has already occurred. Excavation and construction are expected to take around six to eight months, while finishing is estimated to take another four to six months.

Raw materials

- 3.53. The principal raw materials to be utilised during construction are identified in **Figure 3.5**.

Table 3.5: Raw materials to be used during construction

Material	Approximate quantity
Ready-mix concrete	410 m ³
Concrete blocks	265 m ³
Masonry blocks	110 m ³
Infill	440 m ³
Precast concrete panels	160 m ²
Geotextile membrane	1,750 m ²
Steel reinforcement bars	1,200 kg
Steel mesh (A252)	2,000 m ²
Steel mesh (C503)	230 m ²
Soil (for landscaping)	60 m ³

Waste

- 3.54. The principal wastes expected to be generated during construction of the Scheme are listed in **Figure 3.6**.

Table 3.6: Construction waste

Phase	EWC code	Description	Approximate quantities (total)
Site clearance ⁶	17 09 04	Construction / demolition waste	3,500 m ³
Excavation	01 01 02	Waste from mineral non-metalliferous excavation	1,130 m ³

3.55. Wastes generated from site clearance were transported off-site to licensed facilities using registered waste carriers. This waste was mainly composed of inert rubble (probably from earlier construction activities in the vicinity), which was taken to a licensed inert landfill. Any other non-inert wastes identified during site clearance were segregated by type and disposed of at other licensed facilities authorised to receive that type of waste.

Machinery

3.56. The machinery envisaged to be used during excavation, and construction will be standard heavy vehicles, including the following:

- Front shovel loader;
- Trucks (2-3 during excavation, 1 during construction);
- Excavator;
- Drum cutter; and
- Mobile crane.

3.57. Considering the small quantities of raw materials to be used and wastes envisaged to be generated during construction, it is expected that the number of vehicle trips to and from the site will not be significant.

Emissions to air

3.58. The construction processes are expected to generate minor dust emissions (both total suspended particulates and PM₁₀), which are temporary and can also be mitigated.

SCHEME OPERATION

3.59. The operation of the Scheme has been described in detail in preceding paragraphs as the layout of the Scheme is intrinsically tied to the processes carried out on site.

3.60. Scheme operation will set up and implement an Environmental Management System

⁶ Already carried out on SCH's request.

certified in line with ISO 14001.

Emissions to air

- 3.61. Crushing of fluorescent tubes / lamps has the potential to release mercury vapour and phosphor⁷ / glass dust. To reduce the risk of emissions to air, the crusher will be located inside a purposely built internal room located within a second outer room. The outer room's windows will be sealed to prevent unauthorised opening. In the internal room, a water mister will be in continual operation to encourage wet precipitation of dust, and the room will be equipped with a negative pressure unit, thus creating a seal. The exhaust air from the negative pressure unit will include two filters in series, as follows:
- A HEPA filter, having up to 99.97% filtration efficiency on particles $\geq 0.3 \mu\text{m}$; and
 - An activated carbon filter impregnated with sulphur or iodine to enhance mercury capture.
- 3.62. Fluorescent tubes and lamps will be stored in designated containers; tubes / lamps that are received broken will be stored inside the fluorescent tube crushing room to reduce the risk of fugitive emissions. Care will be taken during storage and handling to reduce the risk of breakage; nonetheless, industrial vacuum cleaners equipped with mercury filters will be available to immediately clean up any accidental breakages of fluorescent tubes / lamps.
- 3.63. Wastewater generated as part of the tube treatment process will also be filtered and received into a sealed cesspit with no air emission points.
- 3.64. Cathode Ray Tubes (CRTs) include components such as lead oxide, barium, strontium and zirconium oxide and fluorescent coatings. Fluorescent coatings are commonly referred to as 'phosphors' and in CRTs these can include zinc, cadmium and yttrium sulphides, copper or silver chloride and occasionally arsenic. While no crushing of CRTs is proposed, breaking of the CRT neck could result in the release of dusts containing these components. To minimise the risk of emissions, the entrance to the CRT breaking room will include a thick HDPE curtain with 1 – 2 inch overlapping panels. The room will also include a negative pressure unit equipped with a HEPA filter. This design facilitates frequent entry and exit by site operators, while ensuring that a seal is quickly recreated and that dust is filtered.
- 3.65. Filters will be maintained regularly, and an air monitoring programme will be in place to ensure that the required operational standards are reached and maintained.
- 3.66. The Scheme will also operate a gasification plant consisting of a gasifier and a CHP plant. The gasifier produces combustible gas (syngas) in a partial combustion process,

⁷ The phosphor in fluorescent tubes is typically either calcium halophosphate (in older lamps), or a mix of rare earth compounds and barium / aluminium oxide (in newer triphosphate lamps).

which is filtered and delivered via pipework to the CHP plant. The CHP plant combusts the syngas; this process operates the plant's motor and generator, producing electricity and heat. The CHP plant will have a 10 KVA generator; further details will be provided to MEPA as part of the IPPC application, once the exact model for this plant has been selected.

3.67. No boilers or emergency electricity generators are proposed on site.

Resources

Energy

3.68. At the Scheme site, energy will be obtained from electricity, diesel fuel, LPG and wood.

3.69. The Scheme will also generate electricity from the gasification plant, which will be fed into the public grid.

3.70. The estimated annual energy consumption and generation are shown in **Table 3.** and **Table 3.**, although these quantities will vary depending on demand for site activities.

Table 3.7: Energy consumption

Energy source	Estimated annual consumption
Electricity from mains power supply	1,500 kWh to 2,300 kWh
Diesel	1,000 L
LPG	600 kg
Wood chips (used in gasification plant)	110 t

Table 3.8: Energy generation

Energy source	Estimated annual generation
Gasifier CHP plant	100 MWh

3.71. Electricity is used for the following purposes:

- Machinery, notably the three crushers and a mobile air compressor (used to power pneumatic tools such as screwdrivers);
- Air treatment systems;
- Security cameras; and
- Lighting and office equipment.

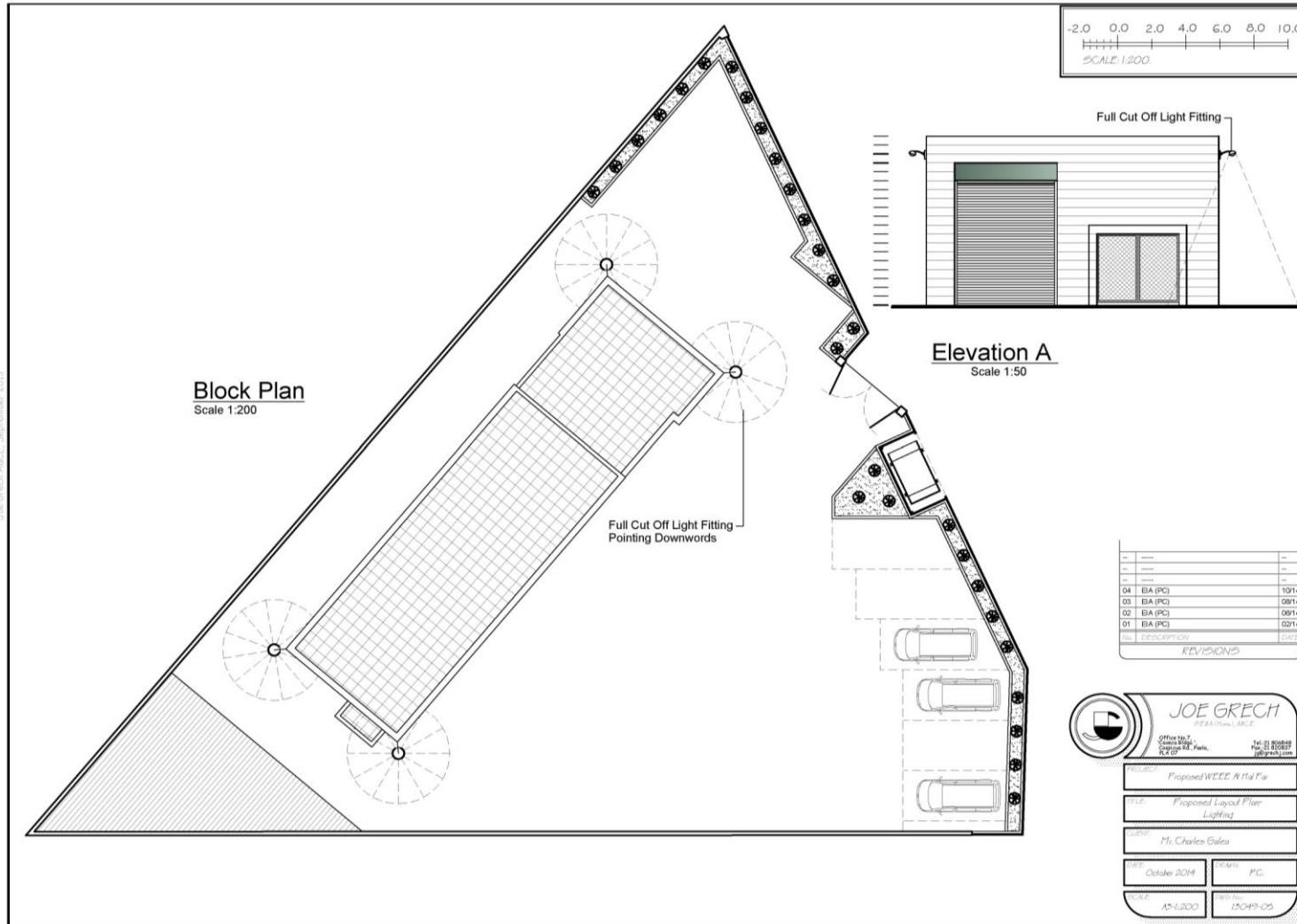
3.72. Diesel is used to power the scheme's forklifts and trucks. LPG is used to power one forklift truck. The CHP plant is powered by syngas generated from wood gasification.

3.73. In terms of energy efficiency, energy efficient lighting will be installed. Outdoor lighting will be downward angled and of the full cut-off type. At night, lighting will be

motion activated. **Figure 3.15** presents an outdoor lighting plan.

- 3.74. Additionally, the gasifier's CHP unit is highly efficient; the expected efficiency will be identified in the IPPC permit application.
- 3.75. In future, the Applicant may also explore the possibility of installing photovoltaic panels on site.

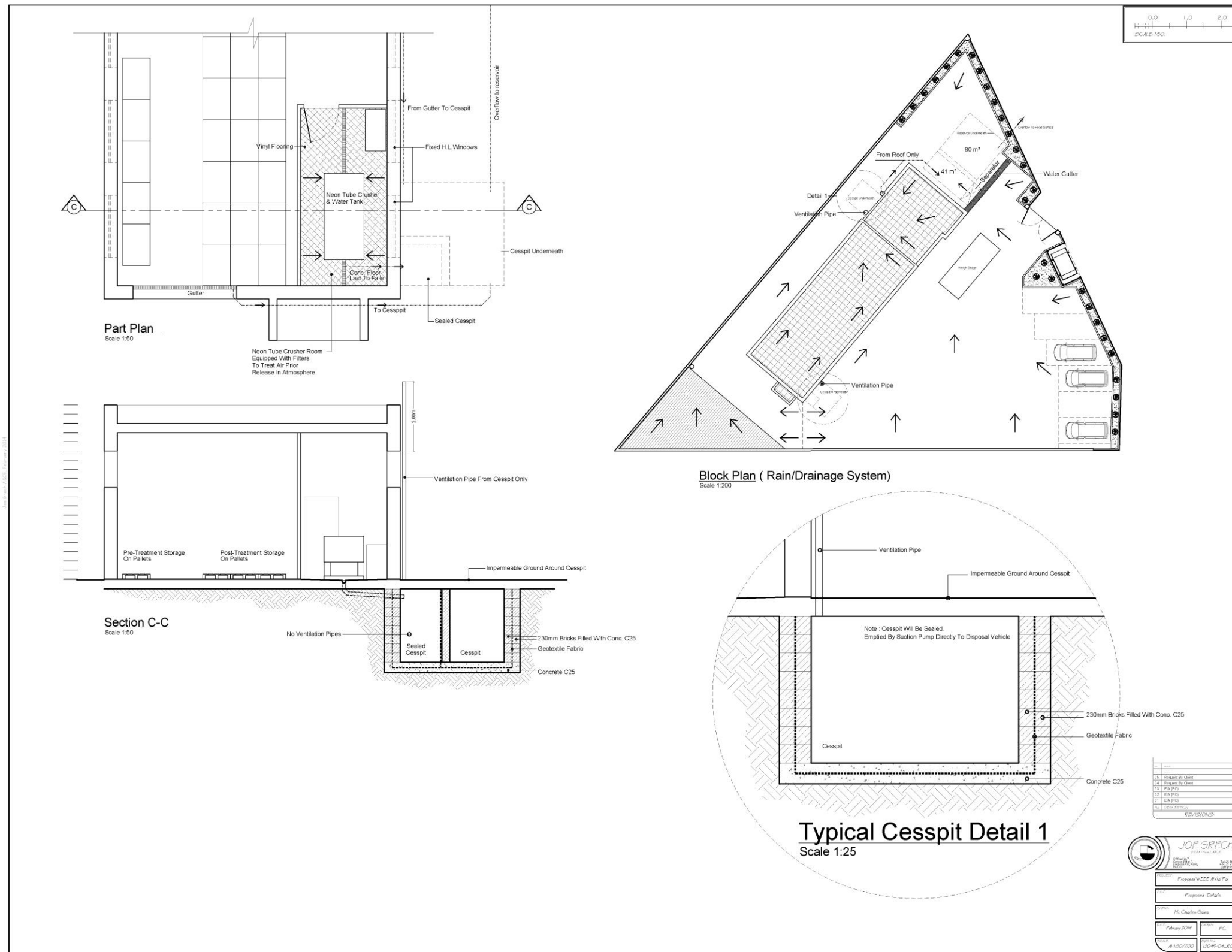
Figure 3.2: Proposed outdoor lighting plan



Water and wastewater

- 3.76. The entire Scheme site will be concreted and lined with an underlying impermeable geotextile membrane.
- 3.77. Rainwater from the roof will be collected in an underground reservoir at the northern part of the site, with a total capacity of 121 m³ (of which a 40 m³ chamber will always be kept full for fire-fighting purposes). The ground in outdoor areas of the site will be laid to fall towards the same reservoir, and surface water from outdoor areas will be treated in an oil-water separator before being received in the reservoir. The collected, cleaned water will be reused for cleaning of the site and in landscaping.
- 3.78. Water from the shed's roof will be directed to a downpipe, flow onto the concrete surface and be routed towards the separator before being received in the reservoir. While the shed floor will typically be swept rather than washed, any water from the floor will also flow on the concrete towards the separator and reservoir.
- 3.79. Inside the WEEE treatment building, floors will also normally be swept rather than washed. Wastewater from any washing of floors will be collected in gutters, filtered to remove any traces of contaminants, and received in an underground cesspit for reuse.
- 3.80. The fluorescent tube crusher room will, however, have a dedicated 2 m³ cesspit. Wastewater from tube crushing and floor cleaning will be treated using a specialised impregnated filter to remove mercury, and received in this cesspit. The cesspit will be sealed, have no ventilation pipes, and the treated wastewater will be reused, thus creating a closed-loop system. If any wastewater discharge is required, the wastewater will first be tested in accordance with WSC requirements and either discharged to the sewerage network or exported to an authorised facility. The fluorescent tube crusher room will also have sealed vinyl flooring.
- 3.81. As a result, mains water will typically only be required in the office / sanitary facilities.
- 3.82. Hazardous waste and raw materials will also be stored in designated bunded areas to ensure no contamination of surface water in case of a spill.
- 3.83. All filters will be maintained / replaced regularly to ensure their continued effectiveness. Sludge from the separator will also be removed as needed.
- 3.84. The site will not be connected to the mains sewer. An appropriately ventilated and impermeable cesspit will be built to receive wastewater from sanitary facilities on site. This will be emptied by bowser to a Water Services Corporation (WSC)-authorised discharge point as needed. Testing of this wastewater will also be carried out prior to removal as required by the WSC.
- 3.85. **Figure 3.16** presents the proposed surface water and waste water management arrangements.

Figure 3.16: Surface water and wastewater management



EMPLOYMENT

- 3.86. During the excavation phase, it is expected that the Scheme will employ two to three persons, increasing to five to six employees during construction.
- 3.87. It is envisaged that three persons will be employed once the Scheme comes into operation, increasing to nine employees once the Scheme reaches full capacity.

ALTERNATIVES CONSIDERED

Alternative locations

- 3.88. The zero option alternative location to the Scheme site is the current site at Ta' Maġġi Industrial Zone in Żabbar, which is already authorised to carry out WEEE treatment under Environmental Permit number EP 009/10/F.
- 3.89. However, limitations at the current site are such that expansion and upgrading is not possible. The Applicant intends to expand his operations to above the 50 tonne storage threshold in the Industrial Emissions (Integrated Pollution Prevention and Control) Regulations, Legal Notice 10 of 2013, and to meet the requirements of this legislation. However, installation of the proposed extensive air abatement and wastewater management systems is not possible at the current site due to lack of space.
- 3.90. The Applicant has been in discussion with MEPA over the relocation and expansion of his activities for the past few years, and from time to time has informally proposed to MEPA various alternative privately-owned sites that had become available for purchase. However, MEPA has consistently guided the applicant to seek a location in an industrial area. The Scheme site is the only site that has been made available to the Applicant by the Malta Industrial Parks (MIP).

Alternative layouts and techniques

- 3.91. Various alternative layout options for the site were considered by the Applicant, and a number of refinements in the layout and design have resulted in the current Scheme.
- 3.92. The original design did not include details of the various designated areas in the WEEE treatment building, including provisions for banded storage, designated areas for dismantling and treatment, and a quarantine area. Additionally, the storage of all waste under cover in a shed, the installation of an impermeable membrane underlay beneath the entire site, and vinyl flooring for the fluorescent tube crusher room were not originally envisaged. The Scheme was amended to include these and other elements following discussions on the potential environmental and operational benefits.
- 3.93. In addition, the location of the main building on site has been shifted slightly southeastward from the original design following advice from the Civil Protection Department, to ensure that enough space is available for manoeuvring of fire trucks on site in case of a fire. The rainwater reservoir was also originally envisaged as a

single reservoir, but the amended design shows it being split into two compartments to ensure there is always at least 40 m³ available for firefighting if needed.

- 3.94. The cesspit for collecting wastewater from the fluorescent tube crushing room was originally designed to collect wastewater from the entire building, and also included a ventilation pipe. However, this was subsequently redesigned into two cesspits to ensure appropriate segregation of the two wastewater streams, and the ventilation pipe was removed to create a sealed system and avoid any mercury vapour emissions. A storage area for fluorescent tubes that are received broken was also designated inside the fluorescent tube crushing room.
- 3.95. The post-dismantling storage area was also expanded to ensure sufficient space was available for storage of dismantled items prior to delivery off-site.
- 3.96. Additionally, the after-hours skip was included on advice from MEPA to discourage illegal waste disposal elsewhere.
- 3.97. The original proposal also included a mobile incinerator; however, this element is not being considered further.
- 3.98. The Scheme site includes an area within the footprint that is earmarked for future expansion.

4. LEGISLATION AND POLICY CONTEXT

INTRODUCTION

- 4.1. This chapter discusses the relevance of international and national legislation, and Maltese planning policy, and the compatibility of the Scheme with this legislation / policy. It highlights and assesses the policies of Government Ministries, where relevant, and outlines those European Union (EU) Directives and Regulations, and other international obligations, applicable to the Scheme.
- 4.2. As described, the legal basis for the Malta Environment and Planning Authority's (MEPA) request for the preparation of an Environmental Impact Assessment (EIA) stems from the *Environmental Impact Assessment Regulations* published in 2007 (Legal Notice 114 of 2007 as amended by Legal Notice 438 of 2011).

INTERNATIONAL LEGISLATION

- 4.3. International legislation relevant to the Scheme arises from International Treaties and Conventions to which Malta is a signatory, EU legislation, and local legislation transposing these.

The European Convention on the Protection of the Archaeological Heritage (Revised)

- 4.4. This Convention, which was agreed in Valletta on 16th January 1992, amends the original Convention (agreed in London in 1969) on the protection of archaeological heritage. The aim of this (revised) Convention is “*to protect the archaeological heritage as a source of the European collective memory and as an instrument for historical and scientific study*”. This revision was brought about through the acknowledgement that European archaeological heritage is under serious threat from deterioration as a result of “*major planning schemes, natural risks, clandestine and unscientific excavations, and insufficient public awareness*”. In the context of the Convention, archaeological heritage includes “*structures, constructions, groups of buildings, developed sites, moveable objects, monuments of other kinds as well as their context, whether situated on land or under water*”.
- 4.5. The Convention requires the Contracting Parties to institute a legal system for the protection of archaeological heritage, including:
 - The creation and maintenance of a heritage inventory;
 - The creation of archaeological reserves; and
 - Mandatory reporting to competent authorities of the chance discovery of archaeological material.
- 4.6. The Convention also requires the Parties to apply procedures for the authorisation and supervision of excavations and other archaeological activities to ensure that they are undertaken by qualified persons and in a scientific manner.

- 4.7. Other provisions of the Convention include:
- The physical protection of archaeological heritage;
 - Integrated conservation of the archaeological heritage (including through reconciliation with development plans and other planning processes);
 - Resourcing rescue archaeology;
 - Collection and dissemination of scientific information;
 - Public awareness; and
 - Prevention of illicit circulation of elements of archaeological heritage.
- 4.8. Malta ratified this Convention on 24th November 1994 and it entered into force on 25th May 1995. The provisions of this Convention have been transposed into local legislation by the Cultural Heritage Act of 2002 (see below).

Implications for the Scheme:

- Given the implications of the site in the context of its historical use, the Superintendence of Cultural Heritage required an archaeological investigation to be carried out prior to the final decision on the planning application by MEPA. The Terms of Reference for the Archaeological Investigation are presented in **Appendix 2**. For the purposes of the EIA, MEPA did not require any detailed assessments.

EUROPEAN POLICY AND LEGISLATION

- 4.9. The Treaty establishing the European Community (Article 174) provides 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”.⁸

⁸ Article 191 (ex Article 174 of the Treaty establishing the European Community):

1. Union 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, and in particular combating climate change.
2. Union 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 Union. 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,

- 4.10. The relevant EU Directives include the EIA Directive 2011/92/EU on *the assessment of the effects of certain public and private projects on the environment*, which has been transposed by the Maltese *Environmental Impact Assessment Regulations 2007*, and various Directives that relate largely to waste, water, and others as relevant. A revised Environmental Impact Assessment (EIA) Directive (2014/52/EU) also entered into force in 2014 and will start to be applied as from 16 May 2017.
- 4.11. Since the European Union's environment acquis has been transposed into national legislation, the Directives *per se* have not been assessed and instead the national legislation transposing these Directives is assessed below.

NATIONAL LEGISLATION

The Constitution of Malta

Declaration of principles

- 4.12. The Constitution of Malta (Section 9) declares that the State shall 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.
- 4.13. Local legislation relevant to the Scheme is described in the following sections.

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

- 4.14. The Environment and Development Planning 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.
- 4.15. 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"*.
- 4.16. 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;

where appropriate, a safeguard clause allowing Member States to take provisional measures, for non-economic environmental reasons, subject to a procedure of inspection by the Union.

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”.

4.17. 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 principal 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.

4.18. 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.
- 4.19. The Structure Plan and Local Plan Policies relevant to the Scheme are explained below, and their implications on the Scheme are highlighted.
- 4.20. 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.
- 4.21. Act X 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*”.

Environmental Management Construction Site Regulations, 2007

- 4.22. The aim of the Environmental Management Construction Site 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.
- 4.23. 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*”.
- 4.24. 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.
- 4.25. 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.
- 4.26. The Regulations apply to any construction site, except where the Minister has exempted such development under the provisions of Schedule VI 'Exemptions'.
- 4.27. Regard has been given to the requirements of the Regulations in addressing the construction impacts of the Scheme, including through the preparation of an outline Construction Management Plan (CMP).

Legal Notices

- 4.28. The Regulations in force under the Environment and Development Planning Act 2010 include the following Legal Notices that are relevant to the Scheme:

Waste management and emissions

- **Legal Notice 106 of 2007: Waste Management (Activity Registration) Regulations** and **Legal Notice 184 of 2011: The Waste Regulations** (as amended by **Legal Notice 441 of 2011** and **Legal Notice 384 of 2012**). 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.
- **Legal Notice 204 of 2014: Waste Management (Electrical and Electronic Equipment) Regulations** (as amended by **Legal Notice 442 of 2012** and **Legal Notice 358 of 2013**). These Regulations lay down measures to manage the disposal of waste from electrical and electronic equipment (WEEE) with a view to reducing any negative impacts and seeking to reuse and recycle thus improving efficiency and being in line with the principles of sustainable development. Schedule 5 of the Regulations sets Minimum Recovery Targets for each of the categories over specific time periods.
- **Legal Notice 9 of 2013: Industrial Emissions (Framework) Regulations** and **Legal Notice 10 of 2013: Industrial Emissions (Integrated Pollution Prevention and Control) Regulations, 2013**. These Regulations provide for integrated pollution prevention and control of certain industrial activities and aim to ensure optimal environmental performance by eliminating or reducing as far as possible emissions to air, water and land and minimise waste generation.

Implications for the Scheme:

- The Scheme seeks to directly contribute to the scope of Legal Notice 204

of 2014 by providing a WEEE transfer and treatment facility that can accept waste categories as listed within Schedule I of the Regulations. The Scheme will reuse, recycle or recover 99% of incoming waste.

Waste management related to the construction of the Scheme and the waste processing operations are discussed in **Chapter 3** of the EIS. The Construction Management Plan (CMP) that will be prepared for the Scheme will also address waste management issues. LN 10 of 2013 applies to the Scheme, therefore, its operation, including emissions and waste generation during operation will also be addressed through the Integrated Pollution Prevention and Control environmental permit.

Water

- **Legal Notice 194 of 2004:** *Water Policy Framework Regulations* (as amended by **Legal Notice 24 of 2011** and **Legal Notice 115 of 2012**). These Regulations are issued under both the Environment and Development Planning Act and the Malta Resources Authority Act. They establish a framework for the protection of coastal waters, inland surface waters, transitional waters, and groundwater. The framework is intended to prevent further deterioration, and to protect, enhance, and restore the status of aquatic systems.

Implications for the Scheme:

- The Scheme has been designed taking account of the need to ensure against the contamination of water, as described in **Chapter 3** of the EIS.

Noise

- **Legal Notice 193 of 2004:** *Assessment of Environment Noise Regulations* sets the scene for a survey and report on noise; it does not set levels or detail measurement / assessment methodologies. **Legal Notice 64 of 2002:** *Protection of workers from the risks related to exposure to noise at work Regulations* establishes noise limits for outdoor machinery.
 - These Legal Notices are not directly relevant to the Scheme, as they do not provide guidance on the noise thresholds for residential areas and guidance on how to measure it. For the assessment of noise impacts, UK guidance and standards are used, as described in **Chapter 8** of the EIS, and as instructed by MEPA.

Other

- **Legal Notice 116 of 2005:** *Freedom of Access to Information on the Environment Regulations* (as amended by **Legal Notice 298 of 2012**). These Regulations ensure freedom of access to and the dissemination of information held by public authorities on the environment.

Implications for the Scheme:

- The EIS and its supporting documents fall under this Legal Notice and are

to be made public.

Malta Resources Authority Act 2001

- 4.29. The Malta Resources Authority Act established the Malta Resources Authority (MRA) and assigns it a number of functions in relation to the regulation of the water, minerals, and energy sector.
- 4.30. 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.
- 4.31. The regulations currently in force under the Malta Resources Authority Act that are relevant to the Scheme include the Legal Notices listed hereunder:
- **Legal Notice 108 of 2009:** *The Protection of Groundwater against Pollution and Deterioration Regulations*. These Regulations aim to protect groundwater against pollution and deterioration.

Implications for the Scheme:

- The Scheme has been designed taking account of the need to ensure against the contamination of water, including groundwater, as described in **Chapter 3** of the EIS.

PLANNING POLICY

- 4.32. Planning policy relevant to the Scheme comprises policies embodied in the *Structure Plan for the Maltese Islands 1990*, the *South Malta Local Plan 2006*, and *Policy & Design Guidance 2007*.

Structure Plan for the Maltese Islands 1990

- 4.33. The following Structure Plan policies are relevant to the Scheme.

Built environment policies

- 4.34. **POLICY BEN 1:** *Development will not normally be permitted if the proposal is likely to have a deleterious impact on existing or planned adjacent uses because of visual intrusion, noise, vibration, atmospheric pollution, unusually high traffic generation, unusual operating times, or any other characteristic which in the opinion of the Planning Authority would constitute bad neighbourliness.*
- 4.35. **POLICY BEN 2:** *Development will not normally be permitted if, in the opinion of the Planning Authority, it is incompatible with the good urban design, natural heritage, and environmental characteristics of existing or planned adjacent uses, and is unlikely to maintain the good visual integrity of the area in which it is located.*

Implications for the Scheme:

- Issues related to visual impacts, traffic generation, and other issues of general disturbance caused by the construction and operation of the Scheme are addressed in detail in **Chapters 3, 5, 6, 7 and 8** of the EIS.

- 4.36. **POLICY BEN 12:** *The Planning Authority will decide if an Environmental Impact Assessment of a form and content satisfactory to the Authority is required to accompany any application for permission to develop. The environmental impact of proposed development will be carefully assessed through development control procedures, and where development permits are granted any adverse impacts will be mitigated through permit conditions and any other necessary legal measures.*

Implications for the Scheme:

- MEPA determined that the Scheme needs to undergo environmental impact assessment. This EIS is a result of this process.

Settlement pattern and industry policies

- 4.37. **POLICY SET 10:** *Major development will be undertaken at the following locations:*

...4. *Hal Far and San Gwann as defined in Policy IND 1*

- 4.38. **POLICY IND 1:** *New Industrial estates, including warehousing, will be developed northwest of the existing San Gwann industrial estate and east of the existing industrial estate at Hal Far. Development of the new Hal Far area will be delayed until needs arise which cannot be located elsewhere. Industrial estates will be zoned into smaller areas to avoid incompatibility between adjacent uses, and to provide for the particular needs of certain uses such as retail warehouses and large showrooms. Design guidelines will be developed for the visual and functional aspects of industrial estates.*

Implications for the Scheme:

- The Scheme site is the only site that has been made available to the Applicant by the Malta Industrial Parks (MIP). The site is adjacent to storage uses, a steel manufacturing facility, and concrete batching plants. The Scheme includes measures for pollution prevention and control, including air abatement, installation of a hardstanding surface with impermeable underlay, as well as measures for surface water and wastewater management. The operation of the Scheme will also be regulated by an Integrated Pollution Prevention and Control (IPPC) permit.

Public utility policies

- 4.39. **POLICY PUT 14:** *Applications for the handling, treatment, and disposal of all waste, excepting totally inert mineral wastes, will be considered only if an Environmental Impact Assessment has been prepared for consideration by the Planning Authority. Permission will only be granted when the responsible authorities are satisfied that the nature and control of the operation will:*

1. *Protect natural resources against pollution*
2. *Protect the local environment against nuisance*
3. *Provide for an appropriate afteruse*

Implications for the Scheme:

- MEPA determined that the Scheme application requires an EIS following the EIA screening process. The Scheme includes measures for pollution prevention and control and for surface water and wastewater management. Additionally, the operation and decommissioning of the Scheme will also be regulated by an IPPC permit.

- 4.40. **POLICY PUT 16:** *Sites will be identified at strategic locations in relation to the main areas of population, commerce, and industry for the transfer or treatment of municipal, commercial, and industrial inert/non toxic waste.*

Implications for the Scheme:

- The Applicant was advised to consider the Scheme site by MIP.

South Malta Local Plan, 2006

- 4.41. The Scheme site is located within the Ħal Far Industrial Estate; the Estate is one of six major employment concentrations identified in the Local Plan area. **Figure 4.1** presents the Ħal-Far area policy map as presented in the Local Plan.
- 4.42. The Local Plan outlines a strategy for Ħal Far Industrial Estate that prioritises the efficient use of the Estate:

The main strategic objectives of the Plan for Ħal Far are as follows:

- Upgrading and promotion of Ħal Far as the major industrial development area in Malta, whilst minimising its effects on neighbouring zones and the surrounding environment;*
- Establishing and protecting the recreational/sports area potential through separate zoning;*
- Maintaining the operation of industry compatible government administrative functions;*
- Improving the transport network and organising proper access points to and circulation within the Estate; and*
- Protecting the environment in the vicinity of the Estate including the scheduled NATURA 2000 coastal zone area and valleys to the north/south and retaining an effective buffer from the rural residential settlements to the west/east of the Estate.*

- 4.43. This strategy is taken forward in the policy objectives outlined in POLICY SMHF01:

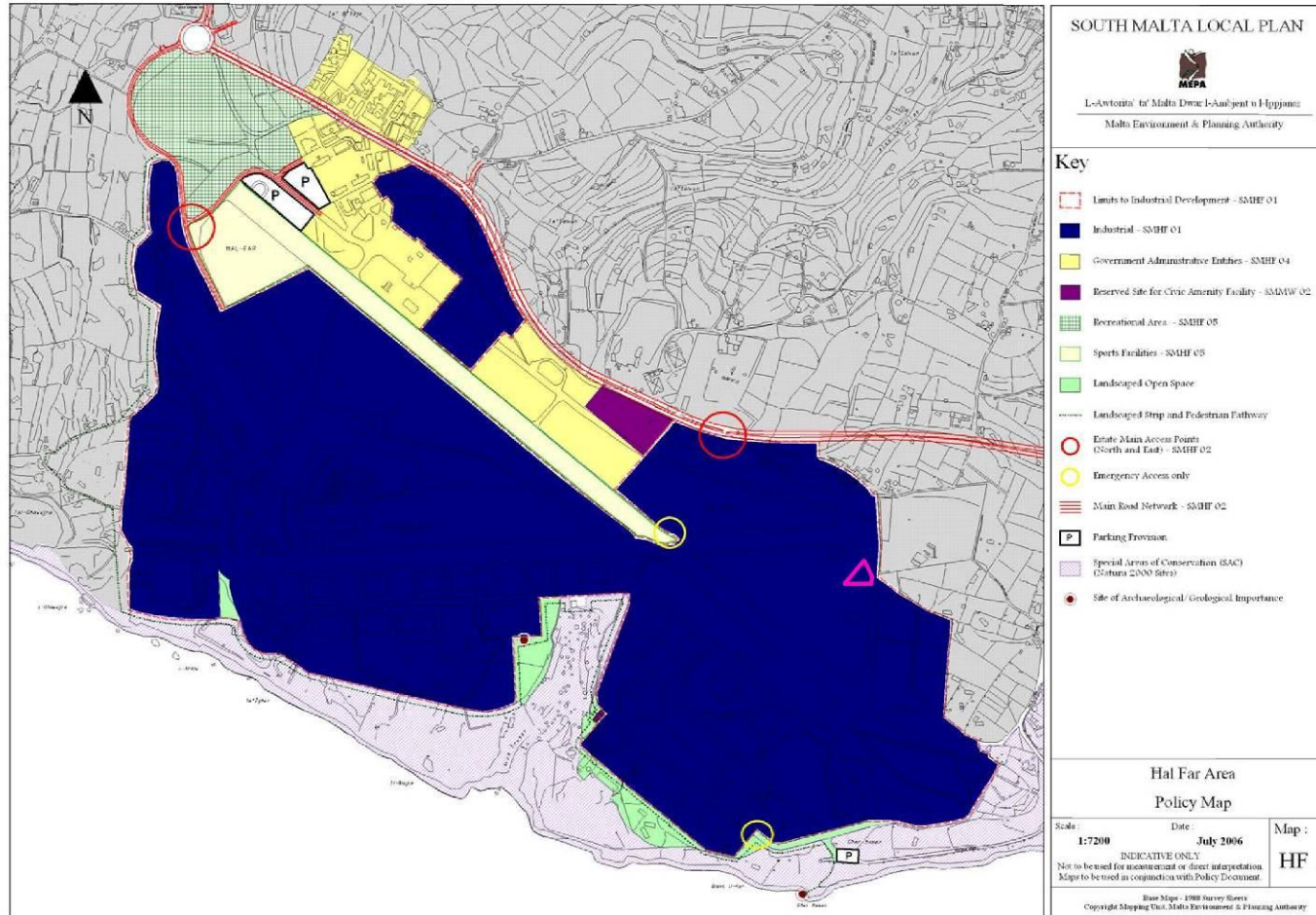
POLICY SMHF01- Industrial Development Boundary: *The Industrial Development Boundary for the Ħal Far Industrial Estate is being amended and delineated as defined in the Ħal Far Policy Map HF 1 [refer to **Figure 4.1**]. Priority will be given to the efficient use of this industrial land for industrial uses only, as designated on the Ħal Far Policy Map. MEPA will encourage the improvement*

and upgrading of Hal Far Industrial Estate. Industrial land uses in Hal Far are to ensure neighbourhood compatibility between individual industrial land uses. Any industrial activity likely to cause problems to the nearby residential areas and environment, as well as neighbouring units, by reason of noise, smell, vibration or emissions, transport related impacts or because of the nature of the process carried out, will not be permitted by MEPA, unless effective steps can be taken to control, minimise and mitigate against any such adverse effects of the industrial activity. Appropriate conditions will be imposed by MEPA on any development permissions and environmental considerations will be accorded a high priority including the need for an EIA and TIS, if required by MEPA.

Implications for the Scheme:

- The Scheme aims to provide a WEEE treatment facility that will contribute to national WEEE collection and recovery targets. The Scheme includes measures for the provision of air abatement, surface water management and pollution prevention measures. The operation of the Scheme will also be regulated by an IPPC permit.

Figure 4.1: Hal Far Industrial Estate area policy map (South Malta Local Plan)



Development Control Policy and Design Guidance 2007

- 4.44. This policy document is relevant to the Scheme in terms of building design, building height, access, parking requirements, and amenity. The Scheme takes account of the provisions of this policy document.

Waste Management Plan for the Maltese Islands: A Resource Management Approach (2014 – 2020), January 2014

- 4.45. This Plan aims to move the Maltese Islands’ current waste management practices up the waste management hierarchy and sets a number of targets, as well as measures to reach these targets.
- 4.46. The Waste Management Plan aims to promote the reuse, recycling and recovery of electrical equipment, to reach a 65% collection rate for WEEE by 2021, and to achieve the following reuse, recycling and recovery targets by 2018.

Categories	Re-use & Recycling (%)	Recovery (%)
<i>1 and 10 (large households appliances and automatic dispensers)</i>	80	85
<i>3 and 4 (IT and telecommunications equipment and consumer equipment)</i>	70	80
<i>2, 5, 6, 7 and 9 (small household appliances, lighting equipment, electrical and electronic tools, toys, leisure and sports equipment, monitoring and control instruments)</i>	55	75
<i>Gas discharge lamps</i>	80	-

- 4.47. The above targets are consistent with those set by the Waste Management (Electrical and Electronic Equipment) Regulations for the period 15th August 2015 to 14th August 2018. The Regulations will be extended to cover all electrical and electronic equipment from 15th August 2018.

Implications for the Scheme:

- The primary objective of the Scheme is to provide a purpose-built facility for the treatment of WEEE. The Scheme should contribute to the achievement of the above national minimum WEEE collection and recovery targets.

CONCLUSION

- 4.48. This chapter reviewed the legislation and planning policies relevant to the Scheme. It has considered the relevant laws of Malta, Government Policies, and the policies of the Structure Plan for the Maltese Islands, the relevant Local Plan, and subsidiary planning documents, as well as EU legislation.

5. GEO-ENVIRONMENT

INTRODUCTION

- 5.1. This chapter describes the geology, geomorphology and hydrogeology within the Scheme Site and its surroundings. It also includes an assessment of the impacts and risks posed by the Scheme on the geo-environment.
- 5.2. The key geo-environment issues arising from the Scheme are outlined below:

Key Issues:

- **Extraction of resources / features**
- **Impact on ground water**
- **Impact on surface water run-off**

Terms of Reference

- 5.3. The terms of reference (ToR) provided by MEPA are included in ***Technical Appendix 1: Terms of Reference and Method Statements***.

ASSESSMENT METHODOLOGY

- 5.4. The assessment methodology for the geo-environment study is described below. The guidance on the protection of geology, geomorphology and hydrogeology is outlined at the outset.

Standards and Policy Guidance

- 5.5. The principal sources of guidance for the impact assessment were the *Structure Plan for the Maltese Islands 1990*, the *South Malta Local Plan 2006*, the *Minerals Subject Plan 2002*, and *The Earth Conservation Strategy 1991* (The British Nature Conservancy Council).
- 5.6. The European Union does not have any directive that protects the geo-environment *per se*; however Directive 92/43/EEC (the Habitats Directive) seeks to preserve and protect certain geological / geomorphologic features where these features constitute important habitats. Important habitats include rocky coastlines and submerged caves. This Directive has been transposed into national legislation (Legal Notice 311 of 2006).
- 5.7. Conservation profiles are intended to prevent future potential damage to sites. Since no earth conservation model exists for the Maltese Islands, it has been suggested in

past studies (for example, Debono & Scerri, 1996⁹ and Mallia *et al.*, 1999¹⁰) that until such a model is formulated, models used in other countries can be adopted for local use. The conservation model that has been used is that adopted by The Earth Conservation Strategy of the Nature Conservancy Council (UK).

- 5.8. The relevant policies of the Structure Plan and the South Malta Local Plan are described in detail in **Chapter 4** of the EIS.

Area of Influence

- 5.9. The Area of Influence (Aol) for the geology and geomorphology study is shown in **Figure 5.1**. The Aol for the hydrology and hydrogeology is shown in **Figure 5.2**.
- 5.10. In relation to establishing the quality of the material to be excavated, the area of study was taken as the boundary of the Scheme Site. **Figure 5.3** shows where core samples were taken from.

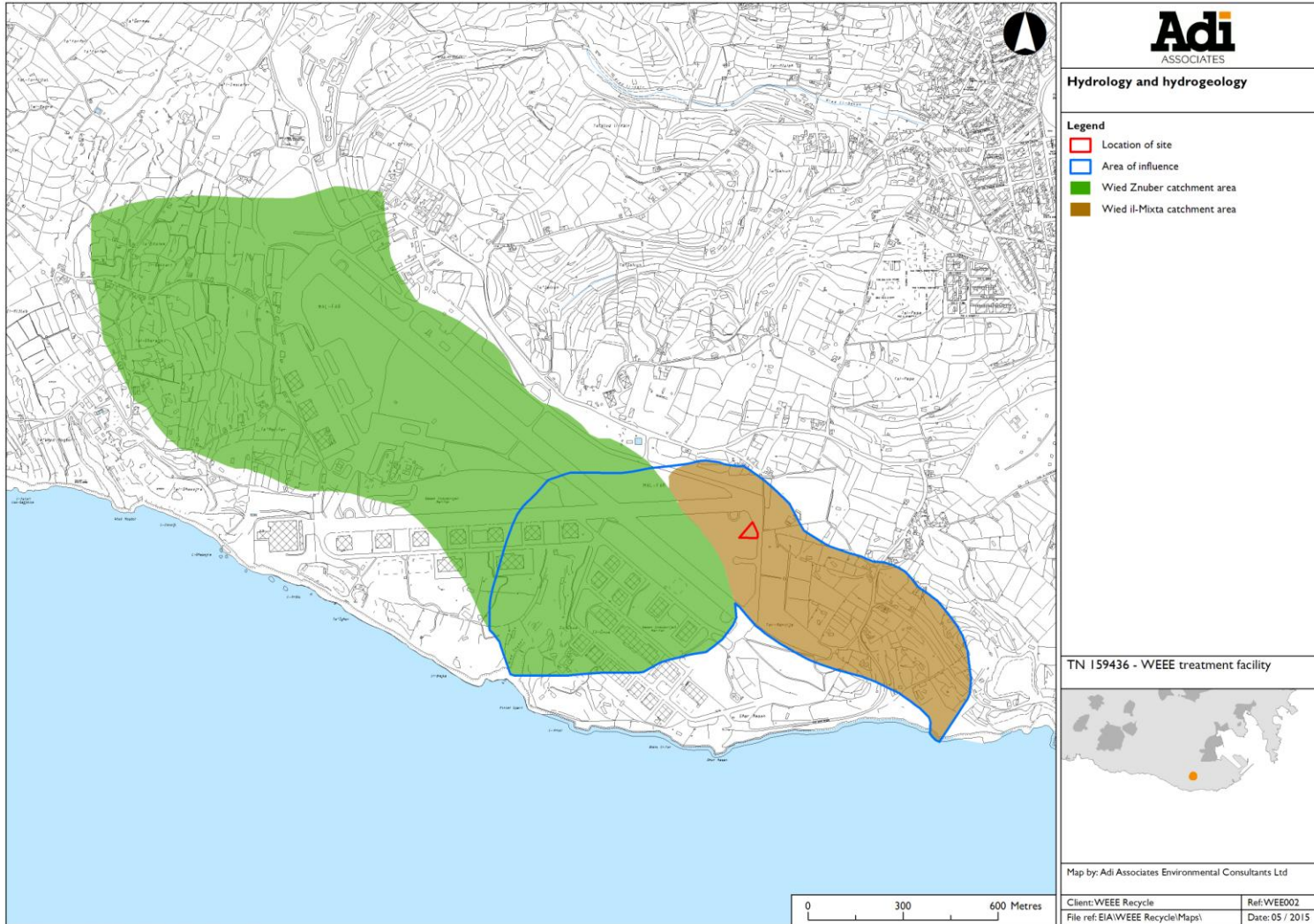
⁹ Debono, G. and Scerri, S., 1996. North Harbours Local Plan Geology Survey Report. Prepared by Malta University Services for the Planning Authority, Floriana, Malta; 72 pp. + 210 data cards + 15 figures + 20 plates.

¹⁰ Mallia, A., Briguglio, M., Ellul, A.E., and Formosa, S., 1999. Population, Tourism, Land-Use and Non-Renewable Resources in the State of the Environment Report for Malta 1998, commissioned by the Environment Protection Department, Government of Malta, Malta Council for Science and Technology, Malta.

Figure 5.3: Geology and geomorphology Area of Influence



Figure 5.2: Hydrology and hydrogeology Area of Influence



INDICATIVE ONLY - Not to be used for direct interpretation

Figure 5.3: Location of boreholes



Geo-environment Methodology

5.11. The geo-environment study involved:

- Identification and description of the geology, geomorphology and hydrogeology of the site and the Aol;
- Identification, mapping and description of any structural features, outcrop formations, members, and bed sub-divisions, including their palaeontologic content;
- Identification and description of aquifers, water courses, drainage patterns; surface run-off; and springs and wells (if any); and
- Identification of features protected by legislation, or which warrant such protection and their appropriate level of protection, as necessary.

5.12. The study resulted in the preparation of the following:

- Geological Map;
- Hydrology Map; and
- Report of the quality of the stone material to be excavated and its potential reuse.

BASELINE: GEOLOGY

Stratigraphy

5.13. The five late-tertiary formations exposed on the Maltese Islands are:

- Upper Coralline Limestone (youngest);
- Greensand;
- Blue Clay;
- Globigerina Limestone; and
- Lower Coralline Limestone (oldest).

5.14. In addition to these formations, Quaternary continental deposits are also known to occur sporadically on the Maltese Islands. An unconformity and an erosional surface separate this unit from the underlying marine sedimentary succession.

5.15. The only rock formation preserved in the Study Area is the Lower Coralline Limestone Formation.

5.16. Younger rock formations: Globigerina Limestone, Blue Clay Formation, Greensand and Upper Coralline Limestone Formation, have been eroded away following emergence of the Maltese Islands some five million years ago. No substantial

Quaternary deposits have been identified within the Study Area.

Lower Coralline Limestone Formation

- 5.17. As its name implies the Lower Coralline Limestone Formation is the lowermost rock formation exposed on the Maltese Islands. It is extensively exposed in a cutting close to the site, particularly on the slopes of Wied Żnuber and in the sheer cliff face the lines the coastline.
- 5.18. This rock formation is of particular hydrogeological importance as its pores and fissures host the mean sea level aquifer (MSLA) below the site.
- 5.19. The formation is known to be over 140m thick. Although the base of the formation is taken at sea level, it extends lower down below sea level. The contact with the overlying Globigerina Limestone Formation is sharp and is represented by a hard ground. This is best seen outside the proposed site at il-Mara and Wied Moqbol.
- 5.20. The formation exhibits its maximum exposed thickness on the face of the sea-cliff sections south of the site where the exposed section from sea level is about 60m thick.

Subdivisions

- 5.21. The rock formation has been subdivided into four members as follows (Pedley, 1978):
 - Wied Magħlaq Member (oldest);
 - Attard Member;
 - Xlendi Member; and
 - Il-Mara Member (youngest).
- 5.22. Of the four members listed the Attard, and il-Mara members have been identified at the Scheme site.

Attard Member

- 5.23. The contact with the overlying member is very conspicuous as the thick massive white layers of this member pass to thinner brown and light brown calcarenite of the Xlendi Member. The contact between the two units is sharp and is marked by a hard ground. Four beds belonging to the Attard Member have been identified in Wied Żnuber:
 - Detrital algal limestone bed with algal rhodoliths (at the base);
 - Algal rhodolith pavement bed;
 - Mollusc and coral bed; and
 - Recrystallised algal rhodolith bed.

- 5.24. **Technical Appendix 2: Geo-environment Baseline Report** describes each of these five beds in further detail.

Xlendi Member

- 5.25. The unit is only 4m thick and appears to thin out considerably west of Wied Żnuber. It is composed of moderately hard coarse to very coarse brown and light brown apparently massive bedded calcarenites. It is characterised by the presence of fragments of the echinoid *Scutella*.

Il-Mara Member

- 5.26. The il-Mara Member is about 15m thick and is best seen in cuttings close to the Scheme site. At the top it is succeeded by foraminiferal mudstones and wackestones of the Globigerina Limestone Formation. The contact with the overlying Lower Globigerina Limestone was seen out of the site and was observed to be sharp.

Structural Geology

Faulting and regional dip

- 5.27. The strata are generally massive and their dip is generally in the same direction as the regional dip of 3° to 6° to the NNE as can be seen in well exposed rock section in Wied Żnuber and along the perimeter of the cutting south of the site. Two sets of conjugate joints can be seen on the slopes of Wied Żnuber one set strikes northwest – southeast while the other strikes approximately north-south. These joints are near-vertical and have fracture frequency ranging from about 0.5m to 5m. Frequently these have been opened by the chemical action of percolating water and subsequently partly filled by terra rossa as can be noted in surface exposures.
- 5.28. No faults were seen in the Aol. The faults nearest to the site are found at Ta' Wied Fulija.

Bedding

- 5.29. In addition to the sub-vertical joints that dissect the site the limestone sequence exposed in the Wied is bedded. On average beds are 0.8m up to 3m thick.

Stone material to be excavated

- 5.30. In order to assess the quality of the stone material two holes identified as BH1 and BH2, were drilled on the site (see **Figure 5.3**) by continuous rock core sampling using a rotary drill and a (76mm internal diameter) double tube core barrel with water as the drilling fluid. Drilling logs are attached in Appendix I of **Technical Appendix 2: Geo-environment Baseline Report**.
- 5.31. The rock core samples recovered from BH1 were of good quality Lower Globigerina Limestone interbedded with beds of il-Mara member passing downward to massive light brown rock of il-Mara member of the Lower Coralline Limestone formation. Refer also to **Technical Appendix 2: Geo-environment Baseline Report**.
- 5.32. Only stiff red clay was recovered from BH2. No rock samples were recovered.

This could be either because drilling took place in a vertical fissure filled with clay or else a larger solution cavity also filled with stiff red clay. Fracture planes were stained with brown clay.

- 5.33. The laboratory test results (presented in **Technical Appendix 2: Geo-environment Baseline Report**) revealed that the rock to be excavated is composed of yellow bioturbated Lower Globigerina Limestone interbeds passing down to il-Mara member with an average compressive strength of 13.9MPa. Water content was noted to be relatively very high.
- 5.34. Due to the relatively low compressive strength and the high water content the lower beds are suitable for mass concrete such as C12. If the red clay in BH2 occurs in relatively large quantities this could be used as soil for embellishing the site and for other agricultural use elsewhere. The quantity of red clay present can only be determined upon further investigation or by inspection during the construction phase.

BASELINE: GEOMORPHOLOGY

- 5.35. The environs of the site with the exception of the Wied Żnuber and Wied il-Mixta valleys and the cliff line are highly disturbed on account of successive developments first as an ex-services airport and then during the construction of the present Ħal Far Industrial Estate. For this reason the geomorphology of the A of I is primarily controlled by the regional dip to the northeast giving rise to sheer cliffs and NNE jointing on which the valley of Wied Żnuber appears to be superimposed.
- 5.36. Contrasting lithological composition of the rock members and bed units gave rise to the present profile of slopes of the valley also characterised by intense karstification.
- 5.37. The geomorphological units that make up the A of I are:
- The high cliff coastline;
 - The Ħal Far plain;
 - Wied Żnuber;
 - Wied il-Mixta; and
 - Karst features.

Cliff coastline

- 5.38. The most impressive geomorphologic feature close to the site is the imposing sheer limestone cliffs that rise almost vertically to about 60m above sea level. Their origin is closely related to the gentle dip of the Maltese Islands to the northeast and wave action at the toe of the cliff face, which undermines the rock face. The rock face fails along vertical shear planes giving rise to the sheer cliff. On account of the regional dip, run-off over the cliffs is scarce. Erosion is mainly by the action of gravity.

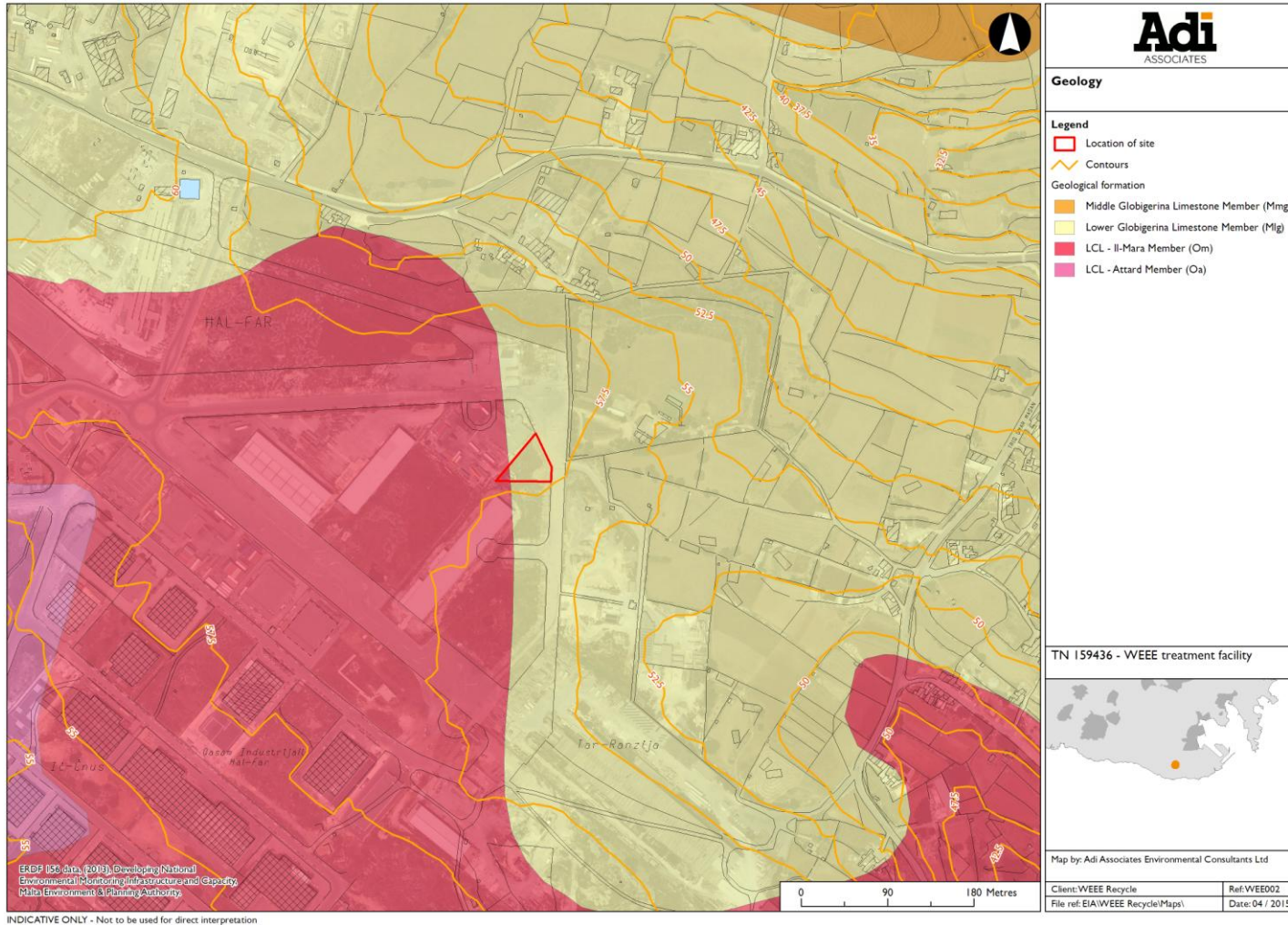
Ħal Far plain

- 5.39. This unit forms the disused airfield and appears to represent the bedding plane at the top of Il- Mara Member which is marked by a hard ground. This bedding plane is particularly resistant to weathering in contrast to the overlying beds of the Globigerina Limestone Formation, which have been eroded to expose the top of the Lower Coralline Limestone, Il-Mara Member. The Ħal Far plain is therefore considered to be the surface expression of a bedding plane.
- 5.40. Two valleys run through this plain, namely Wied Żnuber and Wied il-Mixta.
- 5.41. Wied Żnuber is a deep gorge incised down to a maximum depth of about 60m in Lower Coralline Limestone. It is one of the few drainage systems that discharge on the south west coastline. These dry watercourses are characterised by a relatively small catchment and are deeply incised in Lower Coralline Limestone. It discharges at sea level.
- 5.42. Like Wied Żnuber, Wied il-Mixta is a dry watercourse deeply incised in Lower Coralline Limestone. It has a relatively small catchment and drains the eastern end of the Ħal Far Industrial Estate. Unlike Wied Żnuber, it is a hanging valley as it does not discharge its run-off at sea level.
- 5.43. Karst features are also noted on the plain and are the product of the action of rainwater on limestone. Rocks of the il-Mara, Xlendi, Attard and Wied Magħlaq Members are prone to solution producing a variety of solution features, which highly enhance the permeability of limestone. These range from shallow rock pools and narrow conduits to large solution features such as caverns. One such cavern now modified by anthropogenic activities can be seen on the western slopes of the valley. A much larger solution cavern is Ħasan's cave that can be seen perched in the cliff face some 500m southeast of the site. Rock pools, conduits and open joints are best seen on the limestone pavement that lines the flanks of the Wied Żnuber gorge. The Lower Coralline Limestone is composed of a pure limestone and for this reason residual clays in the form of terra rossa soil are scarce. The limestone is therefore bare and is exposed as a limestone pavement locally known as 'Xagħra'.
- 5.44. Rock permeability is further enhanced by the widening of fractures and bedding planes by chemical solution. Fractures frequently channel percolating rainwater, and in the process widen the open fracture by the solution.

Soil

- 5.45. The soil in the study area is dominated by terra rossa –Xagħra series and L-Inglin Complex (refer also to **Technical Appendix 2: Geo-environment Baseline Report**). This is found mostly within Wied Żnuber and along the cliff line. At the site and the entire Ħal Far Industrial Estate the soil has been mostly disturbed. Such disturbance at times almost reaches the cliffs.

Figure 5.4: Geological map of the Area of Influence (OED, 1993)



BASELINE: HYDROGEOLOGY

5.46. The hydrological / hydrogeological features close to the site are:

- The mean sea level aquifer;
- Ephemeral Watercourse of Wied Żnuber;
- Catchment of Wied Żnuber;
- Catchment of Wied il-Mixta; and
- Water Boreholes – Water Services Corporation.

Mean Sea Level Aquifer

5.47. There is no perched aquifer beneath the site as there is no impermeable rock layer such as the Blue Clay Formation, in the rock sequence beneath the site. As there is no other impermeable rock formation present in the lithologic succession the only aquifer beneath the site is the mean sea level aquifer, which lies some 60m below. This also represents the hydrogeological feature closest to the site.

5.48. The sea level aquifer is lens shaped reaching some 3.5m high above sea level at the centre of the island and thins out to zero thickness at the coastline. As the site is only about 800m away from the coastline, the aquifer is either very thinly developed or not at all.

Wied Żnuber watercourse

5.49. The watercourses of these valley systems have their origin at the Ħal Far Industrial Estate, flowing through the old runway and Wied Żnuber and discharging to the sea. A true watercourse is only developed in Wied Żnuber. Presently this is considered to be a relict geomorphological feature generated in past climates during the Pleistocene. No water flows through the valley system except run-off water generated during heavy downpours. This run-off ceases soon after the rain has stopped. This watercourse discharges at sea level.

Wied il-Mixta and site catchments

5.50. The site lies within the catchment of Wied Il Mixta, which is a hanging valley in contrast to Wied Żnuber. The watersheds of Wied il-Mixta and the site are shown in **Figure 5.5**. The area of the catchment of the Wied is of modest size, 1.78 km², while that of the site is very small at 0.07 km².

5.51. As was observed during the field survey, the rock mass has high fissure permeability. The frequency of fissures observed on site can be as close as 1m and even less.

Water boreholes

5.52. The nearest public borehole (Water Services Corporation) tapping the mean sea level aquifer lies at Ħal Far some 1,000m away from the site. It lies outside the area of influence of the site. A number of private boreholes are also present in the

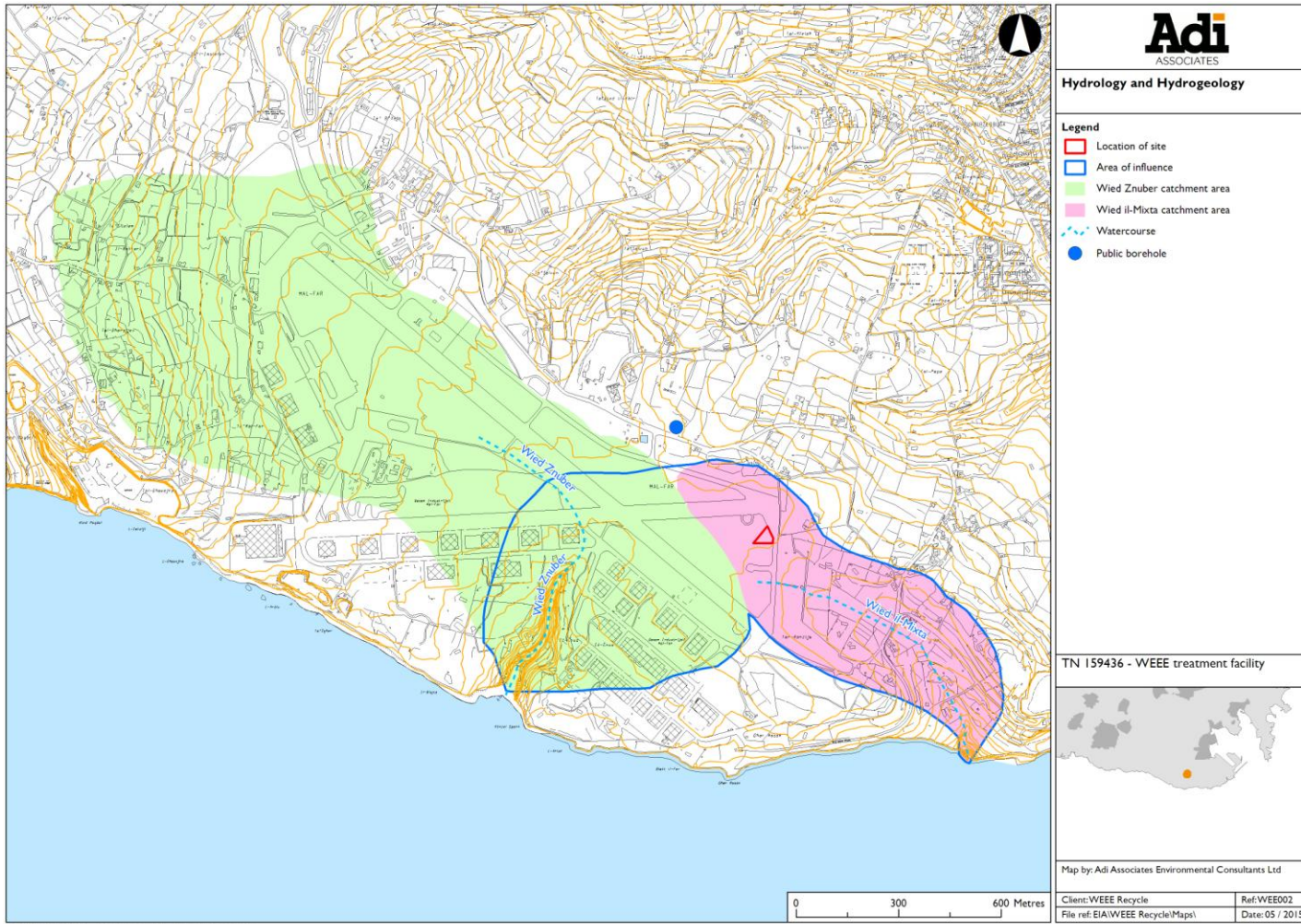
vicinity.

Surface run-off estimates

5.53. In order to calculate the surface run-off resulting from annual precipitation, watersheds were drawn for the discharge point of Wied il-Mixta and the Scheme site (see **Figure 5.5**). The result of the run-off calculations are listed below:

- Wied il-Mixta - Wied Catchment – 424,000 m²;
- Scheme site catchment - 1,600 m²;
- Average rainfall for the Maltese Islands - 550mm;
- Average Percolation - 24%;
- Average Evapo-transpiration - 70%;
- Average run-off at Wied il-Mixta discharge point - 6% or 14,000 m³ of water; and
- Average run-off at Scheme site discharge point - 6% or 50 m² of run-off water.

Figure 5.5: Hydrology and hydrogeology



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ASSESSMENT OF IMPACTS

Impact significance

5.54. The following criteria were used to assess the significance of the impacts by the Scheme on the geology, geomorphology and hydrogeology within the respective Aol:

- **Not significant:**
 - Little or no change to the geological, geomorphological and hydrogeological regime.
- **Minor significance:**
 - Changes to the geological, geomorphological and hydrogeological regime that may affect neighbouring properties but which may be offset by mitigation measures.
- **Major significance:**
 - Changes to the geological, geomorphological and hydrogeological regime that may affect neighbouring properties and which may not be offset by mitigation measures (if negative) or may be enhanced by mitigation measures (if positive).

Prediction and significance of impacts

Extraction of resources / features

5.55. The predicted impact of the Scheme on the underlying geology and the geomorphology of the Aol is considered to be of minor to major significance, since it involves the extraction of mineral resources, however, it is envisaged that only approximately 1,130 m³ of material will be excavated from the Scheme Site.

Impact on groundwater

- 5.56. Potential impacts on the groundwater could result from spillages of oil/fuel and leakages from batteries. Given the small quantities to be stored on site and the distance to the water table it is likely that, with mitigation in place, the potential impact is minor, and major only in cases of a large spillage.
- 5.57. In terms of mitigation, given that the Scheme will include an impermeable hardstanding and oil-water interceptor, and with specific bunding in place for oily waste, the predicted impact of the Scheme on ground water is considered to be not significant given the low risk identified in the risk assessment of spillages able to reach the water table.
- 5.58. Potential impacts on ground water due to mercury deposition off-site are unknown (refer to **Chapter 9**).

Impact on surface water run-off

- 5.59. In the case of a fire, the potential impact from used firefighting water is likely to be minor because of the mitigation that is in place: used water will be collected in the cesspit / reservoir and any overflow leaving the site will have been treated. The likelihood of a fire is considered rare, due to the operational procedures that will be in place to limit the quantity of flammable waste stored and risk of fire, see also **Chapter 9**.

MITIGATION

- 5.60. Mitigation measures during operation include:
- The entire site surface will be covered in concrete underlain by a geotextile membrane;
 - The ground in outdoor areas of the site will be laid to fall towards an oil-water interceptor before being received in the reservoir;
 - Wastewater from any washing of floors in the WEEE treatment building will be collected in gutters, filtered to remove trace contaminants, and received in an underground cesspit for reuse;
 - Only treated surface water / wastewater will be received in the underground reservoir and cesspits; and
 - Cesspits will be impermeable.

RESIDUAL IMPACTS

- 5.61. Residual impacts will remain as not significant in the case of the impact on ground water and minor in the case of potential overflow of used fire water on surface water run-off. In the case of the impact on mineral resources, the residual impact remains minor to major since the impact cannot be mitigated.

Table 5.1: Summary of Impacts on the Geo-environmental Resources

Predicted impact	Beneficial / adverse	Nature, scale and type of impact						Policy Importance (Inter/national/local)	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)
		Excav'n/ Constr'n/ Oper'n	Extent of impact (nat/local/site)	Direct/ indirect	S'term/ l'term	Perm/ temp	Revers/ Irrevers					
Mineral resources / features	Adverse	Constr'n	Local	Direct	Long-term	Perm	Irrevers	Local	Likely	Major significance	Use of excavated material in cement manufacture and use of clay in landscaping and/or for agriculture	Major significance
Change in quality of ground water	Adverse	Constr'n / Oper'n	Local	Indirect	Short-term / Long-term	Perm	Irrevers	Local	Likely	Minor to major	Entire site lies on an impermeable surface, specific bunding to capture specific oil spillages, oil-water interceptors, impermeable cesspits	Not significant
Contamination of surface water runoff	Adverse	Constr'n	Local	Direct	Long-term	Perm	Irrevers	Local	Likely	Minor to major in case of overflow of used firewater, depending on	Used firewater passing through interceptor	Minor significance in case of overflow of used firewater,

										extent of overflow otherwise not significant		otherwise, not significant
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6. LANDSCAPE AND VISUAL AMENITY

INTRODUCTION

- 6.1. This chapter addresses the potential impacts of the Scheme on landscape and visual amenity. It describes the existing landscape and visual amenity of the Application Site and its surroundings, and assesses how this might change through the development of the Scheme.
- 6.2. Assessment of landscape and visual amenity involves examination of the wide range of factors that contribute to the qualities and attributes of the existing landscape and that may contribute to the landscape of the Scheme. This involves consideration of the evolution of the landscape and the factors that have led to its current condition, from the underlying geology through to anthropogenic activities.
- 6.3. Landscape and visual impacts are distinct, albeit strongly related. Landscape impacts result from the interaction between a development and the existing landscape resources, experienced through changes to any element or combination of landscape elements. Visual impacts relate to the effect that a development would have on the amenity of sensitive receptors (those experiencing views of the site), relating to the actual or perceived visible changes to the character and quality of the landscape.
- 6.4. The key issues for the assessment are:

Key Issues:

- **Effects on the landscape setting of the Scheme**
- **Changes in views of key receptors**

Terms of Reference

- 6.5. The Terms of Reference (ToR) issued by MEPA require that the landscape and visual amenity aspects and potential impacts on these aspects are assessed. The full ToR are presented in ***Technical Appendix I: Terms of Reference and Method Statements***.

Objectives of the Assessment

- 6.6. The objectives of the landscape and visual amenity study were to:
- Undertake a baseline survey and characterisation of the landscape and visual amenity at and around the Application Site, using desk top and field survey techniques;

- Evaluate the landscape character of the Application site and its setting;
- Establish the Zone of Theoretical Visibility (ZTV)¹¹ for the Scheme and identify the key viewpoints and receptors;
- Input the potentially beneficial design measures to the Scheme;
- Predict the impacts of the Scheme on the visual amenity in the ZTV;
- Assess the significance of the impacts on the landscape and visual amenity of the ZTV; and
- Describe the mitigation measures designed into the Scheme to minimise adverse impacts and enhance any beneficial impacts on the landscape and visual amenity.

Legislation and Policies Guidance

- 6.7. The Constitution of Malta (Section 9) declares that the State shall 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.

Structure Plan

- 6.8. The *Structure Plan for the Maltese Islands* identifies a number of policies that are relevant to assessing landscape and visual amenity and the impact of projects thereon. Policy **BEN 1** deals with bad neighbourliness, and specifically with the visual intrusion of projects. Policy **BEN 2** provides that development will not be permitted if it is unlikely to ‘*maintain the good visual integrity of the area in which it is located*’ (refer also to **Chapter 4**).

South Malta Local Plan

- 6.9. The South Malta Local Plan (SMLP) 2006 is relevant to the Scheme. The Scheme site is located within the Ħal Far Industrial Estate, specifically designated for industrial uses. There are no designations related to landscape at this site.

Landscape Assessment Study of the Maltese Islands

- 6.10. MEPA’s Landscape Assessment Study of the Maltese Islands was undertaken in 2004 as part of the Structure Plan Review. The Study does not provide an assessment methodology to use in order to consider the impacts of a specific development; it does, however, provide a useful baseline assessment of the prevailing landscape character of the Maltese Islands. The primary purpose of the Study appears to have

¹¹ In accordance with the Guidelines for Landscape and Visual Impact Assessment (Third Edition) (2013), the term Zone of Theoretical Visibility (ZTV) is being used in place of the term Zone of Visual Influence (ZVI) since it makes clear that the area thus defined shows land from which the proposal may theoretically be visible and does not take account of potential screening by vegetation and buildings.

been as a topic paper to identify Areas of High Landscape Sensitivity and inform the Structure Plan Review.

- 6.11. The Study identifies the Application Site as lying within the Kalafrana-Ħal Far Landscape Character Area. The Ħal Far industrial estate occupies the western part of this Landscape Character Area. It was developed on an ex-military airfield. The area between Ħal Far and Kalafrana consists of farmland and includes a hamlet and a number of farms.

Standards and guidelines

- 6.12. In view of the fact that there are no Malta-specific landscape and visual amenity assessment guidelines, MEPA requested that the landscape and visual assessment be carried out in line with the UK's *Guidelines for Landscape and Visual Impact Assessment 2013* (GLVIA) (Institute of Environmental Management & Assessment (IEMA) and the Landscape Institute).

ASSESSMENT METHODOLOGY

Desk study methodology

Landscape assessment

- 6.13. The landscape baseline conditions were determined through desk study and field surveys. The desk study included:
- A review of the information shown on the base map of the area and reference to the maps prepared for the geo-environment and land use aspects of the EIS;
 - An analysis of aerial photographs to determine land use trends; and
 - A review of existing baseline information from:
 - Literature searches;
 - Previous environmental and planning studies undertaken in the area;
 - Historic maps; and
 - Legislation and policy documents.

Landscape character, value and sensitivity

- 6.14. MEPA's Landscape Assessment Study of the Maltese Islands was carried out as part of the Structure Plan review. This study characterised the landscape at a national level into a series of units known as landscape character areas (LCAs). It describes landscape characteristics, qualities and influences on the landscape. The landscape character area of the site and its surroundings consider MEPA's landscape assessment study as well as the results of the desk and field studies when characterising the landscape in the area.
- 6.15. The value of the landscape receptor should also be considered. The value of a landscape character receptor is a reflection of its importance in terms of any designations that may apply, or its importance in itself as a landscape or townscape

resource, which may be due to its ecological, cultural or recreational value. The higher the value of the receptor, the greater is its sensitivity to the development. Value is assessed as being high, medium, or low.

- 6.16. Landscape sensitivity is a complex issue. The GLVIA refer to consideration of a landscape’s susceptibility to change, meaning ‘...the ability of the landscape receptor...to accommodate the proposed development without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.’ Landscape character sensitivity was defined in accordance with the criteria set out in **Table 6.1**.

Table 6.1: Landscape character sensitivity

Landscape Character Sensitivity (directly affected areas)		
High	Medium	Low
A landscape character area / local landscape tract in which defining characteristics are susceptible to change	A landscape character area / local landscape tract in which some defining characteristics may be susceptible to change	A landscape character area / local landscape tract in which defining characteristics are less susceptible to change
Landscape Character Sensitivity (indirectly affected areas)		
High	Medium	Low
A landscape character area / local landscape tract in which defining characteristics are susceptible to change	A landscape character area / local landscape tract in which some defining characteristics may be susceptible to change	A landscape character area / local landscape tract in which defining characteristics are less susceptible to change

Magnitude of change to landscape resource

- 6.17. The GLVIA describe that the identification of the magnitude of change depends on (i) the size or scale of change in the landscape that is likely to be experienced as a result of each effect; (ii) geographical extent over which the landscape effects will be felt; and (iii) the duration and reversibility of the landscape effects. The magnitude of change in a landscape depends on the loss, change or addition of any feature, or any change in the backdrop to, or outlook from, a landscape that affects its character. **Table 6.2** presents criteria for magnitude of change to a landscape resource.

Table 6.2: Magnitude of change to landscape resource

High	Medium	Low	Imperceptible change
An obvious change in landscape characteristics and character	Discernible changes to landscape characteristics and character	Small changes to landscape characteristics and character	A largely imperceptible change to landscape characteristics and character

Visual amenity assessment

- 6.18. The Zone of Theoretical Visibility (ZTV) was defined using a combination of desk and field-based techniques. The extent of the viewshed (ZTV) was verified in the field along with the eleven representative viewpoints that were agreed with MEPA for the visual amenity assessment (see below). The existing views from these locations were photographed, photomontages created, and the visual amenity and changes thereto as a result of the Scheme appraised.
- 6.19. MEPA’s agreement to the location of the viewpoints was sought before the visual amenity study was undertaken. The viewpoints include:
- Short distance views;
 - Medium distance views from publicly accessible locations; and
 - Long distance views from high points or tourist attractions.
- 6.20. A number of views from publicly accessible locations were identified within the ZTV as shown in **Figure 6.1**. These were agreed with MEPA as a basis for assessing changes to visual amenity that may result from the Scheme. However, due to the lie of the land and the relatively low Scheme height, during the preparation of photomontages it was identified that the Scheme would only be visible from viewpoint 4. The assessment, therefore, considers potential visual impact at this viewpoint.

Sensitivity of visual receptors

- 6.21. The sensitivity of visual receptors is dependent on the location from where the receptors experience the view, their expectations, occupation or activity at the viewpoint, and the importance of the view. UK Guidelines note that the most sensitive receptors may include:
- Users of outdoor recreation facilities whose attention or interest may be focused on the landscape;
 - Communities where the development results in changes to the landscape setting or valued views enjoyed by the community;
 - Visitors to heritage assets, or to other attractions, where views of the surroundings are an important contributor to the experience; and

- Occupiers of residential properties with views affected by the development.
- 6.22. The Guidelines also note that other receptors could include people engaged in outdoor sport or recreation other than those involving an appreciation of the landscape, people travelling through the area, and people at their place of work. The latter are regarded as the least susceptible to changes in view.
- 6.23. The following definitions are used to categorise the sensitivity of receptors:
- High sensitivity receptors: those who repeatedly re-visit the viewpoint to partake of the view. Such views are generally highly valued by the community;
 - Moderate sensitivity receptors: itinerant visitors (mostly tourists) to the viewpoint; and
 - Low sensitivity receptors: road users, workers, etc.
- 6.24. Residents are not included above because views from private property are not protected under planning law or other public policy, except in so far as the zoning of the land implies certainty as to the type of development that may be permitted. The rights of nearby residents are, however, somewhat protected through the planning system, since they can object to any change of land use (or airspace). The EIA process does not assess the impacts of a development on the rights or values of individuals, but rather on the public collectively, and those rights and values are as expressed in legislation and planning policy. It is for this reason that this EIS does not address the effects of loss of view from private properties, land ownership, etc.

Magnitude of visual change

- 6.25. Identification of the magnitude of change depends on the size or scale in change in view (relating to the extent of visibility, degree of screening, angle of view and distance from the development) and the degree of contrast or integration of any new features with existing features as well as the duration and reversibility of visual effects. **Table 6.3** defines magnitude of visual change.

Table 6.3: Magnitude of visual change

High	Medium	Low	Imperceptible Change
A substantial change in view affecting a large number of viewers	A moderate change in view affecting many/some viewers	A smaller change in view affecting a low number of viewers	A small, barely perceptible or no change in view.

Field survey methodology: landscape

- 6.26. A comprehensive field survey was undertaken in April 2015, in accordance with the *Guidelines for Landscape and Visual Impact Assessment* (IEMA and the Landscape Institute 2013). The field survey served to record objective and subjective impressions of the landscape, and details of landscape condition, land use, and

management. It provided the basis for the delineation of local landscape tracts and the identification of potentially sensitive landscape receptors in accordance with the Guidelines.

6.27. **Table 6.4** describes the identified landscape receptors.

Table 6.4 Landscape Receptors

Landscape elements	Industrial estate: Characterised by large factories. The estate was developed on a former airfield and related infrastructure, such as the runway, taxi way and aircraft parking areas still remain. Some is used for the drag racing strip, other parts for a go kart club and model aeroplanes, and large areas as abandoned pavement – now used as an undefined road forming one of the two principal access routes to the estate.
	Urban settlement: The coastal town of Birżebbuġa, includes a reclaimed beach along the coastline.
	Rural area: Occupying the area between the industrial estate and the port and settlement. Typical rural landscape including rubble walls, fields as well as trees. Eucalyptus trees also dot the rural area.
	Port: Includes the Freeport and oil and gas storage facilities. The tall cranes at the Freeport are distinctive in this landscape.
	Cliffs: The southern coastal cliffs are a distinctive natural landscape feature, and are also important from an ecological view in their role in seabird ecology. Wied Żnuber is also a noticeable feature; a deeply incised valley that extends from the sea to the top of the Lower Coralline Limestone member. The area is scheduled as Area of Ecological Importance, Site of Scientific Importance and a Natura 2000 site.
Landscape characteristics	The Hal Far Industrial Estate is the largest one in Malta. The estate is spacious and includes a number of, as yet, undeveloped sites. It is currently occupied by a wide range of industrial uses ranging from motor vehicle repairs and transport companies to paint manufacture, pharmaceuticals and plastics and rubber processing units.
	The urban conurbation of Birżebbuġa is largely a tourism related and residential area. There are a number of food and beverage establishments along the coast. The Birżebbuġa sailing club is also located on the coast, relatively close to the Freeport.
	The rural area slopes down towards the sea. It is sandwiched between the industrial estate, the Freeport and urban settlement, such that the area lacks a feeling of remoteness in the vicinity of these landscapes.
	The Malta Freeport and oil and gas storage operate within a scenic bay. The Freeport is dominant in the landscape both visually and in terms of the noise and light it generates such that its maritime commercial activity is omnipresent in the bay.
	The cliffs provide a sense of remoteness and wilderness in the vicinity of the rural area. In the vicinity of the industrial estate, there is relatively extensive tipping and dumping. This together with the noise and light from the industrial estate (in the evening) has resulted in dilapidation of the natural habitat and environment.

Landscape character	The distinct and recognisable pattern of elements that occurs consistently in the landscape, and how this is perceived. Landscape character areas have been defined and are illustrated in Figure 6.2 .
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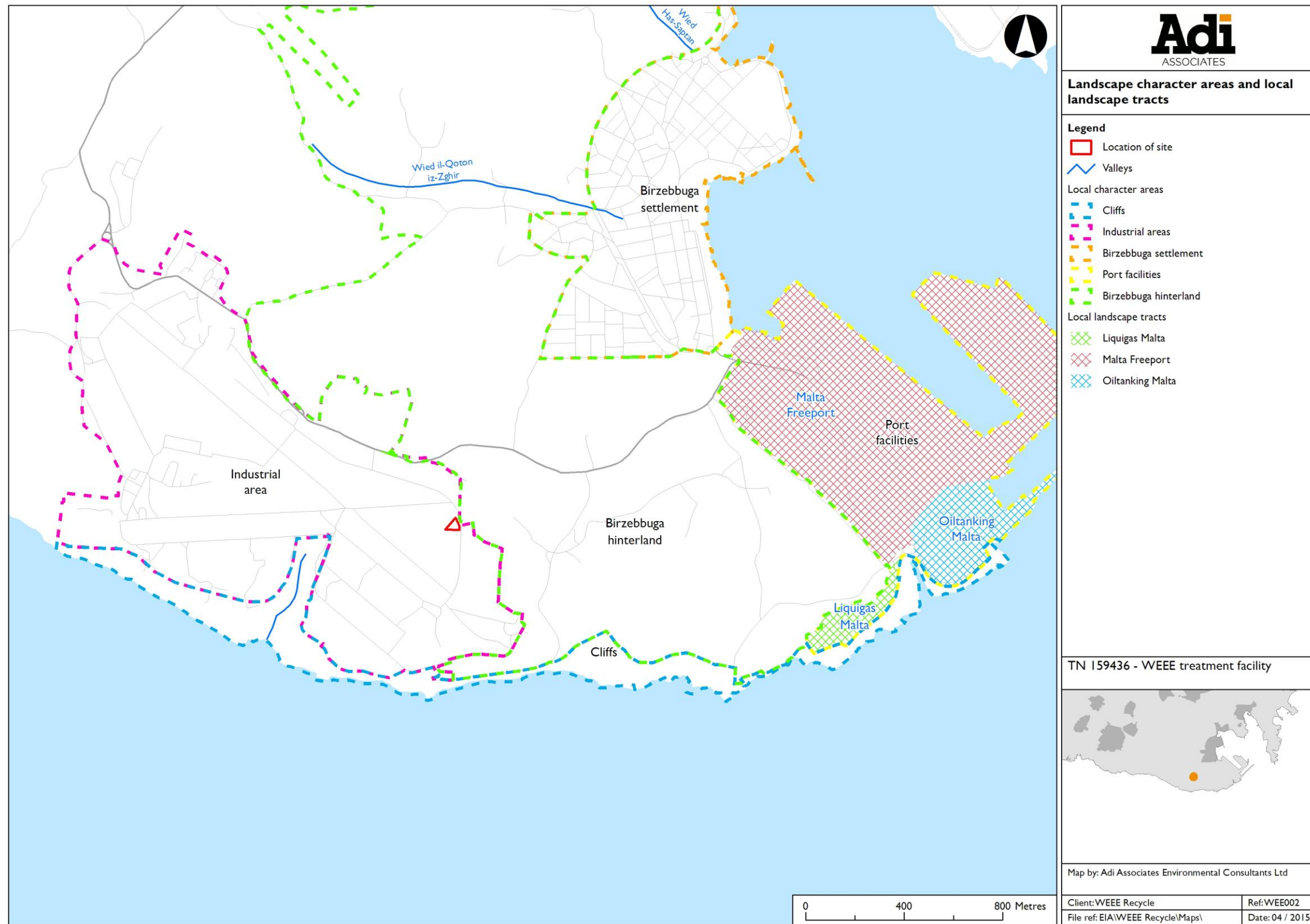
Field survey methodology: visual amenity

- 6.28. The extent of the visibility of the Scheme Site was verified during the field survey, and the ZTV and publicly accessible viewpoints confirmed. The field survey also confirmed the areas from which the site is not visible.
- 6.29. Potential sensitive receptors identified in the course of the field survey (in order of descending sensitivity) were:
- Recreational users of areas in the vicinity of the Site, walkers and joggers;
 - Tourists / visitors viewing the area from long to medium distance viewpoints;
 - Road users (vehicle occupants and pedestrians); and
 - Workers.

Figure 6.1: Zone of Visual Influence and selected viewpoints



Figure 6.2: Landscape Character Areas and Local Landscape Tracts



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DETERMINING IMPACT SIGNIFICANCE

- 6.30. The significance of impacts on the landscape and visual amenity is dependent upon judgements about the value of the existing visual amenity compared to the new visual amenity that would be created, the number of people affected, the receptors' sensitivity to change, the magnitude, duration and permanency of the changes, and subjective judgements about the degree to which these changes would matter to those concerned

Landscape assessment

- 6.31. The significance of landscape impacts has been defined based on the sensitivity and magnitude criteria as described in **Table 6.1** and **Table 6.2**, as follows:
- **Major significance:** *Large negative changes in the landscape that are out of character with the landscape.* Where the extent of the negative impact on the landscape setting is large in scale or magnitude and the landscape sensitive receptor is of high sensitivity to change and / or of a high intrinsic value and, as a consequence, the integrity of the setting would be significantly altered. The impact would be of international or national importance. The impact would be of a long-term nature (or very severe short-term in the case of construction impacts), irreversible, and certain or likely to occur;
 - **Moderate significance:** *Discernible changes in the landscape that are out of character with the landscape.* Where the extent of the negative impact on the landscape character is medium in scale and landscape sensitive receptor is of medium sensitivity to change and/or of medium intrinsic value. The impact would be of a long-term nature, irreversible and likely to occur;
 - **Minor significance:** *Small changes in the landscape that are out of character with the landscape.* Where the extent of the negative impact on the landscape setting is small in scale or magnitude and the landscape sensitive receptor is of a low sensitivity to change or a low intrinsic value. The impact would be of local importance. The impact would be of a long or short-term nature, and likely to occur;
 - **Not significant:** *No perceptible changes to the landscape setting.* Where the extent of the negative impact on the landscape setting is of limited importance in scale or magnitude and the landscape sensitive receptor is of a low sensitivity to change and / or a low intrinsic value. The impact would be of local importance. The impact would be of a long to short-term nature, and / or unlikely to occur.

Visual amenity

- 6.32. The significance of visual impacts has been assessed in relation to:
- The number and sensitivity of receptors affected;
 - The duration of the changes;

- The extent of visibility and distance from the Scheme;
- The type of view – proportion of development visible, focus on Scheme due to proximity and whether it is fixed, transient, or sequential;
- The changes to the view from the identified view points as shown by the photomontages; and
- The scope for mitigation / enhancement measures to screen the development.

6.33. Based on the above criteria an assessment of the significance of the visual impact on each of the agreed viewpoints was made in terms of whether it is considered to be of:

- **Major significance** - *substantial changes in the view.* Where the extent of the impact on the view would be large in magnitude and affect a large number of receptors or is of particular importance to the viewers affected. May be an advertised viewpoint and/or a view with high amenity and scenic qualities and few intrusive elements in the view;
- **Moderate significance** – *moderate change to the view.* Where the extent of the impact on the view would be moderate in magnitude or extent and affect a moderate number of receptors or is of some importance to the viewers affected. May be a viewpoint from which there is a view with some visual amenity / intrinsic value (this may include views across, or within, a regionally or locally designated landscape) and potentially some intrusive elements to the view;
- **Minor significance** – *smaller changes to the view.* Where the extent of the impact on the view would be small in magnitude or extent, and affect relatively few receptors, or a larger number of receptors with passing interest in their visual environment. The view would have a low visual amenity / intrinsic value or with intrusive man-made elements within the view. ; or be
- **Not significant** - *little or no obvious changes to the view.* Where the extent of the impact on the visual amenity would be of limited importance in scale or magnitude, or affect persons of low sensitivity to change, and / or be a view of low intrinsic value. Alternatively, the impact would affect very few people, be transient and only affect a small part of the Scheme or panorama.

6.34. **Table 6.5** identifies impact significance in a tabular format. It should be noted that there is a gradual transition between categories and magnitude and sensitivity are not necessarily evenly weighted such that the final decision on significance comes down to a professional judgement. Impact significance is recorded as one of the four categories (not significant, minor, moderate, or major).

Table 6.5 Identification of Impact Significance

		Magnitude of change			
		Imperceptible	Low	Medium	High
Sensitivity of Receptor	Low	<i>Not significant</i>	<i>Not significant or Minor</i>	<i>Minor</i>	<i>Minor or moderate</i>
	Medium	<i>Not significant</i>	<i>Minor</i>	<i>Moderate</i>	<i>Moderate or major</i>
	High	<i>Not significant</i>	<i>Minor or moderate</i>	<i>Moderate or major</i>	<i>Major</i>

EXISTING CONDITIONS

Landscape

- 6.35. The Application Site is located within the Hal Far Industrial Estate. The Industrial estate is situated on a former airfield, lying on the coast between Żurrieq and Birżebbuġa. Given its relatively large size, the industrial estate provides a sense of spaciousness, in contrast to the generally dense conurbations throughout Malta, although it has not yet been developed to maximum capacity. Other uses have been developed in its vicinity including warehousing and the setting up of a detention centre.
- 6.36. The Application Site is flanked by an existing operation that includes a container depot. It also abuts, as yet, undeveloped land that mainly appears to consist of material that has been dumped on to a former taxi way and is now overgrown with vegetation. Concrete batching plants are located over the road from the Application Site and the adjacent area is used as a shooting range. The shooting range does not appear well maintained although it is still used on the weekend. Beyond this area, the land begins to slope eastwards. It is dominated by rural land that includes areas of planted Eucalyptus trees. A small hamlet is located further east.
- 6.37. The Site setting is such that the area is not much visited during the week other than vehicles visiting the batching plant and the facility operating adjacent to the site almost providing a sense of abandonment.
- 6.38. The rural area beyond the industrial estate and in the vicinity of the Application Site provides a visual break to the development of the industrial estate to the west and the Freeport and urban settlement to the east. The Freeport is a dominant feature in the area. Apart from its visual presence, the noise and light generated by the 24 hour operation of the Freeport further enhances its dominance in the landscape. The large former quarry, located on the coast, south of the Freeport is a veritable eyesore, however, its location means that it is not visible from most viewpoints.
- 6.39. The presence of the Freeport is in contrast to the tourism-related residential settlement of Birżebbuġa. Other industrial uses around the bay, including fuel tank storage, have also jarred in this regard.

6.40. Vertical, dramatic, cliffs characterise the southern coast, which are designated as an Area of High Landscape Value (G.N. 400 of 1996). The Industrial Estate has encroached closely onto some of these areas and associated dumping can be observed on and around natural habitat. Wied Żnuber interrupts the cliffs and is abutted on both sides by the industrial estate. Consequently, overspill and dumping onto this valley are noticeable. The cliffs are important for seabird ecology and support breeding populations of *Calonectris diomedea* and *Puffinus yelkouan*. The birds can be heard returning to their colonies at night.

Landscape characterisation

6.41. The landscape types and character areas that provide the landscape context to the Application Site are described below. The distinction between the types and areas is defined in the assessment as:

- *Landscape Character Types* - describe distinct and homogeneous generic landscape units that share common combinations of elements (listed and described in **Table 6.6**); and
- *Landscape Character Areas* - single unique areas that represent the discrete geographical areas of a particular type. Each Landscape Character Area may be divided into Local Landscape Tracts (LLT) that describe potential problems and pressures affecting the landscape character (illustrated in **Figure 6.2** and described in **Table 6.6**).

Table 6.6: Landscape Character Types and Landscape Character Areas

Defined area / Attribute	Summary Description
Character Areas	
Industrial Area	Includes the Ħal Far Industrial Estate and certain adjacent similar uses. Area comprising pharmaceuticals, transportation, manufacturing and oil-related activities, storage, machinery & equipment, food processing, rubber and plastics, printing, and batching plants. <i>Problems</i> ○ Degree of dumping in undeveloped, unfrequented areas <i>Landscape Sensitivity</i> ○ Low
Birżebbuġa Hinterland	○ Shooting range; ○ Farmed land; ○ Areas planted with Eucalyptus trees; and ○ Hamlet and farms. <i>Problems</i> ○ Non-rural uses within the rural environment. <i>Landscape Sensitivity</i> ○ Moderate
Cliffs	○ Vertical cliffs; ○ Cliff edges supporting rupestral habitats; ○ Wied Żnuber; and ○ Designated Area of High Landscape Value.

Defined area / Attribute	Summary Description
	<p><i>Problems</i></p> <ul style="list-style-type: none"> ○ Dumping; ○ Light and noise pollution from the nearby factories, disorienting and disrupting the breeding seabirds. <p><i>Landscape Sensitivity</i></p> <ul style="list-style-type: none"> ○ High
Port Activities	<p>Maritime/port activity at the coast, comprising three Local Landscape Tracts:</p> <ul style="list-style-type: none"> ○ Freeport; ○ Oil tanking facilities; and ○ Former Bengħisa quarry. <p><i>Landscape Sensitivity</i></p> <ul style="list-style-type: none"> ○ Low
LLT: Freeport	<ul style="list-style-type: none"> ○ Landmark Freeport terminal characterised by moving cranes, other machinery and containers (and their movement). <p><i>Problems</i></p> <ul style="list-style-type: none"> ○ Subjective visual intrusion; and ○ Operational noise <p><i>Landscape Sensitivity</i></p> <ul style="list-style-type: none"> ○ Low
LLT: Oil tanking	<ul style="list-style-type: none"> ○ Oil tanks located adjacent to the Freeport. <p><i>Landscape Sensitivity</i></p> <ul style="list-style-type: none"> ○ Low
LLT: Liguigas Malta	<ul style="list-style-type: none"> ○ Quarry scarring the coastline. ○ An LPG facility is now located within this quarry, <p><i>Problems</i></p> <ul style="list-style-type: none"> ○ Quarry is an eyesore, however, it cannot be seen from long distances. <p><i>Landscape Sensitivity</i></p> <ul style="list-style-type: none"> ○ Low
Birżebbuġa settlement	<p>Residential settlement located in a touristic place. Includes a reclaimed beach that has provided more space and separation from the main road. Maritime leisure activities supported including a local sailing club.</p>

Visual amenity: Zone of Theoretical Visibility

6.42. **Figure 6.1** illustrates the computer generated ZTV. Whilst the ZTV appears extensive, in the field it was ascertained that, as a result of buildings, vegetation, and distance, the Application Site was not visible from all areas within the ZTV. The field survey was carried out to select the best viewpoints and to identify the long, medium, and short distance views from public places. The selected viewpoints were agreed with MEPA and are shown in **Figure 6.1**.

Application site visibility

6.43. In assessing views, there is often likely to be a continuum in the degree of visibility of

the development from full view to no view. **Table 6.7** summarises the situation in respect of the Scheme and with regard to the following:

- Extent of site visibility – full view, partial view, glimpse or no view into the site at all demonstrates the exposure of the site and the processes thereon to public view.
 - The Application Site is partially visible from the selected viewpoint.
- Proportion of development visible – expresses the proportion of the development (the Scheme) that would be visible from the viewpoints: full, most, some, small amount, or none.
 - Given the overgrown vegetation, very little of the Scheme will be visible from the selected viewpoint.
- Focus on Scheme due to proximity – is an indicator of the distance from the Application Site and whether the viewpoint would focus on the development due to its proximity (i.e., it is the only thing to look at), or whether the Scheme is part of a panorama.
 - The selected viewpoint is a proximity view.
- Transient or sequential view – the principal receptors will have sequential views of the Application Site. Transient views are those that pass quickly (like looking through a doorway as one walks past), and sequential views expose the receptor to different yet sequential views of the site. The latter allows the site to be viewed for a longer period and from different and changing perspectives.
 - The selected viewpoint is sequential.

Table 6.7: Summary of Application Site visibility from viewpoints

	Viewpoint
	VP4
Distance of viewpoint from Scheme (m)	260m
Extent of Scheme visibility	Partial
Proportion of Scheme visible	20%
Focus on Scheme due to proximity	Proximity
Transient or sequential view	Sequential

CHANGES IN THE LANDSCAPE AND VISUAL AMENITY

- 6.44. Changes to the landscape and visual amenity of the ZTV are anticipated as a result of the Scheme. This section focuses on the likely impacts of the Scheme on landscape and visual amenity, and points to possible mitigation measures, where relevant.

Changes in the landscape and their significance

- 6.45. The changes to the landscape during the construction and operation of the Scheme are considered together. In terms of landscape character, the impacts likely to occur as a result of the operation of the Scheme were assessed.
- 6.46. **Table 6.8** details the landscape assessment.




Table 6.8 Changes in landscape character and the significance of the impacts

Location	Changes	Effects & Significance
Industrial Character Area	The Scheme will be developed within this area. The small scale nature of the Scheme will result in a barely noticeable change to the landscape setting which is of low sensitivity.	Barely noticeable change. Impact: Not significant
Birżebbuġa Hinterland Character Area	No changes.	No changes. Impact: Not significant
Cliffs Character Area	The small scale nature of the Scheme and its distance from the cliffs will not result in any perceptible changes to this highly sensitive Character Area.	No changes Impact: Not significant
Port Activities Character Area LLT: Freeport	No changes.	No changes. Impact: Not significant
Port Activities Character Area LLT: Oil tanking	No changes.	No changes. Impact: Not significant
Port Activities Character Area LLT: Liquigas Malta	No changes.	No changes. Impact: Not significant
Birżebbuġa Settlement Character area	No changes.	No changes. Impact: Not significant

Changes in visual amenity and their significance

- 1.47. Changes to the visual amenity were assessed from suitable viewpoints as described above and presented below. In this case, the assessment is based on one viewpoint.

Viewpoint 4: Area on taxi way looking towards the back of the site (no street name)

<p>Viewpoint 1</p>	<p>Date: 1st April 2015</p>		
<p>Location</p>	<p>Hal Far</p>		
<p>Key features</p>	<p>View from the former taxi way onto the site. Part of an industrial building is present within in an area that is otherwise covered in vegetation. Trees associated with the rural environment (mainly Eucalyptus) trees are identifiable in the distance. A container and concrete bollards are present on the taxi way. Low visual amenity, low intrinsic value.</p>		
<p>Sensitive receptors</p>	<p>Drivers / workers in the area. Low numbers of low sensitive receptors. Small numbers of low sensitive receptors.</p>		
<p>Change to Visual Amenity</p>	<p>No real change in the view although part of the Scheme building is just noticeable adjacent to the existing building in this view.</p>		
<p>Impact</p>	<p>A small, hardly noticeable change to the overall view of low intrinsic value affecting a small number of low sensitive receptors. Impact: Not significant.</p>		
			

- 6.47. The impact of the Scheme on the visual amenity of the area portrayed in the above photograph and photomontage is not significant. Significance is dependent on the scale of change to the landscape and visual amenity of the area, the intrinsic value of which was classified as low, and the sensitivity of receptors that will view the Scheme.
- 6.48. **Table 6.9** summarises the impact assessment. No significant impacts were identified so mitigation is not necessary.

Table 6.9: Summary of Impacts on Landscape and Visual Amenity

Asset Impacted	Beneficial/ Adverse / Neutral	Nature, scale and type of impact						Policy Importance (Internat. / National / Local)	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)
		Const'n / Oper'n	Extent of impact (Nat. / Local / Site)	Direct / Indirect	S- term / L- term	Perm / Temp	Revers / Irrevers					
Landscape												
Industrial Character Area	Neutral	Oper'n	Local	Direct	L- term	Perm	Revers	Local	Likely	Not significant	None	Not significant
Birżebbuġa Hinterland Character Area	Neutral	Oper'n	Local	Direct	L- term	Perm	Revers	Local	Likely	Not significant	None	Not significant
Cliffs Character Area	Neutral	Oper'n	Local	Direct	L- term	Perm	Revers	Local	Likely	Not significant	None	Not significant
Port Activities Character Area LLT: Freeport	Neutral	Oper'n	Local	Direct	L- term	Perm	Revers	Local	Likely	Not significant	None	Not significant
Port Activities Character Area LLT: Oil tanking	Neutral	Oper'n	Local	Direct	L- term	Perm	Revers	Local	Likely	Not significant	None	Not significant
Port	Neutral	Oper'n	Local	Direct	L-	Perm	Revers	Local	Likely	Not	None	Not

Asset Impacted	Beneficial/ Adverse / Neutral	Nature, scale and type of impact						Policy Importance (Internat. / National / Local)	Probability of impact occurring (Likely / Unlikely / Remote / Uncertain)	Significance of impact (Major / Minor / Not significant)	Proposed mitigation measures	Significance of residual impact
		Const'n / Oper'n	Extent of impact (Nat. / Local / Site)	Direct / Indirect	S- term / L- term	Perm / Temp	Revers / Irrevers					(Major / Minor / Not significant)
Activities Character Area LLT: Liquigas Malta					S- term					significant		significant
Birżebbuġa Settlement Character Area	Neutral	Oper'n	Local	Direct	L- term	Perm	Revers	Local	Likely	Not significant	None	Not significant
Visual Amenity												
Viewpoint 4: From taxi way behind the site	Adverse	All	Local	Direct	L- term	Perm	Revers	Local	Likely	Not significant	None	Not significant

7. ECOLOGY

INTRODUCTION

- 7.1. In its request for an EIS, MEPA specified that an ecology assessment should be carried out. The Ecology Method Statement presented in **Technical Appendix I: Terms of Reference and Method Statements** describes the scope of the assessment. Given the magnitude of the Scheme and its location, it was determined that the ecology assessment would be limited to considering potential impacts on the Scheme site. Potential impacts on the SAC and SPA of the cliffs as well as seabirds were considered to be outside the Area of Influence of potential impacts that may arise from the Scheme.
- 7.2. In this regard, an ecological baseline survey was carried out in May 2015 upon which an assessment of the Scheme's impacts was carried out. This chapter, therefore, considers the likely environmental impacts on the recorded communities of the proposed Scheme. The potential key ecological issues are outline below:

Key Issues

- **Loss of habitat and/or species of conservation interest**

METHODOLOGY

Assessment objectives

- 7.3. The objectives of the Ecological Impact Assessment were to:
- Describe the biotic assemblages and communities present within the site area and evaluate their importance;
 - Identify, describe and analyse the relevant international / Maltese legislation and protocols, agreements, etc., as well as Government / MEPA policies;
 - Identify the threats and opportunities posed by the Scheme in respect of the findings;
 - Predict the impacts of the Scheme on the ecological value of the area;
 - Assess the significance of the impacts on the ecology of the area; and
 - Describe the mitigation measures designed to minimise adverse impacts on ecology and enhance any beneficial impacts on the ecological features of the area.

Legislation, policies and guidance

International legislation

- 7.4. International legislation relevant to the ecology of the Area of Influence (A of I) is mainly that protecting specific habitat types / biotopes or individual species. Of particular relevance are:

- The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention);
- The Convention on the Conservation of Migratory Species of Wild Animals (the Bonn Convention);
- The European Union's Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds (the 'Wild Birds Directive'); and
- The European Union's Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive').

Local legislation

7.5. Local legislation relevant to the ecology of the A of I is mainly that protecting individual features, habitats, or species. Of particular relevance are:

- Act XXIX of 1973 (Fertile Soil (Preservation) Act, Cap 236);
- Legal Notice 12 of 2001 (Trees and Woodland (Protection) Regulations, 2001); and
- Legal Notice 311 of 2006 (Flora, Fauna and Natural Habitats Protection Regulations, 2006) and its subsidiary Government Notice 112 of 2007.

Protected areas

7.6. The Application Site does not lie within a protected area.

Guidelines

7.7. The most relevant policy guidance is MEPA's *Guidelines on Trees, Shrubs and Plants for Planting and Landscaping in the Maltese Islands*. This document provides detailed guidance on the types of plants that can be used for landscaping purposes in rural, urban, or agricultural situations. The guidance includes methods of planting and lists of species suitable for the different areas.

Data sources

7.8. A baseline ecological survey of the site was carried out by Ms Krista Farrugia.

Desk Study Methodology

7.9. The topographic and ecological characteristics of the site were determined through desk study and field survey. The desk study included:

- Analysis of aerial photographs to determine land use trends;
- Review of land use survey findings (see also **Chapter 3**);
- Review of existing baseline information from:
 - MEPA's National Protective Inventory and other ecological/habitats data;
 - Literature searches;

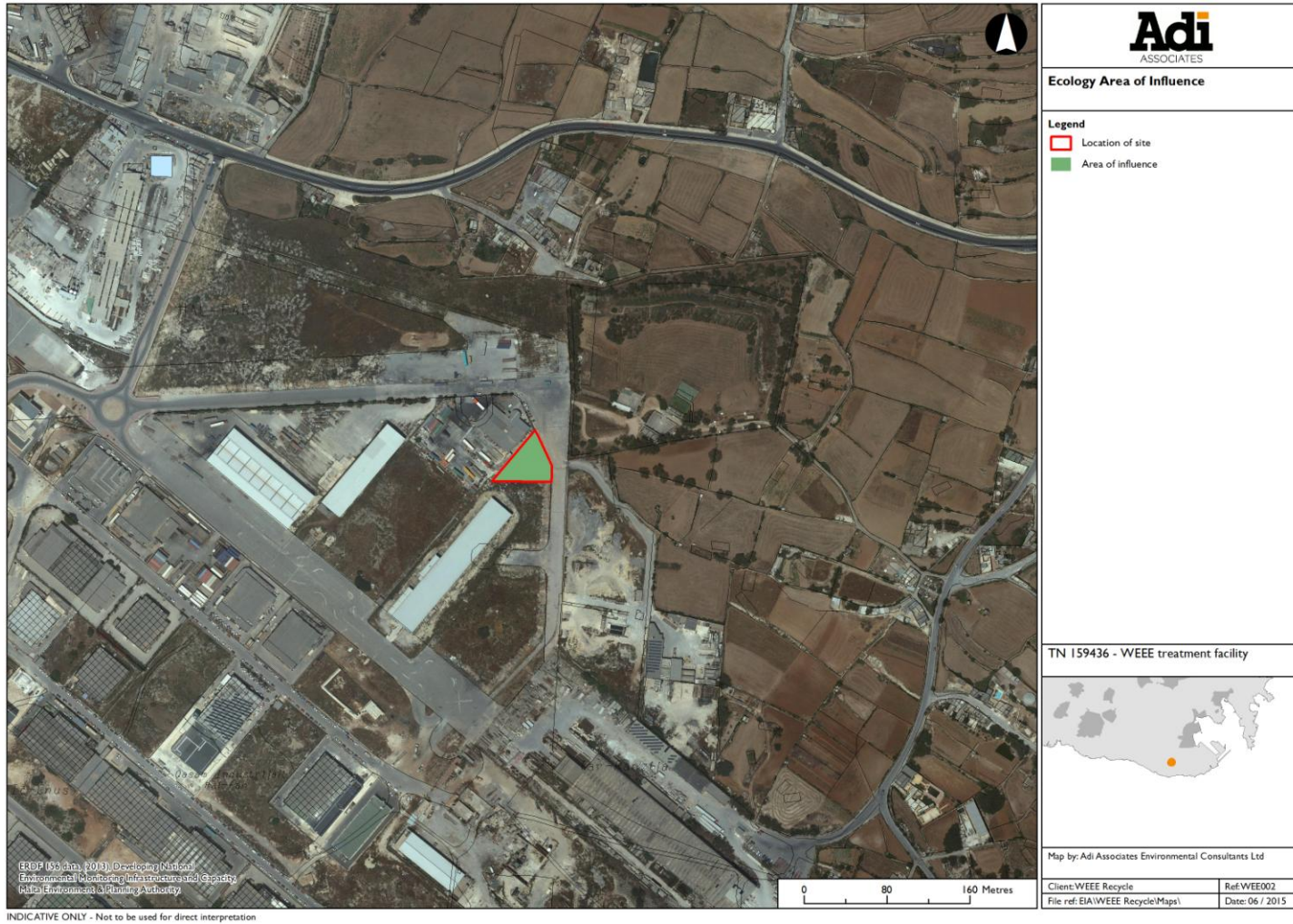
- Previous environmental and planning studies undertaken in the area; and
- Legislation and policy documents.

Field survey methodology

- 7.10. The field survey was carried out in May 2015. As defined in the Ecological Method Statement submitted to MEPA, the field survey consisted of a broad brush survey of the Application Site.
- 7.11. In accordance with the Method Statement, the survey area included the Application Site (see **Figure 7.1**). However, whilst on site, the area immediately adjacent to this site was also viewed and community assemblages noted. The land cover of this area was assessed on the basis of topographic features, land-use, and vegetation. Plant assemblages were identified. Dominant species were noted and the majority of the accompanying species were recorded. Indicator species and species of ecological and/or conservation importance, especially those listed in the *Red Data Book for the Maltese Islands* (Schembri & Sultana, 1989)¹², were actively searched for during the field surveys.

¹² Schembri, P.J. & Sultana, J. [eds] (1989) *Red data book for the Maltese Islands*. Valletta: Department of Information; viii + 142pp.

Figure 7.1: Area of Influence



Assessment Methodology

Determining impact significance

- 7.12. In assessing the significance of the potential negative impacts arising from the Scheme, the following criteria have been used:
- **Not significant** : no material change in habitat quality and/or extent;
 - **Minor significance** :small-scale loss/disturbance of habitat that is unlikely to affect the ecological integrity of the A of I; and
 - **Major significance**: large-scale loss/disturbance of habitat that is likely to affect the ecological integrity of the A of I.
- 7.13. The concept of “material change” needs to be viewed in the context of the Application Site as described in **Chapter 3**. For a change to be material it must affect the ecological integrity of the habitats and the interactions of the species they support more than they would be affected by the continuation of the uses already extant in the area and to which the ecology is accommodated.
- 7.14. Changes that would qualify as a “material change” would be a reduction in habitat size or other alteration (such as those listed below) that modifies the habitat to such an extent that the integrity of the habitat and / or ecological feature would be affected. Such changes would include fragmentation of habitats, isolation of populations, and chronic effects that may lead to long-term or permanent changes in the physico-chemical characteristics of the habitats and hence of the species they support.

BASELINE SURVEY RESULTS

Land cover & vegetation assemblages

- 7.15. As described in **Chapter 3**, the Application Site consisted of a mound of largely construction / demolition waste with opportunistic species growing over the rubble and amongst other dumped waste. The area is fenced in and this land cover type extends further beyond the site.
- 7.16. A ruderal community typical of disturbed ground was recorded at the site (see **Figure 7.2** and **Figure 7.4**). Species recorded included *Avena sterilis* (Animated Oat), *Daucus carota* (Wild Carrot), *Glebionis coronaria* (Crown Daisy), *Galactites tomentosa* (Mediterranean Thistle), *Foeniculum vulgare* (Fennel), *Malva sylvestris* (Common Mallow), *Dittrichia viscosa* (Sticky Fleabane), *Euphorbia pinea* (Pine Spurge), *Ecballium elaterium* (Squirting Cucumber), and *Cynodon dactylon* (Bermuda Grass).
- 7.17. Given the above, the site is considered to have limited ecological value. A similar community extends adjacent to the site as illustrated in **Figure 7.3** and recorded in **Figure 7.4**.

Fauna

- 7.18. Following a request from the Superintendence of Cultural Heritage (refer to **Chapter 3**), archaeologists Chantal Cassar and Elysia Darmanin (Ensure Ltd) visited the site.

During their site visit a number of snakes were noted, although the species was not ascertained. However, based on the description it is likely that the species was *Coluber viridiflavus carbonarus* (Black Whip Snake) [RDB¹³: Vulnerable].

Figure 7.2: Disturbed ground (Application Site) supporting ruderal species



Figure 7.3: Ruderal community growing in area adjacent to the Scheme site



¹³ Ed. Schembri, P.J. & Sultana, J. 1989. Red Data Book for the Maltese Islands. Department of Information

Figure 7.4: Ecology survey results



IMPACT ASSESSMENT

Potential impacts

- 7.19. Direct habitat and associated wildlife loss as a result of site clearance and excavation is the main impact of potential significance to arise as a result of the Scheme.
- 7.20. Potential significant impacts are related to the construction phase rather than the operational phase. This is because the operational phase will be regulated by an IPPC permit with the aim to ensure optimal operating conditions and maximum site containment. Refer also to **Chapter 9** that includes a risk assessment.
- 7.21. The following section provides a more detailed assessment of these impacts as they relate to the Scheme.

Prediction and significance of impacts

Direct habitat loss/species of conservation importance during site clearance

- 7.22. Scheme construction will result in direct loss of the vegetation community growing on the site. As described in **Chapter 3**, following direction from the Superintendence of cultural heritage, the site has already been cleared of all rubble and top soil including the vegetation that was growing there.
- 7.23. Given the relative extent of the ruderal community that was growing within the Site boundary when compared to the full extent beyond the site (refer to **Figure 7.4**), and assuming mobile species migrated away from the site during site clearance, and also considering the limited ecological value of the site, the loss of the ruderal community recorded at the site is considered to be of minor significance.

MITIGATION

- 7.24. No mitigation is identified. If the Scheme does not receive planning permission, the site should be allowed to attempt to regenerate naturally.

Table 3.2: Summary of Ecological Impacts

Predicted Impact	Beneficial/ Adverse	Nature, Scale and Type of Impact					Policy Importance (Inter/National / Local)	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)
		Extent of impact (Nat/Local/ Site)	Direct/ Indirect	S term/ L term	Perm/ Temp	Revers./ Irrevers.			Legislation	In context of Scheme		
Loss of habitat	Adverse	Local	Direct	L term	Perm	Irrevers.	Local	Likely	EPA, LN 311/2006, GN 112/2007	Minor	None	Minor

8. NOISE

INTRODUCTION

- 8.1. This chapter considers the potential noise impacts arising from the construction and operation of the Scheme. The key noise issues in relation to the Scheme are outlined below:

Key Issues:

- **Effects of noise arising from the construction of the Scheme**
- **Effects of noise arising from the operation of the Scheme**

STANDARDS AND GUIDANCE

- 8.2. There is to date no specific guidance in Malta on noise in the context of land use planning¹⁴. In situations where standards are not available, MEPA generally makes reference to equivalent guidance from the United Kingdom (UK) and International Organisation for Standardisation (ISO) standards. Accordingly, the baseline noise survey was undertaken with reference to British Standard (BS) 4142:2014¹⁵. In predicting the noise levels arising from construction of the Scheme, reference was made to BS 5228:2009¹⁶ 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 Noise¹⁷). In predicting the noise levels arising from operation of the Scheme, reference was made to BS 4142:2014. Reference was also made to ISO 1996¹⁸, in accordance with Annex II of the Environmental Noise Directive (2002/49/EC).

BASELINE NOISE SURVEY

Description of the area in the vicinity of the Scheme Site

- 8.3. The Scheme Site is located within and on the eastern boundary of the boundary of the Hal Far Industrial Estate. A detailed land use survey of the area 250 m around the

¹⁴ 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.

¹⁵ BS 4142:2014, *Methods for rating and assessing industrial and commercial sound*, British Standards Institution

¹⁶ BS 5228: 2009, *Code of Practice for Noise and Vibration Control on Construction and Open Sites: Part 1 Noise*, British Standards Institution.

¹⁷ Department of Communities and Local Government (UK), Planning Policy Guidance PPG 24, *Planning and Noise*, September 1994.

¹⁸ ISO 1996, *Acoustics - Description, measurement and assessment of environmental noise*, International Organisation for Standardization.

Scheme Site was conducted on 17th October 2014; a land use map and detailed description of the area is available in **Chapter 3** of the EIS.

- 8.4. The Scheme Site is currently vacant and is disturbed land; the site was formerly part of the taxiway / park of the Hal Far airfield, which ceased operations in the 1970s. As described in **Chapter 3** the primary land uses in the surrounding area are industrial – a range of activities including pharmaceuticals, transportation, manufacturing and oil-related businesses. The activities immediately surrounding the Scheme Site are a goods and freights terminal (adjoining site to the west), a steel manufacturing facility (located to the south), and a batching plant (located to the east).
- 8.5. Immediately to the northeast of the Scheme Site, adjoining the industrial estate, there is an open-air shooting range. This activity operates weekends only (Saturday 13:00 - 19:30 and Sunday 8:00 - 19:00).
- 8.6. The area beyond the industrial estate, to the north and east of the Scheme Site, is predominantly agricultural, with fields still under cultivation. The rural hamlet of Benghisa is located approximately 380m from the eastern boundary of the Scheme Site. The northern end of the batching plant site lies between the Scheme Site and the hamlet.
- 8.7. The nearest residential property to the Scheme Site is a farmhouse located to approximately 175 m to the north. The intervening area is occupied by the goods and freight terminal (immediately adjoining the site) and beyond this a large open storage yard (buildings supplies).
- 8.8. A noise sources / noise-generating activities observed in the area surrounding the Scheme Site, having the potential to contribute to the noise climate at the sensitive receptors, include:
 - Vehicular traffic;
 - Industrial activity (from facilities within the Hal Far Industrial Estate, the Malta Freeport Terminals, and other individual industrial businesses); and
 - Leisure uses, in the form of a shooting range.

Baseline survey methodology

Noise sensitive receptors and noise monitoring locations

- 8.9. The survey concerned the measurement of noise levels at two monitoring locations (monitoring points - MP); these MPs were identified as the most appropriate to establish the baseline noise climate at the nearest identified residential sensitive receptors. The location of the MPs is identified in **Table 8.1** and **Figure 8.1**; **Figure 8.1** also shows the location of the sensitive receptors.

Figure 8.1: Noise Monitoring Point and Noise Sensitive Receptors



Table 8.1: Location of Noise Monitoring Points

MP	Location	Eastings	Northings	Distance from Scheme Site (plan distance in metres)
A	Residential properties on Triq il-Mitjar l-Qadim, off Triq Hal Far	456491.22	3963473.50	163 m
B	Western edge of Bengħisa rural hamlet	456853.08	3963172.87	367 m

Sound level measurements

- 8.10. The sound level measurements were taken so as to establish the day time baseline noise climate (the background sound level) at the sensitive receptors, having regard to the operational hours envisaged for the Scheme and the envisaged times of the contraction works. The Scheme will operate Monday to Friday (7:00 – 5:00) and Saturday (7:00 – 13:00); construction activities will also be restricted to these same days / times.
- 8.11. Specifically, the sound level measurements were taken on a week day; the date and time of the surveys are illustrated in **Table 8.2**. Having considered the noise context, the noise climate at the sensitive receptors on a week day was considered to be representative of the noise climate at the receptors on Saturday between 7:00 and 13:00. The noise environment at the sensitive receptors during the week and on Saturday mornings is primarily influenced by noises arising from the industrial facilities in the area and traffic noise. The industrial facilities generally also operate on Saturday mornings, and traffic volumes are not significantly different on Saturday mornings during the week, both along Triq Hal Far and through Bengħisa rural hamlet.

Table 8.2: Sound Level Surveys

Survey Date	Survey Time Interval
Tuesday 19 th May 2015	09:25 - 10:25
Tuesday 19 th May 2015	10:55 - 11:55

- 8.12. Both sound level measurements were based on a 60 minute recording. This time interval was considered sufficient to obtain a representative value of the day time background sound level at the sensitive receptors both during the week.

Measurement protocols

- 8.13. A Class I Norsonic 140 Precision Sound Analyser (serial no. 1406005) with a Norsonic Type 1225 Microphone (serial no. 208101) was used to take the sound level measurements. A type 1251 Sound Calibrator (serial no. 34129) was used to calibrate the sound analyser in the field.
- 8.14. The Sound Analyser and Sound Calibrator were calibrated on 10 June 2014 and 1 July

2014, respectively; the calibration certificates are included in **Technical Appendix 3: Noise Baseline Report**. The Sound Analyser was field calibrated before and after each measurement (113.8 dBA) in order to eliminate the potential for drift. A Norsonic 1434 windshield was used to minimize the effects of turbulence at the microphone.

- 8.15. The sound level measurement at MP A was taken at a distance of at least 3.5m from the nearest reflective surface (excluding the ground). At MP B however, it wasn't possible to secure a distance of at least 3.5m from the nearest reflective surface (excluding the ground), essentially given the narrow width of the road; in this case, the microphone was at a distance of 2.7m from the two-storey facade of a building. For all the measurements, the Sound Analyser was mounted on the tripod at a height of 1.27m above ground level. Details of the measurement position (distance from reflective surfaces and height above ground level) were recorded for all measurements.
- 8.16. The weather conditions prevailing during all of the sound level measurements were also recorded. In all cases, the conditions were dry and wind speeds were less than 18 km/hr throughout the measurements. It is unlikely that there was any significant effect by reason of temperature inversion during any of the measurements. There was also observed to be no potential for electrical interference to the measurements.
- 8.17. During the measurements, observations of all predominant noise sources were recorded and efforts were made to identify / describe acoustic events and the phenomena attributable to these noises.

Measurement parameters

- 8.18. The following parameters were measured and recorded:
- $L_{Aeq(T)}$ (equivalent continuous A-weighted sound pressure level recorded over the relevant time interval of interest, in this case one hour);
 - L_{AFmax} (maximum A-weighted sound pressure level recorded over the time interval of interest, with fast time weighting);
 - L_{AF10} (A-weighted sound pressure level exceeded for 10% of the time interval of interest, with fast time weighting); and
 - L_{AF90} (A-weighted sound pressure level exceeded for 90% of the time interval of interest, with fast time weighting).

Baseline noise survey results

- 8.19. The background sound level measurements and the predominant noise sources recorded during the baseline surveys are shown in **Table 8.3**. In accordance with BS 4142:2014, the recorded sound levels are quoted to the nearest whole number of decibels. The climatic conditions experienced during the surveys are also identified.
- 8.20. The average background sound level recorded at MP A was 52 dBA L_{Aeq} ; the

maximum sound level recorded was 74 dBA L_{Amax} . The average background sound level recorded at MP B was 50 dBA L_{Aeq} ; the maximum sound level recorded was 83 dBA L_{Amax} .

Table 8.3: Baseline Sound Level Measurements

MP	L_{Aeq}	L_{Amax}	L_{A90}	L_{A10}	Predominant noise sources	Climatic Conditions
A	52	74	46	53	<ul style="list-style-type: none"> Vehicles and activities at goods and freights terminal adjacent to Scheme Site (regular and significant) Vehicular traffic on Triq Ħal Far (occasional and significant) Works from adjacent garage (occasional and not significant) Radio from adjacent garage (continuous for large stretches but not significant) Birds chirping (continuous but not significant) Dogs barking (occasional and significant when present) 	Wind direction N Wind speed: 7.9 km/hr Air temperature: 24 °C Rainfall: 0 mm Relative humidity: 57 %
B	50	83	42	51	<ul style="list-style-type: none"> Vehicles and activities at goods and freights terminal adjacent to Scheme Site (occasional but not significant) Vehicular traffic on Triq Għar Ħasan (occasional to regular and significant when present) Birds chirping (continuous but not significant) 	Wind direction: N/NW Wind speed: 4.3 km/hr Air temperature: 25 °C Rainfall: 0 mm Relative humidity: 61 %

CONSTRUCTION NOISE

Construction phasing

- 8.21. It is envisaged that the construction stage of the Scheme will be phased over a maximum period of 14 months, with site clearance, excavation and frame construction envisaged to take approximately six to eight months and finishing estimated to take another approximately four to six months.
- 8.22. Given the nature of the construction works (with limited excavation for foundations, reservoir and cesspits only, and the construction of a single storey building), the noise impacts are expected to be localised. Construction noise is unlikely to have any significant impact on the nearest residential sensitive receptors. As mentioned, the area between the Scheme Site and the sensitive receptors is occupied by industrial-type uses; there is a goods and freight terminal and an open storage

building supplies yard between the site and the receptors in the vicinity of MP A and a batching plant between the site and the receptors in the vicinity of MP B. Nevertheless, and in order to demonstrate the construction noise impacts, the potential noise impact arising from potentially the noisiest stage of the construction (excavation) has been described.

Methodology for predicting construction noise levels

- 8.23. The methodology for assessing the impact of construction noise involves predicting the noise level at the noise sensitive receptors at each phase of the construction stage. Noise from construction sites is produced by a range of different activities and types of plant and machinery, the noise from which varies by location and over time, as well as in intensity and character. In the absence of specific information on the precise nature and timing of activities and of the plant and machinery to be used in the construction of the Scheme, BS 5228:2009 Part I Annex F outlines a method for determining the noise level of construction noise sources allowing for a reasonably accurate prediction of the noise levels at sensitive receptors. Annex C of the Standard provides sound level data in relation to typical construction site activities, plant and machinery; the data in Annex C is considered to be generally applicable for the purpose of predicting the sound levels of the activities, plant and machinery envisaged to be used in the construction of the Scheme.
- 8.24. The sound levels of the plant and machinery envisaged to be used in the excavation stage of the Scheme, derived from the relevant tables in Annex C, are given in **Table 8.4**.

Table 8.4: Excavation Plant / Equipment and Relevant Sound Levels

Plant / machinery	Number	A-weighted sound pressure level at 10m (dB)
Wheeled loader (front shovel)	1	67 – 71 ⁱ
Excavator	1	71 – 79 ⁱⁱ
Dump truck	2 - 3	77 – 86 ⁱⁱⁱ

i range taking account of 11t – 41t dozer

ii range taking account of 21t – 40t tracker excavator

iii range taking account of 3t – 9t dump truck

- 8.25. In accordance with the guidance set out in BS 5228: 2009 Part I Annex F, F.2.2.2, the method for activity L_{Aeq} was used to predict the noise levels at the sensitive receptors. The construction activity L_{Aeq} was established using the A-weighted sound pressure levels at 10 m (dB) obtained from Annex C, as mentioned. Where there is potential for plant / equipment to be operating simultaneously, the combined noise generated from the different noise sources was calculated using the logarithmic addition formula: $L_{Total} = 10 \lg(10^{L1/10} + 10^{L2/10}) dB$.
- 8.26. The worst case scenario was assumed, where all plant / machinery was operating simultaneously and continuously. Finally, a distance adjustment was made taking account of the distances to the sensitive receptors. This was done with reference to Figure F2 of the guidance; where in all cases the area between the noise source and

the sensitive receptors is made up of a mixture of hard and soft ground, the distance adjustment for hard ground was used in both cases. Furthermore, in both cases, the distance to the sensitive receptors was determined from the Scheme Site boundary at its closest point. Plan distance was used in both cases. No allowance was made for screening or for reflection.

Predicted noise levels arising from construction of the Scheme

- 8.27. The predicted noise levels at the sensitive receptors during the excavation phase of the construction works are presented in **Table 8.5**.
- 8.28. Where excavation will potentially be the noisiest stage of the construction works, the noise sensitive receptors likely to be most affected by construction noise are those in the vicinity of MP A. Located a distance of approximately 163 m from the Scheme Site, the assessment predicts that these receptors could potentially experience noise levels in the range of 63 dB. Construction noise will be lower at the receptors in the vicinity of MP B; the assessment predicts that these receptors could potentially experience noise levels in the range of 56 dB.

Table 8.5: Predicted Noise Generated from Excavation during the Construction of the Scheme

Noise source	A-weighted sound pressure level at 10m (dB)	Number on site at any one time	Estimated L_{Aeq} sound levels at closest sensitive receptors	
			MP A (163m from source) dB(A)	MP B (367m from source) dB(A)
Excavation				
Wheeled loader	67 – 71	1	54 – 63	47 - 56
Excavator	71 – 79	1		
Dump truck	77 – 86	2 - 3		
All plant / machinery potentially operating simultaneously = 78 – 87 dBA				

OPERATIONAL NOISE

Description of the operational noise sources

- 8.29. The Scheme is described in detail in **Chapter 3** of the EIS. In terms of potential noise- generating activities, the Scheme will operate three crushers – a main crusher (for non-hazardous wastes), an electric cable crusher, and a crusher for fluorescent tubes. In addition, there will be a compressor and a gasification plant. Importantly, not all of these noise generating sources / activities will be in operation / occurring at the same time; the applicant has explained that the likelihood is that only one machine will be operating at any one time. Other potential noise-generating activities will be the dump trucks which will relay the waste / recycled waste to / from the site.

There will also be a fork lifter on site to handle materials internally.

- 8.30. The sound levels of the machinery and plant envisaged to be used in operation are given in **Table 8.6**. The applicant has clarified the model of the main crusher, the cable crusher and the compressor; hence the sound levels for these machines were derived from the supplier’s specifications. In the case of the fluorescent tube crusher and the gasification plant, there is still uncertainty as to the precise models to be installed. It is envisaged however that the fluorescent tube crusher will have a sound output similar to that of the main crusher as measured at a similar distance. The applicant intends installing a 10 kW unit gasifier, details of which are as yet unavailable. The sound power levels for the gasification plant were derived from information available for a 30 kW unit (which identifies a separate sound output from the gasifier itself, as well as from the CHP and the exhaust gas outlet which form part of the plant). The sound levels of the fork lifter and dump trucks were derived from BS 5228:2009 Part I Annex C.

Table 8.6: Operational Plant / Equipment and Relevant Sound Levels

Plant / machinery	A-weighted sound pressure level at 1m (dB)
Main crusher	72
Cable crusher	84
Fluorescent tube crusher	72
Compressor	65
Gasifier	
- gasifier itself	56
- CHP	85
- exhaust gas outlet	62
Fork lifter	67
Dump truck	77 – 86 ⁱ

i range taking account of 3t – 9t dump truck

- 8.31. In order to demonstrate the operational noise impacts of the Scheme, the scenario was assumed whereby the noisiest machine (the gasification plant) is operating together with a forklift and a dump truck. The combined noise generated from the different noise sources arising in this scenario was calculated using the logarithmic addition formula: $L_{Total} = 10 \lg(10^{L1/10} + 10^{L2/10}) \text{ dB}$. A distance adjustment was made taking account of the distances to the sensitive receptors. In both cases, the distance to the sensitive receptors was determined from the Scheme Site boundary at its closest point. Plan distance was used in both cases. No allowance was made for screening or for reflection.

Predicted noise levels arising from the Scheme in operation

- 8.32. The predicted noise levels at the sensitive receptors during the operation of the Scheme assuming that the gasification plant is in operation simultaneously with a fork lifter and a dump truck are illustrated in **Table 8.7**.
- 8.33. In the scenario whereby the gasification plant is in operation simultaneously with a fork lifter and a dump truck will potentially be the noisiest the Scheme will be in operation, the noise sensitive receptors likely to be most affected by construction noise are those in the vicinity of MP A. Located a distance of approximately 163 m from the Scheme Site, the assessment predicts that these receptors could potentially experience noise levels in the range of 45 dB. Construction noise will be lower at the receptors in the vicinity of MP B; the assessment predicts that these receptors could potentially experience noise levels in the range of 38 dB.

Table 8.7: Predicted Noise Generated from the Scheme in Operation

Noise source	A-weighted sound pressure level at 1m (dB)	Estimated L _{Aeq} sound levels at closest sensitive receptors	
		MP A (163m from source) dB(A)	MP B (367m from source) dB(A)
Gasifier		42 - 45	35 - 38
- gasifier itself	56		
- CHP	85		
- exhaust gas outlet	62		
Fork lifter	67		
Dump truck	77 – 86		
All plant / machinery potentially operating simultaneously = 86 - 89 dBA			

ASSESSMENT OF IMPACTS

Construction noise: significance criteria

- 8.34. BS 5228: 2009 Part I Annex E outlines criteria for assessing the significance of construction noise impacts; these include threshold values for daytime noise levels at residential sensitive receptors and triggers for eligibility for noise insulation in relation to day time noise levels at the sensitive receptors.
- 8.35. The guidance cites a week day (excluding evenings) threshold value of 65 dB in cases where the ambient noise level (the measured baseline noise level) is less than 65 dB (when rounded to the nearest 5dB), a threshold value of 70 dB in cases where the ambient noise level is 65 dB (when rounded to the nearest 5dB), and a maximum

threshold value of 75 dB in cases where the ambient noise level is higher than 65 dB; the guidance also cites a noise insulation trigger value of 75 dB.

- 8.36. In the case of weekends, the guidance cites a threshold value of 55 dB in cases where the ambient noise level is less than 55 dB (when rounded to the nearest 5dB), a threshold value of 60 dB in cases where the ambient noise level is 55 dB (when rounded to the nearest 5dB), and a maximum threshold value of 65 dB in cases where the ambient noise level is higher than 55 dB.
- 8.37. Based on this guidance, the following criteria were used to assess the significance of impacts of the construction of the Scheme on the noise climate at the sensitive receptors during the week:
- **Not significant** – if the noise level at the sensitive receptor does not exceed the week day threshold value of 65 dB;
 - **Minor significance** – if the noise level at the sensitive receptor is equal to 65 dB but does not exceed the maximum week day threshold value and noise insulation trigger for day time of 75 dB; and
 - **Major significance** – if the noise level at the sensitive receptor exceeds the maximum week day threshold value and noise insulation trigger for daytime of 75 dB.
- 8.38. The following criteria were used to assess the significance of impacts of the construction of the Scheme on the noise climate at the sensitive receptors during the weekend:
- **Not significant** – if the noise level at the sensitive receptor does not exceed the weekend threshold value of 55 dB;
 - **Minor significance** – if the noise level at the sensitive receptor is equal to 55 dB but does not exceed the maximum weekend threshold value of 65 dB; and
 - **Major significance** – if the noise level at the sensitive receptor exceeds the maximum weekend threshold value of 65 dB.

Prediction and significance of construction impacts

- 8.39. The predicted highest construction noise levels at MP A (63 dBA) and MP B (56 dBA) could potentially exceed the maximum weekend threshold value (55 dB), however, the levels are likely not to exceed 65 dB; hence, it is predicted that there would be a minor impact on the sensitive receptors during the weekend during the noisiest stage of the construction works.
- 8.40. The predicted highest construction noise levels at both MPs are below the week day threshold value of 65 dB; hence, it is predicted that there would be no significant impact on the sensitive receptors during the week during the noisiest stage of the construction works.

- 8.41. It is highlighted that the construction noise impact assessment assumed the worst case scenario for predicted noise levels, in assuming that all plant / machinery will be operating simultaneously and continuously. In reality, it is unlikely that there will be continuous noise output at the levels predicted throughout the excavation stage. Furthermore, there was no allowance made for screening in calculating the predicted noise levels at the sensitive receptors; in reality there will be some sound attenuation by reason of existing buildings and structures in the intervening space, and through the use of barriers on site. The construction site will necessarily be enclosed within a masonry boundary wall, and there will be attention to reducing noise disturbance within the sites through the timing of activities, which will serve to reduce the noise levels at the sensitive receptors.
- 8.42. BS 5228: 2009 Part I Annex F gives guidance on approximate attenuation taking account of the height of the noise source relative to the height of the barrier. As a working approximation, if there is a barrier or other topographic feature between the source and the receiving position, assume an approximate attenuation of 5 dB when the top of the plant is just visible to the receiver over the noise barrier, and of 10 dB when the noise screen completely hides the sources from the receiver (BS 5228: 2009). In the case of both MP A and MP B, the machinery / plant on the site will not be visible to the sensitive receptors. Hence, the predicted maximum noise level at the sensitive receptors in the vicinity of MP A could potentially be reduced to 55 dB (65 dB – 10 dB). This would reduce the predicted noise level at MP A such that the impact would be of no significance in relation to weekend impact.

Operational noise: significance criteria

- 8.43. BS 4142:2014 provides a methodology for rating and assessing sound of an industrial and/or commercial nature and the likely effects of this sound. The significance of the sound depends upon both the margin by which the specific sound level (operational noise arising from the Scheme) at the sensitive receptors exceeds the background sound level (baseline), and the context in which the sound occurs.
- 8.44. The assessment methodology outlined on BS 4142:2014 is based on obtaining an initial estimate of the impact of the Scheme by subtracting the measured background sound level from the rating level (the specific sound level which has been corrected for character, such as tonality, impulsiveness, or intermittency, as necessary) and using the difference to assess the magnitude of the impact. Typically, the greater the difference, the greater the magnitude of the impact, as shown in **Table 8.8**.

Table 8.8: BS 4142:2014 Assessment criteria

Difference	Assessment
Around +10 dB or higher	Likely to be an indication of a significant adverse impact, depending on the context
Around +5 dB	Likely to be an indication of an adverse impact, depending on the context,

The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or significant adverse impact. Where the rating level does not exceed the background sound, this is an indication that the specific sound source will have a low impact, depending on the context

- 8.45. Based on the above, the following significance criteria were used in the initial assessment of the significance of impacts of the noise arising from the operation of the Scheme on the sensitive receptors:
- **Not significant** (e.g. no material change in noise climate - a change of less than +3dB to the background noise level at the sensitive receptor);
 - **Minor significance** (e.g. a change of between +3dB and +5dB to the background noise level at the sensitive receptor);
 - **Moderate significance** (e.g. a change of between +6 and +9dB to the measured background noise level at the sensitive receptor); and
 - **Major significance** (e.g. a change of +10dB or higher to the measured background sound level at the sensitive receptor level at the sensitive receptor).
- 8.46. In accordance with BS 4142 (Section 11), the initial estimate of the magnitude of the impact was then considered in relation to the noise context at the sensitive receptors. Based on the initial estimate of the impact and this consideration of the context, a final assessment was made of the significance of impacts of noise arising from the operation of the Scheme, in terms of whether the impact is considered to be **not significant**, of **minor significance**, of **moderate significance** or of **major significance**.

Prediction and significance of operational impacts

- 8.47. In determining the rating level, as mentioned, BS:4142 (Section 9) advocates the application of a penalty to the specific sound level, taking account of the acoustic character of the specific sound (for example, tonality, impulsivity and intermittency), where determination of the penalty is dependent on the degree to which these features are present at the assessment location (in this case at the sensitive receptors). The noises arising from the gasification plant, and from the fork lifter and dump truck, are considered being predominantly tonal, but also with potentially impulsive character. However, it is considered unlikely that these features are present in the noise from the gasification plant, fork lifter or dump truck reaching either MP A or MP B because the specific noise level in both cases does not exceed the measured back sound level, and the noises which were observed to be contributing to the noise environment (background sound level) at both monitoring locations (noise from industrial activity and traffic noise) themselves have a tonal and impulsive character. Hence, in the case of both MP A and MP B, the rating level has been taken to be the specific sound level (45 dBA at MP A and 38 dBA at MP B).
- 8.48. In the case of MP A, the rating level (45 dBA) is 7 dB below the background sound

level (52 dBA). In the case of MP B, the rating level (38 dBA) is 12 dB below the background sound level (50 dBA). As mentioned, the lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or significant adverse impact. Based on the assessment criteria outlined above, it is predicted that there will be no significant impact from the Scheme in operation at the sensitive receptors in the vicinity of MP A and MP B.

MITIGATION

- 8.49. In relation to construction noise impacts, the Construction Management Plan (CMP) to be prepared by the Contractor responsible for the construction of the Scheme should address the control of the noise impacts, including during the excavation stage of the works. In addition to adhering to the provisions of the *Environmental Management Construction Site Regulations 2007*, which will afford a measure of noise mitigation, the CMP should detail working hours and the types of plant / machinery to be used, as well as outline measures for the controlling of noise at source.

RESIDUAL IMPACTS

- 8.50. It is anticipated that noise arising from the excavation stage of the construction will potentially be of minor significance at the sensitive receptors during the weekend. The assessment assumed the worst case scenario however, in assuming that all plant / machinery will be operating simultaneously and continuously during the excavation stage. In reality, this is unlikely to be the case. Furthermore, there was no allowance made for screening and, in reality, there will be some sound attenuation by reason of existing buildings and structures in the intervening space, and through the use of barriers on site. The attenuation taking account of these barriers / screens, as well as noise control measures implemented through the CMP, is likely to reduce the scale of the impact at all sensitive receptors to being not significant.

Table 8.9: Summary of noise impacts

Predicted impact	Beneficial / adverse	Nature, scale and type of impact						Policy Importance (Inter/national/local)	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 from construction activities	Adverse	Excav'n / Constr'n	Local	Direct	S'term	Temp	Revers	Local	Likely	Not significant during the week, in respect of all sensitive receptors Minor significance on the weekend, in respect of all sensitive receptors	CMP with specific noise mitigation measures	Not significant during the week and on the weekend, in respect of all sensitive receptors
Noise impact on sensitive receptors from operation	Adverse	Excav'n / Constr'n	Local	Direct	S'term	Temp	Revers	Local	Likely	Not significant during the week and on the weekend, in respect of all sensitive receptors	-	-

9. ENVIRONMENTAL RISK ASSESSMENT

INTRODUCTION

- 9.1. This chapter presents an environmental risk assessment for the Scheme.

Terms of Reference

- 9.2. The Terms of Reference provided by MEPA in respect of environmental risk can be viewed in *Technical Appendix I: Terms of Reference and Method Statements*.

ASSESSMENT METHODOLOGY

Scheme phases

- 9.3. As described in **Chapter 3**, the Scheme will involve three major phases, as follows:

- Construction;
- Operation; and
- Decommissioning.

- 9.4. The construction phase has been described in detail in **Chapter 3**. It is not foreseen that construction will present significant environmental risk, given that most materials to be handled will be inert in nature, and given that the construction phase will be regulated by a Construction Management Plan, an outline of which has already been presented. Therefore, it is considered that the environmental risk from this phase does not need to be further assessed.

- 9.5. Decommissioning of the site will also follow an approved Decommissioning Plan, an outline of which will be presented in the IPPC application that is being prepared concurrently with this EIS. The outline plan will need to be further expanded and updated in line with international practice and guidance applicable at the time of decommissioning. It would be premature to carry out an environmental risk assessment on the decommissioning phase at this stage, given that this will depend on the state of the structures on Site at the time, the results of any site investigation, any new receptors and pathways present at the time, and the nature of remediation works to be carried out (if any). However, an environmental risk assessment can be carried out as part of the eventual approval process of the full Decommissioning Plan, if required by MEPA.

Objectives

- 9.6. This chapter therefore presents a detailed environmental risk assessment of the Scheme operations by:
- Describing and evaluating the risks to the environment associated with the Scheme, including risks arising due to the nature of the materials and waste proposed to be handled and stored, as well as the Scheme's proposed waste processing operations; and

- Describing the measures which will be undertaken to mitigate such risks, and evaluating the residual risk levels.

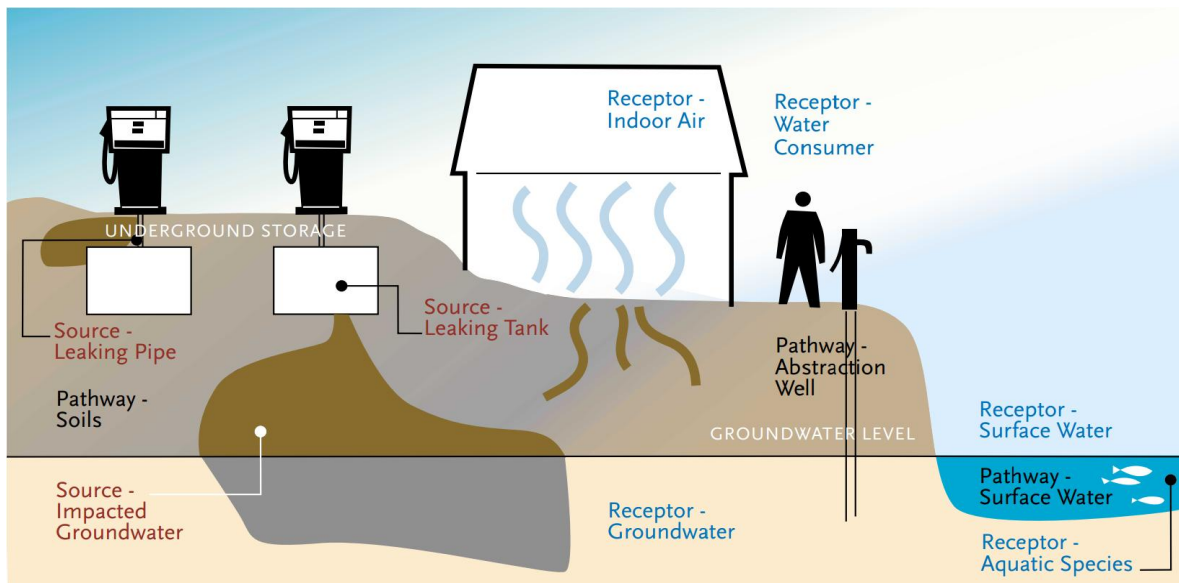
Methodology

- 9.7. The methodology used for risk assessment is based on that recommended by the Institute of Petroleum.¹⁹
- 9.8. An environmental risk occurs when there is a means by which a hazard can result in a deleterious impact on the surrounding environment, i.e. receptors. The presence of a hazard alone does not constitute a risk. A risk is only present if there is a pathway which links the source (hazard) to the receptor. This is known as the source-pathway-receptor linkage.²⁰
- 9.9. Environmental risk assessment is the process by which source-pathway-receptor linkages are identified and evaluated. If any of the three elements are absent then there is no complete linkage and thus no unacceptable risk.
- 9.10. To illustrate this, **Figure 9.1** shows an example of a basic source-pathway-receptor model associated with the operation of underground storage tanks. While the Scheme will not include underground storage tanks, the methodology for identifying source-pathway-receptor linkages is similar to that described in **Figure 9.1**.

¹⁹ Institute of Petroleum (2002) *Guidelines for Soil, Groundwater, Surface Water Protection and Vapour Emission Control at Petrol Filling Stations* www.technokontrol.com/pdf/institute-petroleum-guidelines.pdf.

²⁰ Defra (2002) *Groundwater Protection Code: Petrol Stations and other Fuel Dispensing Facilities involving Underground Storage Tanks* <http://archive.defra.gov.uk/environment/quality/water/waterquality/ground/documents/groundwater-petrol.pdf>.

Figure 9.1: Example source-pathway-receptor model²⁰



Risk assessment criteria

- 9.11. If a source-pathway-receptor linkage is found, the magnitude of a risk is a function of the consequences of pollution and the likelihood that such pollution will occur.
- 9.12. The risk criteria being applied to this assessment are based on a matrix consistent with the Australian Standard AS4360 on Risk Management and ISO 31010: *Risk management: Risk assessment techniques*.
- 9.13. **Table 9.1** presents criteria for assessing environmental consequences, whereas **Table 9.2** presents criteria for assessing likelihood of the event occurring.
- 9.14. The overall risk level is then determined by combining the two factors, using the matrix in **Table 9.3**.

Table 9.1: Criteria for assessing environmental consequences

Severity level	Effects on natural environment
1: Insignificant	Limited damage to minimal area of low significance.
2: Minor	Minor effects on biological or physical environment. Minor short/medium-term damage to small area of limited significance.
3: Moderate	Moderate effects on biological or physical environment (e.g. air, water) but not affecting ecosystem function. Moderate short/medium-term widespread impacts (e.g. significant spills).
4: Major	Serious environmental effects with some impairment of ecosystem function. Relatively widespread medium-long term impacts.
5: Catastrophic	Very serious environmental effects with impairment of ecosystem function. Long term, widespread effects on significant environment (e.g. national park).

Table 9.2: Measure of likelihood

Level	Descriptor	Description	Guideline frequency
A	Almost Certain	Consequence is expected to occur in most circumstances	Occurs more than once per month
B	Likely	Consequence will probably occur in most circumstances	Occurs once every 1 month - 1 year
C	Occasionally	Consequence should occur at some time	Occurs once every 1 year - 10 years
D	Unlikely	Consequence could occur at some time	Occurs once every 10 years - 100 years
E	Rare	Consequence may only occur in exceptional circumstances	Occurs less than once every 100 years

Table 9.3: Risk matrix

Likelihood	Consequence				
	1: Insignificant	2: Minor	3: Moderate	4: Major	5: Catastrophic
A: Almost Certain	Low	Moderate	Extreme	Extreme	Extreme
B: Likely	Low	Moderate	High	Extreme	Extreme
C: Occasionally	Very low	Moderate	High	High	Extreme
D: Unlikely	Very low	Low	Moderate	High	High
E: Rare	Very low	Very low	Moderate	Moderate	High

RISK ASSESSMENT

Overview

- 9.15. The Scheme’s operations will include storage and processing of hazardous substances and waste which, without mitigation, could create a risk to the environment through underground, surface and airborne pollution.
- 9.16. **Table 9.4** summarises potential sources of pollution and the respective pathway to the relevant receptors. The Table also includes the mitigation measures that will be adopted to mitigate such risks, distinguishing between fixed structural elements

incorporated into the Scheme and procedural mitigation measures. It is to be noted that all the mitigation measures in the Table will be implemented in the Scheme.

- 9.17. **Table 9.5** identifies source-pathway-receptor linkages for major accident scenarios of fire / explosion, flooding and earthquakes.

Table 9.4: Pollution pathway identification and mitigation measures

Source	Pathway	Receptor	Mitigation Measures	
			Structural mitigation measures	Procedural mitigation measures
Spillage of diesel / oils	Permeable strata above water table; rainwater runoff	Land Groundwater	<ul style="list-style-type: none"> • Entire site surface covered in concrete underlain by a geotextile membrane. • The ground in outdoor areas of the site will be laid to fall towards an oil-water interceptor before being received in the reservoir. 	<ul style="list-style-type: none"> • Diesel / oil raw materials stored in drums in a locked and bunded shed. • WEEE motors stored in a bunded area inside the main building. • Oily waste stored in a bunded waste oil tank inside the main building; oils from the interceptor are typically retained in the interceptor until collected. • Unauthorised waste to be stored in indoor quarantine area. • An inspection and maintenance programme for storage and containment areas will be in place. • Spill prevention and response plan and spill kits in place; staff training.
Metal emissions from manual dismantling of general WEEE and storage of separated components	Air dispersion (prevailing wind direction); wastewater from floor washing; rainwater runoff	Air sensitive receptors Land Groundwater	<ul style="list-style-type: none"> • Entire site surface covered in concrete underlain by a geotextile membrane. • Wastewater from any washing of floors in the WEEE treatment building will be collected in gutters, filtered to remove trace contaminants, and received in an underground cesspit for reuse. 	<ul style="list-style-type: none"> • Dismantling will occur indoors in the main building; hazardous components will be stored in this building. • Unauthorised waste to be stored in indoor quarantine area.
Mercury / phosphor emissions from fluorescent tube storage and crushing	Air dispersion (prevailing wind direction); wastewater from floor washing; rainwater runoff; direct contamination of	Air sensitive receptors Land Groundwater	<ul style="list-style-type: none"> • Crusher installed inside a purposely built two-room system with sealed windows. • Negative pressure unit linked to a HEPA filter and an activated carbon filter. • Sealed vinyl flooring. 	<ul style="list-style-type: none"> • Operation of a water mister inside the crushing room. • Incoming fluorescent tubes that are received broken will be stored inside crushing room.

Source	Pathway	Receptor	Mitigation Measures	
			Structural mitigation measures	Procedural mitigation measures
	permeable strata above water table (from wastewater)		<ul style="list-style-type: none"> Wastewater will be treated using a specialised impregnated filter to remove mercury, and received in a sealed cesspit for reuse. Entire site surface covered in concrete underlain by a geotextile membrane. 	<ul style="list-style-type: none"> Replacement of air and wastewater filters in accordance with maintenance schedule. Monitoring of emissions as required by IPPC permit. Industrial vacuum cleaners equipped with mercury filters will be available to immediately clean up any accidental breakages of fluorescent tubes / lamps.
Metal / phosphor emissions from breaking of CRT neck	Air dispersion (prevailing wind direction); wastewater from floor washing; rainwater runoff	Air sensitive receptors Land Groundwater	<ul style="list-style-type: none"> CRT breaking room includes a negative pressure unit equipped with a HEPA filter, room will be fitted with a thick HDPE curtain. Entire site surface covered in concrete underlain by a geotextile membrane. 	<ul style="list-style-type: none"> Broken CRT TVs / monitors stored in jumbo bags in designated area indoors.
Leakage of lead / acid from batteries	Permeable strata above water table; wastewater from floor washing; rainwater runoff	Land Groundwater	<ul style="list-style-type: none"> Entire site surface covered in concrete underlain by a geotextile membrane. Wastewater from any washing of floors in the WEEE treatment building will be collected in gutters, filtered to remove trace contaminants, and received in an underground cesspit for reuse. 	<ul style="list-style-type: none"> Batteries stored in a container inside the WEEE treatment building. Quantity of batteries stored limited to 1 tonne. An inspection and maintenance programme for storage and containment areas will be in place.
Used firefighting water (generated in case of a fire / explosion)	Permeable strata above water table; rainwater runoff	Land Groundwater	<ul style="list-style-type: none"> A 40 m³ chamber in the main reservoir (always kept full for fire-fighting purposes) will provide fire-fighting water; used water will be received in different cesspits / reservoirs depending on the area on site, as follows: <ul style="list-style-type: none"> Outdoor areas and inside the shed: Reservoir (121 m³), after treatment in oil- 	<ul style="list-style-type: none"> A fire and explosion prevention and response plan will be commissioned by the Applicant once the Scheme has been constructed. A competent fire expert or company will be engaged to

Source	Pathway	Receptor	Mitigation Measures	
			Structural mitigation measures	Procedural mitigation measures
			<p>water separator; any overflow will be of treated water.</p> <ul style="list-style-type: none"> ○ WEEE treatment building: Received in underground cesspit (around 13.5 m³) after filtration. Therefore any overflow will be of treated water. • Fire-fighting water will not reach the cesspit receiving wastewater from fluorescent tube crushing (as this will be connected directly to the crushing equipment). • No storage of syngas; immediate combustion in the CHP plant (thus reducing risk of fire). 	<p>advise on and install a fire detection system and any additional fire-fighting equipment required.</p> <ul style="list-style-type: none"> • Fire safety procedures and equipment will be certified by a competent fire expert or company once they are in place. • Signage for safe operation will be installed (e.g. no smoking signs). • Limiting the quantity of wood stored to not more than 3 tonnes when the gasifier is operational, to reduce the risk of fire.

Table 9.5: Pollution pathway identification and mitigation measures for major accident scenarios

Scenario	Source	Pathway	Receptor	Mitigation Measures	
				Structural mitigation measures	Procedural mitigation measures
Fire / explosion	Combustible material (especially, syngas, wood)	Air dispersion (prevailing wind direction)	Surrounding land users (predominantly industrial and agricultural)	<ul style="list-style-type: none"> • No storage of syngas; immediate combustion in the CHP plant. • A 40 m³ chamber in the main reservoir (always kept full for fire-fighting purposes) will provide fire-fighting water. 	<ul style="list-style-type: none"> • Fire and explosion prevention and response plan. • Installation of a fire detection system and any additional fire-fighting equipment required. • Fire safety procedures and equipment to be certified. • Signage for safe operation. • Quantity of wood stored

Scenario	Source	Pathway	Receptor	Mitigation Measures	
				Structural mitigation measures	Procedural mitigation measures
					limited to not more than 3 tonnes when the gasifier is operational.
Flooding	Storage and use / processing of hazardous substances and waste	Permeable strata above water table	Land Groundwater	<ul style="list-style-type: none"> Entire site surface covered in concrete underlain by a geotextile membrane. The ground in outdoor areas of the site will be laid to fall towards an oil-water interceptor before being received in the reservoir. Impermeable cesspits. 	<ul style="list-style-type: none"> All hazardous waste stored in bunded areas indoors. Waste processing occurs indoors. Diesel / oil raw materials stored in a bunded shed.
Earthquake	Storage and use / processing of hazardous substances and waste	Permeable strata above water table	Land Groundwater	<ul style="list-style-type: none"> Only treated surface water / wastewater will be received in the underground reservoir and cesspits. Entire site surface covered in concrete underlain by a geotextile membrane. 	Secondary containment systems for storage of hazardous waste. and raw materials, as above.

Identification of potential releases

- 9.18. Releases could occur from accidental spillages of diesel, oils and oily waste stored and handled on site, as well as leaks from vehicles / equipment and drips from maintenance activities. The substances released would be hydrocarbon-based; however, if the largest container is spilt entirely the maximum quantity released would be limited to 50 L of diesel or hydraulic / engine oil, since storage beyond these quantities will not be required.
- 9.19. Dismantling of general WEEE could result in the release of hazardous metal components. However, most WEEE components (e.g. hard drives, printed circuit boards) are solids and significant air emissions and metal leaching are not expected under normal conditions. This activity, therefore, presents a minimal pollution risk.
- 9.20. Air emissions containing hazardous metals will also be generated from fluorescent tube crushing and breaking of CRT monitors. Hazardous wastewater (contaminated with mercury) will also be generated from washing of crushed fluorescent tubes. Mitigation measures will, however, be in place to reduce air emissions and to treat the wastewater.
- 9.21. Leaks of acid and lead from batteries could also result in a release; however, considering that battery storage will be limited to 1 tonne the maximum release is estimated at less than 100 kg. It is to be noted that even a release of this magnitude would require a serious incident such as a forklift truck crashing into the battery container.
- 9.22. Used firefighting water will also be generated in the event of a fire / explosion, and without mitigation this may become contaminated with hazardous substances / waste being stored on site.
- 9.23. A fire / explosion may be caused by the storage and handling of flammable substances on site, notably syngas and wood. However, procedures will be in place to reduce the risk of fire / explosion, including immediate combustion of the syngas in the CHP plant, limiting the storage of wood to not more than 3 tonnes when the gasifier is operational and having certified fire safety procedures and equipment in place at the Scheme.
- 9.24. The storage and use / processing of hazardous raw materials and waste could also result in a release of contaminants in the major accident scenarios of a flood or earthquake.

Identification of migration pathways

Without mitigation

- 9.25. In the absence of mitigation, such as site containment, spills and leaks of diesel, oils, hazardous wastewater from fluorescent tube washing, and lead / acid from batteries could contaminate land directly and potentially also reach the groundwater through the permeable rock strata underlying the site, although some attenuation is expected due to the depth of rock above the groundwater. The same pathway would be

followed in the event of flooding or an earthquake.

- 9.26. Wastewater from washing of indoor areas could also become contaminated and present a migration pathway.
- 9.27. Spills could also contaminate rainwater reaching the site, resulting in potential on-site and off-site contamination of land (and eventually groundwater) through rainwater runoff. A similar contamination scenario could occur if used firefighting water is generated.
- 9.28. The pathway for air emissions would be air dispersion, particularly in the prevailing wind direction, as well as contamination through precipitation of the pollutants in rainwater. The pathway for fire / explosion would also be air dispersion.

With mitigation

- 9.29. A number of mitigation measures will be in place at the Scheme to prevent migration of contaminants towards receptors, as described below and in **Table 9.4**.
- 9.30. The entire Scheme site will be concreted and lined with an underlying impermeable geotextile membrane. As shown in **Figure 3.15** (Chapter 3), the ground in outdoor areas of the site and the shed floor will be laid to fall towards the main rainwater reservoir, and surface water (and any spills) from these areas will be treated in an oil-water separator before being received in the reservoir. Spills can also be collected by trained site operators using spill kits.
- 9.31. Wastewater from washing of floors inside the WEEE treatment building will be collected in gutters, filtered to remove trace contaminants, and received in an underground ventilated and impermeable cesspit for reuse.
86. The fluorescent tube crusher room will, however, have a dedicated 2 m³ cesspit. Wastewater from tube crushing and floor cleaning will be treated using a specialised impregnated filter to remove mercury, and received in this cesspit. The cesspit will be sealed and the treated wastewater will be reused, thus creating a closed-loop system. This room will also have sealed vinyl flooring.
- 9.32. The receipt of only treated water in the underground reservoir and cesspits will reduce the risk of transfer of pollutants to land and groundwater in the event of an earthquake.
- 9.33. Hazardous waste and raw materials will also be stored in designated bunded areas.
- 9.34. Crushing of fluorescent tubes / lamps will be carried out inside a purposely built internal room located within a second outer room. The outer room's windows will be sealed to prevent unauthorised opening. In the internal room, a water mister will be in continual operation to encourage wet precipitation of dust, and the room will be equipped with a negative pressure unit, thus creating a seal. The exhaust air from the negative pressure unit will include two filters in series, as follows:
 - A HEPA filter, having up to 99.97% filtration efficiency on particles $\geq 0.3 \mu\text{m}$; and

- An activated carbon filter impregnated with sulphur or iodine to enhance mercury capture.
- 9.35. Fluorescent tubes and lamps will be stored in designated containers; tubes / lamps that are received broken will be stored inside the fluorescent tube crushing room to reduce the risk of fugitive emissions. Care will also be taken during storage and handling to reduce the risk of breakage outside the crushing room; nonetheless, industrial vacuum cleaners equipped with mercury filters will be available to immediately clean up any accidental breakages of fluorescent tubes / lamps.
- 9.36. Breaking of the CRT neck will take place in a CRT breaking room that includes a thick HDPE curtain with 1 – 2 inch overlapping panels, equipped with a negative pressure unit connected to a HEPA filter.
- 9.37. Filters will be replaced at intervals in accordance with the maintenance plan, and an air monitoring programme will be in place.
- 9.38. In the event of a fire / explosion, the underground reservoir will provide fire-fighting water to contain and put out the fire as soon as possible; a 40 m³ chamber will always be kept full for fire-fighting purposes. Used firefighting water from the outdoor areas and shed will be collected in the same 121 m³ reservoir after treatment in the oil-water separator, whereas used firefighting water from the WEEE treatment building will be received in a 13.5 m³ cesspit after filtration. Any overflows (to the road surface) will therefore be of treated water.

Identification of potential receptors

- 9.39. In the event of a spill or leak, in the baseline scenario the main receptor is the underlying land. At the Scheme site, the exposed rock formation is Lower Globigerina Limestone and Lower Coralline Limestone.
- 9.40. Contaminants could also eventually reach the groundwater in the unmitigated scenario. The mean sea level aquifer is the principal hydrogeological feature in the area, and the groundwater at the Scheme site is found at a depth of around 56 to 60 m below the land surface. As shown in **Figure 5.5** (Chapter 5), there are seven groundwater boreholes (six private, one public) located within around 400 m of the site. However, in the event of a spill, some attenuation of contaminants is expected even in the unmitigated scenario, considering that there is a considerable depth of rock before the material is able to reach the groundwater.
- 9.41. Additionally, in the mitigated scenario, the pathway to the above land and groundwater receptors will be removed, thus reducing the environmental risk considerably.
- 9.42. The closest receptors sensitive to emissions to air from the Scheme are the residences located approximately 180 m north of the Scheme site. Without mitigation, air emissions may also be deposited onto land and eventually find their way to the groundwater (although significant attenuation is expected before contaminants reach groundwater).

- 9.43. The relevant receptors for a fire / explosion are the surrounding land users in the immediate vicinity of the site, which are predominantly industrial and agricultural users.
- 9.44. Additionally, in the baseline scenario the relevant receptors for used firefighting water are the land and, to a lesser extent due to attenuation, the groundwater. With mitigation, the pathway to receptors is removed since used firefighting water will be treated before being received in an underground reservoir / cesspit. Any overflows will be of treated water, thus reducing the environmental risk.

Risk evaluation

- 9.45. The various risks on the environment are assessed using the evaluation criteria described earlier.
- 9.46. The risks associated with both the unmitigated and mitigated scenarios are evaluated. It should be noted that the Scheme proposes to include all the mitigation measures described.

Without mitigation

- 9.47. **Table 9.6** presents risk levels for each source without the mitigation measures.

Table 9.6: Risk levels without mitigation

Source	Environmental consequences	Likelihood of consequence	Resultant risk level
Spillage of diesel / oils	Minor	Likely	Moderate
Metal emissions from manual dismantling of general WEEE and storage of separated components	Minor	Likely	Moderate
Mercury / phosphor emissions from fluorescent tube storage and crushing	Major	Almost certain	Extreme
Metal / phosphor emissions from breaking of CRT neck	Moderate	Almost certain	Extreme
Leakage of lead / acid from batteries	Moderate	Likely	High
Used firefighting water	Major	Occasional	High
Fire / explosion	Major	Occasional	High
Contamination from flooding	Major	Unlikely	High
Contamination from an earthquake	Major	Unlikely	High

- 9.48. Leaks of diesel / oils from vehicles are rather common, although failure of storage containers is less so. The environmental consequence is being considered as minor, due to the small quantities in use / storage. The extent of any leak / spill would be quite limited and localised.
- 9.49. Metal emissions from manual dismantling of general WEEE and storage of separated components are being classified as minor, since most WEEE components are solids and significant air emissions and metal leaching are not expected under normal conditions. This scenario is being classified as likely, since while dismantling is a routine operation at the Scheme, not all WEEE contain hazardous metals.

- 9.50. The environmental consequences of air emissions from fluorescent tube storage and crushing are considered major, due to the particular hazards of mercury and the fact that the glass will be finely crushed. The likelihood is almost certain since such emissions are routinely expected from fluorescent tube crushing.
- 9.51. Air emissions from breaking of the neck of CRT monitors / screens are considered to have moderate consequences, since there is no fine crushing of the monitor, thus limiting the generation and dispersal of fine particles. However, as such emissions are routinely generated the likelihood has been classified as almost certain.
- 9.52. The environmental consequences of lead / acid emissions from batteries, if the mitigation measures planned (including limiting the quantity stored) are not implemented, are considered to be moderate. If batteries are not stored properly, leakages to land / groundwater are routinely expected (typically in small quantities but over a prolonged period), and therefore this scenario has been classified as likely.
- 9.53. Used firefighting water could result in major environmental consequences if contaminated with hazardous substances, including mercury. The likelihood of a major fire is occasional considering the flammability of the substances in storage (e.g. wood) and the operation of the gasification / CHP plant, and the direct consequences of a large fire could also be major.
- 9.54. The probability of a severe flood causing contamination has been classified as unlikely following a review of Malta's Preliminary Flood Risk Assessment,²¹ in which the area surrounding the Scheme site was not identified as being particularly susceptible to flash flooding. Without mitigation, the environmental consequences of a flood could be major, as contaminants could travel outside the site and contaminate the surrounding land and underlying groundwater.
- 9.55. While a severe earthquake is also considered unlikely, the environmental consequences could also be major in the unmitigated scenario.

With mitigation

- 9.56. **Table 9.7** presents risk levels for each source with the proposed mitigation measures.

Table 9.7: Risk levels with mitigation

Source	Environmental consequences	Likelihood of consequence	Resultant risk level
Spillage of diesel / oils	Insignificant	Likely	Low
Metal emissions from manual dismantling of general WEEE and storage of separated components	Insignificant	Occasional	Very low
Mercury / phosphor emissions from	Uncertain	Almost certain	Uncertain

²¹ Malta Resources Authority (2013) *Preliminary Flood Risk Assessment* <http://mra.org.mt/wp-content/uploads/2013/06/Preliminary-Flood-Risk-Assessment.pdf>.

Source	Environmental consequences	Likelihood of consequence	Resultant risk level
fluorescent tube storage and crushing			
Metal / phosphor emissions from breaking of CRT neck	Insignificant	Almost certain	Low
Leakage of lead / acid from batteries	Insignificant	Occasional	Very low
Used firefighting water	Minor	Rare	Very low
Fire / explosion (immediate response)	Minor	Rare	Very low
Fire / explosion (delayed response)	Moderate	Rare	Moderate
Contamination from flooding	Minor	Unlikely	Low
Contamination from an earthquake	Minor	Unlikely	Low

- 9.57. Considering that the Scheme will have an impermeable hardstanding and oil-water interceptor, together with specific bunding for oily waste, any spills / leaks would not be able to contaminate the underlying land / groundwater as the pathway to the receptor would have been removed. Therefore, the environmental consequence of such a scenario is reduced to insignificant. Some minor leaks are still expected regularly, especially from vehicle movements around the site, and therefore this scenario has been classified as likely.
- 9.58. Since WEEE dismantling and hazardous waste storage will be undertaken indoors, with wastewater from washing of floors being filtered, no significant metal emissions are expected from these activities. The likelihood of metal emissions being generated is classified as occasional, taking into account that the fact that significant metal leaching is not expected even without abatement, and that not all WEEE contain hazardous metals; however, air from the dismantling area is not specifically treated.
- 9.59. With mitigation, the environmental effects of CRT neck breaking are expected to be insignificant, since the HEPA filter has a 99.97% filtration efficiency on particles $\geq 0.3 \mu\text{m}$. Emissions are routinely generated during dismantling and thus the frequency has been retained as almost certain.
- 9.60. Considering that the quantity of batteries stored will be limited and that the entire site will be impermeable, with wastewater from floor washing being filtered, the environmental consequences of a lead / acid leakage will be insignificant. The occurrence of leaks will also be reduced through proper storage in a secondary container, which will be checked regularly to ensure that its integrity is maintained.
- 9.61. The environmental consequences of used firefighting water are reduced to minor with mitigation, since used water will be collected in the cesspit / reservoir and any overflow will have been treated. The likelihood of a fire is reduced to rare, due to the operational procedures that will be in place to limit the quantity of flammable waste stored and risk of fire.
- 9.62. In the mitigated scenario, the environmental consequences of a fire / explosion would be minor to moderate, depending on how quickly the fire is tackled (since the response might be delayed if the fire occurs outside operating hours). This rating is reduced from the unmitigated scenario, since the quantity of combustible material on

site will be reduced, and procedures and equipment will be in place to tackle a fire as soon as possible and thus reduce the risk of it spreading beyond the site.

- 9.63. The probability of a severe flood or earthquake remain unlikely; however the environmental consequences are expected to be reduced to minor with mitigation measures in place.

Mercury emissions

- 9.64. The anticipated level of mercury emissions from fluorescent tube storage and crushing could not be determined with certainty as the capture efficiency of the mercury filter is not known. Studies that have been undertaken at the perimeter of Applicant's current site indicate that mercury emissions during tube crushing currently reach $0.9 \mu\text{g}/\text{m}^3$. These emissions reflect a partly mitigated scenario that includes a two-room setup as is being proposed in the current Scheme, a HEPA filter and impregnated charcoal filter in series, and a water mister. However, the roof of the internal room is currently made of wood and the room itself is not airtight, as a result of which negative pressure was not achieved during these tests. These studies suggest that the Scheme's proposed arrangements, which include two purposely built and sealed rooms, and operation under negative pressure, will reduce emissions further, although it is difficult to quantify the extent of these reductions.
- 9.65. The World Health Organisation (WHO)²² has estimated a tolerable concentration of $0.2 \mu\text{g}/\text{m}^3$ for long-term inhalation exposure to elemental mercury vapour, an annual average guideline value for mercury in air of $1 \mu\text{g}/\text{m}^3$, and a tolerable daily intake for total mercury of $2 \mu\text{g}$ per kg body weight. It is understood that MEPA requires emissions from the Scheme not to exceed $0.2 \mu\text{g}/\text{m}^3$ at any time. While it is unclear whether this value will be achieved by the Scheme, even in a worst-case scenario where emissions remain at the current $0.9 \mu\text{g}/\text{m}^3$, the closest residential receptors (located 180 m upwind of the Scheme site) are unlikely to be exposed to emissions from the Scheme that exceed $0.2 \mu\text{g}/\text{m}^3$ at any time. However, the receptors' actual exposure will also depend on current mercury baseline levels. Mercury levels at MEPA's urban background monitoring station at Žejtun are in the region of $2 \text{ng}/\text{m}^3$ (i.e. much lower than WHO guidelines), however, as the Scheme site is located next to concrete batching plants, baseline emissions at the Scheme site may be higher than this, due to the possibility of cement dust containing mercury. Baseline monitoring for mercury will be undertaken as part of the IPPC application being prepared for the Scheme.
- 9.66. Apart from considering impacts from direct inhalation, the significance of mercury exposure also depends on the deposition rate and how it enters the food chain.
- 9.67. The WHO has also set a guideline value of $6 \mu\text{g}/\text{L}$ for inorganic mercury in drinking

²² World Health Organisation (2007) *Exposure to Mercury: A Major Public Health Concern*
www.who.int/phe/news/Mercury-flyer.pdf.

water.²³ However, significant attenuation is expected before mercury emissions from the Scheme reach the groundwater, since the groundwater at the Scheme site is found at a depth of around 56 to 60 m below the land surface.

- 9.68. In view of these uncertainties, the environmental consequences of mercury emissions from tube crushing has been categorised as uncertain. Since emissions are routinely generated during tube crushing, the frequency has been retained as almost certain.

Conclusion and recommendations

- 9.69. As a result of the mitigation measures, environmental risks have largely been reduced to very low to moderate.
- 9.70. However, the risk associated with emissions from fluorescent tube crushing and storage is currently unclear and would depend on current mercury baseline levels and the level of emissions from the Scheme. It is understood that baseline monitoring will be undertaken as part of the IPPC application to establish current mercury levels at the Scheme site, and that operational monitoring will also be carried out periodically as part of IPPC requirements, to establish the effectiveness of the proposed mitigation measures in reducing mercury emissions from the Scheme.

²³ World Health Organisation (2011) *Guidelines for Drinking-water Quality*
http://whqlibdoc.who.int/publications/2011/9789241548151_eng.pdf.

10 SUMMARY OF KEY IMPACTS, INTERACTION BETWEEN IMPACTS AND MITIGATION

INTRODUCTION

- 9.71. 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 the Terms of Reference (ToR) to describe mitigation measures to “*prevent, eliminate, reduce or offset (as relevant) the identified significant adverse effects of the project*” and to identify cumulative and residual impacts. The chapter concludes with a summary of the mitigation measures proposed in the Environmental Impact Statement (EIS).

SUMMARY OF KEY IMPACTS

- 9.72. **Chapters 5 to 8** of the EIS describe the predicted impacts of the Scheme in relation to geo-environment, landscape and visual amenity, ecology, and noise, in accordance with the environmental topic areas identified in the ToR. **Chapter 9** presents an Environmental Risk Assessment.
- 9.73. For each predicted impact, an assessment has been made as to whether the impact is likely to be of major, moderate (as relevant), or minor significance, or of no significance; the criteria that were used to judge significance are described in each of the chapters. Predicted impacts have been identified, and, where relevant, there is a description of how these could be mitigated. All the residual impacts identified are summarised in **Table 10.1** at the end of this Chapter. It is noted that no significant impacts were identified on landscape and visual amenity as well as noise receptors.
- 9.74. Potential major and/or minor impacts were identified on the geo-environment. Excavation results in removal mineral resources for which the impact was described as minor to major. The potential contamination of the ground water and surface water run-off during operation were also described, however, with implementation of mitigation measures, major significant residual impacts are unlikely. The Environmental Risk Assessment also included an uncertain impact in relation to mercury emissions.

INTERACTION OF IMPACTS

- 9.75. The interaction between impacts describes the potential cumulative or reactive nature of the various disturbances caused by the Scheme during construction and operation.
- 9.76. During construction, the only potentially minor to major impact identified in the EIS relates to geo-environmental resources.
- 9.77. During operation, the main consideration is the risk that the facility will have on the surrounding environment including risks to the groundwater, surface water, and risks associated with toxic emissions.

CUMULATIVE IMPACTS

- 9.78. Cumulative impacts are those that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the Scheme. The various impacts identified in **Chapters 5 to 8** were assessed in the context of the existing baseline (encompassing the past and present context).
- 9.79. In terms of potential cumulative impacts, the main concern is related to mercury emissions as identified in **Chapter 9**. A concrete batching plant that is currently operating in the vicinity of the Scheme site (see **Chapter 3**) may also be emitting mercury, however, this has not been quantified. Cumulative impacts from mercury vapour emissions from the Scheme site with those from the batching plant may result in potentially significant mercury levels in the atmosphere in the vicinity of the site. However, in the absence of a baseline scenario, the significance of such an impact is uncertain at this stage. As part of the IPPC application process, a baseline mercury scenario will be established through appropriate monitoring.

MITIGATION

- 9.80. The EIS, including its supporting Technical Appendices, reports the findings of the EIA, in accordance with the ToR. Where appropriate, mitigation measures have been recommended; these are described at the end of **Chapters 5 to 8** and also in **Chapter 9**. They are summarised in **Table 10.1**. 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 10.1: Summary of impacts

Predicted Impact	Beneficial / Adverse / Neutral	Nature, Scale and Type of Impact						Policy Importance (Inter / National / Local)	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					
Geo-environment												
Mineral resources / features	Adverse	Constr'n	Local	Direct	Long-term	Perm	Irrevers	Local	Likely	Minor to major significance	Use of excavated material in cement manufacture and use of clay in landscaping and/or for agriculture	Minor to major significance
Change in quality of ground water	Adverse	Constr'n / Oper'n	Local	Indirect	Short-term / Long-term	Perm	Irrevers	Local	Likely	Minor to major	Entire site lies on an impermeable surface, specific bunding to capture specific oil spillages, oil-water interceptors, impermeable cesspits	Not significant
Contamination of surface water runoff	Adverse	Constr'n	Local	Direct	Long-term	Perm	Irrevers	Local	Likely	Minor to major in case of overflow of used firewater, depending on extent of overflow otherwise not significant	Used firewater passing through interceptor	Minor significance in case of overflow of used firewater, otherwise, not significant

Predicted Impact	Beneficial/ Adverse	Nature, Scale and Type of Impact					Policy Importance (Inter/National/ Local)	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)
		Extent of impact (Nat/Local/Site)	Direct/ Indirect	S term/ L term	Perm/ Temp	Revers./ Irrevers			Legislation	In context of Scheme		
Ecology												
Loss of habitat	Adverse	Local	Direct	L term	Perm	Irrevers.	Local	Likely	EPA, LN 311/2006, GN 112/2007	Minor	None	Minor

APPENDIX I: A3 PHOTOGRAPHS

Viewpoint 4: Area on taxi way looking towards the back of the site (before completion of the Scheme)



Viewpoint 4: Area on taxi way looking towards the back of the site (after completion of the Scheme)





APPENDIX 2: ARCHAEOLOGICAL INVESTIGATION TERMS OF REFERENCE

23 April 2015

Our Ref. SCH 044/15
Permit Ref. TRK 159436
(EA00037/14)

To the attention of:
Mr Galea

Ref. Cultural Heritage Act (CAP 445)

Terms of Reference: Archaeology Investigation at HHF 040, Hal Far Qasam Industrijali, Birzebbugia i.c.w. TRK 159436 (EA00037/14)

1. The archaeological investigation is to be undertaken in accordance to: the Superintendence instructions, 'Operating Procedures and Standards for Archaeology Services' and the Cultural Heritage Act.
2. The approved archaeologist will work under the direction of the Superintendence.
3. The approved archaeologist will communicate directly with the Superintendence.
4. Any other archaeologist/s required to provisionally assist the approved archaeologist are to be approved by the Superintendence.
5. The developer is to provide any resources necessary, such as labourers and hand tools.
6. All spoil removed during this archaeological investigation is to be kept on site with a view to the eventual rehabilitation of the site as might be necessary.
7. All costs related to the archaeology investigation are to be covered by the developer.
8. The intervention code for this intervention is: **M 0 4 3 / 1 5**
This intervention code is to be used for identification purposes on all documentation and labelling related to this archaeological investigation.
9. Considering the archaeological sensitivity of the area, all site works are to be monitored by the approved archaeologist in order to safeguard any cultural heritage remains which might be uncovered.
10. The Superintendence reserves the right to take any measure it deems appropriate in order to ensure the completion of the archaeological investigation.
11. The approved archaeologist is to keep the Superintendence regularly updated.
12. The archaeological investigation must be carried out according to the following stages:

12.1	Stage 1: Before Start of Works - Intervention Frequency: Inspections
12.1.1	The approved archaeologist must inspect the site prior to the start of site works.
12.1.2	Photos of the site before start of works are to be taken by the approved archaeologist.



12.1.3	The approved archaeologist must carry out desk-top research to inform him/herself with known cultural heritage sites in the surrounding area.
12.1.4	Vegetation and heaps of dumped modern material are to be removed at this stage to clear site surface for inspection.
12.1.5	The site is to be prepared for the start of the archaeological investigation.
12.1.6	After clearing of vegetation/modern dumping, site surface is to be thoroughly inspected by the archaeologist for any surface pottery scatters and surface archaeological features/deposits. If surface ceramic scatters and/or surface archaeological features/deposits are identified the Superintendence is to be informed immediately. Site works are to cease instantly and the remains are to be kept protected in place (<i>in situ</i>). Detailed information on the discovery is to be submitted to the Superintendence. Specific instructions on how to proceed are to be sought and awaited from the Superintendence.
12.1.7	The approved archaeologist must regularly inspect the site.
12.1.8	A Preliminary Surveillance Exercise must be compiled by the approved archaeologist as directed by the Superintendence.

12.2	Stage 2: Soil/Material Excavation (up to rock surface) - Intervention Frequency: Constant Presence
12.2.1	The approved archaeologist is to be constantly present during site works.
12.2.2	All excavation works are to be carried out by means of a small-sized excavator equipped with a toothless bucket running on rubber wheels of crawlers.
12.2.3	The approved archaeologist must ensure that rock surface is adequately visible to ascertain that no cultural heritage remains are present on site. If necessary, hand tools and labourers are to be provided by the developer.
12.2.4	The approved archaeologist should identify and safeguard any cultural heritage remains that might be present, and will stop works if necessary.
12.2.5	Surveillance Data Sheets must be compiled by the approved archaeologist during the course of this stage.
12.2.6	A Digital Photographic Record of the site during excavation works is to be taken by the approved archaeologist.
12.2.7	The approved archaeologist must inform the Superintendence of the termination of this stage and submit Surveillance Data Sheets compiled for this stage. The Superintendence clearance for continuation of works must be obtained prior to start of the next stage.

12.3	Stage 3: Archaeological Excavation - Intervention Frequency: Constant Presence
12.3.1	In case of discovery of archaeological remains, an archaeological excavation in keeping with archaeological practices and conventions will be carried out.
12.3.2	Specific instructions for carrying out the archaeological excavation will be issued by the Superintendence.
12.3.3	The archaeological excavation will involve the identification, excavation, recording and post-excavation of the archaeological remains discovery as required by the Cultural Heritage Act and as explained in 'Operating Procedures and Standards for Archaeology Services'.



12.3.4	The approved archaeologist (site coordinator) is to be constantly present during the archaeological excavation.
12.3.5	This archaeological excavation will require a team of archaeologists to be approved by the Superintendence.
12.3.6	Surveillance Data Sheets must be compiled by the approved archaeologist during the course of the archaeological excavation.
12.3.7	A Digital Photographic Record of the site during the archaeological excavation is to be taken by the approved archaeology monitor.
12.3.8	The approved archaeology monitor must inform the Superintendence of the termination of this stage and submit Surveillance Data Sheets compiled for this stage. The Superintendence clearance for continuation of works must be obtained prior to start of the next stage.

13. **Surveillance Data Compilation**

13.1	The approved archaeology monitor is to keep Surveillance Data Sheets for all stages of works as outlined in 'Operating Procedures and Standards for Archaeology Services', in line with the Cultural Heritage Act and as directed by the Superintendence.
13.2	A Digital Photographic Record of the site for all stages of works is to be kept by the approved monitor.
13.3	Data compiled is to be submitted to the Superintendence at termination of works OR as otherwise instructed by the Superintendence.

14. 14.1 In case of a discovery, the Superintendence is to be informed immediately. Site works are to cease instantly and the remains are to be kept protected in place (*in situ*). Detailed information on the discovery is to be submitted to the Superintendence as outlined in 'Operating Procedures and Standards for Archaeology Services', in line with the Cultural Heritage Act and as directed by the Superintendence.
The Superintendence will intervene in terms of the Cultural Heritage Act, which intervention shall not preclude any other measure contemplated under other Maltese legislation.
Discovery of archaeological remains may require an archaeological investigation and the amendment of approved plans.
- 14.2 Any movable material culture, archaeological remains and objects found during archaeology monitoring are to be recovered as guided and directed by the Superintendence.
Unless otherwise directed by the Superintendence, archaeology monitors are to ensure that intact archaeological features and deposits are left and protected *in situ* in accordance with the Cultural Heritage Act.
15. Any other data and material culture, archaeological remains and objects collected during site works are the property of the State. These are to be gathered, finalised and deposited at the Superintendence by the archaeology monitor as outlined in 'Operating Procedures and Standards for Archaeology Services', in line with the Cultural Heritage Act and as directed by the Superintendence.
16. Any work or action is to be undertaken in line with health and safety requirements as established by local legislation. Persons on site must be equipped with the required health and safety gear and equipment. Any work or action is to be certified safe by the health and safety officer or architect in the latter's absence. Service providers are to ascertain that health and safety measures as indicated in OPSAS and in Occupational Health and Safety Authority Act are duly applied.



17. Written or verbal communications concerning outcomes of surveillance carried out by archaeologists of the Superintendence of Cultural Heritage of and during authorised construction or development, may not reflect and should not be construed as meaning or reflecting, the considered position of the Superintendence with regards such construction and development.
18. The approved archaeology monitor is to abide by any other instructions which may be issued from time to time as necessary by the Superintendence.

Christian Mifsud

Cultural Heritage Executive

f/ Superintendent of Cultural Heritage





TN 159436

**REMOVAL OF DUMPED MATERIAL & CONSTRUCTION OF INDUSTRIAL UNIT
FOR THE RECYCLING/TREATMENT OF WEEE, HHF 040, ĦAL FAR, QASAM
INDUSTRIJALI, BIRŻEBBUĠA**

**ENVIRONMENTAL IMPACT STATEMENT
TECHNICAL APPENDICES**

Version 1: July 2015



Report Reference:

Adi Associates Environmental Consultants Ltd, 2015. Removal of Dumped Material & Construction of Industrial Unit for the Recycling / Treatment of WEEE, HHF 040, Ħal Far, Qasam Industrijali, Birżebbuġa. Technical Appendices to the Environmental Impact Statement prepared in support of development application no. TN 159436. San Gwann, July 2015.

**THIS IS A DIGITAL COPY OF THE REPORT.
RESPECT THE ENVIRONMENT – KEEP IT DIGITAL**

CONTENTS

Technical Appendix 1: Terms of Reference and Method Statements

Technical Appendix 2: Geo-environment Baseline Report

Technical Appendix 3: Noise Baseline Report

TN 159436

Removal of Dumped Material & Construction of Industrial Unit for the Recycling / Treatment of WEEE, HHF 040, Ħal Far, Qasam Industrijali, Birżebbuġa.

Technical Appendix I

TERMS OF REFERENCE AND METHOD STATEMENTS

Supporting Documents for
Environmental Impact Statement



TRK159436 (EA00003/15)

**Removal of dumped material & construction of industrial unit
for the recycling /treatment of WEEE**

HHF 040, Ħal-Far, Qasam Industrijali, Birżebbuġia, Malta

TERMS OF REFERENCE

FOR THE PREPARATION OF AN

ENVIRONMENTAL IMPACT STATEMENT

13 April 2015

DISCLAIMER:

1. The eventual assessment shall in no way be constrained or conditioned by the content, structure, or limitations of this document, and MEPA reserves the right to amend the TORs, even significantly, as necessary. Such amendments may include: additional studies or extension of studies; omission or downscaling of any studies deemed irrelevant or unimportant; changes to methodology, format or level of detail; and any other modifications as MEPA deems appropriate once a clearer picture of the proposal is available. The content of this document shall in no way constitute an exemption from the ensuing requirements, nor shall MEPA be responsible or liable for any issues, difficulties or claims arising from variations from this document.
2. EIA Terms of Reference are primarily intended to guide the EIA process, rather than as a basis for tendering, subcontracting, calls for expression of interest, or other purposes even if ancillary to the project. Any use for such purposes is at the sole risk of the user.

- Note 1:** The Malta Environment and Planning Authority (MEPA) reserves the right to modify these Terms of Reference according to any relevant environmental and planning considerations that may emerge at any relevant stage of the EIA or the permit application process, as well as in the event of any changes or updates to the proposed development. MEPA also reserves the right to request additional or amended studies should the findings of the EIA be insufficient to adequately inform the decision-making process or if the EIA identifies matters which should be subject to further investigation.
- Note 2:** Unless otherwise agreed with MEPA, all requirements set out in these Terms of Reference are to be complied with. If there are any aspects that the consultants deem irrelevant to this study, or if at any stage the consultants discover any environmentally-relevant aspect (not included in these TORs) that needs to be studied, the consultants shall inform MEPA immediately, justifying their reasoning.
- Note 3:** Difficulties, including technical difficulties and lack of information, encountered by the consultants in compiling the required information shall be made clear in the EIA. All references to published works and sources of information shall be duly acknowledged in a manner that enables tracing of the information source and verification. No material may be incorporated by reference unless it is reasonably available for inspection by potentially interested persons within the consultation period and thereafter, and for record-keeping and unhindered perusal by MEPA. Any material which is based on unavailable proprietary data shall not be incorporated by reference.
- Note 4:** Any requirement for confidentiality of any section or detail of the EIA must be strongly justified and a formal request in this regard must be submitted to MEPA. Should MEPA grant confidentiality, alternative material that is still adequate for proper assessment, public consultation and decision-making must be provided.
- Note 5:** Agreement on method statements, and ancillary liaison with MEPA, is not mandatory but is recommended. Nevertheless, MEPA reserves the right to disagree with the methodology proposed, including proposed areas of influence, and with the EIA submissions in general, and to factor such disagreement in its critique of the EIA.
- Note 6:** During review of the EIA, MEPA will submit comments for the consultants' consideration, as relevant. Following the consultants' response to MEPA satisfaction, a revised second draft of the EIA, addressing the comments, will normally be required. This may take the form of a complete resubmission or of an Addendum detailing the revisions to the previous submissions, as deemed most expedient by MEPA, taking into account continuity and traceability of the information, and overall user-friendliness vis-à-vis subsequent review, presentation, public consultation, record-keeping and decision-making. A complete resubmission will generally be required if changes are numerous or complex, whereas an Addendum may be preferred if changes are more limited..
- Note 7:** The consultants are not exonerated from obtaining any formal authorisation from MEPA, and from other relevant entities, vis-à-vis any activity ancillary to the EIA (e.g. collection, sampling, capture, or waiver of access restrictions) wherever such authorisation is legally required.
- Note 8:** These Terms of Reference, and all ancillary correspondence, are issued without prejudice to the Environment Protection Directorate's position on the project and to MEPA's final decision. Accordingly, their issuing (even when customised to address specific project details) should not be construed as evidence in favour or against the project or any component thereof, unless the contrary is clearly stated.
- Note 9:** Wherever relevant, references to land also include the sea, and ancillary terms such as land-take, ground cover, landscape, vehicles, access roads, etc. should be interpreted accordingly.
- Note 10:** Wherever any baseline studies required by these Terms of Reference is covered by already-existing data, such data should be used in preference to unnecessary duplication of baseline studies, unless the consultants or MEPA or both are of the opinion that the existing data is unavailable, incorrect, outdated, unreliable, insufficient, or otherwise inadequate for the purpose of the EIA.

An Environmental Impact Statement (EIS) is to be prepared as required by the Schedule IA Category I, Sections 2.7.1.1 of the Environmental Impact Assessment Regulations, 2007 as amended. The required components of the EIS are:

- i. A **Coordinated Assessment Report**, in conformity with the following Sections of these Terms of Reference. This report should assess the project in its totality;
[Note: The coordinated assessment should seek to analyse and integrate the main considerations emerging from the technical reports, rather than just reproducing excerpts from the reports.]
- ii. A separate **Appendix (or Appendices)** containing all original survey reports as prepared by the individual specialist consultants for specific topics;
[Note: Experts contributing to the EIA should be specifically asked to consider impact interactions and cross-cutting issues, and to communicate information between each other accordingly].
- iii. A separate **Non-Technical Summary** of the EIS, in both the Maltese and English languages. This should have enough details for the public to understand the project and the related environmental considerations, and should be written in reader-friendly language (e.g. avoiding unnecessary technical jargon);
- iv. A declaration of conformity with sub-regulations 28 and 29 of the EIA Regulations (refer to Appendix 1 to these Terms of Reference); and
- v. An addendum detailing the **feedback received from stakeholders, from the public, and from MEPA** during the relevant consultation stages of the EIS, and how they were addressed.

Wherever relevant and appropriate, all components of the EIS should include tables and figures (e.g. maps, plans, photographs, photomontages, charts, graphs, diagrams, cross-sections) and quantifications.

The complete EIS (including all the above components) should be submitted as a printable digital copy (in .pdf format, with copying fully enabled throughout) and as a printed copy. Likewise, once the EIA has been certified, both a printable digital copy (in .pdf format, with copying enabled throughout) and a printed copy of the certified document is to be submitted to MEPA.

Wherever any other study not forming part of the EIS (e.g. Appropriate Assessment or Feasibility Study) is also envisaged, this is to be submitted separately from the EIS. Cross-referencing between the EIS and any such study should be clear and reasonably limited, such that both of the following considerations are duly satisfied:

1. Alerting the reader to the fact that the aspect in question is also being addressed in another parallel study;
and
2. Enabling the reader to easily follow both the EIS and the other studies as stand-alone documents.

More detailed specifications are identified in the following pages.

1.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT AND ITS CONTEXT

The description of the proposal is to include the aspects outlined below, and should take into account the entire proposal and any ancillary facilities and infrastructure connected with, or arising due to, the project.

1.1 Justification for the Proposal

1.1.1 Objectives

The purpose and objectives of the development and whether these are related to current legal obligations, policies or plans.

1.1.2 Demand

The current and expected requirement or demand for the proposed land uses, also explaining how the proposal will address the requirement/demand.

1.2 Description of the Physical Characteristics of the Whole Project and the Land Use Requirements during the Construction, Operational and Decommissioning Phases

The following aspects should be addressed for all phases of the project, clearly distinguishing between aspects relating to construction phase, operational phase, decommissioning phase, or more than one phase. References to the construction phase and decommissioning phase also include ancillary site preparation, clearing, excavation, demolition/dismantling, and site reinstatement works, as relevant.

1.2.1 General characteristics

Description of the proposed development including size, area, height, volume, configuration/layout, general design, location and proposed elevations of buildings, hard and soft landscaping, access arrangements, boundary demarcation arrangements, land use requirements, and land take of ancillary facilities (including infrastructure, storage, servicing, security etc.). The description is to be consistent with the details submitted in the relevant permit applications, throughout both the EIA process and the development permission application process.

1.2.2 Operational and production processes

The relevant operational and production processes and their main characteristics, including:

- The nature and quantity of materials used or generated;
- The source, type, quantity, composition and concentration of residues and emissions including water, air, soil pollution, noise, vibration, light, heat, radiation etc. resulting from the proposed project; and
- The expected annual and total emissions, including Greenhouse Gases (GHG), and the contribution to total national GHG emission on an annual basis.

1.2.3 Project management

An indicative framework outlining the key parameters and site management arrangements during construction, operation and decommissioning phases, including:

- Works methodology;
- Expected duration of all phases, as well as season, frequency and duration of interventions;
- Depths and volumes of excavation, and type of material to be excavated; and
- Types and quantities of raw materials and primary resources to be consumed, including water, energy, stone and other resources, and measures to reduce such consumption.

1.2.4 Access, transportation and related infrastructure

A forecast of the type, quantity and size of vehicles (and/or vessels) envisaged during each phase and their respective frequency of use, as well as an identification of the routes that vehicles will use to/from and within the site. The required arrangements should also be compared with the relevant existing situation (in terms of structural considerations, stability and state of roads, road width and gradient, turning

circles and junctions, type of surfacing, and other physical or environmental constraints, etc). Interventions that would need to be carried out to accommodate the required vehicles (e.g. new or altered access roads), and sites/buildings/structures/features likely to be affected as a result, should be identified accordingly.

Facilities for the storage, parking, on-site servicing, loading/unloading of equipment, vehicles and other machinery.

1.2.5 Water, sewerage, runoff management, energy, telecommunications, and ancillary infrastructure

Estimates of water management specifications of the development and the identification of the sources of water to be used, including the following:

- The features and processes of the proposed development and its ancillary facilities which consume water, including estimates of water consumption and runoff/effluent generation during operation;
- The sources of water (e.g. second-class water, public potable water mains, on-site production) envisaged to meet the projected demand;
- The water-saving measures, if any, that are envisaged (e.g. use of low-flow fittings, reuse of harvested storm water runoff and rainwater, treatment and reuse of grey water/sewage), and details as to how such water will be used/managed; and
- The facilities and structures to be installed in connection with the above (e.g. water production, purification, collection, storage, distribution and saving) including estimates of the sizing of pipelines, reservoirs and equipment.

Estimates of the energy-related specifications, including:

- The features and processes of the proposed development and its ancillary facilities which consume energy, including estimates of consumption during operation. The analysis should consider, as relevant, the connected load (in MW or MVA), the overall power factor, the annual MWh split in terms of end-use (lighting, climate cooling/heating/ventilation, plant etc.) which reflects the expected use of the facilities;
- The energy sources envisaged to meet the projected demand;
- The facilities and structures to be installed in connection with the above (e.g. energy production, storage, distribution and saving) including estimates of the sizing of cables, buildings and equipment; and
- The expected energy performance of the proposal, including building orientation, natural ventilation, construction materials, integration of low/zero-carbon technologies to meet energy needs; avoidance of features which increase energy consumption; and energy efficiency measures in the finishing and operation of the development.

Infrastructural services and utilities related to water and power supplies, sewerage, telecommunications and runoff management, and ancillary works (e.g. trenches, tunnels, culverts, switching/transformer stations, pumphouses, inspection chambers).

4. The extent to which the project can realistically be self-sufficient with regard to its energy and water needs, through appropriate measures such as the efficient use of energy and water, collection of rain and storm water for reuse, reuse of treated wastewater/sewage, technologies that reduce energy consumption, and the integration of alternative energy sources. Alternatives in terms of design, fabric and orientation of the buildings should also be explored and assessed.

1.2.6 Waste management

A sufficiently detailed indication of the waste management implications likely to arise from the project, including wastes generated by ancillary facilities and wastes which may arise from accidental spillages and leakages and from repair works. Wastes should be subdivided according to the relevant project phases.

The following information is to be provided for each waste stream, as relevant to each phase:

- Identification of processes or activities that would result in waste generation;
- European Waste Catalogue Codes for each waste stream, as per relevant legislation;
- The projected quantities and rate of generation for each type of waste;
- Information on waste handling and storage, on site as well as off site; and
- The method of transportation and frequency.

This information should be presented in table format as follows, and should also include cross-references to the relevant regulations, particularly The Waste Regulations (Legal Notice 184 of 2011 as amended):

Phase	Type of waste	EWC Code	H-Code	Activity (e.g. sanding, scraping, power washing etc.)	Estimated quantities	Final permitted disposal location

The envisaged waste management arrangements using the Best Practicable Environmental Options (BPEO) available, and the envisaged efforts to minimise waste generation and to divert waste to reuse or recycling rather than disposal.

Layout plans (to scale) clearly showing all relevant waste management infrastructure and related facilities (e.g. bunded areas for storage of waste fuels, wheel-wash facilities, etc.), clearly distinguishing between temporary and permanent structures for each phase.

1.2.7 Longer-term developments

Additional future developments, land uses and other commitments that are ancillary or consequent to the project or are likely to arise in relation to the same project or its expansion, as well as longer-term needs of the proposal, including: ancillary infrastructure not accounted for in the previous sections; any consequent interventions/arrangements required to accommodate the development; any foreseeable extensions or updates to the proposal; any displacement of existing uses; and decommissioning.

2.0 ASSESSMENT OF ALTERNATIVES

An outline of the main alternatives studied and an indication of the main reasons for this choice, taking into account the relevant environmental effects and their prevention (or optimisation) at source. The following alternatives need to be duly considered, as relevant to the development itself (or to one or more phases thereof) and its requirements and constraints:

- 2.1 Alternative sites.
- 2.2 Alternative technologies.
- 2.3 Alternative layouts (including building heights, where relevant).
- 2.4 Downscaling of the project, or elimination of project components.
- 2.5 Zero option (do-nothing scenario) — *i.e.* an assessment of the way the site would develop in the absence of the proposed project.
[Note: The zero option should be considered in sufficient detail as a plausible scenario in the EIS, wherever relevant, and not discarded upfront without proper discussion of its implications.]
- 2.6 Hybrids/combinations of the above.

The findings of the assessment of alternatives should be summarised in a table format for ease of comparison.

3.0 A DESCRIPTION OF THE SITE AND ITS SURROUNDINGS (*I.E.* ENVIRONMENTAL BASELINE)

The existing environmental features, characteristics and conditions, in and around the proposed development site as well as in all locations likely to be affected by the development or by ancillary interventions and operations, are to be identified and described in sufficient detail, with particular attention to the aspects elaborated further in the next sections.

The consultants should also identify (and justify) wherever relevant:

1. The geographic area (e.g. viewshed or other area of influence) that needs to be covered by each study;

2. The relevant sensitive receptors vis-à-vis the environmental parameter under consideration (e.g. residential communities, other users, natural ecosystems, specific populations of particular species, or individual physical features);
3. The location of the reference points or stations (e.g. viewpoints, monitoring stations, or sampling points) to be used in the study; and
4. Other methodological parameters of relevance, also noting that the assessment will normally require both desk-top studies and on-site investigations (including visual observations and sampling, as relevant).

Note: It is recommended that these details are discussed in advance with the Environment Protection Directorate prior to commencement of the relevant parts of the studies, in order to pre-empt (as much as possible) later-stage issues.

Wherever relevant to the environmental aspects under discussion, reference to legislation, policies, plans (including programmes and strategies) standards and targets, should also be made, such that the compatibility (or otherwise) of the proposal therewith is also factored into the assessment required by **Section 4** below. The discussion should cover the following aspects, in the appropriate level of detail:

- Supra-national (e.g. European Union; United Nations; or other international or regional) legislation, directives, policies, conventions, protocols, treaties, charters, plans and obligations;
- National legislation, policies and plans (e.g. Structure Plan; National Environment Policy); and
- Sub-national legislation, policies and plans (e.g. local plans, site-specific regulations, action plans, management plans, and protective designations such as scheduling or Natura 2000).

Note: In addition to already in-force legislation, policies and plans, the discussion should also cover any foreseeable future updates (or new legislation, policies and plans) likely to be fulfilled, affected or compromised by the proposed project. Furthermore, it should be noted that some cross-cutting legal/policy instruments (e.g. Water Framework Directive) may need to be factored into more than one aspect of the discussion.

3.1 Land cover and Land Uses

A description of the land cover and land uses within the area of influence of the project, including roads, footpaths and public access routes. Details including nature, magnitude, proximity to site, etc. should be included.

This assessment should also include an identification of all relevant cultural heritage assets, including archaeological, historical, and architectural heritage, elements of vernacular or rural architecture (e.g. rubble walls, huts, wells, irrigation channels, farmhouses, etc.), and the holistic cultural landscape.

A detailed description of any surrounding agricultural land is to be provided, including the physical quality and productivity of the land.

3.2 Landscape Character and Visual Amenity

3.2.1 Landscape Character

The study should describe the landscape-related area of influence and landscape setting of the proposed site, identifying the component character areas and local landscape tracts, and the landscape elements, characteristics and degree of sensitivity thereof, so as to enable the prediction and assessment of:

- The changes to the landscape attributable (in full or in part) to the proposed development;
- The implications of such changes on the quality and perception of the landscape and its elements, in each of the identified landscape character areas and local landscape tracts; and
- The effects of such changes on relevant receptors. (The receptors should also be duly identified and their degree of sensitivity should also be indicated and justified).

Reference should also be made to MEPA's 'Draft Landscape Assessment Study, 2004,' and to the *Guidelines for Landscape and Visual Impact Assessment (The Landscape Institute & IEMA)*, as relevant.

3.2.2 Visual Amenity

The following need to be identified and submitted for prior EPD approval:

- The zone of visual influence (ZVI) of the site and the development under consideration; and
- Assessment viewpoints representative of short-, medium- and long-distance views towards the site. A baseline photograph taken from each proposed viewpoint is also required. The submission should cover all the important views of the site, whilst avoiding the inclusion of superfluous or inappropriate viewpoints (e.g.

positions from which the site is not visible, or where the view is obstructed or dominated by physical obstacles in the foreground).

Thereafter, for each approved viewpoint, the projected situation and appearance of the site (*i.e.* as it would look with the proposed development in place) should be compared to the current baseline situation (*i.e.* without the proposed development). The following should be predicted and assessed accordingly:

- The expected changes to visual amenity as a result of the proposed development;
- The effects of such changes on the quality of the visual amenity of the site; and
- The effects of such changes on relevant receptors. (The receptors should also be duly identified and their degree of sensitivity should also be indicated and justified).

Note: *The baseline photographs and the photomontages should, unless otherwise directed by MEPA, satisfy the following:*

- (a) *The location of each viewpoint should be shown on a map that also depicts the viewshed for the proposed site as described above. The visual angle of the photograph should also be indicated and should not be greater than 50°. Stitched photos that illustrate the field of vision towards the site from each viewpoint are acceptable as long as they are additional to the 50-degree photograph.*
- (b) *The photographs and photomontages submitted should:*
- *Be at least A3 in size. Strips which are A3 in width but not in length are not appropriate except as supplementary illustrative material;*
 - *Include the date and time at which the photo was taken;*
 - *Be of good quality, with faithful reproduction approximating as much as reasonably possible what would normally be visible to the naked eye. The photos should be taken in good weather, and should be taken at least 2 hours after sunrise and 2 hours before sunset. Colours should not be digitally or otherwise manipulated. As a guideline, the image should have a printing density of 200 dots per inch or better. In some instances, digital images having a resolution of 1024 x 728 or better may be required for multimedia presentation purposes;*
 - *Be taken in such a manner that near-field objects do not overpower or dominate features near the image plane passing through the project area;*
 - *Be taken from a height above ground level that is representative of the eye level of the viewer, and such height should be duly documented; and*
 - *Ensure that all additional/replacement structures and features depicted in the photomontages have a scale which proportionately tallies with the existing nearby features.*
- (c) *Wherever relevant, the photomontage(s) should cover the following scenarios:*
- *The development without the proposed landscaping scheme, representing the worst-case scenario;*
 - *The development complete with the proposed landscaping scheme as it is expected to look when the trees reach maturity, also providing an indicative timeframe as to when such maturity is expected to be attained; and*
 - *(where relevant in relation to impact of nocturnal lighting) the development and its ancillary lighting as it would appear during night-time.*

3.3 Geology, Geomorphology, Hydrogeology, and Soils

A comprehensive investigation of:

1. The geology and geomorphology of the site and its surroundings, including: existing lithological, stratigraphical, palaeontological, hydrogeological and physiographic features and soil types;
2. The geo-technical properties and considerations relevant to the site and its area of influence, including: land stability; mechanical, erosional and structural properties of the terrain and land mass; any relevant fissures, faults, hollows, or weak points; the vulnerability of the site to natural forces such as wave action, erosive elements, landslides and mass movements; and any other considerations affecting the implications and risks posed by the proposed development or by any of its ancillary interventions such as site clearance, earth-moving, and excavations; and
3. The quality of the material that will be excavated (including soil, rock/mineral resource, and any existing fill material) and its potential for reuse.

Sampling and testing should comply with the relevant standards (unless otherwise agreed, BS standards or other recognised equivalents should be used), and should extend to a sufficient depth below the deepest level of the proposed development (taking into consideration all proposed excavations and underground structures). Wherever the study involves the drilling of core samples, the number, depth and location thereof should also be submitted for EPD approval prior to carrying out of any *in situ* tests.

3.4 Water bodies (including Terrestrial, Underground)

The study should identify the hydrological and hydromorphological of the water bodies and water resources in the area under investigation, including:

1. The hydrology of the site and its surroundings (incl. Wied Žnuber), including all relevant features and dynamics, such as: aquifers; springs; surface waters; wetlands; watercourses; valley catchments; etc, also cross-referring to hydrogeological factors as relevant;
2. The type, size and physical characteristics of any aquifers and surface water bodies within the area of influence of the site, including: the nature of the water body (e.g. aquifer, flowing surface water, etc.); whether the water body is ephemeral or permanent; depth; type of bottom etc.; and
3. Natural and anthropogenic dynamics including groundwater recharge patterns; pumping and abstraction patterns; on-site and off-site drainage patterns; run-off patterns; and flood risks.

3.5 Ecology (including Terrestrial Ecology & Avifauna)

The assessment should provide:

1. an investigation of the ecology of the site and those known/recorded within their surroundings (including, as relevant: flora, fauna, avifauna, and their habitats and ecosystems), duly covering the relevant seasons (e.g. wet and dry seasons, in the case of terrestrial ecology), including their conservation status and ecological condition of the area and the state of health of its habitats, species and ecological features;
2. reporting of all known/recorded protected, endangered, rare, unique, endemic, high-quality, keystone, invasive/deleterious, or otherwise important species, habitats, ecological assemblages, and ecological conditions found in the area under study; and
a prediction of the potential impacts of the proposed project on the ecology of the site and its surroundings, including loss, damage or alteration of habitats and species populations.

Note 1: Where the area of influence encompasses both marine and terrestrial environments, one or more of the sections indicated in these specimen TORs may need to be restructured accordingly to reflect the specific circumstances (e.g. separate reports for marine and terrestrial ecology).

3.6 Noise, Vibrations and Exterior Lighting

This study should provide sufficiently detailed information on representative background levels of noise, vibration and nocturnal lighting (as relevant), as a baseline for assessing the levels and effects expected to result from the development, including any short- and long-term changes, peaks and fluctuations as well as their acute or chronic impacts. The study should also take into account other relevant factors such as:

- Cumulation with other existing sources including traffic, and with other predicted sources such as new developments;
- Additional effects of road traffic associated with operations on the site;
- Sensitive receptors (e.g. residents, schools, hospitals, recreational areas, fauna and avifauna, natural ecosystems); and
- The potential for attenuation or exacerbation by 'environmental' factors (e.g. topography, vegetation, physical barriers etc.), and for mitigation (e.g. shielding, muffling/soundproofing, reduced lighting, etc.).

Note: In the case of light pollution, the study needs to consider, among others, glare (e.g. the blinding light which is a danger to motorists/pedestrians and to fauna), light trespass (light straying into an area where it is not desired or required) and sky glow ('wasted' light directed upwards), together with any other relevant variables which are relevant to the determination of impact on the surrounding receptors.

The study results should include measurable parameters (e.g. frequency, intensity) as relevant, and should be evaluated against appropriate reference values². The reference points and measurement locations used should be approved by MEPA prior to commencement of studies and, unless otherwise indicated, should be at ground level.

3.7 Infrastructure and Utilities

The assessment should investigate the currently available infrastructural services (including water supply, energy supply, sewerage, telecommunications infrastructure, access roads, parking, etc.), including details

² Unless otherwise specifically indicated, it is recommended that: ISO 1996 and ISO 9613 (all series) standards are used for the noise assessment; BS6472 (relating to human exposure to vibration) and BS7385 (covering the effects on buildings) are used when studying vibration; BS 5228 is used for the assessment of construction noise; and BS 4142 is used vis-à-vis noise complaints.

about their carrying capacity, physical condition and other relevant practical considerations. It should also compare this information to the infrastructural demands of the project as identified in **Section 1** above, so as to clearly indicate:

1. whether the current utilities are adequate to meet the demand arising from the proposed development;
2. whether any significant loading, congestion or damaging of the infrastructural or transport network is envisaged; and
3. whether any new or upgraded services/arrangements will be rendered necessary, both in the short-term and in the longer-term. If any requirement for new infrastructure (or upgrading, alteration or extension of the existing infrastructure) is envisaged, the relevant details including associated works and their environmental implications should also be indicated.

The assessment should also identify any existing or projected infrastructural services located within the area of influence of the development (even if not related to the demands of the development) that might be affected by the development or which may need to be displaced or diverted as a consequence of the development or its ancillary operations and interventions.

3.8 Public Access

The assessment should identify the current public access arrangements (particularly the accessibility of the countryside, coast, and public open spaces), including existing footpaths and other public access routes, and should clearly indicate whether these would be affected and how.

Wherever any new or altered arrangements are proposed, these should be clearly identified and their environmental implications should also be indicated.

3.9 Other relevant environmental aspects and features

Other relevant environmental features or considerations not identified in the preceding sections should also be identified and described, as relevant.

4.0 ASSESSMENT OF ENVIRONMENTAL IMPACTS AND ENVIRONMENTAL RISKS

All likely significant effects and risks posed by the proposed project on the environment during all relevant phases (including construction/excavation/demolition, operation and decommissioning) should be assessed in detail, taking into account the information emerging from Sections 1, 2 and 3 above. Apart from considering the project on its own merits (*i.e.* if taken in isolation), the assessment should also take into account the wider surrounding context and should consider the limitations and effects that the surrounding environmental constraints, features and dynamics may exert on the proposed development, thereby identifying any incompatibilities, conflicts, interferences or other relevant implications that may arise if the project is implemented.

In this regard, the assessment should address the following aspects, as applicable for any category of effects or for the overall evaluation of environmental impact, addressing the worst-case scenario wherever relevant:

1. An exhaustive identification and description of the envisaged impacts;
2. The magnitude, severity and significance of the impacts;
3. The geographical extent/range and physical distribution of the impacts, in relation to: site coverage; the features located in the site surroundings; whether the impacts are short-, medium- or long-range; and any transboundary impacts (*i.e.* impacts affecting other countries);
4. The timing and duration of the impacts (whether the impact is temporary or permanent; short-, medium- or long-term; and reasonable quantification of timeframes);
5. Whether the impacts are reversible or irreversible (including the degree of reversibility in practice and a clear identification of any conditions, assumptions and pre-requisites for reversibility);
6. A comprehensive coverage of direct, indirect, secondary and cumulative impacts, including:
 - interactions (*e.g.* summative, synergistic, antagonistic, and vicious-cycle effects) between impacts;
 - interactions or interference with natural or anthropogenic processes and dynamics;
 - cumulation of the project and its effects with other past, present or reasonably foreseeable developments, activities and land uses and with other relevant baseline situations; and
 - wider impacts and environmental implications arising from consequent demands, implications and commitments associated with the project (including: displacement of existing uses; new or increased

- development pressures in the surroundings of the project; and impacts of any additional interventions likely to be triggered or necessitated by situations created, induced or exacerbated by the project);
7. Whether the impacts are adverse, neutral or beneficial;
 8. The sensitivity and resilience of resources, environmental features and receptors vis-à-vis the impacts;
 9. Implications and conflicts vis-à-vis environmentally-relevant plans, policies and regulations;
 10. The probability of the impacts occurring; and
 11. The techniques, methods, calculations and assumptions used in the analyses and predictions, and the confidence level/limits and uncertainties vis-à-vis impact prediction.

The impacts that need to be addressed are detailed further in the sub-sections below.

4.1 Effects on the environmental aspects identified in Section 3

The assessment should thoroughly identify and evaluate the impacts and implications of the project on all the relevant environmental aspects identified in Section 3 above, also taking into account the various considerations outlined in the respective sections.

4.2 Impacts related to Climate Change and Climate Change Adaptation

The assessment should address the following aspects, as relevant:

1. The contribution of the project to greenhouse gas (GHG) emissions and climate change, including:
 - (i) The direct, indirect and off-site GHG emissions and related impacts during all relevant phases of the project, including those arising as a result of the electrical power demand of the project;
 - (ii) Any massive GHG emissions that may occur as a consequence of accidents or malfunctions;
 - (iii) The impacts of the proposal on carbon sinks (e.g. wooded/afforested areas, agricultural soils, landfills, wetlands, and marine environments);
 - (iv) The components of the project that are expected to contribute to renewable energy generation on site or to a reduction in GHG emissions through substitution of current generation facilities, including a quantification and critique of their reliability and actual net contribution to climate change mitigation as well as an identification of the impacts of such components on other aspects of the environment (e.g. landscape, land take, avifauna); and
 - (v) The implications of the project and its operations and ancillary demands on National GHG emission targets.
2. The implications of climate change on the proposal, including:
 - (i) The aspects/elements of the project that are likely to be affected by changes or variability in climate-related parameters (e.g. temperature, humidity, weather patterns, sea level, etc.);
 - (ii) The potential impacts that such changes may have on the proposal, including any possible impacts resulting from changes to multiple parameters; and
 - (iii) The adaptability of the project and its components and operations vis-à-vis the relevant climate change parameters and trends.

4.3 Environmental risk

The assessment should also address, in sufficient detail, any relevant environmental risk (including major-accident scenarios such as contamination, emissions, explosions, blast, flooding, major spillages, etc.) likely to result in environmental damage or deterioration. The range of accident scenarios considered should exhaustively cover, as relevant:

1. one-time risks (e.g. during construction or decommissioning works);
2. recurrent risks during project operation; and
3. risks associated with extreme events (e.g. effect of earthquakes or natural disasters on the project).

The assessment should include, as relevant: a quantification of the risk magnitude and probability; and risk analysis vis-à-vis any hazardous materials stored, handled, or generated on site or transported to/from the site.

Note: Should the proposal fall within the scope of the Seveso/COMAH regulations, a stand-alone Risk Assessment may be required, to the satisfaction of the relevant Competent Authority. In such instances, separate Terms of Reference are issued for the Risk Assessment.

4.4 Effects on Human Populations resulting from impacts on the environment

This assessment should also identify any impacts of the development on the surrounding and visiting population (e.g. effects on public health or on socio-economic considerations), that may result from impacts on the environment. In the case of health-related effects, reference should be made to published epidemiological and other studies, as relevant, and the views of the Environmental Health Directorate should be sought.

4.5 Other Environmental Effects

Any other environmental effects deemed relevant to the project but not fitting within any of the above sections should also be identified and assessed.

5.0 REQUIRED MEASURES, IDENTIFICATION OF RESIDUAL IMPACTS, AND MONITORING PROGRAMME

5.1 Mitigation Measures

A clear identification and explanation of the measures envisaged to prevent, eliminate, reduce or offset (as relevant) the identified significant adverse effects of the project during all relevant phases including construction, operation and decommissioning [see **Section 1.2.3** above].

As a general rule, mitigation measures for construction-phase impacts should be packaged as a holistic Construction Management Plan (CMP). Whilst the detailed workings of the CMP may need to be devised at a later stage (e.g. after the final design of the project has been approved and/or after a contractor has been appointed), the key parameters that the CMP must adhere to for proper mitigation need to be identified in the EIA. Broadly similar considerations also apply vis-à-vis operational-phase impacts [which may need to be mitigated through an operational permit] and decommissioning-phase impacts [see **Section 5.4** below], where relevant.

Mitigation measures for accident/risk scenarios should be packaged as a holistic plan that includes the integration of failsafe systems into the project design as well as well-defined contingency measures.

The recommended measures should be feasible, realistically implementable to the required standards and in a timely manner, effective and reliable, and reasonably exhaustive. They should not be dependent on factors that are beyond the developer's and MEPA's control or which would be difficult to monitor, implement or enforce. The actual scope for, and feasibility of, effective prevention or mitigation should also be clearly indicated, also identifying all potentially important pre-requisites, conditionalities and side-effects.

5.2 Residual Impacts

Any residual impacts [*i.e.* impacts that cannot be effectively mitigated, or can only be partly mitigated, or which are expected to remain or recur again following exhaustive implementation of mitigation measures] should also be clearly identified.

5.3 Additional Measures

Compensatory measures (*i.e.* measures intended to offset, in whole or in part, the residual impacts) should also be identified, as reasonably relevant. Such measures should be not considered as an acceptable substitute to impact avoidance or mitigation.

If the assessment also identifies beneficial impacts on the environment, measures to maximise the environmental benefit should also be identified.

In both instances, the same practical considerations as indicated vis-à-vis mitigation measures should also apply.

5.4 Decommissioning Plan

A decommissioning plan (DP) should also be proposed to address the following circumstances, as relevant:

1. Removal of any temporary or defined-lifetime development (or of any structures, infrastructure or land use required temporarily in connection with it) upon the expiry of their permitted duration; and
2. Removal of the development (or of any secondary developments, infrastructure or land use ancillary to it) in the event of redundancy, cessation of operations, serious default from critical mitigation measures, or other overriding situations that may emerge in future.

The DP should also include, as relevant, a phasing-out plan, proposals for site remediation or decontamination, and methodological guidance on site reinstatement or appropriate after-use.

5.5 Monitoring Programme

A realistic and enforceable programme for effective monitoring of those works envisaged to have an adverse or uncertain impact. The monitoring programme should include:

1. Details regarding type and frequency of monitoring and reporting, including spot checks;
2. The parameters that will be monitored, and the monitoring indicators to be used;
3. An effective indication of the required action to address any exceedances, risks, mitigation failures or non-compliances for each monitoring parameter;
4. An evaluation of forecasts, predictions and measures identified in the EIA; and
5. An indication of the nature and extent of any additional investigations (including EIAs or ad hoc detailed investigations, if relevant) that may be required in the event of any contingencies, unanticipated impacts, or impacts of larger magnitude or extent than predicted.

The programme should address all relevant stages, as follows:

- (a) Where relevant, monitoring of preliminary on-site investigations that may entail significant disturbance or damage to site features (e.g. archaeological excavations, geological sampling, or any works that require prior site clearance or any significant destructive sampling);
[Note: Official written consent from the competent authorities (e.g. Superintendence of Cultural Heritage) may also be required for such interventions.]
- (b) Monitoring of the construction phase, including the situation before initiation of works (including site clearance), during appropriate stages of progress, and after completion of works;
- (c) Monitoring of the operational phase, except where otherwise directed by MEPA (e.g. where monitoring would be more appropriately integrated into an operating permit); and
- (d) Where relevant, monitoring of the decommissioning phase, including the situation before initiation of works, during appropriate stages of progress, and after completion of works.

5.6 Identification of required authorisations

The assessment should also identify all environmentally-relevant permits, licences, clearances and authorisations (other than the development permit to which this EIA is ancillary) which must be obtained by the applicant in order to effectively implement the project if development permission is granted. Any uncertainty, as to whether any of these pre-requisites is applicable to the project, should be clearly stated.

Note on Sections 5.1 to 5.6 above:

The expected effects, the proposed measures, the residual impacts, the proposed monitoring etc. should also be summarised in a user-friendly itemised table that enables the reader to easily relate the various aspects to each other. An indicative specimen table is attached in **Appendix 2**.

Regulation 28: Identification of consultants and contributors

Extract:

- 28. (1) *The environmental impact statement shall list the registration number and the names of the consultants and contributors responsible for the preparation of the environmental impact statement, environmental survey reports, appendices, non-technical summary and other components of the statement.*
- (2) *The consultants who are responsible for a particular analysis, including analysis in the environmental survey reports, shall be identified.*
- (3) *All consultants and contributors employed in the environmental impact assessment shall sign a declaration stating that the particular study (or part thereof) was solely carried out by them and that they take responsibility for any statement and conclusion contained therein. This signed declaration shall be included with each environmental survey report included with the environmental impact statement.*

Signed declaration in accordance with sub-regulation 28(3):

This declaration is to be submitted with each environmental survey report forming part of the EIA.

Attn: Director of Environment Protection (MEPA).

I _____, who carried out the study (or part thereof) on
_____ for the EIA for the proposed
_____, hereby declare that such study was solely
carried out by me and take responsibility for any statement and conclusion contained therein.

Date

Signature

Regulation 29: Conflict of interest

Extract from the EIA Regulations

- 29. (1) In the interest of fairness, objectivity and the avoidance of bias, all consultants shall be required to sign, and abide by, a declaration that they have no personal or financial interest in the proposed project.

- (2) The Director of Environment Protection shall not approve consultants, groups of consultants or consultancy firms that are in any way associated with any company, association or grouping that has any direct or indirect personal, professional or financial interest in the proposed development.

- (3) The Director of Environment Protection shall not approve any environmental impact statement or environmental planning statement produced by a consultant or group of consultants, one or more of whom does not comply with the provisions of sub-regulations (1) or (2) of this regulation.

Signed declaration in accordance with sub-regulation 29(1):

This declaration is to be submitted with each environmental survey report forming part of the EIA.

Attn: Director of Environment Protection (MEPA).

I, _____, hereby declare that, I have no personal or financial interest in the proposed development. Moreover, I declare that I am not in any way associated with any individual, company, association or grouping that has any direct or indirect, personal, professional or financial interest in the proposed development.

Date

Signature

TRKI 59436 (EA00003/15)

REMOVAL OF DUMPED MATERIAL & CONSTRUCTION OF INDUSTRIAL UNIT FOR THE RECYCLING / TREATMENT OF WEEE

GEO-ENVIRONMENT METHOD STATEMENT

INTRODUCTION

1. This method statement provides information on the geo-environment input into the Environmental Impact Statement (EIS) related to the removal of dumped material and construction of an industrial unit for the recycling / treatment of WEEE. The Project is hereinafter referred to as “the Scheme”.

TERMS OF REFERENCE

2. The Terms of Reference provided by MEPA are:

3.0 A DESCRIPTION OF THE SITE AND ITS SURROUNDINGS (I.E. ENVIRONMENTAL BASELINE)

The existing environmental features, characteristics and conditions, in and around the proposed development site as well as in all locations likely to be affected by the development or by ancillary interventions and operations, are to be identified and described in sufficient detail, with particular attention to the aspects further in the next sections.

The consultants should also identify (and justify) wherever relevant:

1. *The geographic area (e.g. viewshed or other area of influence) that needs to be covered by each study;*
2. *The relevant sensitive receptors vis-a-vis the environmental parameter under consideration (e.g. residential communities, other users, natural ecosystems, specific populations of particular species, or individual physical features);*
3. *The location of the reference points or stations (e.g. viewpoints, monitoring stations, or sampling points) to be used in the study; and*
4. *Other methodological parameters of relevance, also noting that the assessment will normally require both desk-top studies and on-site investigations (including visual observations and sampling, as relevant).*

Note: *It is recommended that these details are discussed in advance with*

the Environment Protection Directorate prior to commencement of the relevant parts of the studies, in order to pre-empt (as much as possible) later-stage issues.

*Wherever relevant to the environmental aspects under discussion, reference to legislation, policies, plans (including programmes and strategies) standards and targets, should also be made, such that the compatibility (or otherwise) of the proposal therewith is also factored into the assessment required by **Section 4** below. The discussion should cover the following aspects, in the appropriate level of detail:*

- *Supra-national (e.g. European Union; United Nations; or international or regional) legislation, directives, policies, conventions, protocols, treaties, charters, plans and obligations;*
- *National legislation, policies and plans (e.g. Structure Plan; National Environment Policy); and*
- *Sub-national legislation, policies and plans (e.g. local plans, site-specific regulations, action plans, management plans, and protective designations such as scheduling or Natura 2000).*

Note: *In addition to already in-force legislation, policies and plans, the discussion should also cover any foreseeable future updates (or new legislation, policies and plans) likely to be fulfilled, affected or compromised by the proposed project. Furthermore, it should be noted that some cross-cutting legal/policy instruments (e.g. Water Framework Directive) may need to be factored into more than one aspect of the discussion.*

3.3 Geology, Geomorphology, Hydrogeology, and Soils

A comprehensive investigation of:

1. *The geology and geomorphology of the site and its surroundings, including: existing lithological, stratigraphical, palaeontological, hydrogeological and physiographic features and soil types;*
2. *The geo-technical properties and considerations relevant to the site and its area of influence, including: land stability; mechanical, erosional and structural properties of the terrain and land mass; any relevant fissures, faults, hollows, or weak points; the vulnerability of the site to natural forces such as wave action, erosive elements, landslides and mass movements; and any other considerations affecting the implications and risks posed by the proposed development or by any of its ancillary interventions such as site clearance, earth-moving, and*

excavations; and

3. *The quality of the material that will be excavated (including soil, rock/mineral resource, and any existing fill material) and its potential for reuse.*

Sampling and testing should comply with the relevant standards (unless otherwise agreed, BS standards or other recognised equivalents should be used), and should extend to a sufficient depth below the deepest level of the proposed development (taking into consideration all proposed excavations and underground structures). Wherever the study involves the drilling of core samples, the number, depth and location thereof should also be submitted for EPD approval prior to carrying out of any in situ tests.

3.4 Water bodies (including Terrestrial, Underground)

The study should identify the hydrological and hydromorphological of the water bodies and water resources in the area under investigation, including:

1. *The hydrology of the site and its surroundings (incl. Wied Žnuber), including all relevant features and dynamics, such as: aquifers; springs; surface waters; wetlands; watercourses; valley catchments; etc, also cross-referring to hydrogeological factors as relevant;*
2. *The type, size and physical characteristics of any aquifers and surface water bodies within the area of influence of the site, including: the nature of the water body (e.g. aquifer, flowing surface water, etc.); whether the water body is ephemeral or permanent; depth; type of bottom etc.; and*
3. *Natural and anthropogenic dynamics including groundwater recharge patterns; pumping and abstraction patterns; on-site and off-site drainage patterns; run-off patterns; and flood risks.*

4.0 ASSESSMENT OF ENVIRONMENTAL IMPACTS AND RISKS

All likely significant effects and risks posed by the proposed project on the environment during all relevant phases (including construction/excavation/demolition, operation and decommissioning) should be assessed in detail, taking into account the information emerging from Sections 1, 2 and 3 above. Apart from considering the project on its own merits (i.e. if taken in isolation), the assessment

should also take into account the wider surrounding context and should consider the limitations and effects that the surrounding environmental constraints, features and dynamics may exert on the proposed development, thereby identifying any incompatibilities, conflicts, interferences or other relevant implications that may arise if the project is implemented.

In this regard, the assessment should address the following aspects, as applicable for any category of effects or for the overall evaluation of environmental impact, addressing the worst-case scenario wherever relevant:

- 1. An exhaustive identification and description of the envisaged impacts;*
- 2. The magnitude, severity and significance of the impacts;*
- 3. The geographical extent/range and physical distribution of the impacts, in relation to: site coverage; the features located in the site surroundings; whether the impacts are short-, medium- or long-range; and any transboundary impacts (i.e. impacts affecting other countries);*
- 4. The timing and duration of the impacts (whether the impact is temporary or permanent; short-, medium- or long-term; and reasonable quantification of timeframes);*
- 5. Whether the impacts are reversible or irreversible (including the degree of reversibility in practice and a clear identification of any conditions, assumptions and pre-requisites for reversibility);*
- 6. A comprehensive coverage of direct, indirect, secondary and cumulative impacts, including:*
 - interactions (e.g. summative, synergistic, antagonistic, and vicious-cycle effects) between impacts;*
 - interactions or interference with natural or anthropogenic processes and dynamics;*
 - cumulation of the project and its effects with other past, present or reasonably foreseeable developments, activities and land uses and with other relevant baseline situations; and*
 - wider impacts and environmental implications arising from consequent demands, implications and commitments associated with the project (including: displacement of existing uses; new or increased development pressures in the surroundings of the project;*

and impacts of any additional interventions likely to be triggered or necessitated by situations created, induced or exacerbated by the project);

- 7. Whether the impacts are adverse, neutral or beneficial;*
- 8. The sensitivity and resilience of resources, environmental features and receptors vis-à-vis the impacts;*
- 9. Implications and conflicts vis-à-vis environmentally-relevant plans, policies and regulations;*
- 10. The probability of the impacts occurring; and*
- 11. The techniques, methods, calculations and assumptions used in the analyses and predictions, and the confidence level/limits and uncertainties vis-à-vis impact prediction.*

The impacts that need to be addressed are detailed further in the subsections below.

4.1 Effects on the environmental aspects identified in Section 3

The assessment should thoroughly identify and evaluate the impacts and implications of the project on all the relevant environmental aspects identified in Section 3 above, also taking into account the various considerations outlined in the respective sections.

5.0 REQUIRED MEASURES, IDENTIFICATION OF RESIDUAL IMPACTS, AND MONITORING PROGRAMME

5.1 Mitigation Measures

*A clear identification and explanation of the measures envisaged to prevent, eliminate, reduce or offset (as relevant) the identified significant adverse effects of the project during all relevant phases including construction, operation and decommissioning [see **Section 1.2.3** above].*

As a general rule, mitigation measures for construction-phase impacts should be packaged as a holistic Construction Management Plan (CMP). Whilst the detailed workings of the CMP may need to be devised at a later stage (e.g. after the final design of the project has been approved and/or after a contractor has been appointed), the key parameters that the CMP must adhere to for proper mitigation need to be identified in the EIA. Broadly similar considerations also apply vis-à-vis operational-phase impacts [which may need to be mitigated through an operational

permit] and decommissioning-phase impacts [see Section 5.4 below], where relevant.

Mitigation measures for accident/risk scenarios should be packaged as a holistic plan that includes the integration of failsafe systems into the project design as well as well-defined contingency measures.

The recommended measures should be feasible, realistically implementable to the required standards and in a timely manner, effective and reliable, and reasonably exhaustive. They should not be dependent on factors that are beyond the developer's and MEPA's control or which would be difficult to monitor, implement or enforce. The actual scope for, and feasibility of, effective prevention or mitigation should also be clearly indicated, also identifying all potentially important pre-requisites, conditionalities and side-effects.

5.2 Residual Impacts

Any residual impacts [i.e. impacts that cannot be effectively mitigated, or can only be partly mitigated, or which are expected to remain or recur again following exhaustive implementation of mitigation measures] should also be clearly identified.

5.3 Additional Measures

Compensatory measures (i.e. measures intended to offset, in whole or in part, the residual impacts) should also be identified, as reasonably relevant. Such measures should be not considered as an acceptable substitute to impact avoidance or mitigation.

If the assessment also identifies beneficial impacts on the environment, measures to maximise the environmental benefit should also be identified.

In both instances, the same practical considerations as indicated vis-à-vis mitigation measures should also apply.

5.4 Decommissioning Plan

A decommissioning plan (DP) should also be proposed to address the following circumstances, as relevant:

- 1. Removal of any temporary or defined-lifetime development (or of any structures, infrastructure or land use required temporarily in connection with it) upon the expiry of their permitted duration; and*
- 2. Removal of the development (or of any secondary developments,*

infrastructure or land use ancillary to it) in the event of redundancy, cessation of operations, serious default from critical mitigation measures, or other overriding situations that may emerge in future.

The DP should also include, as relevant, a phasing-out plan, proposals for site remediation or decontamination, and methodological guidance on site reinstatement or appropriate after-use.

5.5 Monitoring Programme

A realistic and enforceable programme for effective monitoring of those works envisaged to have an adverse or uncertain impact. The monitoring programme should include:

- 1. Details regarding type and frequency of monitoring and reporting, including spot checks;*
- 2. The parameters that will be monitored, and the monitoring indicators to be used;*
- 3. An effective indication of the required action to address any exceedances, risks, mitigation failures or non-compliances for each monitoring parameter;*
- 4. An evaluation of forecasts, predictions and measures identified in the EIA; and*
- 5. An indication of the nature and extent of any additional investigations (including EIAs or ad hoc detailed investigations, if relevant) that may be required in the event of any contingencies, unanticipated impacts, or impacts of larger magnitude or extent than predicted.*

The programme should address all relevant stages, as follows:

(a) Where relevant, monitoring of preliminary on-site investigations that may entail significant disturbance or damage to site features (e.g. archaeological excavations, geological sampling, or any works that require prior site clearance or any significant destructive sampling);

[Note: Official written consent from the competent authorities (e.g. Superintendence of Cultural Heritage) may also be required for such interventions.]

(b) Monitoring of the construction phase, including the situation before initiation of works (including site clearance), during appropriate stages of progress, and after completion of works;

(c) Monitoring of the operational phase, except where otherwise directed by MEPA (e.g. where monitoring would be more appropriately

integrated into an operating permit); and

(d) Where relevant, monitoring of the decommissioning phase, including the situation before initiation of works, during appropriate stages of progress, and after completion of works.

5.6 Identification of required authorisations

The assessment should also identify all environmentally-relevant permits, licences, clearances and authorisations (other than the development permit to which this EIA is ancillary) which must be obtained by the applicant in order to effectively implement the project if development permission is granted. Any uncertainty, as to whether any of these pre-requisites is applicable to the project, should be clearly stated.

Note on Sections 5.1 to 5.6 above:

The expected effects, the proposed measures, the residual impacts, the proposed monitoring etc. should also be summarised in a user-friendly itemised table that enables the reader to easily relate the various aspects to each other. An indicative specimen table is attached in Appendix 2.

AREA OF INFLUENCE

Geology and geomorphology

3. The area of influence for the geology and geomorphology shall cover a 300m buffer area around the site (refer to **Figure 1**).
4. Development and operation activities will be limited to the site. For this reason the Area of Influence for determining the quality of the stone material to be excavated will be marked by the boundary of the site. For this purpose two holes will be drilled by continuous core sampling. **Figure 2** illustrates the proposed location of the boreholes.

Hydrology and hydrogeology

5. The site forms part of the Hal Far Industrial Estate. The location of the site straddles the catchments of Wied Znuber and Wied il-Mixta.
6. For this reason the Area of Influence for hydrology and hydrogeology shall be confined to the area downstream of the site within the catchments of Wied il-Mixta and Wied Znuber the most important hydrological feature in the region (refer to **Figure 3**).

ASSESSMENT METHODOLOGY

Competence of the Surveyors

7. The geo-environment study will be undertaken by Dr Saviour Scerri. The geo-environment impact assessment will be coordinated by Krista Farrugia of Adi Associates, in consultation with Dr Scerri. Geo-investigation work will be carried out by Terracore Ltd.

Literature Search

8. A literature search in relation to previous geo-environment survey work relevant to the Aol will be undertaken. This, together with the consultant's own knowledge of the area, will provide a context for the baseline surveys.

Methodology

Geology and Geomorphology

9. The rock units present at the site under study belong to the Lower Globigerina Limestone Formation. A field geological survey will be undertaken to map the rocks present in the environs of the sites and extending to about 300m from the site to map the rock units down to Member unit. Based on the findings of the surveys the geology of the site will be illustrated by means of a geological map on scale of 1:2500 and cross-sections across the study area.
10. Subsurface geological/geotechnical site investigation shall be undertaken. This shall comprise the drilling of two holes by continuous core sample recovery using a rotary drilling machine in conjunction with a double tube core barrel and water circulation to a depth of 10m.
11. The quality of the stone material will be determined by core logging, visual examination and its geotechnical properties determined by laboratory testing. Laboratory testing shall include:
 - Unconfined compressive strength;
 - Wet and dry Bulk specific gravity; and
 - Water absorption.
12. The geological studies will be plotted on a geological map used to determine the importance of the site in relation to the underlying hydrogeology.
13. The quality of the stone material to be excavated and its potential reuse will be described.

Hydrology and Hydrogeology

14. A hydrological / hydrogeological survey will be undertaken to map the drainage patterns across the site and downstream of the site. This survey will identify and describe the following features: aquifers, water courses, springs, wells, water channels, cisterns, catchment areas, surface run-off, re-charge, and any other features apparent on or in the vicinity of the site.
15. The hydrological / hydrogeological survey will be plotted on a hydrological /geological map (Scale 1:2500). The importance of the proposed site in recharging the mean sea level aquifer will be determined.

Standards and guidance

16. The conservation importance of geologic, geomorphologic, hydrologic and hydrogeologic features will be determined by reference to the *Structure Plan of the Maltese Islands, Central Malta Local Plan, Minerals Subject Plan* and the *Earth Conservation Strategy* (The British Nature Conservancy Council, 1991).

IDENTIFICATION OF POTENTIAL IMPACTS

17. Potential geo-environmental impacts of the Scheme are likely to arise from:
 - Excavation impacts;
 - Alteration of the surface water drainage pattern; and
 - Changes to the runoff quantity and quality discharged from the site.

Geology / geomorphology

18. The impact of changes resulting from the construction of the Scheme on geology / geomorphology will make reference to the nature of the beds and the degree of protection afforded to them through MEPA policy and / or legislation.

Surface water flows and quality

19. The impact of changes in water flows and quality on users in the valley systems within the Aol of the Scheme Site will be assessed as relevant. The impact of the Scheme on surface water flows will be described.

Mean sea level aquifer

20. The sensitivity of the mean sea level aquifer to changes in surface water contamination and volumes brought about by the Scheme will be evaluated by reference to the aforementioned surveys.

IMPACT SIGNIFICANCE

21. The significance of the impact(s) will include:

- Description of impact;
- Policy importance of impact (Local, National, International);
- Extent of effect;
- Duration of impact (temporary / permanent);
- Adverse or beneficial impact;
- Reversible / irreversible impact;
- Sensitivity of geo-environmental resources to impacts;
- Probability of impact occurring (certain, likely, uncertain, unlikely, remote); and
- Scope for mitigation / enhancement (very good, good, none).

22. Based on the above, a summary of the significance of the impact will be judged in terms of whether the impact is considered to be:

- **Not significant:**
 - Little or no change to the geological or hydrologic regime, and no significant change to the quality of the aquifer;
- **Minor significance:**
 - Geology: changes to the geological regime that may affect neighbouring properties but which may be offset by mitigation measures;
 - Hydrology: changes to the hydrologic regime but no impact on the aquifer; modifications to the surface water drainage pattern that will not negatively affect users within the valley systems within the Aol, or with potential for substantial changes to be offset by mitigation;
- **Major significance:**
 - Geology: changes to the geological regime that may affect neighbouring properties and which may not be offset by mitigation measures (if negative) or may be enhanced by mitigation measures (if positive);
 - Hydrology: changes to the hydrologic regime that impact the aquifer with little opportunity for changes to be offset by mitigation (if negative) or may be enhanced by mitigation measures (if positive).

IMPACT MITIGATION AND MONITORING

23. The scope for mitigation will be identified, and the need for monitoring of geological and hydrological aspects within the Aol will be addressed in the Environmental Impact Statement (EIS).



Adi Associates Environmental Consultants Ltd
May 2015

Figure 1: Geology and geomorphology – Area of influence



Figure 2: Proposed location of boreholes

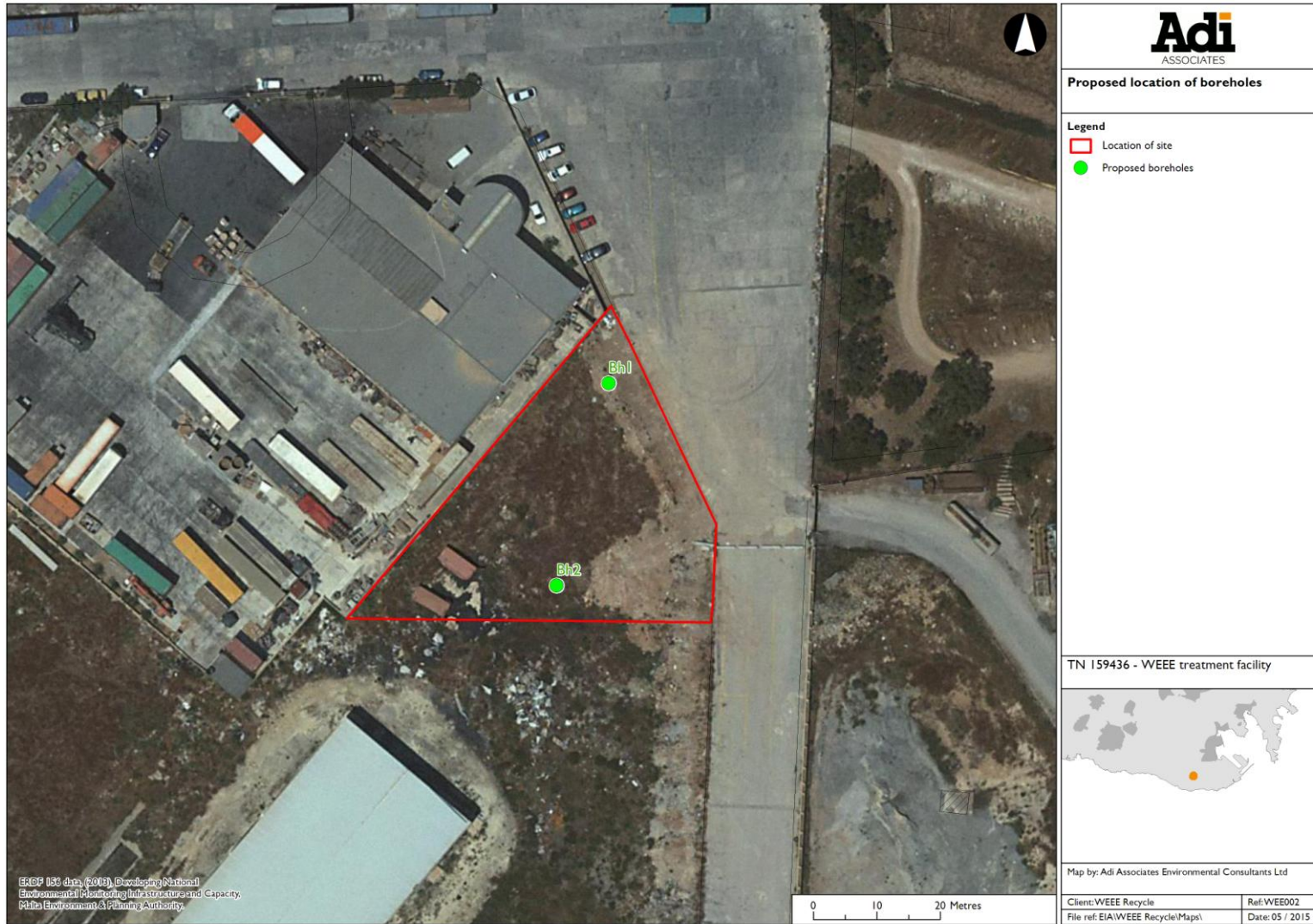
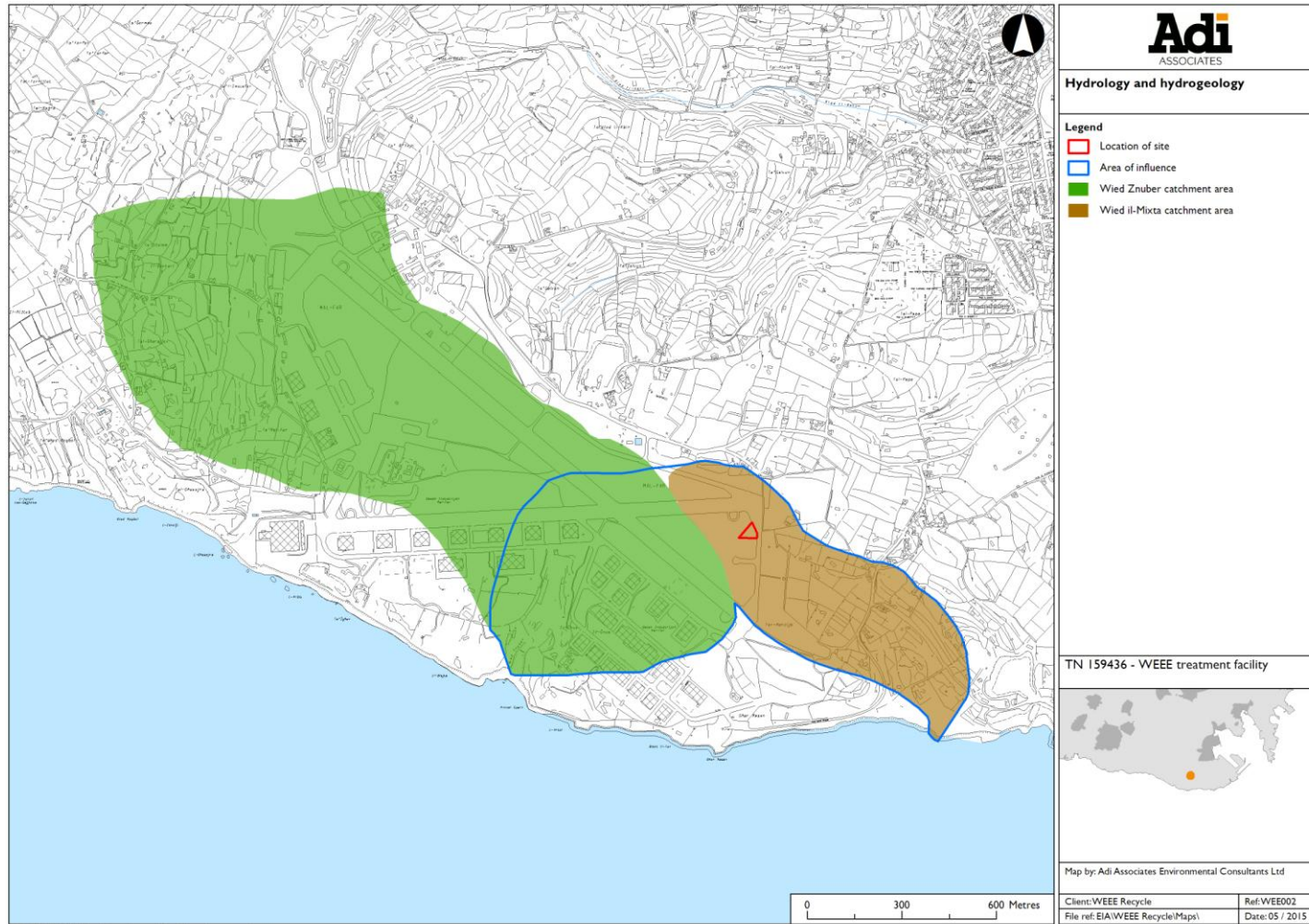


Figure 3: Hydrology and hydrogeology – Area of Influence and catchment areas



TRKI 59436 (EA00003/15)

REMOVAL OF DUMPED MATERIAL & CONSTRUCTION OF INDUSTRIAL UNIT FOR THE RECYCLING / TREATMENT OF WEEE

LANDSCAPE AND VISUAL METHOD STATEMENT

INTRODUCTION

1. This method statement provides information on the landscape and visual amenity input into the Environmental Impact Statement (EIS) related to the removal of dumped material and construction of an industrial unit for the recycling / treatment of WEEE. The Project is hereinafter referred to as “the Scheme”.

TERMS OF REFERENCE

2. The Terms of Reference provided by MEPA are:

3.0 A DESCRIPTION OF THE SITE AND ITS SURROUNDINGS (I.E. ENVIRONMENTAL BASELINE)

The existing environmental features, characteristics and conditions, in and around the proposed development site as well as in all locations likely to be affected by the development or by ancillary interventions and operations, are to be identified and described in sufficient detail, with particular attention to the aspects further in the next sections.

The consultants should also identify (and justify) wherever relevant:

1. *The geographic area (e.g. viewshed or other area of influence) that needs to be covered by each study;*
2. *The relevant sensitive receptors vis-a-vis the environmental parameter under consideration (e.g. residential communities, other users, natural ecosystems, specific populations of particular species, or individual physical features);*
3. *The location of the reference points or stations (e.g. viewpoints, monitoring stations, or sampling points) to be used in the study; and*
4. *Other methodological parameters of relevance, also noting that the assessment will normally require both desk-top studies and on-site investigations (including visual observations and sampling, as relevant).*

Note: *It is recommended that these details are discussed in advance with*

the Environment Protection Directorate prior to commencement of the relevant parts of the studies, in order to pre-empt (as much as possible) later-stage issues.

*Wherever relevant to the environmental aspects under discussion, reference to legislation, policies, plans (including programmes and strategies) standards and targets, should also be made, such that the compatibility (or otherwise) of the proposal therewith is also factored into the assessment required by **Section 4** below. The discussion should cover the following aspects, in the appropriate level of detail:*

- *Supra-national (e.g. European Union; United Nations; or international or regional) legislation, directives, policies, conventions, protocols, treaties, charters, plans and obligations;*
- *National legislation, policies and plans (e.g. Structure Plan; National Environment Policy); and*
- *Sub-national legislation, policies and plans (e.g. local plans, site-specific regulations, action plans, management plans, and protective designations such as scheduling or Natura 2000).*

Note: *In addition to already in-force legislation, policies and plans, the discussion should also cover any foreseeable future updates (or new legislation, policies and plans) likely to be fulfilled, affected or compromised by the proposed project. Furthermore, it should be noted that some cross-cutting legal/policy instruments (e.g. Water Framework Directive) may need to be factored into more than one aspect of the discussion.*

3.2 Landscape Character and Visual Amenity

3.2.1 Landscape Character

The study should describe the landscape-related area of influence and landscape setting of the proposed site, identifying the component character areas and local landscape tracts, and the landscape elements, characteristics and degree of sensitivity thereof, so as to enable the prediction and assessment of:

- *The changes to the landscape attributable (in full or in part) to the proposed development;*
- *The implications of such changes on the quality and perception of the landscape and its elements, in each of the identified landscape character areas and local landscape tracts; and*

- *The effects of such changes on relevant receptors. (The receptors should also be duly identified and their degree of sensitivity should also be indicated and justified).*

Reference should also be made to MEPA's 'Draft Landscape Assessment Study, 2004,' and to the Guidelines for Landscape and Visual Impact Assessment (The Landscape Institute & IEMA), as relevant.

3.2.2 Visual Amenity

The following need to be identified and submitted for prior EPD approval:

- *The zone of visual influence (ZVI) of the site and the development under consideration; and*
- *Assessment viewpoints representative of short-, medium- and long-distance views towards the site. A baseline photograph taken from each proposed viewpoint is also required. The submission should cover all the important views of the site, whilst avoiding the inclusion of superfluous or inappropriate viewpoints (e.g. positions from which the site is not visible, or where the view is obstructed or dominated by physical obstacles in the foreground).*

Thereafter, for each approved viewpoint, the projected situation and appearance of the site (i.e. as it would look with the proposed development in place) should be compared to the current baseline situation (i.e. without the proposed development). The following should be predicted and assessed accordingly:

- *The expected changes to visual amenity as a result of the proposed development;*
- *The effects of such changes on the quality of the visual amenity of the site; and*
- *The effects of such changes on relevant receptors. (The receptors should also be duly identified and their degree of sensitivity should also be indicated and justified).*

Note: *The baseline photographs and the photomontages should, unless otherwise directed by MEPA, satisfy the following:*

(a) The location of each viewpoint should be shown on a map that also depicts the viewshed for the proposed site as described above. The

visual angle of the photograph should also be indicated and should not be greater than 50°. Stitched photos that illustrate the field of vision towards the site from each viewpoint are acceptable as long as they are additional to the 50-degree photograph.

(b) The photographs and photomontages submitted should:

- Be at least A3 in size. Strips which are A3 in width but not in length are not appropriate except as supplementary illustrative material;*
- Include the date and time at which the photo was taken;*
- Be of good quality, with faithful reproduction approximating as much as reasonably possible what would normally be visible to the naked eye. The photos should be taken in good weather, and should be taken at least 2 hours after sunrise and 2 hours before sunset. Colours should not be digitally or otherwise manipulated. As a guideline, the image should have a printing density of 200 dots per inch or better. In some instances, digital images having a resolution of 1024 x 728 or better may be required for multimedia presentation purposes;*
- Be taken in such a manner that near-field objects do not overpower or dominate features near the image plane passing through the project area;*
- Be taken from a height above ground level that is representative of the eye level of the viewer, and such height should be duly documented; and*
- Ensure that all additional/replacement structures and features depicted in the photomontages have a scale which proportionately tallies with the existing nearby features.*

(c) Wherever relevant, the photomontage(s) should cover the following scenarios:

The development without the proposed landscaping scheme, representing the worst-case scenario;

The development complete with the proposed landscaping scheme as it is expected to look when the trees reach maturity, also providing an indicative timeframe as to when such maturity is expected to be attained; and

(where relevant in relation to impact of nocturnal lighting) the

development and its ancillary lighting as it would appear during night-time.

4.0 ASSESSMENT OF ENVIRONMENTAL IMPACTS AND RISKS

All likely significant effects and risks posed by the proposed project on the environment during all relevant phases (including construction/excavation/demolition, operation and decommissioning) should be assessed in detail, taking into account the information emerging from Sections 1, 2 and 3 above. Apart from considering the project on its own merits (i.e. if taken in isolation), the assessment should also take into account the wider surrounding context and should consider the limitations and effects that the surrounding environmental constraints, features and dynamics may exert on the proposed development, thereby identifying any incompatibilities, conflicts, interferences or other relevant implications that may arise if the project is implemented.

In this regard, the assessment should address the following aspects, as applicable for any category of effects or for the overall evaluation of environmental impact, addressing the worst-case scenario wherever relevant:

1. An exhaustive identification and description of the envisaged impacts;
2. The magnitude, severity and significance of the impacts;
3. The geographical extent/range and physical distribution of the impacts, in relation to: site coverage; the features located in the site surroundings; whether the impacts are short-, medium- or long-range; and any transboundary impacts (i.e. impacts affecting other countries);
4. The timing and duration of the impacts (whether the impact is temporary or permanent; short-, medium- or long-term; and reasonable quantification of timeframes);
5. Whether the impacts are reversible or irreversible (including the degree of reversibility in practice and a clear identification of any conditions, assumptions and pre-requisites for reversibility);
6. A comprehensive coverage of direct, indirect, secondary and cumulative impacts, including:
 - interactions (e.g. summative, synergistic, antagonistic, and vicious-cycle effects) between impacts;

- *interactions or interference with natural or anthropogenic processes and dynamics;*
 - *cumulation of the project and its effects with other past, present or reasonably foreseeable developments, activities and land uses and with other relevant baseline situations; and*
 - *wider impacts and environmental implications arising from consequent demands, implications and commitments associated with the project (including: displacement of existing uses; new or increased development pressures in the surroundings of the project; and impacts of any additional interventions likely to be triggered or necessitated by situations created, induced or exacerbated by the project);*
7. *Whether the impacts are adverse, neutral or beneficial;*
 8. *The sensitivity and resilience of resources, environmental features and receptors vis-à-vis the impacts;*
 9. *Implications and conflicts vis-à-vis environmentally-relevant plans, policies and regulations;*
 10. *The probability of the impacts occurring; and*
 11. *The techniques, methods, calculations and assumptions used in the analyses and predictions, and the confidence level/limits and uncertainties vis-à-vis impact prediction.*

The impacts that need to be addressed are detailed further in the sub-sections below.

4.1 Effects on the environmental aspects identified in Section 3

The assessment should thoroughly identify and evaluate the impacts and implications of the project on all the relevant environmental aspects identified in Section 3 above, also taking into account the various considerations outlined in the respective sections.

5.0 REQUIRED MEASURES, IDENTIFICATION OF RESIDUAL IMPACTS, AND MONITORING PROGRAMME

5.1 Mitigation Measures

A clear identification and explanation of the measures envisaged to prevent, eliminate, reduce or offset (as relevant) the identified significant adverse effects of the project during all relevant phases

including construction, operation and decommissioning [see **Section 1.2.3** above].

As a general rule, mitigation measures for construction-phase impacts should be packaged as a holistic Construction Management Plan (CMP). Whilst the detailed workings of the CMP may need to be devised at a later stage (e.g. after the final design of the project has been approved and/or after a contractor has been appointed), the key parameters that the CMP must adhere to for proper mitigation need to be identified in the EIA. Broadly similar considerations also apply vis-à-vis operational-phase impacts [which may need to be mitigated through an operational permit] and decommissioning-phase impacts [see Section 5.4 below], where relevant.

Mitigation measures for accident/risk scenarios should be packaged as a holistic plan that includes the integration of failsafe systems into the project design as well as well-defined contingency measures.

The recommended measures should be feasible, realistically implementable to the required standards and in a timely manner, effective and reliable, and reasonably exhaustive. They should not be dependent on factors that are beyond the developer's and MEPA's control or which would be difficult to monitor, implement or enforce. The actual scope for, and feasibility of, effective prevention or mitigation should also be clearly indicated, also identifying all potentially important pre-requisites, conditionalities and side-effects.

5.2 Residual Impacts

Any residual impacts [i.e. impacts that cannot be effectively mitigated, or can only be partly mitigated, or which are expected to remain or recur again following exhaustive implementation of mitigation measures] should also be clearly identified.

5.3 Additional Measures

Compensatory measures (i.e. measures intended to offset, in whole or in part, the residual impacts) should also be identified, as reasonably relevant. Such measures should be not considered as an acceptable substitute to impact avoidance or mitigation.

If the assessment also identifies beneficial impacts on the environment, measures to maximise the environmental benefit should also be identified.

In both instances, the same practical considerations as indicated vis-à-vis mitigation measures should also apply.

5.4 Decommissioning Plan

A decommissioning plan (DP) should also be proposed to address the following circumstances, as relevant:

- 1. Removal of any temporary or defined-lifetime development (or of any structures, infrastructure or land use required temporarily in connection with it) upon the expiry of their permitted duration; and*
- 2. Removal of the development (or of any secondary developments, infrastructure or land use ancillary to it) in the event of redundancy, cessation of operations, serious default from critical mitigation measures, or other overriding situations that may emerge in future.*

The DP should also include, as relevant, a phasing-out plan, proposals for site remediation or decontamination, and methodological guidance on site reinstatement or appropriate after-use.

5.5 Monitoring Programme

A realistic and enforceable programme for effective monitoring of those works envisaged to have an adverse or uncertain impact. The monitoring programme should include:

- 1. Details regarding type and frequency of monitoring and reporting, including spot checks;*
- 2. The parameters that will be monitored, and the monitoring indicators to be used;*
- 3. An effective indication of the required action to address any exceedances, risks, mitigation failures or non-compliances for each monitoring parameter;*
- 4. An evaluation of forecasts, predictions and measures identified in the EIA; and*
- 5. An indication of the nature and extent of any additional investigations (including EIAs or ad hoc detailed investigations, if relevant) that may be required in the event of any contingencies, unanticipated impacts, or impacts of larger magnitude or extent than predicted.*

The programme should address all relevant stages, as follows:

- (a) Where relevant, monitoring of preliminary on-site investigations that may entail significant disturbance or damage to site features (e.g. archaeological excavations, geological sampling, or any works that*

require prior site clearance or any significant destructive sampling);

[Note: Official written consent from the competent authorities (e.g. Superintendence of Cultural Heritage) may also be required for such interventions.]

(b) Monitoring of the construction phase, including the situation before initiation of works (including site clearance), during appropriate stages of progress, and after completion of works;

(c) Monitoring of the operational phase, except where otherwise directed by MEPA (e.g. where monitoring would be more appropriately integrated into an operating permit); and

(d) Where relevant, monitoring of the decommissioning phase, including the situation before initiation of works, during appropriate stages of progress, and after completion of works.

5.6 Identification of required authorisations

The assessment should also identify all environmentally-relevant permits, licences, clearances and authorisations (other than the development permit to which this EIA is ancillary) which must be obtained by the applicant in order to effectively implement the project if development permission is granted. Any uncertainty, as to whether any of these pre-requisites is applicable to the project, should be clearly stated.

Note on Sections 5.1 to 5.6 above:

The expected effects, the proposed measures, the residual impacts, the proposed monitoring etc. should also be summarised in a user-friendly itemised table that enables the reader to easily relate the various aspects to each other. An indicative specimen table is attached in Appendix 2.

LANDSCAPE AND VISUAL IMPACT ASSESSMENT

3. Assessment of landscape and visual amenity is a complex task, involving examination of a wide range of factors that contribute to the qualities and attributes of the existing landscape and that may contribute to the qualities and attributes of the existing landscape and that may contribute to the landscape of the Scheme. This involves consideration of the evolution of the landscape and the factors that have led to its current condition from the underlying geology through to anthropogenic activities.
4. Landscape and visual impacts are distinct, albeit strongly related. Landscape impacts result from the interaction between the proposed development and the existing landscape resource, experienced through changes to any element or combination of landscape elements. Visual impacts relate to the effect that the Scheme would have

on the amenity of sensitive receptors, relating to the actual or perceived visible changes to the character and quality of the landscape.

5. The landscape and visual amenity study will comprise the following:
 - Baseline survey and characterisation of the landscape and visual amenity at and around the Scheme using desk top and field survey techniques;
 - Evaluation of the landscape character of the Scheme area and its setting;
 - Establishment of the key factors that have led to the formation of the current landscape;
 - Establishment of the Zone of Visual Influence (ZVI) for the Scheme and identification of key viewpoints and receptors;
 - Input of potentially beneficial design measures to the Scheme;
 - Prediction of the impacts of the Scheme on the visual amenity of the Area of Influence;
 - Assessment of the significance of the impacts on the landscape and visual amenity of the Area of Influence; and
 - Description of mitigation measures designed into the Scheme to minimise adverse impacts and enhance any beneficial impacts on the landscape and visual amenity of the Scheme.

ASSESSMENT METHODOLOGY

Competence of Surveyor

6. Ms Krista Farrugia of Adi Associates Environmental Consultants Ltd will undertake the landscape and visual amenity study. Photomontages will be prepared by Perit Joseph Grech.

Standards and Guidance

7. The landscape and visual assessment will be carried out in line with the UK best practice methodologies as appropriate, notably:
 - Preparation of Environmental Statements for Planning Projects that require Environmental Assessment, A Good Practice Guide produced by the Department of the Environment (now DETR) (1995);
 - Guidelines for Landscape and Visual Impact Assessment (2013) – Institute of Environmental Management & Assessment and the Landscape Institute; and
 - MEPA's draft Landscape Assessment Study.

Area of Influence

8. The Area of Influence has been defined using a combination of desk and field-based techniques. Most notably, the ZVI of the Scheme is identified. This encompasses the roads and public places from where the Scheme is visible. The ZVI and viewpoints are described in **Figure I**.

Baseline Data

9. The visual amenity baseline will be formulated by reference to a series of viewpoints within the ZVI that will be agreed with MEPA (see **Figure I**).
10. The landscape baseline will be established through reference to mapped land use information including cultural heritage features, trees, etc., an analysis of aerial photographs, and a review of the Structure Plan for the Maltese Islands, the Grand Harbour Local Plan, and the draft Landscape Assessment for the Maltese Islands, to identify policy background and any potentially important landscape areas within or adjacent to the Scheme.

Landscape Assessment

Description and character of site

11. This will comprise the description of the landform and land cover of the Scheme and its surroundings and confirmation of the location of landscape features. The landscape character of the Scheme site will also be identified, including the character of the cultural landscape. The information will be recorded through the use of checklists, map annotations, and photographic records.

Characterisation of local area

12. The characterisation of the local area will provide inputs into the design of the Scheme so that it might fit in with the local landscape and built character.

Evaluation

13. The importance of the landscape will be assessed in relation to appropriate legislation, standards, and guidelines, and in particular to any designations that apply to the Scheme Site and / or to the surrounding area.

Visual Assessment

14. The mapped material will be used to identify potentially significant views and viewpoints for analysis during the field survey. A three-dimensional computer-based viewshed analysis was established for the Scheme. The extent of the viewshed (ZVI) has been verified in the field and key viewpoints identified. They include:
 - Short distance views;
 - Medium distance views from publicly accessible locations; and

- Long distance views from high points or tourist attractions.

15. The viewpoints are illustrated in **Figure I** and listed below:

Viewpoint	Location
1	Triq il-Fortizza
2	Triq Hal-Far
3	Road in front of/abutting Site (no street name)
4	Area looking towards the back of the Site (no street name)

16. Field investigations revealed that containers placed in front of the Site have partially blocked Viewpoint 3 to the Site. In any event, however, it was concluded that this viewpoint does not reflect a viewpoint of a sensitive receptor since, as the site is now, it does not provide a throughway to any public area (it is a dead end except for access to a private road) and visitors to the location will most likely be workers coming directly to the Site. Consequently, it is proposed that impact assessment is carried out on the following three viewpoints:

Viewpoint	Location
1	Triq il-Fortizza
2	Triq Hal-Far
4	Area looking towards the back of the Site (no street name)

17. The existing views from these locations have been photographed. These views will form the basis for the preparation of photomontages that will be used to assess the impact of the Scheme. These initial photographs from the 3 viewpoints are set out in **Appendix I**.

IDENTIFICATION OF POTENTIAL IMPACTS

18. Receptors sensitive to the change in the visual amenity will be identified.
19. Potential changes in the landscape will be identified for each of the landscape character areas.

Prediction of potential impacts

20. The visual impacts of the development will be predicted by creating photomontages for each of the identified viewpoints. This will include overlaying a computer-generated perspective of the project over photographs of the existing situation, and assessing how the visual amenity will change.
21. Changes to the landscape will be assessed using the photomontages and the information available in the baselines studies: geo-environment, cultural heritage, and land cover.

IMPACT SIGNIFICANCE

22. This section will include the following information for each potential impact:

- Description of impact;
- Policy importance of the impact (Local, National, International);
- Extent of effect on landscape / visual amenity;
- Duration of impact (temporary/permanent);
- Adverse or beneficial impact;
- Reversible/irreversible impact;
- Sensitivity of receptor;
- Probability of impact occurring (certain, likely, uncertain, unlikely, remote);
- Scope for mitigation/enhancement (very good, good, none); and
- Residual impacts.

23. The significance of visual impacts will be assessed in relation to:

- The number and sensitivity of receptors affected;
- The duration of the changes;
- The changes to the view from the identified view points as shown by the photomontages; and
- Scope for further mitigation / enhancement measures.

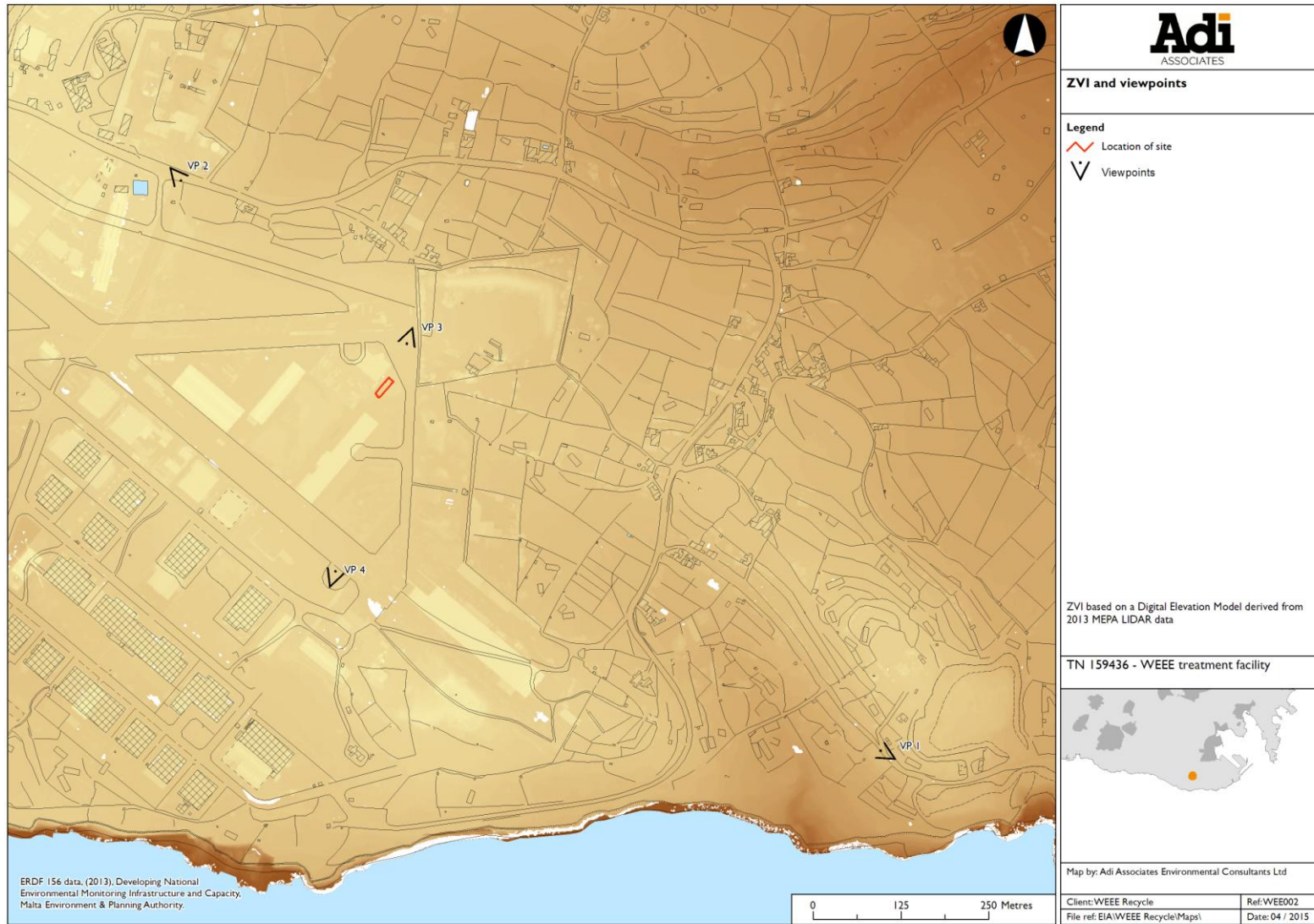
24. Based on the above criteria, an assessment of: (i) the significance of impacts on the landscape and (ii) the visual impact at each of the viewpoints will be made in terms of whether it is considered:

- **Not significant** – little or no perceptible changes to the view or landscape;
- Of **minor significance** – noticeable changes to the view or landscape with potential for substantial changes to be offset by mitigation; and
- Of **major significance** – substantial changes to the view or landscape with little opportunity for changes to be offset by mitigation.

IMPACT MITIGATION & MONITORING

25. It is envisaged that the majority of the mitigation measures will be incorporated in the design of the Scheme so that it fits as closely as possible with the landscape and built character of the area. Landscape proposals, if any, will take account of the provisions in the *'Guidelines on Trees, Shrubs and Plants for Planting and Landscaping in the Maltese Islands'* published by MEPA.

Figure 1: ZVI and Viewpoints



INDICATIVE ONLY - Not to be used for direct interpretation

APPENDIX I

Figure A1: Viewpoint I



Figure A2: Viewpoint 2



Figure A3: Viewpoint 3



Figure A4: Viewpoint 4



TRKI 59436 (EA00003/15)

REMOVAL OF DUMPED MATERIAL & CONSTRUCTION OF INDUSTRIAL UNIT FOR THE RECYCLING / TREATMENT OF WEEE

ECOLOGY METHOD STATEMENT

INTRODUCTION

1. This method statement provides information on the ecology input into the Environmental Impact Statement (EIS) related to the removal of dumped material and construction of an industrial unit for the recycling / treatment of WEEE. The Project is hereinafter referred to as “the Scheme”.
2. The Scheme site lies within the Hal-Far Industrial Estate and is currently covered by a mound of rubble / dumped material upon which weedy vegetation is growing. The site is fenced in and abuts a road.

TERMS OF REFERENCE

3. The Terms of Reference provided by MEPA include:

3.0 A DESCRIPTION OF THE SITE AND ITS SURROUNDINGS (I.E. ENVIRONMENTAL BASELINE

The existing environmental features, characteristics and conditions, in and around the proposed development site as well as in all locations likely to be affected by the development or by ancillary interventions and operations, are to be identified and described in sufficient detail, with particular attention to the aspects further in the next sections.

The consultants should also identify (and justify) wherever relevant:

1. *The geographic area (e.g. viewshed or other area of influence) that needs to be covered by each study;*
2. *The relevant sensitive receptors vis-a-vis the environmental parameter under consideration (e.g. residential communities, other users, natural ecosystems, specific populations of particular species, or individual physical features);*
3. *The location of the reference points or stations (e.g. viewpoints, monitoring stations, or sampling points) to be used in the study; and*
4. *Other methodological parameters of relevance, also noting that the assessment will normally require both desk-top studies and on-site*

investigations (including visual observations and sampling, as relevant).

Note: It is recommended that these details are discussed in advance with the Environment Protection Directorate prior to commencement of the relevant parts of the studies, in order to pre-empt (as much as possible) later-stage issues.

Wherever relevant to the environmental aspects under discussion, reference to legislation, policies, plans (including programmes and strategies) standards and targets, should also be made, such that the compatibility (or otherwise) of the proposal therewith is also factored into the assessment required by **Section 4** below. The discussion should cover the following aspects, in the appropriate level of detail:

- Supra-national (e.g. European Union; United Nations; or international or regional) legislation, directives, policies, conventions, protocols, treaties, charters, plans and obligations;
- National legislation, policies and plans (e.g. Structure Plan; National Environment Policy); and
- Sub-national legislation, policies and plans (e.g. local plans, site-specific regulations, action plans, management plans, and protective designations such as scheduling or Natura 2000).

Note: In addition to already in-force legislation, policies and plans, the discussion should also cover any foreseeable future updates (or new legislation, policies and plans) likely to be fulfilled, affected or compromised by the proposed project. Furthermore, it should be noted that some cross-cutting legal/policy instruments (e.g. Water Framework Directive) may need to be factored into more than one aspect of the discussion.

3.5 Ecology (including Terrestrial Ecology & Avifauna)

The assessment should provide:

1. An investigation of the ecology of the site and those known/recorded within their surroundings (including, as relevant: flora, fauna, avifauna, and their habitats and ecosystems), duly covering the relevant seasons (e.g. wet and dry seasons, in the case of terrestrial ecology), including their conservation status and ecological condition of the area and the state of health of its habitats, species and ecological features;
2. reporting of all known/recorded protected, endangered, rare, unique, endemic, high-quality, keystone, invasive/deleterious, or

otherwise important species, habitats, ecological assemblages, and ecological conditions found in the area under study; and

- 3. a prediction of the potential impacts of the proposed project on the ecology of the site and its surroundings, including loss, damage or alteration of habitats and species populations.*

Note 1: *Where the area of influence encompasses both marine and terrestrial environments, one or more of the sections indicated in these specimen TORs may need to be restructured accordingly to reflect the specific circumstances (e.g. separate reports for marine and terrestrial ecology).*

4.0 ASSESSMENT OF ENVIRONMENTAL IMPACTS AND RISKS

All likely significant effects and risks posed by the proposed project on the environment during all relevant phases (including construction/excavation/demolition, operation and decommissioning) should be assessed in detail, taking into account the information emerging from Sections 1, 2 and 3 above. Apart from considering the project on its own merits (i.e. if taken in isolation), the assessment should also take into account the wider surrounding context and should consider the limitations and effects that the surrounding environmental constraints, features and dynamics may exert on the proposed development, thereby identifying any incompatibilities, conflicts, interferences or other relevant implications that may arise if the project is implemented.

In this regard, the assessment should address the following aspects, as applicable for any category of effects or for the overall evaluation of environmental impact, addressing the worst-case scenario wherever relevant:

- 1. An exhaustive identification and description of the envisaged impacts;*
- 2. The magnitude, severity and significance of the impacts;*
- 3. The geographical extent/range and physical distribution of the impacts, in relation to: site coverage; the features located in the site surroundings; whether the impacts are short-, medium- or long-range; and any transboundary impacts (i.e. impacts affecting other countries);*
- 4. The timing and duration of the impacts (whether the impact is temporary or permanent; short-, medium- or long-term; and*

reasonable quantification of timeframes);

5. *Whether the impacts are reversible or irreversible (including the degree of reversibility in practice and a clear identification of any conditions, assumptions and pre-requisites for reversibility);*
6. *A comprehensive coverage of direct, indirect, secondary and cumulative impacts, including:*
 - *interactions (e.g. summative, synergistic, antagonistic, and vicious-cycle effects) between impacts;*
 - *interactions or interference with natural or anthropogenic processes and dynamics;*
 - *cumulation of the project and its effects with other past, present or reasonably foreseeable developments, activities and land uses and with other relevant baseline situations; and*
 - *wider impacts and environmental implications arising from consequent demands, implications and commitments associated with the project (including: displacement of existing uses; new or increased development pressures in the surroundings of the project; and impacts of any additional interventions likely to be triggered or necessitated by situations created, induced or exacerbated by the project);*
7. *Whether the impacts are adverse, neutral or beneficial;*
8. *The sensitivity and resilience of resources, environmental features and receptors vis-à-vis the impacts;*
9. *Implications and conflicts vis-à-vis environmentally-relevant plans, policies and regulations;*
10. *The probability of the impacts occurring; and*
11. *The techniques, methods, calculations and assumptions used in the analyses and predictions, and the confidence level/limits and uncertainties vis-à-vis impact prediction.*

The impacts that need to be addressed are detailed further in the sub-sections below.

4.1 Effects on the environmental aspects identified in Section

The assessment should thoroughly identify and evaluate the impacts and implications of the project on all the relevant environmental aspects identified in Section 3 above, also taking into account the various considerations outlined in the respective sections.

5.0 REQUIRED MEASURES, IDENTIFICATION OF RESIDUAL IMPACTS, AND MONITORING PROGRAMME

5.1 Mitigation Measures

A clear identification and explanation of the measures envisaged to prevent, eliminate, reduce or offset (as relevant) the identified significant adverse effects of the project during all relevant phases including construction, operation and decommissioning [see **Section 1.2.3** above].

As a general rule, mitigation measures for construction-phase impacts should be packaged as a holistic Construction Management Plan (CMP). Whilst the detailed workings of the CMP may need to be devised at a later stage (e.g. after the final design of the project has been approved and/or after a contractor has been appointed), the key parameters that the CMP must adhere to for proper mitigation need to be identified in the EIA. Broadly similar considerations also apply vis-à-vis operational-phase impacts [which may need to be mitigated through an operational permit] and decommissioning-phase impacts [see Section 5.4 below], where relevant.

Mitigation measures for accident/risk scenarios should be packaged as a holistic plan that includes the integration of failsafe systems into the project design as well as well-defined contingency measures.

The recommended measures should be feasible, realistically implementable to the required standards and in a timely manner, effective and reliable, and reasonably exhaustive. They should not be dependent on factors that are beyond the developer's and MEPA's control or which would be difficult to monitor, implement or enforce. The actual scope for, and feasibility of, effective prevention or mitigation should also be clearly indicated, also identifying all potentially important pre-requisites, conditionalities and side-effects.

5.2 Residual Impacts

Any residual impacts [i.e. impacts that cannot be effectively mitigated, or can only be partly mitigated, or which are expected to remain or recur again following exhaustive implementation of mitigation measures] should also be clearly identified.

5.3 Additional Measures

Compensatory measures (i.e. measures intended to offset, in whole or in part, the residual impacts) should also be identified, as reasonably relevant. Such measures should be not considered as an acceptable substitute to impact avoidance or mitigation.

If the assessment also identifies beneficial impacts on the environment, measures to maximise the environmental benefit should also be identified.

In both instances, the same practical considerations as indicated vis-à-vis mitigation measures should also apply.

5.4 Decommissioning Plan

A decommissioning plan (DP) should also be proposed to address the following circumstances, as relevant:

- 1. Removal of any temporary or defined-lifetime development (or of any structures, infrastructure or land use required temporarily in connection with it) upon the expiry of their permitted duration; and*
- 2. Removal of the development (or of any secondary developments, infrastructure or land use ancillary to it) in the event of redundancy, cessation of operations, serious default from critical mitigation measures, or other overriding situations that may emerge in future.*

The DP should also include, as relevant, a phasing-out plan, proposals for site remediation or decontamination, and methodological guidance on site reinstatement or appropriate after-use.

5.5 Monitoring Programme

A realistic and enforceable programme for effective monitoring of those works envisaged to have an adverse or uncertain impact. The monitoring programme should include:

- 1. Details regarding type and frequency of monitoring and reporting, including spot checks;*
- 2. The parameters that will be monitored, and the monitoring indicators to be used;*
- 3. An effective indication of the required action to address any exceedances, risks, mitigation failures or non-compliances for each monitoring parameter;*

4. *An evaluation of forecasts, predictions and measures identified in the EIA; and*
5. *An indication of the nature and extent of any additional investigations (including EIAs or ad hoc detailed investigations, if relevant) that may be required in the event of any contingencies, unanticipated impacts, or impacts of larger magnitude or extent than predicted.*

The programme should address all relevant stages, as follows:

(a) Where relevant, monitoring of preliminary on-site investigations that may entail significant disturbance or damage to site features (e.g. archaeological excavations, geological sampling, or any works that require prior site clearance or any significant destructive sampling);

[Note: Official written consent from the competent authorities (e.g. Superintendence of Cultural Heritage) may also be required for such interventions.]

(b) Monitoring of the construction phase, including the situation before initiation of works (including site clearance), during appropriate stages of progress, and after completion of works;

(c) Monitoring of the operational phase, except where otherwise directed by MEPA (e.g. where monitoring would be more appropriately integrated into an operating permit); and

(d) Where relevant, monitoring of the decommissioning phase, including the situation before initiation of works, during appropriate stages of progress, and after completion of works.

5.6 Identification of required authorisations

The assessment should also identify all environmentally-relevant permits, licences, clearances and authorisations (other than the development permit to which this EIA is ancillary) which must be obtained by the applicant in order to effectively implement the project if development permission is granted. Any uncertainty, as to whether any of these pre-requisites is applicable to the project, should be clearly stated.

Note on Sections 5.1 to 5.6 above:

The expected effects, the proposed measures, the residual impacts, the proposed monitoring etc. should also be summarised in a user-friendly itemised table that enables the reader to easily relate the various aspects to each other. An indicative specimen table is attached in Appendix 2.

ECOLOGY STUDY

Scope of study

4. MEPA's Terms of Reference require an ecological investigation of the site and its surroundings during both the wet and dry seasons (if considered relevant).
5. An initial site visit by the surveyor (see below) revealed that the site is in fact comprised of a rubble mound upon which ruderal and opportunistic species are growing (see **Figure 1**). The site lies within the Hal-Far Industrial Estate and is sandwiched between grey infrastructure including a road and another building. This initial survey, therefore, identified the limited ecological value of the site. Therefore, it is concluded that there is no scope for a detailed ecological survey. Only a broad brush survey of the site will be undertaken through a walk over survey during the spring (at the end of the wet season).
6. The site lies within approximately 500m of the Special Area of Conservation (as designated under the Habitats Directive) and the Special Protection Area (SPA) (as designated under the Birds Directive) that includes the cliff areas along Malta's west coast, specifically in the area designated as Wied Moqbol sal-Ponta ta' Benghisa (see **Figure 2**).
7. Given this distance and the proposed extent of development (refer to the Project Description Statement) it is considered that potential significant effects on the integrity of the SAC/SPA and species of conservation interest are unlikely. It is therefore concluded that there is no scope for further assessment of potential impacts on the SAC/SPA as a result of the proposed development.

Competence of the Surveyors

8. The ecology study will be undertaken by Ms Krista Farrugia of Adi Associates.

Baseline Study Methodology

9. The ecology baseline study will comprise:
 - A broad brush walk over survey; and
 - The identification, description and analysis of the relevant international / Maltese legislation and protocols, agreements, etc., and Government / MEPA policies, and a summary of the threats and opportunities posed by the scheme in respect of the findings will be identified.

IDENTIFICATION OF POTENTIAL IMPACTS

10. Potential impacts relate mainly to loss of any species of conservation interest that may be currently growing on site.

IMPACT SIGNIFICANCE

11. The significance of the impact(s) will include:
- Description of impact;
 - Policy importance of impact (Local, National, International);
 - Extent of effect;
 - Duration of impact (temporary / permanent);
 - Adverse or beneficial impact;
 - Reversible / irreversible impact;
 - Sensitivity of geo-environmental resources to impacts;
 - Probability of impact occurring (certain, likely, uncertain, unlikely, remote); and
 - Scope for mitigation / enhancement (very good, good, none).
12. Based on the above, a summary of the significance of the impact will be judged in terms of whether the impact is considered to be:
- **Not significant:**
 - No material change in species of conservation interest;
 - **Minor significance:**
 - Small-scale loss / disturbance in species of conservation interest;
 - **Major significance:**
 - Large-scale loss / disturbance in species of conservation interest.

IMPACT MITIGATION AND MONITORING

13. The scope for mitigation will be identified, and the need for monitoring of ecological aspects will be addressed in the EIS.

Figure 1: Current state of the site



Figure 2: Site location in relation to SAC/SPA Rdumijiet ta' Malta: Mix-Xaqqa sal-Ponta ta' Benghisa



INDICATIVE ONLY - Not to be used for direct interpretation

TRKI 59436 (EA00003/15)

REMOVAL OF DUMPED MATERIAL & CONSTRUCTION OF INDUSTRIAL UNIT FOR THE RECYCLING / TREATMENT OF WEEE

NOISE AND VIBRATION METHOD STATEMENT

INTRODUCTION

1. This method statement provides information on the noise and vibration input into the Environmental Impact Statement (EIS) related to the removal of dumped material and construction of an industrial unit for the recycling / treatment of WEEE. The Project is hereinafter referred to as “the Scheme”.

TERMS OF REFERENCE

2. The Terms of Reference provided by MEPA are:

3.0 A DESCRIPTION OF THE SITE AND ITS SURROUNDINGS (I.E. ENVIRONMENTAL BASELINE)

The existing environmental features, characteristics and conditions, in and around the proposed development site as well as in all locations likely to be affected by the development or by ancillary interventions and operations, are to be identified and described in sufficient detail, with particular attention to the aspects further in the next sections.

The consultants should also identify (and justify) wherever relevant:

1. *The geographic area (e.g. viewshed or other area of influence) that needs to be covered by each study;*
2. *The relevant sensitive receptors vis-a-vis the environmental parameter under consideration (e.g. residential communities, other users, natural ecosystems, specific populations of particular species, or individual physical features);*
3. *The location of the reference points or stations (e.g. viewpoints, monitoring stations, or sampling points) to be used in the study; and*
4. *Other methodological parameters of relevance, also noting that the assessment will normally require both desk-top studies and on-site investigations (including visual observations and sampling, as relevant).*

Note: *It is recommended that these details are discussed in advance with*

the Environment Protection Directorate prior to commencement of the relevant parts of the studies, in order to pre-empt (as much as possible) later-stage issues.

*Wherever relevant to the environmental aspects under discussion, reference to legislation, policies, plans (including programmes and strategies) standards and targets, should also be made, such that the compatibility (or otherwise) of the proposal therewith is also factored into the assessment required by **Section 4** below. The discussion should cover the following aspects, in the appropriate level of detail:*

- Supra-national (e.g. European Union; United Nations; or international or regional) legislation, directives, policies, conventions, protocols, treaties, charters, plans and obligations;*
- National legislation, policies and plans (e.g. Structure Plan; National Environment Policy); and*
- Sub-national legislation, policies and plans (e.g. local plans, site-specific regulations, action plans, management plans, and protective designations such as scheduling or Natura 2000).*

Note: *In addition to already in-force legislation, policies and plans, the discussion should also cover any foreseeable future updates (or new legislation, policies and plans) likely to be fulfilled, affected or compromised by the proposed project. Furthermore, it should be noted that some cross-cutting legal/policy instruments (e.g. Water Framework Directive) may need to be factored into more than one aspect of the discussion.*

3.6 Noise, Vibrations and Exterior Lighting

This study should provide sufficiently detailed information on representative background levels of noise, vibration and nocturnal lighting (as relevant), as a baseline for assessing the levels and effects expected to result from the development, including any short- and long-term changes, peaks and fluctuations as well as their acute or chronic impacts. The study should also take into account other relevant factors such as:

Cumulation with other existing sources including traffic, and with other predicted sources such as new developments;

Additional effects of road traffic associated with operations on the site;

Sensitive receptors (e.g. residents, schools, hospitals, recreational areas, fauna and avifauna, natural ecosystems); and

The potential for attenuation or exacerbation by ‘environmental’ factors

(e.g. topography, vegetation, physical barriers etc.), and for mitigation (e.g. shielding, muffling/soundproofing, reduced lighting, etc.).

Note: In the case of light pollution, the study needs to consider, among others, glare (e.g. the blinding light which is a danger to motorists/pedestrians and to fauna), light trespass (light straying into an area where it is not desired or required) and sky glow ('wasted' light directed upwards), together with any other relevant variables which are relevant to the determination of impact on the surrounding receptors.

The study results should include measurable parameters (e.g. frequency, intensity) as relevant, and should be evaluated against appropriate reference values¹. The reference points and measurement locations used should be approved by MEPA prior to commencement of studies and, unless otherwise indicated, should be at ground level.

4.0 ASSESSMENT OF ENVIRONMENTAL IMPACTS AND RISKS

All likely significant effects and risks posed by the proposed project on the environment during all relevant phases (including construction/excavation/demolition, operation and decommissioning) should be assessed in detail, taking into account the information emerging from Sections 1, 2 and 3 above. Apart from considering the project on its own merits (i.e. if taken in isolation), the assessment should also take into account the wider surrounding context and should consider the limitations and effects that the surrounding environmental constraints, features and dynamics may exert on the proposed development, thereby identifying any incompatibilities, conflicts, interferences or other relevant implications that may arise if the project is implemented.

In this regard, the assessment should address the following aspects, as applicable for any category of effects or for the overall evaluation of environmental impact, addressing the worst-case scenario wherever relevant:

1. An exhaustive identification and description of the envisaged impacts;
2. The magnitude, severity and significance of the impacts;

¹ Unless otherwise specifically indicated, it is recommended that: ISO 1996 and ISO 9613 (all series) standards are used for the noise assessment; BS6472 (relating to human exposure to vibration) and BS7385 (covering the effects on buildings) are used when studying vibration; BS 5228 is used for the assessment of construction noise; and BS 4142 is used vis-à-vis noise complaints.

3. *The geographical extent/range and physical distribution of the impacts, in relation to: site coverage; the features located in the site surroundings; whether the impacts are short-, medium- or long-range; and any transboundary impacts (i.e. impacts affecting other countries);*
4. *The timing and duration of the impacts (whether the impact is temporary or permanent; short-, medium- or long-term; and reasonable quantification of timeframes);*
5. *Whether the impacts are reversible or irreversible (including the degree of reversibility in practice and a clear identification of any conditions, assumptions and pre-requisites for reversibility);*
6. *A comprehensive coverage of direct, indirect, secondary and cumulative impacts, including:*
 - *interactions (e.g. summative, synergistic, antagonistic, and vicious-cycle effects) between impacts;*
 - *interactions or interference with natural or anthropogenic processes and dynamics;*
 - *cumulation of the project and its effects with other past, present or reasonably foreseeable developments, activities and land uses and with other relevant baseline situations; and*
 - *wider impacts and environmental implications arising from consequent demands, implications and commitments associated with the project (including: displacement of existing uses; new or increased development pressures in the surroundings of the project; and impacts of any additional interventions likely to be triggered or necessitated by situations created, induced or exacerbated by the project);*
7. *Whether the impacts are adverse, neutral or beneficial;*
8. *The sensitivity and resilience of resources, environmental features and receptors vis-à-vis the impacts;*
9. *Implications and conflicts vis-à-vis environmentally-relevant plans, policies and regulations;*
10. *The probability of the impacts occurring; and*
11. *The techniques, methods, calculations and assumptions used in the analyses and predictions, and the confidence level/limits and uncertainties vis-à-vis impact prediction.*

The impacts that need to be addressed are detailed further in the sub-sections below.

4.1 Effects on the environmental aspects identified in Section 3

The assessment should thoroughly identify and evaluate the impacts and implications of the project on all the relevant environmental aspects identified in Section 3 above, also taking into account the various considerations outlined in the respective sections.

5.0 REQUIRED MEASURES, IDENTIFICATION OF RESIDUAL IMPACTS, AND MONITORING PROGRAMME

5.1 Mitigation Measures

A clear identification and explanation of the measures envisaged to prevent, eliminate, reduce or offset (as relevant) the identified significant adverse effects of the project during all relevant phases including construction, operation and decommissioning [see **Section 1.2.3** above].

As a general rule, mitigation measures for construction-phase impacts should be packaged as a holistic Construction Management Plan (CMP). Whilst the detailed workings of the CMP may need to be devised at a later stage (e.g. after the final design of the project has been approved and/or after a contractor has been appointed), the key parameters that the CMP must adhere to for proper mitigation need to be identified in the EIA. Broadly similar considerations also apply vis-à-vis operational-phase impacts [which may need to be mitigated through an operational permit] and decommissioning-phase impacts [see Section 5.4 below], where relevant.

Mitigation measures for accident/risk scenarios should be packaged as a holistic plan that includes the integration of failsafe systems into the project design as well as well-defined contingency measures.

The recommended measures should be feasible, realistically implementable to the required standards and in a timely manner, effective and reliable, and reasonably exhaustive. They should not be dependent on factors that are beyond the developer's and MEPA's control or which would be difficult to monitor, implement or enforce. The actual scope for, and feasibility of, effective prevention or mitigation should also be clearly indicated, also identifying all potentially important pre-requisites, conditionalities and side-effects.

5.2 Residual Impacts

Any residual impacts [i.e. impacts that cannot be effectively mitigated, or can only be partly mitigated, or which are expected to remain or recur again following exhaustive implementation of mitigation measures] should also be clearly identified.

5.3 Additional Measures

Compensatory measures (i.e. measures intended to offset, in whole or in part, the residual impacts) should also be identified, as reasonably relevant. Such measures should be not considered as an acceptable substitute to impact avoidance or mitigation.

If the assessment also identifies beneficial impacts on the environment, measures to maximise the environmental benefit should also be identified.

In both instances, the same practical considerations as indicated vis-à-vis mitigation measures should also apply.

5.4 Decommissioning Plan

A decommissioning plan (DP) should also be proposed to address the following circumstances, as relevant:

- 1. Removal of any temporary or defined-lifetime development (or of any structures, infrastructure or land use required temporarily in connection with it) upon the expiry of their permitted duration; and*
- 2. Removal of the development (or of any secondary developments, infrastructure or land use ancillary to it) in the event of redundancy, cessation of operations, serious default from critical mitigation measures, or other overriding situations that may emerge in future.*

The DP should also include, as relevant, a phasing-out plan, proposals for site remediation or decontamination, and methodological guidance on site reinstatement or appropriate after-use.

5.5 Monitoring Programme

A realistic and enforceable programme for effective monitoring of those works envisaged to have an adverse or uncertain impact. The monitoring programme should include:

- 1. Details regarding type and frequency of monitoring and reporting, including spot checks;*

2. *The parameters that will be monitored, and the monitoring indicators to be used;*
3. *An effective indication of the required action to address any exceedances, risks, mitigation failures or non-compliances for each monitoring parameter;*
4. *An evaluation of forecasts, predictions and measures identified in the EIA; and*
5. *An indication of the nature and extent of any additional investigations (including EIAs or ad hoc detailed investigations, if relevant) that may be required in the event of any contingencies, unanticipated impacts, or impacts of larger magnitude or extent than predicted.*

The programme should address all relevant stages, as follows:

(a) Where relevant, monitoring of preliminary on-site investigations that may entail significant disturbance or damage to site features (e.g. archaeological excavations, geological sampling, or any works that require prior site clearance or any significant destructive sampling);

[Note: Official written consent from the competent authorities (e.g. Superintendence of Cultural Heritage) may also be required for such interventions.]

(b) Monitoring of the construction phase, including the situation before initiation of works (including site clearance), during appropriate stages of progress, and after completion of works;

(c) Monitoring of the operational phase, except where otherwise directed by MEPA (e.g. where monitoring would be more appropriately integrated into an operating permit); and

(d) Where relevant, monitoring of the decommissioning phase, including the situation before initiation of works, during appropriate stages of progress, and after completion of works.

5.6 Identification of required authorisations

The assessment should also identify all environmentally-relevant permits, licences, clearances and authorisations (other than the development permit to which this EIA is ancillary) which must be obtained by the applicant in order to effectively implement the project if development permission is granted. Any uncertainty, as to whether any of these pre-requisites is applicable to the project, should be clearly stated.

Note on Sections 5.1 to 5.6 above:

The expected effects, the proposed measures, the residual impacts, the proposed monitoring etc. should also be summarised in a user-friendly itemised table that enables the reader to easily relate the various aspects to each other. An indicative specimen table is attached in Appendix 2.

NOISE AND VIBRATION ASSESSMENT

3. It is considered unlikely that there will be significant noise impacts arising from the construction of the Scheme. It is envisaged that the construction phase will be phased over a maximum period of 14 months, with site clearance, excavation and frame construction envisaged to take approximately six to eight months and finishing estimated to take another approximately four to six months. Given the nature of the construction works (with limited excavation for foundations, reservoir and cesspits only, and the construction of a single storey building), the noise impacts are expected to be localised. Construction noise is also unlikely to have any significant impact on the nearest residential sensitive receptors; the nearest residence is located approximately 170 m from the Scheme site boundary, and there is an existing two-storey factory building located in the intervening area. In order to demonstrate the construction noise impacts however, it is intended to describe the potential noise impacts arising from the construction of the Scheme as part of the noise assessment.
4. It is also considered unlikely that there will be significant vibration impacts arising from the construction of the Scheme, having regard to the nature and duration of the construction activity. BS 5228: Part 4 states that the threshold for vibration perception for humans is "...typically in the peak particle velocity range of 0.15 mm/s to 0.3 mm/s at frequencies between 8 Hz and 80 Hz. Vibration levels above this value can disturb, startle, cause annoyance, or interfere with work activities. At higher levels they can be described as unpleasant or even painful". **Table I** outlines the distances at which certain construction activities give rise to a level of vibration that is just perceptible (based on BS 5228 and other studies²). Such distances assume no mitigation measures that would interrupt the vibration path. As mentioned, the nearest residential property to the Scheme site is located a distance of approximately 170 m away. In accordance with the guidance, and where vibration impacts are expected to be localised, it is therefore proposed to scope out from the assessment vibration impacts resulting from the construction of the Scheme.

² Lammas Road Environmental Statement, [www.ashfield-dc.gov.uk/nalc/docs/Chapter 8 - Noise.pdf](http://www.ashfield-dc.gov.uk/nalc/docs/Chapter%208%20-%20Noise.pdf), accessed on 3rd April 2006.

Table 1: Construction vibration levels

Construction Activity	Distance from activity when vibration may just be perceptible (metres)
Excavation	10-15
Hydraulic breaker	15-20

5. The assessment will therefore determine the noise impacts arising from the operation of the Scheme on identified sensitive receptors in the area.

NOISE ASSESSMENT METHODOLOGY

Competence of surveyors

6. The baseline sound level surveys will be undertaken by Krista Farrugia and Andrea Pace of Adi Associates Environmental Consultants Ltd, who have been trained on the BS 4142 environmental noise measurement and assessment methodology. The noise assessment will be overseen by Eilis McCullough of Adi Associates, who holds a Certificate of Competence in Environmental Noise Measurement (Institute of Acoustics UK).

Standards and guidance

7. There is to date no specific guidance in Malta on environmental noise in the context of land use planning. In situations where standards are not available, MEPA generally refers to UK guidance, including British Standards (BS) and to standards produced by the International Organisation for Standardisation (ISO). In respect of the operational noise assessment, it is therefore considered appropriate to refer to BS 4142:2014³. Reference was also made to ISO 1996⁴ will be followed in accordance with Annex II of the Environmental Noise Directive (2002/49/EC).

Baseline survey methodology

Noise sensitive receptors and noise monitoring locations

8. For the purposes of the operational noise assessment, the predicted operational noise levels at two groups of residential sensitive receptors will be established, these being the closest residential sensitive receptors to the Scheme site. It is proposed to measure the noise level at two monitoring locations in relation to these sensitive receptors. The noise sensitive receptors and the monitoring locations are shown on **Figure 1**.

³ BS 4142:2014, *Method for rating and assessing industrial and commercial sound*, British Standards Institution.

⁴ ISO 1996, *Acoustics - Description, measurement and assessment of environmental noise*, International Organisation for Standardization

Sound level measurements

9. The background noise levels (baseline) at the sensitive receptors will be established by undertaking one sound level measurement at each of the monitoring locations. Having regard to the operational arrangements of the Scheme, these surveys will be conducted during the day time; there will be no sound arising from the Scheme at night.
10. In accordance with BS 4142:2014 (paragraphs 8.1.3 and 8.1.4), the measurement time interval for the surveys will be determined following observation of the range and fluctuation in background noise levels, and based on what is sufficient to obtain a representative value of the background sound level during the day at the sensitive receptors. In accordance with BS 4142, the measurement time interval for the background sound level surveys will not be less than 15 minutes.

Measurement protocols

11. A Type I Norsonic 140 NNR (Noise Nuisance Recorder), calibrated according to the guidance, will be used to take the background noise measurements (calibration certificates are attached). The sound level meter will be field calibrated before each set of measurements, in accordance with the guidance. The sound level meter will be placed on a tripod stand 1.5m off the ground and, to minimise the influence of reflections, the measurements will be taken at least 3.5m from any reflecting surface other than the ground. The measurement position, height and the distance from any reflecting structure other than the ground will be recorded.
12. As a precaution against wind interference, a Norsonic 1434 windshield will be used to minimise the effects of turbulence at the microphone. Weather conditions prevailing during all measurements will be recorded. All measurements will be undertaken when wind speeds are 0.1 m/s or lower, in accordance with the Standard.
13. During the measurements, observations of all predominant noise sources will be recorded, and efforts will be made to identify / describe acoustic events and the phenomena attributable to these noises.
14. The following parameters will be measured and recorded:
 - $L_{Aeq(T)}$ (equivalent continuous A-weighted sound pressure level recorded over the relevant time interval of interest);
 - L_{AFmax} (maximum A-weighted sound pressure level recorded over the time interval of interest, with fast time weighting);
 - L_{AF10} (A-weighted sound pressure level exceeded for 10% of the time interval of interest, with fast time weighting); and
 - L_{AF90} (A-weighted sound pressure level exceeded for 90% of the time interval of interest, with fast time weighting).

Determining the noise arising from the Scheme at the sensitive receptors (the specific sound level)

15. Given that the Scheme is not yet operational, it will not be possible to determine the specific sound level at the sensitive receptors by measuring the operational noise arising from the Scheme. Hence, and in accordance with BS 4142:2014 (paragraph 7.3.6), the specific sound level at the sensitive receptors will be determined by calculation, using the noise source sound power levels to determine the combined noise likely to be generated during operation of the Scheme and then applying a distance adjustment, taking account of the distance to each monitoring location.

Impact Assessment

16. BS 4142:2014 provides a methodology for rating and assessing sound of an industrial and/or commercial nature and the likely effects of this sound. The significance of the sound depends upon both the margin by which the specific sound level (operational noise arising from the Scheme) at the sensitive receptors exceeds the background sound level (baseline), and the context in which the sound occurs.
17. The assessment methodology outlined on BS 4142:2014 is based on obtaining an initial estimate of the impact of the Scheme by subtracting the measured background sound level from the rating level (the specific sound level which has been corrected for character, such as tonality, impulsiveness, or intermittency) and using the difference to assess the magnitude of the impact. Typically, the greater the difference, the greater the magnitude of the impact, as shown in **Table 2** below.

Table 2: BS 4142:2014 Assessment criteria

Difference	Assessment
Around +10 dB or higher	Likely to be an indication of a significant adverse impact, depending on the context
Around +5 dB	Likely to be an indication of an adverse impact, depending on the context,
The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or significant adverse impact. Where the rating level does not exceed the background sound, this is an indication that the specific sound source will have a low impact, depending on the context.	

18. Based on the above, the following significance criteria will be used to assess the significance of impacts of the noise arising from the operation of the Scheme on the sensitive receptors:
- **Not significant** (e.g. no material change in noise climate - a change of less than +3dB to the background noise level at the sensitive receptor);
 - **Minor significance** (e.g. a change of between +3dB and +5dB to the background noise level at the sensitive receptor);

- **Moderate significance** (e.g. a change of between +6 and +9dB to the measured background noise level at the sensitive receptor); and
 - **Major significance** (e.g. a change of +10dB or higher to the measured background sound level at the sensitive receptor level at the sensitive receptor).
19. In accordance with BS 4142 (Section 11), the initial estimate of the magnitude of the impact may need to be modified to take account of the context in which the sound will occur – in this case the context at the sensitive receptors, for example, the acoustic environment and having regard to the absolute level of sound, the character and level of the residual sound compared to the character of the specific sound, and the sensitivity of the receptor. The influence of the context will only become clear once the baseline survey has been undertaken and the nature and character of the source noises have been investigated.
20. Based on the initial estimate of the impact and any modification to take account of the context, a final assessment will be made of the significance of impacts of noise arising from the operation of the Scheme, in terms of whether the impact is considered to be **not significant**, of **minor significance**, of **moderate significance** or of **major significance**.
21. The analysis of the significance of each impact identified (positive or negative) will include:
- Description of impact;
 - Policy importance of the impact (local, national, international);
 - Extent of impact;
 - Duration of impact (temporary or permanent);
 - Adverse or beneficial effect of impact;
 - Reversible and irreversible effects of impact;
 - Sensitivity to impacts;
 - Probability of impact occurring, in the case of the proposed elements of the Scheme (certain, likely, uncertain, unlikely, remote); and
 - Scope for mitigation/enhancement (very good, good, fair, none).

IMPACT MITIGATION AND MITIGATION

22. The noise study will describe measures that can be put in place to prevent, minimise and, where possible, offset any significant adverse effects resulting from the Scheme. A monitoring programme will also be prepared, should this be required.

Figure I: Noise monitoring locations



TN 159436

Removal of Dumped Material & Construction of Industrial Unit for the Recycling / Treatment of WEEE, HHF 040, Ħal Far, Qasam Industrijali, Birżebbuġa.

Technical Appendix 2

GEO-ENVIRONMENT BASELINE REPORT

Prepared by Terracore Ltd

Supporting Documents for
Environmental Impact Statement

GEO-ENVIRONMENTAL BASELINE SURVEY AND REPORT

HAL-FAR

DOCUMENT CONTROL

PROJECT NAME : *Geo-environmental Baseline survey and report – Hal Far Site*

DOCUMENT TITLE : *Report*

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1 INTRODUCTION

1.1 THE PROJECT

Electronic Products Limited, is in the process of setting up a project in Malta for the recycling of waste electrical and electronic equipment. The company will be operating from the Hal Far Industrial Estate (**Figure 1**).

1.2 SCOPE OF SURVEY

The scope of this baseline report is to describe the Geology and Geomorphology of the site, its environs and Wied Znuber and Wied il-Mixta in particular.

This survey forms part of the Environmental Impact Statement for the proposed development prepared at the request of the MEPA.

1.3 LOCATION AND DESCRIPTION OF SITE

The site is located at Hal Far Industrial Estate 1.5km southwest of Birzebbugia, Malta, and about 800m from the high cliffs that form the southwest coastline of Malta (**Figure 1**). It covers an area of 8500 sq m on the Hal- Far plain (**Figure 2**) at about 500m east of Wied Znuber and about 750m from Wied il-Mixta which together with the coastal cliffs are scheduled.

At the back of the proposed site (outside the estate boundary) there is a valley namely “Wied Znuber” which is included within the Natura 2000 boundary.



Figure 1: Map showing location of site at Hal-Far (For scale grid spacing is 1000m)

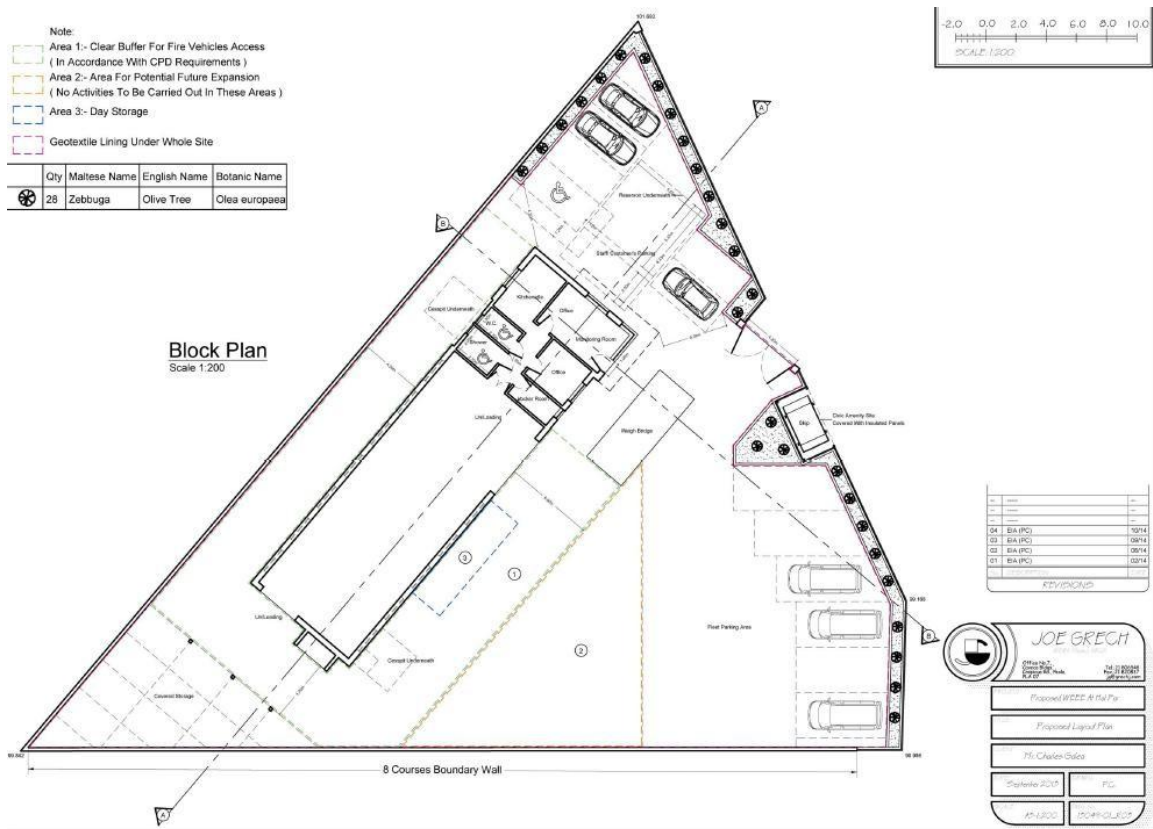


Figure 2: Site Layout plan for the proposed site at Hal far showing the proposed Recycling Plant and related facilities

1.4 SCOPE OF THIS REPORT

This Report represents the geo-environmental (geology and palaeontology) survey input of the Environmental Impact Statement of the proposed development.

It provides an evaluation of the findings in respect of their legislative and policy importance as required in respect of:

- (a) Geology including geomorphology and palaeontology;
 - (b) Landscape and topography, with emphasis on any special features or protected areas;
- and
- (c) Hydrology and hydrogeology.

This report includes:

- A description of the proposed site in relation to the above;
 - Geology and Geomorphology Report (including results from the geo-technical investigation);
- and
- Hydrology and Hydrogeology.

1.5 TERMS OF REFERENCE

The terms of reference issued by MEPA are included in Technical Appendix 1 to the EIS.

1.6 STANDARDS AND GUIDANCE

The principal planning policies relevant to the proposed project are set out in the *Structure Plan for the Maltese Islands 1990*, the *South Malta Local Plan 2006*, the *Development Control Policy & Design Guidance 2007*, and the *Waste Management Plan for the Maltese Islands 2014*.

Other Structure Plan policies are the Minerals Subject Plan, 2004, and *The Earth Conservation Strategy* (The British Nature Conservancy Council, 1991).

1.6.1 EVALUATION – CONSERVATION POLICIES

The extent of the vulnerability of the water resources shall be evaluated in the light of conservation policies and in accordance with:

- **The Water Framework Directive** (2000/60/EC), transposed into Maltese legislation as Legal Notice 194 of 2004 (Water Policy Framework Regulations, 2004) provides for the long-term sustainable management of water resources on the basis of a high level of protection of the aquatic environment.
 - In addition, European **Directive 2002/96/EC** aims to provide users of waste electrical and electronic equipment (WEEE) the opportunity to return WEEE, for appropriate recycling, focusing on the producers for WEEE collection and making sure that facilities exist for the specific treatment of hazardous components in electrical and electronic equipment
-

(WEEE) which is a major and growing concern. Indeed, specific treatment for WEEE is indispensable in order to avoid the dispersion of pollutants into the recycled material or the waste stream. Such treatment is the most effective means of ensuring compliance with the chosen level of protection of the environment. The Directive seeks to ensure that any establishment or undertakings carrying out recycling and treatment operations should comply with minimum standards to prevent negative environmental impacts associated with the treatment of WEEE and that the best available treatment, recovery and recycling techniques be used.

(i) Water Policies

- **PUT 8** In order to conserve potable water resources the feasibility of using seawater and second-class water systems in appropriate circumstances shall be investigated.

1.6.2 OTHER QUALITY CONTROL POLICIES

The impact and risk on water quality shall be assessed on the bases of EU Directives and accepted international standards including:

- 80/68/EEC: On the protection of groundwater against pollution caused by certain dangerous substances
- 98/83/EC: On the quality of water for human consumption
- 80/778/EEC: Relating to the quality of water for human consumption

1.6.3 SOIL CONSERVATION POLICIES

AHF 4: Soil conservation and soil saving measures will continue to be mandatory on all occasions. Soil replenishment measures will be adopted where there are suitable opportunities.

The Fertile Soil (Preservation) Act 1973, as amended in 1980

1.6.4 OTHER RELEVANT CONSERVATION POLICIES

Conservation profiles are intended to prevent future potential damage to sites. The conservation model adopted is that of the **Earth Conservation Strategy** of the English **Nature Conservancy Council**. In this model, sites of geological importance are classified in two groups: Exposure sites and Integrity sites. The conservation of the two groups is treated differently.

- **Exposure sites** are those whose scientific or educational importance lies in providing exposures of a deposit that is extensive or plentiful underground but which is otherwise accessible only by remote sampling. Sites include outcrops, stream and foreshore sections, and exposures in quarries, pits, cuttings, ditches, mines and tunnels.
- **Integrity sites** are those whose scientific or educational values lies in the fact that they contain finite and limited deposits or landforms that are irreplaceable if destroyed. These deposits or landforms are usually of limited lateral extent. Examples include caves, karst, glacial and fluvial deposits, and unique mineral, fossil, stratigraphic, structural or other geological deposit and features.

2 GEOLOGY

2.1 STRATIGRAPHY

The five Late Tertiary rock formations that are exposed on the Maltese Islands are, from base to top (**Figure 3**):

- (a) Lower Coralline Limestone (oldest);
- (b) Globigerina Limestone;
- (c) Blue Clay;
- (d) Greensand; and
- (e) Upper Coralline Limestone (youngest).

In addition to these formations, Quaternary continental deposits are also known to occur sporadically on the Maltese Islands. An unconformity and an erosional surface separate this unit from the underlying marine sedimentary succession.

The only rock formation preserved in the Study Area is the Lower Coralline Limestone Formation (**Figure 4** and **Figure 5**).

Younger rock formations: Globigerina Limestone, Blue Clay Formation, Greensand and Upper Coralline Limestone Formation, have been eroded away following emergence of the Maltese Islands some 5 Million years ago. No substantial Quaternary deposits have been identified within the Study Area.

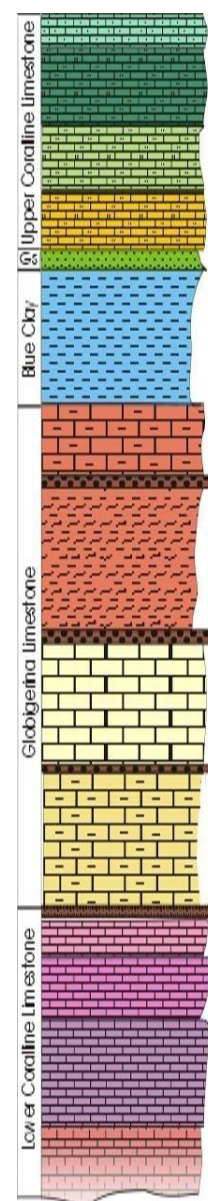


Figure 3: Lithologic column of the Maltese rock formations (Oligocene-Miocene)

2.1.1 LOWER CORALLINE LIMESTONE FORMATION

As its name implies the Lower Coralline Limestone Formation is the lowermost rock formation exposed on the Maltese Islands. It is extensively exposed in a cutting close to the site, particularly on the slopes of Wied Znuber and in the sheer cliff face that lines the coastline.

This rock formation is of particular hydrogeological importance as its pores and fissures host the mean sea level aquifer (MSLA) below the site.

The formation is known to be over 140m thick. Although the base of the formation is taken at sea level, it extends lower down below sea level. The contact with the overlying Globigerina Limestone Formation is sharp and is represented by a hard ground. This is best seen outside the proposed site at *il-Mara* and *Wied Moqbol*.

The Maltese name is Zonqor or Blat tal-Qawwi usually further classified as: First *quality tal-Prima* and second quality *tas-seconda*.

2.1.2 DISTRIBUTION

The formation exhibits its maximum exposed thickness on the face of the sea-cliff sections south of the site (**Plate 1**), where the exposed section from sea level is about 60m thick.

As the name “Lower Coralline Limestone” implies this formation is the lowest rock unit exposed on the Maltese Archipelago.

(i) Subdivisions

The rock formation has been subdivided into four members as follows (Pedley, 1978):

- Wied Maghlaq Member (oldest);
- Attard Member;
- Xlendi Member;
and
- Il-Mara Member (youngest).

Of the four members listed, the Attard, and il-Mara members have been identified in the proposed site. The Wied Maghlaq Member, which is exposed in inaccessible cliff sections, is a medium to fine-grained limestone (mudstone and wackestone) often highly porous and rather soft. The top of the unit has been described elsewhere outside the Study Area where 2m - 2.5m of white to light brown or light grey mudstones containing long calcitic siphonal tubes of the bivalve *Kufus polithalamia* are exposed at the top of the Wied Maghlaq Member. The *Kufus* bed is succeeded by algal limestone (wackestones) of the Attard Member.

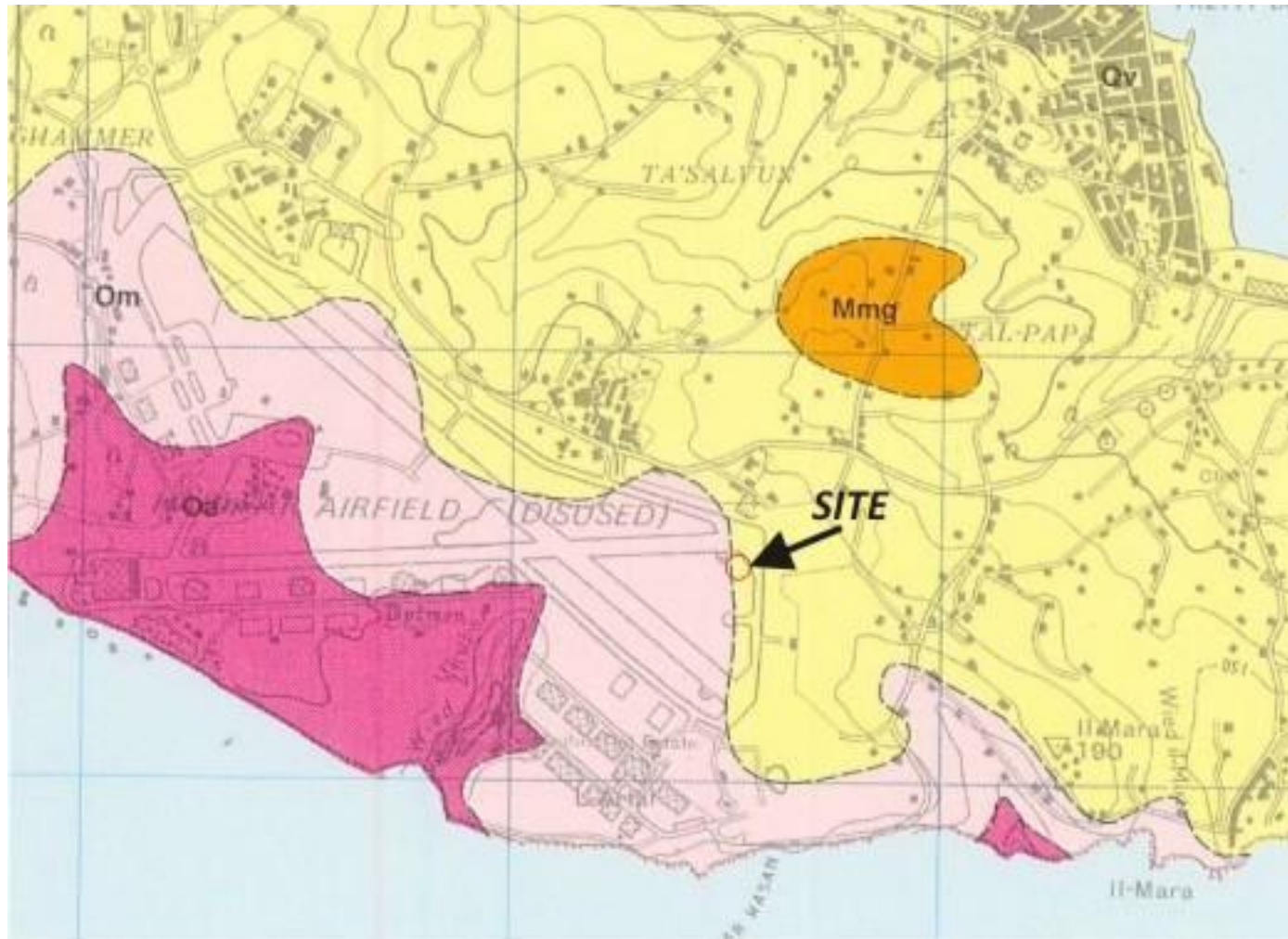


Figure 4: Geological Map of the environs of the site. (Owm: Wied Maghlaq Mb; Oa: Attard Mb; Om: Il-Mara Mb; Mlg: Lower Globigerina Limestone Mb; Mmg: Middle Globigerina Limestone Mb)

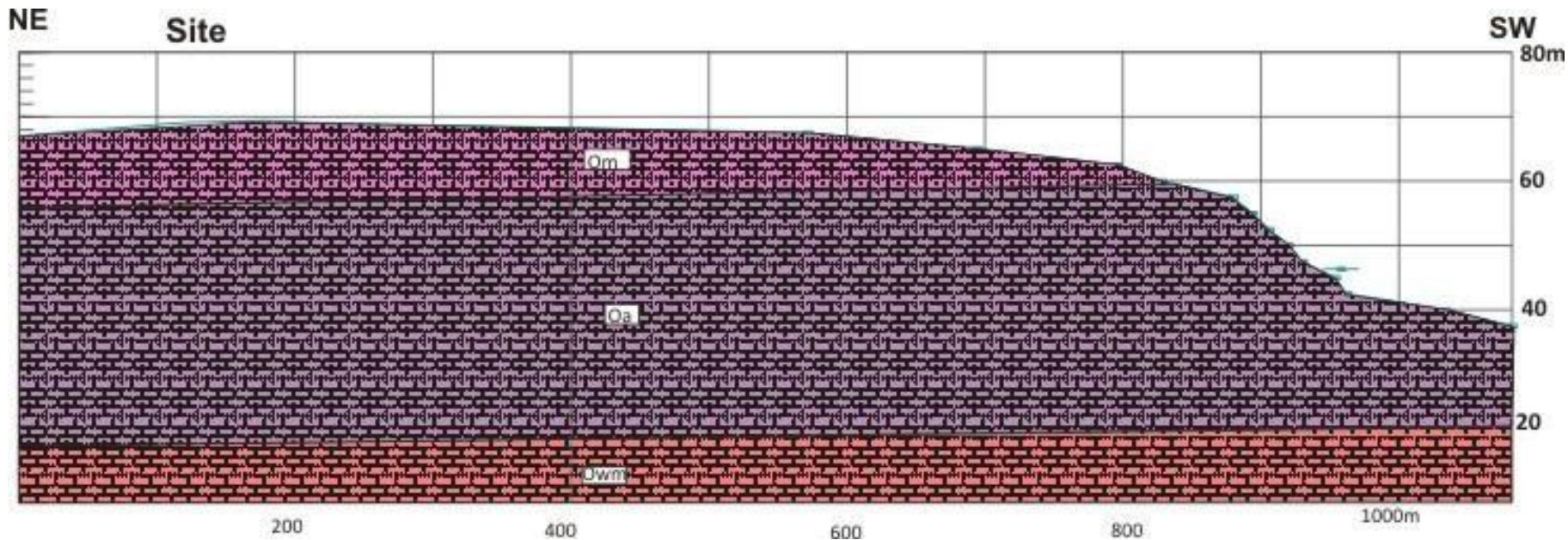


Figure 5: Schematic North-South geological cross –section across the study area (for line of section see figure 4)

Attard Member

The contact with the overlying member is very conspicuous as the thick massive white layers of this member pass to thinner brown and light brown calcarenite of the Xlendi Member. The contact between the two units is sharp and is marked by a hard ground. Four beds belonging to the Attard Member have been identified in Wied Znuber:

- Detrital algal limestone bed with algal rhodoliths (at the base (**Plate 2**));
- Algal rhodolith pavement bed (**Plate 3**);
- Mollusc and coral bed (**Plate 4**); and
- Recrystallised algal rhodolith bed.

Detrital algal facies bed

This unit is about 20m thick and forms the bulk of the Attard Member. It is exposed on the slopes of Wied Znuber south of the site. It is predominantly composed of white encrusting algal fragments and scattered fragmented or fully developed algal rhodoliths in massive very thick beds. The algal bioclasts are usually closely packed or else supported in a buff, light brown, brown or light grey matrix. Articulating coralline algae are common and form the bulk of the rock. The lighter coloured rock often has a chalky appearance when freshly cut due to the high density of algal fragments and is soft while the dark coloured rock, which usually forms the topmost beds, is relatively hard. Macrofossils are absent as this sub-facies is highly fragmented.

Microscopic examination reveals a bioclastic coralline algal wackestone and packstone texture. Algal bioclasts of encrusting and articulating coralline algae and rhodoliths are often abraded and re-colonised by encrusting algae. Subsidiary bioclastic debris is represented by fragmented tests of echinoids, pelecypods, gastropods, and benthonic foraminifera.

Algal rhodolith pavement bed

This unit has been identified at the base of the disused quarry next to the site. About 15m of this facies are exposed and consist of pale grey and light brown, massive bedded very coarse limestone rich in spheroidal algal colonies that are usually white and referred to as rhodoliths. This facies is known to be laterally impersistent, massive beds are 3 to 5m thick and is often interbedded with beds of detrital algal wackestone.

Within the same bed, rhodoliths are usually of approximately the same size and are embedded in a white, grey, light brown, brown or occasionally red matrix. Successive white algal crusts impart a

roughly concentric structure to the algal colonies. Development of Coral colonies has also been noticed near the top of the member. The principal encrusting alga that makes up the algal rhodoliths is *Archaeolithamnium*, usually encrusted by *Lithoporella* and *Ethelia* and occasionally by *Lithothamnium* (Rose EPF, 1981). A rich assemblage of mollusc fauna has also been reported.

Thin section examination reveals an algal packstones texture. The principal encrusting algae are *Lithothamnium* and *Archaeolithothamnium*, which form mostly spherical, or ellipsoidal rhodoliths 2 to 6cm in diameter enclosed in bioclastic wackestone or detrital algal-foraminiferal grainstone. Large benthonic foraminifera are also present. Bioclastic debris is derived mainly from calcareous articulating coralline algae, echinoids, bryozoans, benthonic foraminifera, bivalves and gastropods.

Mollusc and coral bed

This bed occurs near the top of the Attard member and is represented by a massive very well lithified light brown limestone bed about 1.5 to 2m thick, predominantly composed of bioclastic algal debris associated with leached *Strombid* molluscs. Large leached molluscs are packed in mudstone wackestone matrix.

Recrystallised algal rhodolith bed

This bed formed the topmost layer of the Attard Member. It is composed of a very coarse algal limestone which has been strongly recrystallised.

Palaeoenvironment of deposition

The Attard Member is characterised by a series of sub-facies, which are indicative of widely varying shallow marine environmental conditions ranging from calm lagoonal environments to high-energy conditions where coral patch reefs could develop.

Mineralogy

Apart from calcite in its various crystalline forms, no other minerals have been reported in the Attard Member.

Economic importance

This unit represents the top beds of the Attard Member. It is hard and compact and like the overlying Xlendi Member. Besides its normal use for the production of concrete aggregate, it has been utilised for the production of local 'marble' (Gozo Marble) as it takes a good polish, though the algal rhodoliths tend to be soft and wear away very easily.

Xlendi member

The unit is only 4m thick and appears to thin out considerably west of *Wied Zhuber*. It is composed of moderately hard coarse to very coarse brown and light brown apparently massive bedded calcarenites. It is characterised by the presence of fragments of the echinoid *Scutella*.

Mineralogy

Apart from calcite in its various crystalline forms, no other minerals have been reported in this member.

Il-Mara Member

The il-Mara Member is about 15m thick and is best seen in cuttings close to the site. At the top it is succeeded by foraminiferal mudstones and wackestones of the Globigerina Limestone Formation. The contact with the overlying Lower Globigerina Limestone was seen out of the site and was observed to be sharp.

This facies is composed of yellow to pale brown massive or laminated and laterally continuous biocalcarenites rich in giant *Lepidocyclina*, *Amphistegina* and *Heterostegina*, bryozoans and echinoid spines and plates. Giant *Lepidocyclinae* of the order of 10cm in diameter are often corrugated and densely packed in layers showing oblique imbrication.

The rich assemblage of macrofossils represented in this member includes large foraminifera, bivalves, echinoids and bryozoans.

Petrographic examination reveals that the limestone is predominantly composed of wackestones with minor packstones and grainstones with a rich large benthonic foraminiferal assemblage. Bioclastic debris includes fragments of echinoids, bryozoa, and large foraminifera. Minor microscopic quartz fragments and iron impregnations mainly represent accessory minerals.

2.2 STRUCTURAL GEOLOGY

2.2.1 FAULTING AND REGIONAL DIP

The strata are generally massive and their dip is generally in the same direction as the regional dip of 3° to 6° to the NNE as can be seen in the well exposed rock section in *Wied Zhuber* and along the perimeter of the cutting south of the site. Two sets of conjugate joints can be seen on the slopes of *Wied Zhuber* one set strikes northwest – southeast while the other strikes approximately north-south. These joints are near-vertical and have fracture frequency ranging from about 0.5m to 5m.

Frequently these have been opened by the chemical action of percolating water and subsequently partly filled by terra rossa as can be noted in surface exposures

No faults were seen in the study Area. The faults nearest to the site are found at Ta'Wied Fulija.

2.2.2 BEDDING

In addition to the sub-vertical joints that dissect the site the limestone sequence exposed in the *Wied* is bedded. On average beds are 0.8m up to 3m thick.

3 QUALITY OF THE MATERIAL TO BE EXCAVATED

3.1.1 SITE INVESTIGATION

In order to assess the quality of the stone material two holes identified as BH1 and BH2, were drilled on the site (**Figure 6**) by continuous rock core sampling using a rotary drill and a (76mm internal Diameter) double tube core barrel with water as the drilling fluid. Drilling logs are attached in **Appendix 1**.

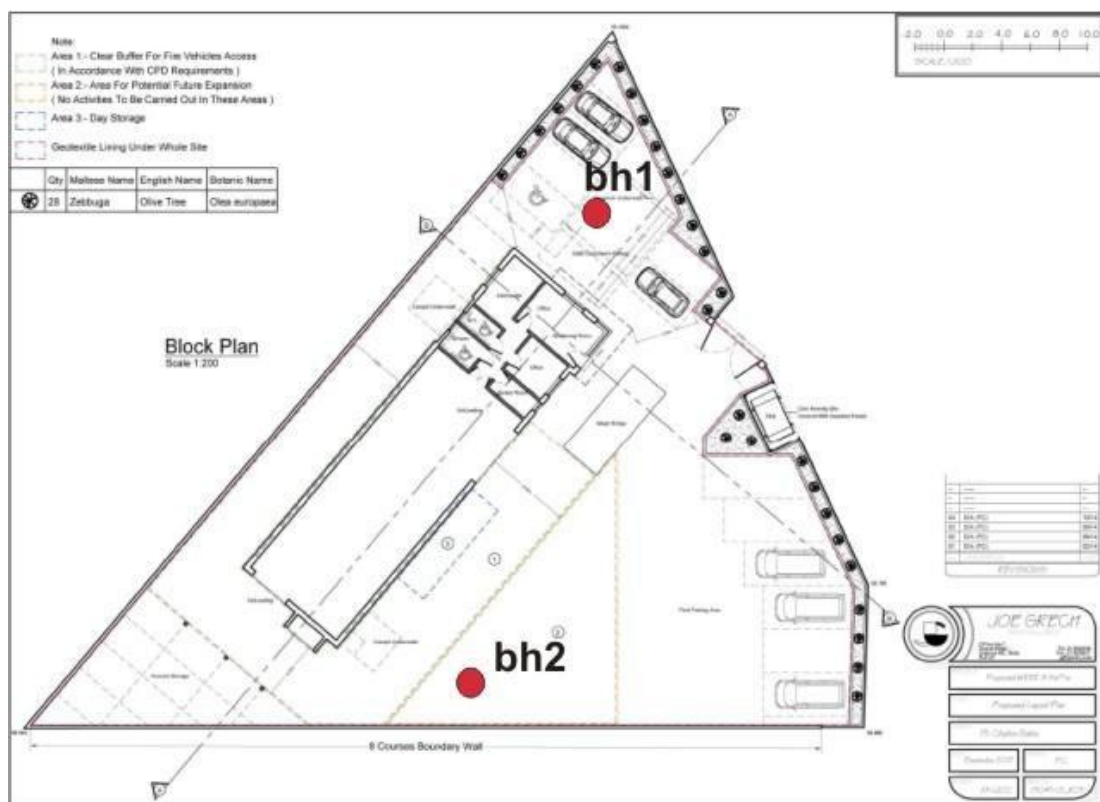


Figure 6: Site plan showing borehole locations

Details of the drilling are found in Table 1 below:

Table 1: Borehole drilling summary

<u>Borehole</u>	<u>Date drilled</u>	<u>Open hole drilling</u>	<u>Rock core sampling</u>
		<u>m</u>	<u>m</u>
<u>BH1</u>	5/06/2015	0.0 -0.20	0.20-10.0
<u>BH2</u>	5/06/2015	0.0 -0.20	0.0-12.0

The rock core samples recovered from BH1 were of good quality Lower Globigerina Limestone interbedded with beds of il-Mara Mb passing downward to massive light brown rock of il-Mara Mb of the Lower Coralline Limestone Fm. Photographs of the rock core samples recovered are shown in Plate 2 to Plate 5 at the end of this report. Core logs are found in **Appendix 2**.

Only stiff red clay was recovered from BH2. No rock samples were recovered. It appears that the hole is located on a vertical wide open fissure.

Fracture planes were stained with brown clay. Rock core Recovery RQD and SCR are listed in **Table 2**.

<u>Run No</u>	<u>BH1</u>			<u>BH2</u>		
	<u>Rec</u>	<u>SCR</u>	<u>RQD</u>	<u>Rec</u>	<u>SCR</u>	<u>RQD</u>
	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>
<u>1</u>	100	100	100	50	NA	NA
<u>2</u>	100	100	100	50	NA	NA
<u>3</u>	100	100	100	50	NA	NA
<u>4</u>	100	100	100	50	NA	NA

Table 2: Listing of Rock core sample Recovery (Rec) Rock Quality Designation (RQD) and Solid Core Recovery (SCR)

As noted above no rock was recovered from BH2. This could be either because drilling took place in a vertical fissure filled with clay or else a larger solution cavity also filled with stiff red clay.

3.2 LABORATORY RESULTS AND INTERPRETATION

Testing was undertaken to the following standards:

- Determination of Compressive Strength of Rock according to BS5930:1999 and ISRM Sugg. Method
- Determination of Water Absorption and Bulk Specific Gravity according to BS5930:1999 and ISRM Sugg. Method

The test results are listed in **Table 3**.

The relevant test certificates are attached to this document as **Appendix 3**.

Details of prepared specimens				Borehole number: 1			
Specimen No:				RC 1	RC 2	RC 3	RC 4
Orientation of bedding planes with respect to the test specimen:				Perpendicular	Perpendicular	Perpendicular	Perpendicular
Depth:				0.5m	4.1m	7.5m	9.3m
Run No:				1	2	3	4
Condition as tested:				As received	As received	As received	As received
Mass of specimen				g 1262.41	1238.88	1273.2	1252.81
Water content (to 0.1%)				% 10.8	12.9	10.5	11.9
Pore Volume				m ³			
Average				m ³			
Porosity				%			
Average				%	#REF!		
Bulk Density				kg/m ³ 2131	2122	2105	2072
Average				kg/m ³	#REF!		
Dry Density				kg/m ³ 1901	1848	1884	1825
Average				kg/m ³	#REF!		
Uniaxial compressive strength:				Mpa 19.7	14.3	11.9	10.0

Table 3: Laboratory test results

The rock to be excavated is composed of yellow bioturbated Lower Globigerina Limestone interbeds passing down to il-Mara Mb with an average compressive strength of 13.9MPa.

Water content is noted to be relatively very high.

3.3 USE OF THE STONE MATERIAL

The upper beds of the rock drilled in BH 1 contain Lower Globigerina Limestone interbeds with rust stained burrow. Due to the relatively low compressive strength and the high water content the lower beds are suitable for mass concrete such as C12.

If the red clay in BH2 occurs in relatively large quantities this could be used as soil say for embellishing the site and for other agricultural use elsewhere. The quantity of red clay present can only be determined by further investigation or else by inspection during construction phase.

4 GEOMORPHOLOGY

4.1 INTRODUCTION

The environs of the site with the exception of the Valley of *Wied Znuber*, *Wied il-Mixta* and the cliff line is highly disturbed on account of successive developments first as an ex-services airport and then during the construction of the present Hal-Far Industrial Estate. For this reason the geomorphology of the Study Area is primarily controlled by the regional dip to the northeast giving rise to sheer cliffs and NNE jointing on which the valley of *Wied Znuber*, appears to be superimposed.

Contrasting lithological composition of the rock members and bed units gave rise to the present profile of slopes of the *Wied* also characterised by intense karstification.

4.2 GEOMORPHOLOGICAL UNITS

The geomorphological units that make up the Study Area are (**Figure 7**):

- The high cliff coastline;
- The Hal-Far Plain;
- *Wied Znuber*;
- *Wied il-Mixta*; and
- Karst features.

4.2.1 THE HIGH COASTLINE

The most impressive geomorphologic feature close to the site is the imposing sheer limestone cliffs that rise almost vertically to about 60m above sea level. Their origin is closely related to the gentle dip of the Maltese Islands to the northeast and wave action at the toe of the cliff face, which undermines the rock face. The rock face fails along vertical shear planes giving rise to the sheer cliff. On account of the regional dip, run-off over the cliffs is scarce. Erosion is mainly by the action of gravity.

4.2.2 THE HAL-FAR PLAIN

This unit forms the disused airfield and appears to represent the bedding plane at the top of Il-Mara Member which is marked by a hard ground. This bedding plane is particularly resistant to weathering in contrast to the overlying beds of the Globigerina Limestone Formation, which have been eroded to expose the top of the Lower Coralline Limestone, Il-Mara Member. The Hal-Far plain is therefore considered to be the surface expression of a bedding plane.

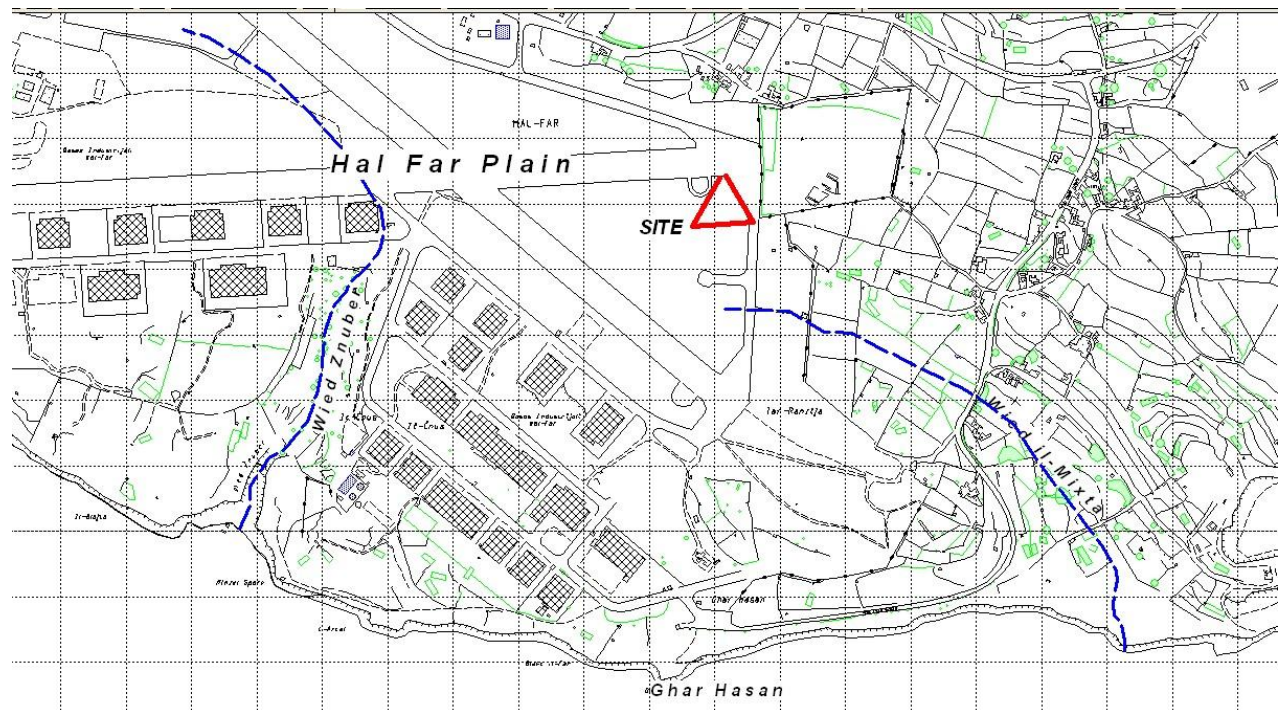


Figure 7: Geomorphology of the environs of the site at Hal-Far Industrial Estate

Wied Zhuber

Wied Zhuber is a deep gorge incised down to a maximum depth of about 60m in Lower Coralline Limestone. It is one of the few drainage systems that discharge on the south west coastline. These dry watercourses are characterised by a relatively small catchment and are deeply incised in Lower Coralline Limestone. It discharges at sea level.

Wied il-Mixta

Like *Wied Zhuber*, *Wied il-Mixta* is a dry watercourse deeply incised in Lower Coralline Limestone. It has a relatively small catchment and drains the eastern end of the Hal Far Industrial Estate. Unlike *Wied Zhuber*, it is a hanging valley as it does not discharge its run-off at sea level.

The action of water on the limestone must have produced the deep gorge of the two watercourses by solution during past climates. Probably presently it is a relict geomorphological feature.

It is interesting to note that in contrast to the major valley systems such as *Wied is-Sewda* and *Wied tal-Imsida* this valley and others close by such as *Wied Diegu* and *Wied il-Hallelin* discharge run-off on the southeast coastline rather than on the northeast.

Karst Features

Karst features are the product of the action of rainwater on limestone. Rocks of the il-Mara, Xlendi, Attard and Wied Maghlaq Members are prone to solution producing a variety of solution features, which highly enhance the permeability of limestone. These range from shallow rock pools and narrow conduits to large solution features such as caverns. One such cavern now modified by anthropogenic activities can be seen on the western slopes of the valley. A much larger solution cavern is Hasan's cave that can be seen perched in the cliff face some 500m southeast of the site. Rock pools, conduits and open joints are best seen on the limestone pavement that lines the flanks of the *Wied Znuber* gorge. The Lower Coralline Limestone is composed of a pure limestone and for this reason residual clays in the form of terra rossa soil are scarce. The limestone is therefore bare and is exposed as a limestone pavement locally known as '*Xaghra*'.

Rock permeability is further enhanced by the widening of fractures and bedding planes by chemical solution. Fractures frequently channel percolating rainwater, and in the process widen the open fracture by the solution.

4.3 SOILS

Composition

The most striking characteristic of the soils of the Maltese Islands is their high carbonate content along the whole soil profile. For example, carbonate comprises 50 % to 80% near the surface of the pale brown soils (Xerorendzinas) and the white raw carbonate soils and is found to increase down the soil profile. whereas in the terra rossa soils (red) it ranges from 25% to 60% and decreases with depth.

Depth

The depth of soil or soil-like material is very variable and is found to be highly dependent on the morphology of the area under consideration and on the underlying bedrock. Generally soils depth is very shallow on ridges, plateaus and pavements formed of hard limestones (erosional surfaces) such as the Lower Coralline Limestone, usually ranging in depth from less than 20cm to 60cm with the exception of isolated pockets, where it could be deeper. Very often the hard Coralline limestones are exposed as a bare highly karstified pavement with no soil cover.

In erosional and structural valleys soils have developed over slope taluses and alluvial deposits, which have been weathered to varying degrees under the influence of past climatic regimes and usually, are very thick, often exceeding 150cm. The soils or soil material on talus deposits and Blue Clay outcrops are usually deep as the parent material is soft and can be readily disintegrated into a soil which is barely distinguishable from the humus deficient soil itself, commonly only about 75cm deep.

Terracing and other human interference

In order to preserve his scanty soil resource, over the centuries, the local farmer has remodelled the land surface, especially the hill slopes, by terracing and building rubble walls. The only areas, which have escaped profound human intervention, are the nearly level areas of deep soil in the erosional and structural valleys and the hard limestone plateaus where the principal human intervention was the construction of rubble walls.

Classification

The soils found distributed in the Maltese Islands have been classified into three groups (Lang 1962). These are:

- Carbonate Soils (white soil);
- Xerorenzina (brown soil); and
- Terra Rossa (red soil).

This classification basically corresponds to the local popular names of white, brown and red soils. The red Terra Rossa soils are highly decalcified and are rich in humus. The brown Xerorenzina soils are only slightly decalcified and humus enriched. The whitish Carbonate Raw Soils are essentially physically disintegrated parent rock; they are highly calcareous and humus deficient. Within this broad soil classification there exist a wide range in variation due to local natural processes such as mixing of the parent material with products of erosion and deposition by runoff water and soil creep as well as due

to local lithological variation within a given formation. These differences are further complicated by human interference such as in manmade soils, terracing and addition of soil coming from other parts of the island.

Soils in the study area

The soil in the study area is dominated by terra rossa –Xaghra series and L-Inglin Complex. This is found mostly within *Wied Znuber* and along the cliff line. At the site and the entire Hal-Far Industrial Estate the soil has been mostly disturbed. Such disturbance at times almost reaches the cliffs.

Xaghra Series

This soil series is represented by very shallow, red, heavy textured (clays and clay loam known as Terra Rossa) decalcified soils with a strong subangular to angular blocky structure and occurs intermittently among hard limestone outcrops on the karst landscape. The soils are strongly decalcified, with a humus-enriched surface and possess an A C D profile on an almost completely decalcified B-horizon soil material formed during an earlier climate. This soil series is invariably associated with the karst type of landscape.

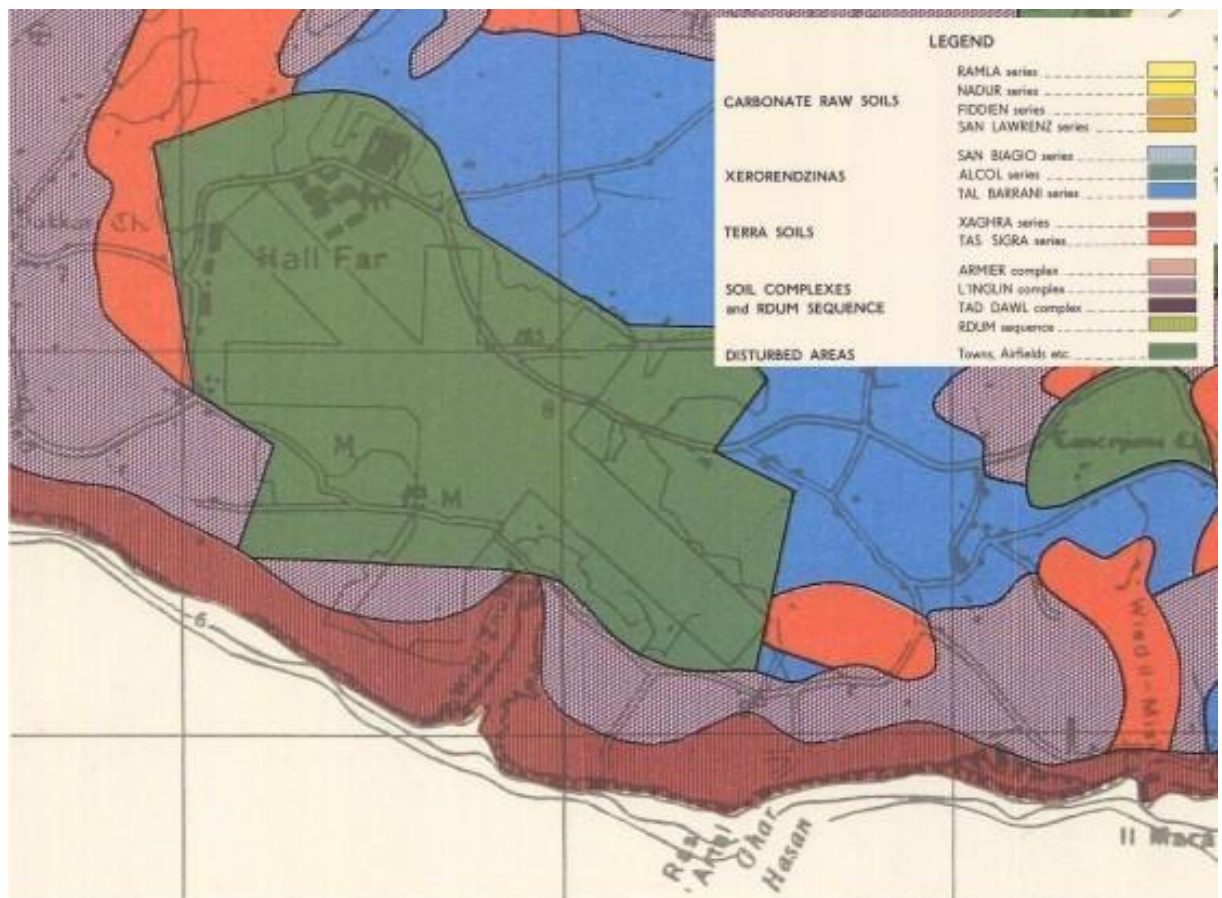


Figure 8: Hal Far Soils map (Lang, 1960)

5 HYDROLOGY AND HYDROGEOLOGY

5.1 HYDROLOGICAL AND HYDROGEOLOGICAL FEATURES

The hydrogeological and hydrological features close to the site are:

- The mean sea level aquifer;
- Ephemeral Watercourse of *Wied Zhuber*;
- Catchment of *Wied Zhuber*;
- Catchment of *Wied il-Mixta*; and
- Water Boreholes – Water Services Corporation.

5.1.1 MEAN SEA LEVEL AQUIFER

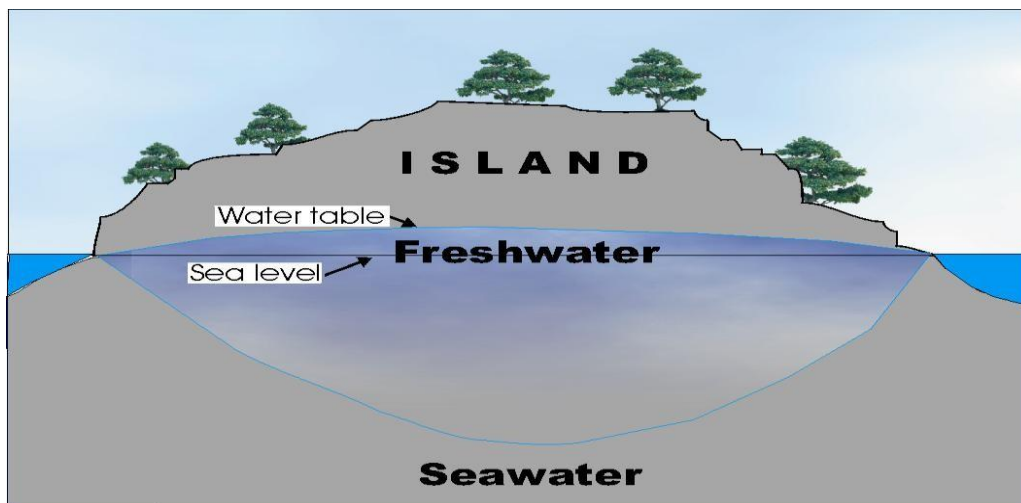


Figure 9: Schematic diagram showing development of the sea level aquifer beneath an island

There is no perched aquifer beneath the site as there is no impermeable rock layer such as the Blue Clay Formation, in the rock sequence beneath the site. As there is no other impermeable rock formation present in the lithologic succession the only aquifer beneath the site is the mean sea level aquifer, which lies some 60m below. This also represents the hydrogeological feature closest to the site.

The sea level aquifer is lens shaped reaching some 3.5m high above sea level at the centre of the island and thins out to zero thickness at the coastline. As the site is only about 800m away from the coastline, the aquifer is very thinly developed or not at all.

5.1.2 WATERCOURSE OF WIED ZNUBER

The watercourses of these valley systems have their origin at the Hal Far Industrial Estate. It flows through the old runway and *Wied Znuber* and discharges into the sea. A true watercourse is only developed in *Wied Znuber*. Presently this is considered to be a relict geomorphological feature generated in past climates during the Pleistocene. No water flows through the valley system except run-off water generated during heavy downpours. Such run-off ceases soon after the rain has stopped.

This watercourse discharges at sea level.

5.1.3 WIED IL-MIXTA AND SITE CATCHMENTS

The site lays within the catchment of *Wied Il Mixta*, which is a hanging valley in contrast to *Wied Znuber* below. The watersheds of *Wied il-Mixta* and the site are shown in **Figure 10**. The area of the catchment of the *Wied* is of modest size 1.78 sq km while that of the site is very small indeed 0.07 sq km.

As has been observed during the field survey, the rock mass, has high fissure permeability. Fissure frequency seen can be as close as 1m and even less.

5.1.4 WATER BOREHOLES – WATER SERVICES CORPORATION

The nearest Borehole (Water Services Corporation) tapping the mean sea level aquifer lies at Hal Far some 400m away from the site. (**Figure 11**).

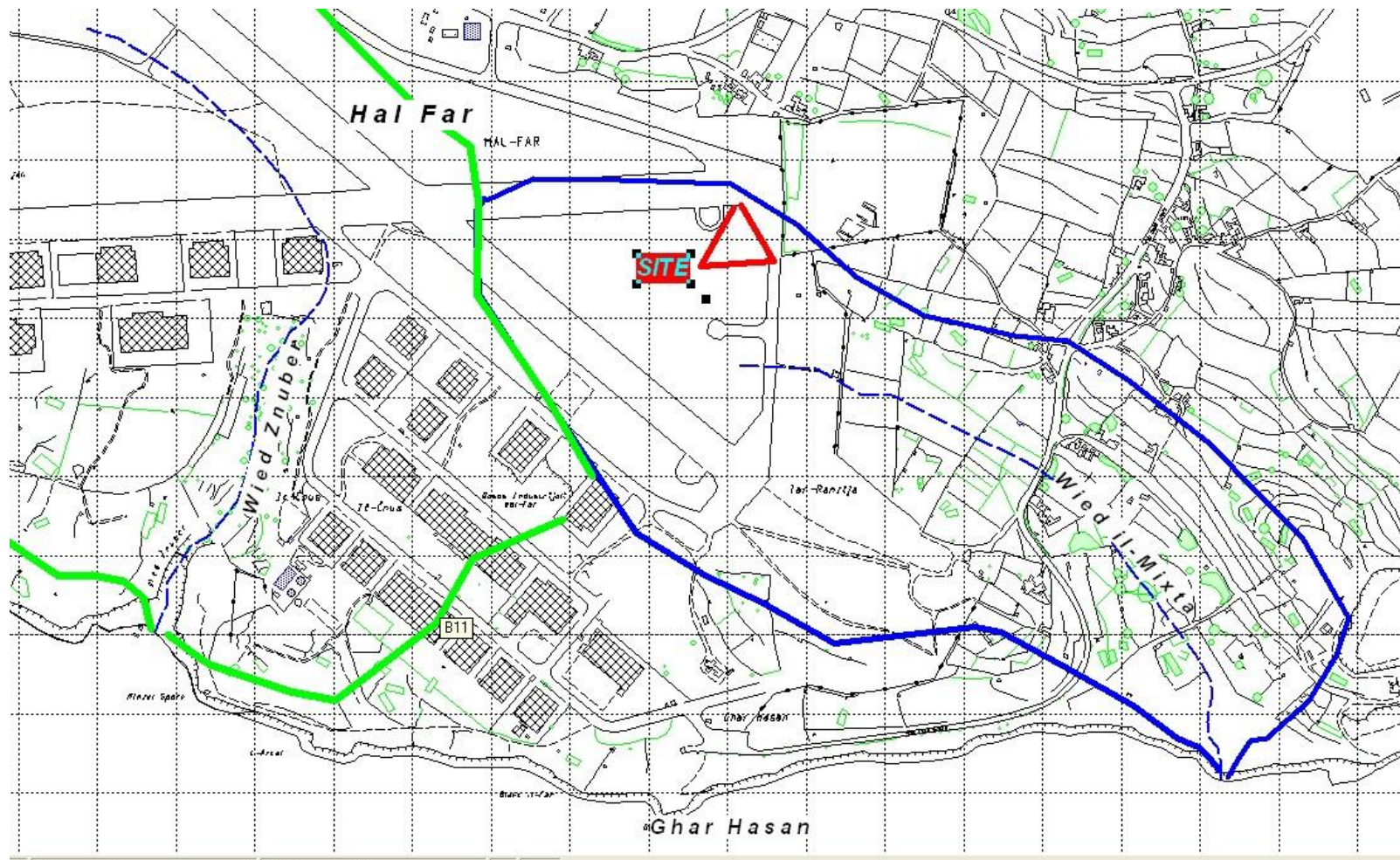


Figure 10: Map showing watersheds of Wied Znuber and Wied il-Mixta, and the Proposed WEEE Project



Figure 11: MEPA Mapserver map showing the closest WSC borehole surrounded by a 300m safe guard zone (Grey circle) at Hal Far Barracks

5.2 THE WATER CYCLE

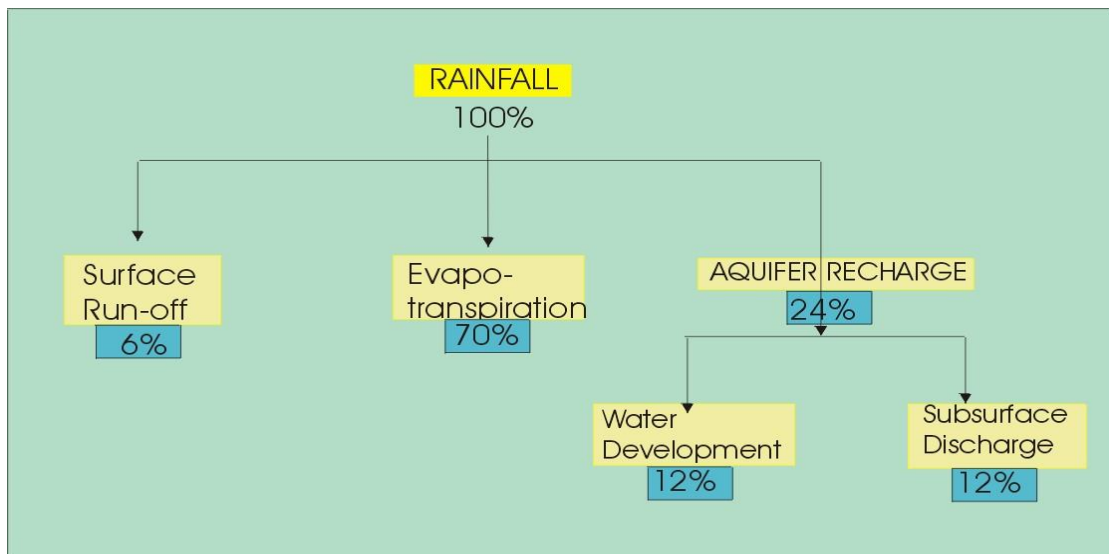


Figure 12: Diagram showing rainfall distribution in the Maltese Islands

On reaching the ground rainwater is partly led to the sea as run-off through the surface drainage system, which for the Maltese Islands is taken as 6% of the average rainfall. Part of the rainwater percolates into the ground and goes to recharge the mean sea level aquifer (24%). The rest of the

water is returned to the atmosphere by evapo-transpiration. Owing to the long, hot and dry season of the Maltese Islands, this is very high and is usually taken as 70% (**Figure 12**).

5.3 SURFACE RUN-OFF ESTIMATES

In order to calculate the surface run-off resulting from the annual; precipitation watersheds were drawn for the discharge point of *Wied il-Mixta* and the proposed WEEE Project (see **Figure 10**). The result of the run-off calculations are listed below:

Wied il-Mixta - Wied Catchment (424000 sq m)

Proposed WEEE Project catchment 1600sq m

Average rainfall for the Maltese Islands: 550mm

Average Percolation: 24%

Average Evapo-transpiration: 70%

Average run-off at Discharge point of *Wied il-Mixta*: 6% or 14,000cu m of water

Average run-off at Discharge point of the Proposed WEEE Project : 6% or 50cu m of run-off water.

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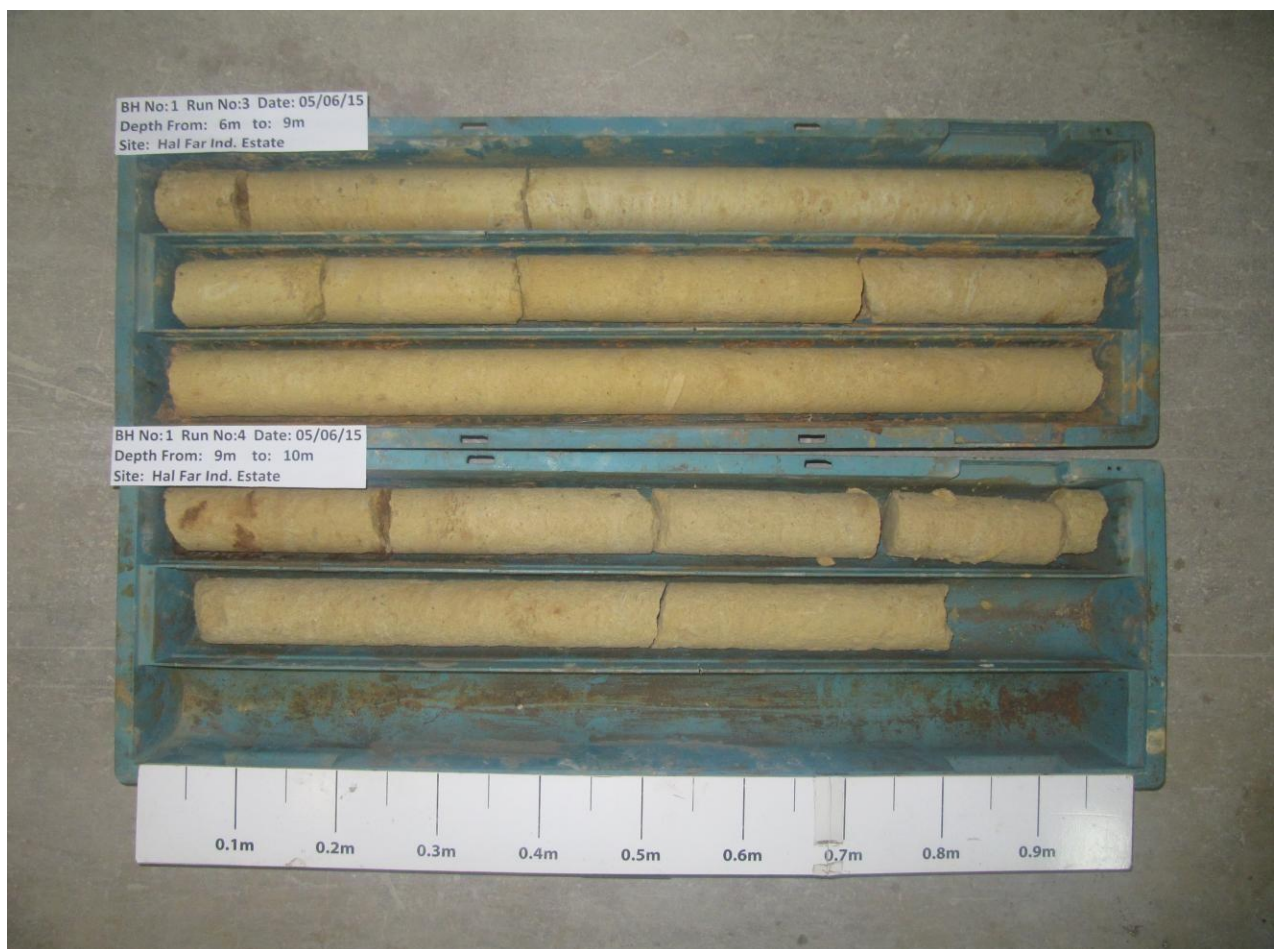
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7 PLATES



Plate 1: Photograph of Wied Znuber



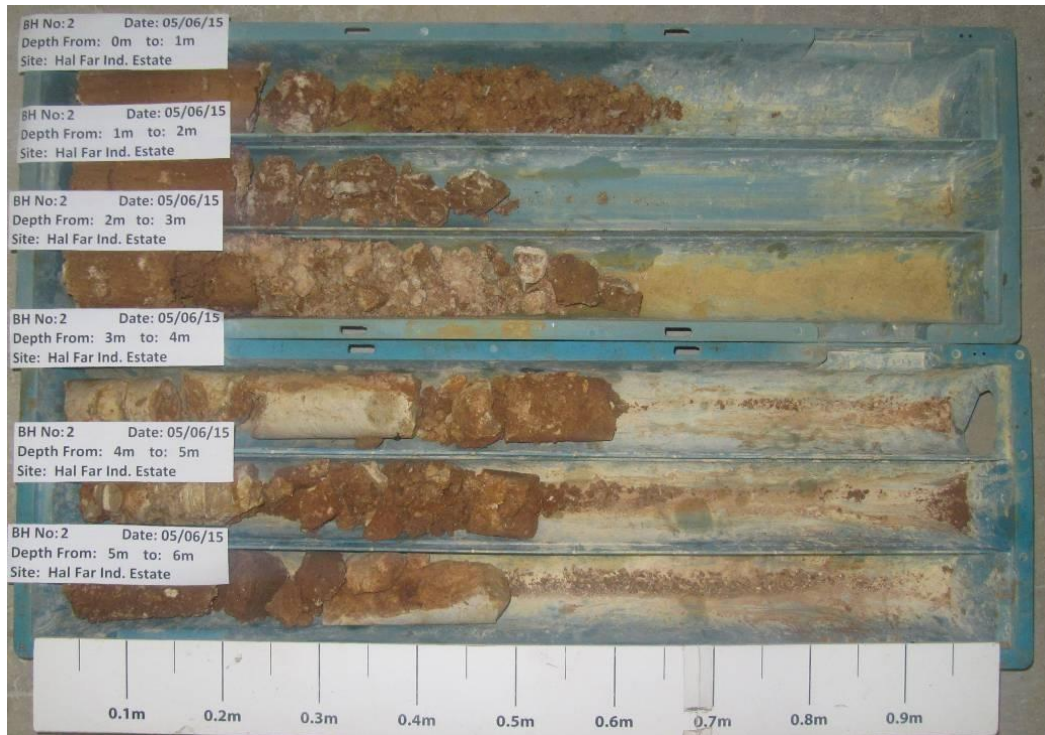


Plate 4: Photograph showing rock core samples recovered from BH2 Run No 1 to Run No 6 (For scale core tray is 100cm long)



Plate 5: Photograph showing rock core samples recovered from BH2 run No.7 to run No.9 (For scale core tray is 100cm long)





APPENDIX 1 – DRILLING LOGS

TERRACORE		Terracore Ltd, New Street in Kappar Street, Industrial Estate, Mosta T: (+356) 2158 3241 F: (+356) 2141 8645 M: (+356) 9947 1618 E: info@terracoreshmalta.com W: www.terracoreshmalta.com				
Client:	Weeee Ltd	Drill Type:	T44	B/H No:	1	
Location:	Hal Far	Drilling Fluid:	Water	Job No:	J2215	
Area	Industrial Estate	Drill:	Beretta	Date:	05/06/2015	
From	TO	DESCRIPTION	Core Run Length	Core Run Recovery	Circulation	Core Recovery %
0.00	0.20	Started drilling open hole to find bedrock. Bedrock starts at 0.20m				
0.20	3.00	Started coring run no.1 with no returns.	2.80	2.80	L	100%
3.00	6.00	Started coring run no.2 with no returns.	3.00	3.00	L	100%
6.00	9.00	Started coring run no.3 with no returns.	3.00	3.00	L	100%
9.00	10.00	Started coring run no.4 with no returns.	1.00	1.00	L	100%
Driller Roderick Fenech Assistant Driller Paul Mifsud			REMARKS Circulation: F = Full,P = Partial Loss, L = Total Loss. Test = SPT, Vane, Soil Sampling.			

TERRACORE		Terracore Ltd, New Street in Kappar Street, Industrial Estate, Mosta T: (+356) 2158 3241 F: (+356) 2141 8645 M: (+356) 9947 1618 E: info@terracoreshmalta.com W: www.terracoreshmalta.com				
Client:	Weeee Ltd	Drill Type:	T44	B/H No:	2	
Location:	Hal Far	Drilling Fluid:	Water	Job No:	J2215	
Area	Industrial Estate	Drill:	Beretta	Date:	05/06/2015	
From	TO	DESCRIPTION	Core Run Length	Core Run Recovery	Circulation	Core Recovery %
0.00	1.00	Single Corebarrel coring with brown returns.	1.00	0.50	F	50%
1.00	2.00	Single Corebarrel coring with brown returns.	1.00	0.50	F	50%
2.00	3.00	Single Corebarrel coring with brown returns.	1.00	0.50	F	50%
3.00	4.00	Single Corebarrel coring with brown to cream returns.	1.00	0.50	F	50%
4.00	5.00	Single Corebarrel coring with brown to cream returns.	1.00	0.50	F	50%
5.00	6.00	Single Corebarrel coring with brown to cream returns.	1.00	0.50	F	50%
6.00	7.00	Single Corebarrel coring with brown returns.	1.00	0.50	F	50%
7.00	8.00	Single Corebarrel coring with brown returns.	1.00	0.50	F	50%
8.00	9.00	Single Corebarrel coring with brown returns.	1.00	0.50	F	50%
9.00	12.00	Drilled open hole with brown to grey returns.	3.00			
Driller Roderick Fenech Assistant Driller Paul Mifsud			REMARKS Circulation: F = Full,P = Partial Loss, L = Total Loss. Test = SPT, Vane, Soil Sampling.			

APPENDIX 2 – CORE LOGS

TERRACORE	Rotary Borehole Record		P1 of 1	BH No: 1				
	Location: Hal Far Orientation: Vertical		Date Started: 5/06/2015 Date Completed:					
Client: ADI Associates WEEE Recycle	Bit Type /Diameter: T2 86 CB		Coords. _____					
Drill Type: T44	Drilling Fluid: Water		Ground level: Water level: NA					
Description	Lith-ology	Depth m	Run m	C R %	RQD %	SCR %	f/m	Returns
Lower Coralline Limestone - Il-Mara Mb LIMESTONE: Light brown fine calcarenite with scattered recrystallised bands. Common mm borings moderately strong Pale yellow fine rust mottled Globigerina moderately weak 3 sub-horizontal joints, planes coated with red clay Cavity or weathered marl		0 1 2 3 3.5	3	75	73	73	1	Full lost
LIMESTONE: Light brown medium to coarse massive, moderately strong		4 5 6 6.5	3	100	100	100	0	lost
LIMESTONE: as above rich in macro foraminiferids moderately weak (Lepidocyclina) 1 irregular fracture planes clean		7 8 9 9.5	3	100	100	97	0.3	lost
Borehole terminated at 10.0m BGL		10	1	100	100	97	0	
Legend BGL: Below ground level f: fracture frequency CR: Core recovery RQD: Rock quality designation — End of run SCR: Solid core recovery		Lithology Cavern/Fissure or loose friable rock Lower Globigerina Limestone 'Soll' cream to yellow Lower Coralline Limestone - Il-Mara Mb Lower Coralline Limestone - Attard Mb-White chalky limestone Depths are measured in metres from ground level						

TERRACORE	Rotary Borehole Record		P1 of 1	BH No: 2				
	Client: ADI Associates WEEE Recycle	Location: Hal Far Orientation: Vertical	Bit Type /Diameter: T2 86 CB	Date Started: 5/06/2015 Date Completed:				
Drill Type: T44	Drilling Fluid: Water	Ground level: Water level: NA						
Description	Lithology	Depth m	Run m	C R %	RQD %	SCR %	f/m	Returns
Cavity filled with stiff red clay		1	1	50				Full
		2	1	50				
		3	1	50				
Cavity filled with stiff red clay limestone lithoclasts and rubble		4	1	50				Full
		5	1	50				
		6	1	50				
Cavity filled with stiff red clay		7	1	50				Full
		8						
		9						
Borehole terminated at 12.0m BGL		10	Open hole drilling					
Legend		Lithology						
BGL: Below ground level	 Cavern/Fissure or loose friable rock							
f: fracture frequency	 Lower Globigerina Limestone 'Soll' cream to yellow							
CR: Core recovery	 Lower Coralline Limestone - Il-Mara Mb							
RQD: Rock quality designation	Depths are measured in metres from ground level							
— End of run								
SCR: Solid core recovery								

TN 159436

Removal of Dumped Material & Construction of Industrial Unit for the Recycling / Treatment of WEEE, HHF 040, Ħal Far, Qasam Industrijali, Birżebbuġa.

Technical Appendix 3

NOISE BASELINE REPORT

Supporting Documents for
Environmental Impact Statement



TN 159436

**REMOVAL OF DUMPED MATERIAL & CONSTRUCTION OF INDUSTRIAL UNIT
FOR THE RECYCLING/TREATMENT OF WEEE, HHF 040, ĦAL-FAR, QASAM
INDUSTRIJALI, BIRŻEBBUĠA**

BASELINE NOISE SURVEY

Version 1: June 2015



Report Reference:

Adi Associates Environmental Consultants Ltd, 2015. Removal of Dumped Material & Construction of Industrial Unit for the Recycling/Treatment of WEEE, HHF 040, Ħal Far, Qasam Industrijali, Birżebbuġa. San Gwann, June 2015; v + 13pp + 1 Appendix.

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RESPECT THE ENVIRONMENT – KEEP IT DIGITAL**

Quality Assurance

Removal of Dumped Material & Construction of Industrial Unit for the Recycling/Treatment of WEEE, HHF 040, Hal Far, Qasam Industrijali, Birżebbuga
Baseline Noise Survey
June 2015

Report for: **Electronic Products Ltd**

Revision Schedule

Rev	Date	Details	Written by:	Checked by:	Approved by:
00	Jun 2015	Submission for EIA	Eilis McCullough Senior Consultant	Rachel Xuereb Director	Adrian Mallia Director

File ref: G:_Active Projects\EIA\WEE002 - WEEE Facility Hal Far\Baselines\Noise\Baseline Noise Survey.docx



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REMOVAL OF DUMPED MATERIAL & CONSTRUCTION OF INDUSTRIAL UNIT FOR THE RECYCLING / TREATMENT OF WEEE, HHF 040, ĦAL FAR: BASELINE NOISE SURVEY

INTRODUCTION

1. This baseline noise survey was carried out to inform the Environmental Impact Assessment (EIA) of the removal of dumped material and construction of an industrial unit for the recycling / treatment of WEEE, HHF 040, at Ħal Far (hereinafter referred to as 'the Scheme').
2. The Report describes the baseline noise climate at the identified noise sensitive receptors in the vicinity of the Scheme Site. The baseline noise climate was established in order to allow for assessment of the construction and operational noise impacts of the Scheme on these sensitive receptors.

BASELINE NOISE SURVEY

Standards and Guidance

3. There is to date no specific guidance in Malta on noise in the context of land use planning¹. In situations where standards are not available, MEPA generally makes reference to equivalent guidance from the United Kingdom (UK) and International Organisation for Standardisation (ISO) standards. Accordingly, the baseline noise survey was undertaken with reference to British Standard (BS) 4142:2014². In predicting the noise levels arising from construction of the Scheme, reference was made to BS 5228:2009³ 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 Noise⁴). In predicting the noise levels arising from operation of the Scheme, reference was made to BS 4142:2014. Reference was also made to ISO 1996⁵, in accordance with Annex II of the Environmental Noise Directive (2002/49/EC).

¹ 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.

² BS 4142:2014, *Methods for rating and assessing industrial and commercial sound*, British Standards Institution

³ BS 5228: 2009, *Code of Practice for Noise and Vibration Control on Construction and Open Sites: Part 1 Noise*, British Standards Institution.

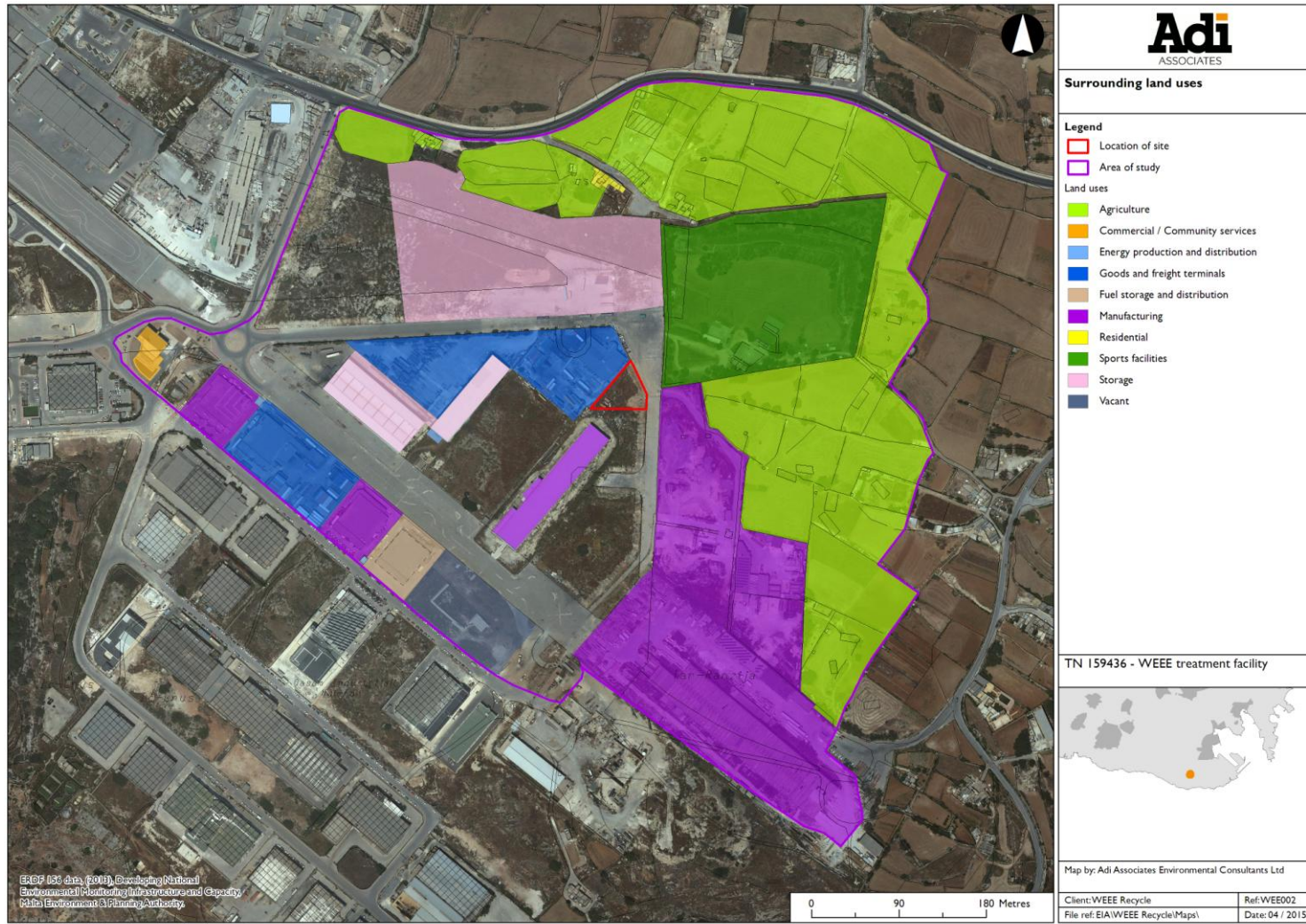
⁴ Department of Communities and Local Government (UK), Planning Policy Guidance PPG 24, *Planning and Noise*, September 1994.

⁵ ISO 1996, *Acoustics - Description, measurement and assessment of environmental noise*, International Organisation for Standardization.

Description of the area in the vicinity of the Scheme Site

4. The Scheme Site is located within and on the eastern boundary of the boundary of the Hal Far Industrial Estate. A detailed land use survey of the area 250 m around the Scheme Site was conducted on 17th October 2014 (see **Figure 1**).
5. The Scheme Site is currently vacant and is disturbed land; the site was formerly part of the taxiway / park of the Hal Far airfield, which ceased operations in the 1970s. The primary land uses in the surrounding area are industrial – a range of activities including pharmaceuticals, transportation, manufacturing and oil-related businesses. The activities immediately surrounding the Scheme Site are a goods and freights terminal (adjoining site to the west), a steel manufacturing facility (located to the south), and a batching plant (located to the east).
6. Immediately to the northeast of the Scheme Site, adjoining the industrial estate, there is an open-air shooting range. This activity operates weekends only (Saturday 13:00 - 19:30 and Sunday 8:00 - 19:00).
7. The area beyond the industrial estate, to the north and east of the Scheme Site, is predominantly agricultural, with fields still under cultivation. The rural hamlet of Benghisa is located approximately 380m from the eastern boundary of the Scheme Site. The northern end of the batching plant site lies between the Scheme Site and the hamlet.
8. The nearest residential property to the Scheme Site is a farmhouse located to approximately 175 m to the north. The intervening area is occupied by the goods and freight terminal (immediately adjoining the site) and beyond this a large open storage yard (buildings supplies).
9. A noise sources / noise-generating activities observed in the area surrounding the Scheme Site, having the potential to contribute to the noise climate at the sensitive receptors, include:
 - Vehicular traffic;
 - Industrial activity (from facilities within the Hal Far Industrial Estate, the Malta Freeport Terminals, and other individual industrial businesses); and
 - Leisure uses, in the form of a shooting range.

Figure 1: Land uses in the vicinity of the Scheme Site



Baseline Survey Methodology

10. The methodology for the baseline noise survey followed the guidance for environmental noise measurement outlined in BS 4142:2014, as described below.

Noise Sensitive Receptors and Noise Monitoring Locations

11. The survey concerned the measurement of noise levels at two monitoring locations (monitoring points - MP); these MPs were identified as the most appropriate to establish the baseline noise climate at the nearest identified residential sensitive receptors. The location of the MPs is identified in **Table 1** and **Figure 2**; **Figure 2** also shows the location of the sensitive receptors.

Table 1: Location of Noise Monitoring Points

MP	Location	Eastings	Northings	Distance from Scheme Site (plan distance in metres)
A	Residential properties on Triq il-Mitjar l-Qadim, off Triq Ħal Far	456491.22	3963473.50	163 m
B	Western edge of Bengħisa rural hamlet	456853.08	3963172.87	367 m

Sound Level Measurements

12. The sound level measurements were taken so as to establish the day time baseline noise climate (the background sound level) at the sensitive receptors, having regard to the operational hours envisaged for the Scheme and the envisaged times of the contraction works. The Scheme will operate Monday to Friday (7:00 – 5:00) and Saturday (7:00 – 13:00); construction activities will also be restricted to these same days / times.
13. Specifically, the sound level measurements were taken on a week day; the date and time of the surveys are illustrated in **Table 2**. Having considered the noise context, the noise climate at the sensitive receptors on a week day was considered to be representative of the noise climate at the receptors on Saturday between 7:00 and 13:00. The noise environment at the sensitive receptors during the week and on Saturday mornings is primarily influenced by noises arising from the industrial facilities in the area and traffic noise. The industrial facilities generally also operate on Saturday mornings, and traffic volumes are not significantly different on Saturday mornings during the week, both along Triq Ħal Far and through Bengħisa rural hamlet.

Table 2: Sound Level Surveys

Survey Date	Survey Time Interval
Tuesday 19 th May 2015	09:25 - 10:25
Tuesday 19 th May 2015	10:55 - 11:55

Figure 2: Noise Monitoring Point and Noise Sensitive Receptors



14. Both sound level measurements were based on a 60 minute recording. This time interval was considered sufficient to obtain a representative value of the day time background sound level at the sensitive receptors both during the week.

Measurement Protocols

15. A Class I Norsonic 140 Precision Sound Analyser (serial no. 1406005) with a Norsonic Type 1225 Microphone (serial no. 208101) was used to take the sound level measurements. A type 1251 Sound Calibrator (serial no. 34129) was used to calibrate the sound analyser in the field.
16. The Sound Analyser and Sound Calibrator were calibrated on 10 June 2014 and 1 July 2014, respectively; the calibration certificates are included in **Appendix I**. The Sound Analyser was field calibrated before and after each measurement (113.8 dBA) in order to eliminate the potential for drift. A Norsonic 1434 windshield was used to minimize the effects of turbulence at the microphone.
17. The sound level measurement at MP A was taken at a distance of at least 3.5m from the nearest reflective surface (excluding the ground). At MP B however, it wasn't possible to secure a distance of at least 3.5m from the nearest reflective surface (excluding the ground), essentially given the narrow width of the road; in this case, the microphone was at a distance of 2.7m from the two-storey facade of a building. For all the measurements, the Sound Analyser was mounted on the tripod at a height of 1.27m above ground level. Details of the measurement position (distance from reflective surfaces and height above ground level) were recorded for all measurements.
18. The weather conditions prevailing during all of the sound level measurements were also recorded. In all cases, the conditions were dry and wind speeds were less than 18 km/hr throughout the measurements. It is unlikely that there was any significant effect by reason of temperature inversion during any of the measurements. There was also observed to be no potential for electrical interference to the measurements.
19. During the measurements, observations of all predominant noise sources were recorded and efforts were made to identify / describe acoustic events and the phenomena attributable to these noises.

Measurement Parameters

20. The following parameters were measured and recorded:
- $L_{Aeq(T)}$ (equivalent continuous A-weighted sound pressure level recorded over the relevant time interval of interest – see paragraph 14 above);
 - L_{AFmax} (maximum A-weighted sound pressure level recorded over the time interval of interest, with fast time weighting);
 - L_{AF10} (A-weighted sound pressure level exceeded for 10% of the time interval of interest, with fast time weighting); and

- L_{AF90} (A-weighted sound pressure level exceeded for 90% of the time interval of interest, with fast time weighting).

BASELINE NOISE SURVEY RESULTS

21. The background sound level measurements and the predominant noise sources recorded during the baseline surveys are shown in **Table 3**. In accordance with BS 4142:2014, the recorded sound levels are quoted to the nearest whole number of decibels. The climatic conditions experienced during the surveys are also identified.
22. The average background sound level recorded at MP A was 52 dBA L_{Aeq} ; the maximum sound level recorded was 74 dBA L_{Amax} . The average background sound level recorded at MP B was 50 dBA L_{Aeq} ; the maximum sound level recorded was 83 dBA L_{Amax} .

Table 3: Baseline Sound Level Measurements

MP	L_{Aeq}	L_{Amax}	L_{A90}	L_{A10}	Predominant noise sources	Climatic Conditions
A	52	74	46	53	<ul style="list-style-type: none"> • Vehicles and activities at goods and freights terminal adjacent to Scheme Site (regular and significant) • Vehicular traffic on Triq Ħal Far (occasional and significant) • Works from adjacent garage (occasional and not significant) • Radio from adjacent garage (continuous for large stretches but not significant) • Birds chirping (continuous but not significant) • Dogs barking (occasional and significant when present) 	Wind direction N Wind speed: 7.9 km/hr Air temperature: 24 °C Rainfall: 0 mm Relative humidity: 57 %
B	50	83	42	51	<ul style="list-style-type: none"> • Vehicles and activities at goods and freights terminal adjacent to Scheme Site (occasional but not significant) • Vehicular traffic on Triq Għar Ħasan (occasional to regular and significant when present) • Birds chirping (continuous but not significant) 	Wind direction: N/NW Wind speed: 4.3 km/hr Air temperature: 25 °C Rainfall: 0 mm Relative humidity: 61 %

**APPENDIX I:
Sound Level Meter Calibration Certificates**

Certificate of Calibration

Certificate No.: 473679921

Object: Sound Analyser Nor140

Supplier: Norsonic AS

Type: Nor140

Serial number: 1406005

Client: CA Stock

Calibration complies with the following standard(s)

IEC 61672-1:2002 class 1
IEC 60651 type 1
IEC 60804 type 1
IEC 61260 class 1
ANSI S1.4-1983 (R2001) with amd. S1.4A-1985 class 1
ANSI S1.43-1997 (R2002) class 1
ANSI S1.11-2004 class 1
DIN 45 657, Applicable parts
Norsonic production standard set for the Nor140

Instrumentation used for calibration traceable to:

Electrical Parameters: MT, Norway
Acoustical Parameters: PTB, Germany
Environmental Parameters: IKM, Norway. Justervesenet, Norway

Adjustments: None

Comments: None

Date of calibration: 2014-06-10
Calibration interval recommended 2 years

The environmental parameters applicable to this calibration are kept well within limits ensuring negligible deviation on obtained measurement results.

Calibrated by:

Sign.



 **Norsonic**
P.O. BOX 24, N-3421 LIERSKOGEN, NORWAY

Warranty

Norsonic products are thoroughly inspected before they leave the factory. Carefully check the shipment for any physical damage in transit. Notify the factory or the distributor and file the claim with the carrier if there is any such damage.

Product type: Sound Analyser Nor140

Serial no.: 1406005

Power: 11-15 Volt DC

Option included: 67,68

Option description:

- 00: Tmax 5 and Leq1 according to German standards
- 01: 1/1 octave real time frequency filters 0,5 - 16.000Hz
- 02: Reference spectrum comparison with digital Go/No Go TTL output
- 03: 1/3 octave real time filters 0,4 - 20.000Hz, require opt 2
- 04: Statistical Calculations for weighting network and 1/n octave filters
- 05: Parallel calculation of F, S, I time constants
- 06: Profile, L/t measuring mode w / multi spectrum if opt 2 or 3 are installed
- 07: Enhanced profile including 4 markers and time resolution from 50ms
- 08 Sound recording
- 09: Reverberation time decay and calculation of T20 and T30
- 10: Noise generator with pink or white noise
- 11: Building acoustic mode according to ISO140, ISO10052 and ISO717/1 & /2
- 12: SweptSine measurement technique
- 13: Speech Transmission Index mode
- 14: FFT measuring mode with absolute units 8000 lines,
- 15: Survey Sound Power mode for LwA measurements according to ISO-3746
- 16: Enhanced global trigger
- 17: Audiometer calibration with measurement of Lzeq, frequency and distortion
- 18: Extended measurement range to 150dBpeak including self noise compensation
- 19: Special options for Noise Monitoring

Application

version: 3.0.1793 2014-02-03 13:30r

Id no.: 3679921

Accessories: Preamplifier 1209 Serial No.: 20041
Microphone 1225 Serial No.: 208101

Related to order: SO1423029

Checked and approved by: *AK*

Date: 2014-06-10

 **Norsonic**
P.O. BOX 24 N-3421 LIERSKOGEN, NORWAY

Warranty statement

Norsonic products are warranted against defects in material and workmanship. This warranty applies to 36 months from date of delivery.

Norsonic AS will repair or replace equipment, which proves to be defective during the warranty period. This warranty includes labour and parts. Equipment returned to the factory, for repair must be shipped freight prepaid. Repair due to misuse of the equipment and/or use of hardware, software or interfacing not provided by Norsonic AS are not covered by this warranty.

No other warranty is expressed or implied, included, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

Norsonic AS shall not be liable for consequential damages

Norsonic

Certificate of Calibration

Certificate No.: CAL 022-2014-4649



Test object: Sound Calibrator
 Manufacturer: Norsonic
 Type: 1251
 Serial no: 34129

Customer:

	Level	Level Stability	Frequency	Frequency Stability	Distortion
Measurement Results:	113,99 dB	0,04 dB	1000,35 Hz	0,00 %	0,41 %
Expanded Uncertainty:	0.11 dB	0.02 dB	1.0 Hz	0.1 %	0.2 %

The stated level is relative to 20µPa.

The stated level is valid at reference conditions. The following correction factors have been applied during the measurement:

Pressure: 0,0005 dB/kPa Temperature: 0,000 dB/°C Relative humidity: 0,000 dB/%RH Load volume : 0,0003 dB/mm³

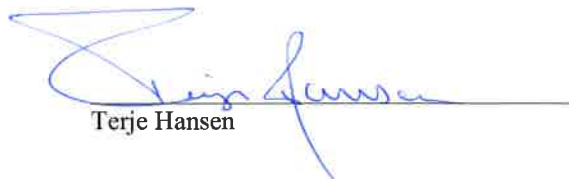
The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k, which for a t-distribution with the reported effective degree of freedom corresponds to coverage probability of approximately 95%. The standard uncertainty of measurement has been determined in accordance with EA publication EA-4/02.

Records: L:\PROJECTS\CALLAB\PROGRAM\Cal\2014\NOR1251_34129_M1.nmf

Environmental conditions:	Pressure:	Temperature:	Relative humidity:
Reference conditions:	101,325 kPa	23,0 °C	50 %RH
Measurement conditions:	98,313 ± 0,015 kPa	24,5 ± 0,4 °C	48,0 ± 2,8 %RH

Date received for calibration:

Date of calibration: 2014-07-01
 Date of issue: 2014-07-01
 Engineer: Terje Hansen
 Supervisor:


 Terje Hansen

This certificate of calibration is issued by a laboratory accredited by Norwegian Accreditation (NA). NA is one of the signatories to the EA Multilateral Agreement for mutual recognition of calibration certificates (European Co-operation for Accreditation). The accreditation states that the laboratory meets the NA requirements concerning competence and calibration system for all the calibrations contained in the accreditation. It also states that the laboratory has a satisfactory quality assurance system and traceability to accredited or national calibration laboratories. This certificate may not be reproduced other than in full.



TN I59436

**REMOVAL OF DUMPED MATERIAL & CONSTRUCTION OF INDUSTRIAL UNIT
FOR THE RECYCLING/TREATMENT OF WEEE, HHF 040, HAL-FAR, QASAM
INDUSTRIJALI, BIRZEBBUGIA**

ENVIRONMENTAL IMPACT STATEMENT: ADDENDUM



Version I: August 2015



Report Reference:

Adi Associates Environmental Consultants Ltd, 2015. Removal of Dumped Material & Construction of Industrial Unit for the Recycling / Treatment of WEEE, HHF 040, Hal-Far, Qasam Industrijali, Birzebbugia. Environmental Impact Statement Addendum prepared in support of development application no. TN 159436. San Gwann.

**THIS IS A DIGITAL COPY OF THE REPORT.
RESPECT THE ENVIRONMENT – KEEP IT DIGITAL**

Comments on the 1st draft of the Environmental Impact Statement (EIS)

TRK159436 (EA00003/15): Removal of dumped material & construction of industrial unit for the recycling /treatment of WEEE at HHF 040, Ħal-Far, Qasam Industrijali, Birżebbuġia, Malta

1. MEPA Comments

Coordinated Assessment

MEPA Comments		Adi Response	MEPA Comments
<i>General comments</i>			
Agricultural Land	Although detailed studies were scoped out from TORs, it was agreed during a meeting held on 19 February 2015 that a description of surrounding agricultural lands and potential impacts and mitigation measures were to be included in the land use assessment and Environmental Risk Assessment. The EIS lacks such details specifically related to the surrounding agricultural uses as well as potential impacts.	Land use was described in Chapter 3 and the agricultural land present in the vicinity of the site was mapped clearly in Figure 3.2 . Moreover, the risk assessment (Chapter 9) considered the agricultural land in the area of influence as a potential receptor in the case of major accident scenarios, in particular in the case of fire. It was not considered necessary to go into any further detail in describing the agricultural land in the area because, as identified in MEPA's comment, detailed studies were scoped out earlier on. It is considered that this remains the most appropriate way forward since potential significant effects on the agricultural land in the vicinity have not been anticipated.	Noted.

No.	Page	Para.	MEPA Comment	Adi Response	MEPA Comments
<i>Detailed comments</i>					
	9	3.4	This section refers to the fact that this project would be "directly contributing to a national collection rate of WEEE by 2021 and national reuse, recycling and recovery targets for 2018". This needs to be clarified since the	Noted. Nonetheless, the Scheme will contribute to these targets (including annual targets) once it becomes operational.	Noted.

No.	Page	Para.	MEPA Comment	Adi Response	MEPA Comments
			stipulated targets are the current maximum targets that are to be achieved. As such, collection rates and targets need to be achieved yearly and not only by 2021 and 2018, respectively.		
	22	3.30	Given that "Batteries will also be accepted for storage prior to export", it would have to be ensured that recycling efficiencies as per Commission Regulation (EU) 493/2012 are obtained throughout the recycling process, and all related information from the facility(ies) overseas is obtained, as required.	Noted. This operational detail will be handled through the IPPC permit for the site.	Noted.
	29 - 37	3.33 - 3.50	It should be ensured that both sites for storage and sites for treatment of EEE are in line with Annex VIII of Directive 2012/19/EU, and that treatment for selective materials and components should follow Annex VII of Directive 2012/19/EU.	Noted. This is for MEPA to regulate through the environmental permit (IPPC permit).	Noted.
	36	Table 3.4	Operator to confirm whether any pre-treatment be made to the ash prior to disposal at Ghallis Non-Hazardous Landfill.	Full operational details are still being addressed through the IPPC permit. Details on the need for pre-treatment of ash are not currently available.	Noted.
	51	4.2	Reference to EIA Regulations should be amended to read Environmental Impact Assessment Regulations, 2007 (S.L. 504.79).	Noted.	Noted.
	56	4.28	Legal Notice 204 of 2014: Waste Management (Electrical and Electronic Equipment) Regulations were not amended by Legal Notice 442 of 2012 and Legal Notice 358 of 2013 as is being stated in page 56. This was amended by Legal Notice 232 of 2015. Legal Notice 442 of 2012 and Legal Notice 358 of 2013 are amendments to the Waste Management (Packaging and	Noted.	Noted.

No.	Page	Para.	MEPA Comment	Adi Response	MEPA Comments
	95	6.20	<p>Packaging Waste) Regulations.</p> <p>Assessment is still to be carried out for the other viewpoints which were approved in the Method Statements. Photomontages are to be included even though as stated in the EIS, site is not visible.</p>	<p>As described in the EIS, photomontages for viewpoints 1 and 2 could not be developed due to (i) the distance from the site in the case of VP1 and (ii) the lie of the land and the obstruction from the trees in the case of viewpoint 2. This effectively means that the impact is not significant from these two viewpoints as there would be no detectable change to the base photographs, which are presented in the Technical Appendix. For ease of reference, the base photographs for viewpoints 1 and 2 are reproduced below. Refer also to Figure 6.1 (pg 99) which illustrates where the base photographs were taken from. Figure 6.1 is also reproduced below for ease of reference.</p>	Noted.
	155 & 159	Table 9.4 & Para. 9.20	<p>Further information is to be provided on how broken CRTs will be packaged given these are potential sources of metal/phosphor emissions (i.e. how will the jumbo bags containing these CRTs be sealed; any quality checks on the jumbo bags for rips/tearing prior to use, etc.)?</p>	<p>This operational level of detail will be provided through the IPPC permit, one requirement of which is to have an environmental management system in place at the site.</p>	Noted.
	40, 160 & 165	3.61, 3.62, 9.34, 9.35 & 9.64	<p>Further information should be provided on how the doors of the internal and external rooms for the fluorescent tube crushing will operate, in order to ensure a sealed system preventing escape of fugitive mercury emissions. Furthermore, confirmation as to</p>	<p>The internal door will only be opened once the external door has been closed (and vice-versa); both doors will be kept closed except when personnel are entering / exiting the area, and will be kept</p>	Noted.

No.	Page	Para.	MEPA Comment	Adi Response	MEPA Comments
			whether the storage of broken tubes will take place in the inner or outer chamber prior to processing.	closed when the crusher is operational. Storage of the tubes is in the outer chamber, any broken tubes will be immediately stored inside the crusher, awaiting processing. Refer to attached figure. This latest plan updates Figure 3.11 (pg27).	

2. Consultees' Comments

A. Environmental Health Directorate (Email dated 13th August 2015)

Comments
<p>Applicant is to adopt best practice methods together with good site practices and ensure compliance with Environmental Management Construction Site Regulations during the excavation and construction phase so as to cause least nuisance and address adverse air (from dust dispersal and emissions from vehicles and machinery), noise and vibration impacts on sensitive receptors in the Area of Influence. Hence the importance of drawing up and implementation of a Construction Management Plan to ensure adherence to proper site management practices so as to address groundwater and surface water pollution, to mitigate other adverse construction impacts, including construction traffic impacts 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.</p> <p>ADI RESPONSE: NOTED. THESE ISSUES WILL BE ADDRESSED THROUGH THE PLANNING PERMIT</p> <p>It is pertinent that during the operation of the Scheme all proposed mitigation measures highlighted in EIS especially regarding air emissions from the release of mercury vapour and phosphor/glass dust from the crushing of fluorescent tubes, noise impacts from plant/machinery (crushers, compressor and gasification plant) and from the dump trucks transporting waste to and from the site and adverse impacts on ground and surface water run-off are to be strictly implemented. The proposed monitoring especially the air monitoring programme should also be implemented.</p> <p>It is also pertinent that all proposed mitigation measures regarding all identified pollutants during the operation of the Scheme be strictly implemented. Moreover in view that as stated in EIS, the risk associated with emissions from fluorescent tube crushing and storage depend on current mercury baseline levels and on the level of emissions during the operation of the Scheme and is therefore still uncertain, this issue of mercury levels and emissions together with periodic operational monitoring should be addressed through the IPPC permit application process. Potential impacts on ground water due to mercury</p>

deposition off-site should also be taken into consideration.

Adequate measures should be taken so as to prevent adverse impacts caused by unsafe, inadequate storage, improper handling and potential accidental spillage of hazardous fluids, fuel and lubricants which are to be well managed and adequately stored.

Traffic management and access arrangements should be taken into consideration to prevent any nuisances and adverse impacts, including impacts from dump tracks transporting waste material to and from the site.

A waste management strategy should be adopted and strictly implemented so that all generated waste streams will be contained, separated and disposed of safely through the appropriate facilities and according to the necessary permits/licences.

With regards to handling, storage and disposal of hazardous waste, adherence to regulatory codes and procedures and due diligence is important in view of the health and safety of sensitive receptors.

Proposed cesspits are to be duly registered with the Superintendent of Public Health and reservoir harvested rain water should not be used for human consumption or for personal use.

Pest control treatments are to be regularly carried out by the management both inside and outside the facility. Records are to be kept by the management and these are to be available to the competent authorities when required.

The necessary mitigation measures are to be taken by Applicant to prevent/address nuisances and adverse impacts at all stages of this project on the Area of Influence and to prevent, minimise and where possible offset any other significant/adverse and unpredicted health effects and nuisances which may arise. The possible health effects of any residual impacts that cannot be mitigated and cumulative impacts, especially related to mercury emissions, should also be taken into consideration and adequate mitigation measures implemented.

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.

ADI RESPONSE: NOTED. AS IDENTIFIED HERE, THIS APPLICATION IS ALSO SUBJECT TO AN INTEGRATED POLLUTION PREVENTION CONTROL PERMIT. AS PART OF THIS PROCESS, BASELINE AIR MONITORING FOR MERCURY HAS ALREADY BEEN CARRIED OUT, WHICH SHOWS THAT BASELINE LEVELS OF MERCURY AT THE SITE ARE BELOW THE LIMIT OF DETECTION (<0.05 µg/m³).

B. Malta Resources Authority (Email dated 14th August 2015)

Comments

The Authority has no further comments.

With the coming into force of the Act No. XXV of 2015 establishing the Regulator for Energy and Water Services, the Water Policy Framework Regulations and the Protection of Groundwater against Pollution and Deterioration Regulations shall have effect as if made under the Environment and Development Planning Act and the Sustainable Energy and Water Conservation Unit (SEWCU) is the Competent Authority for groundwater and for the Protection of groundwater under both pieces of legislation. Therefore these comments are being made without any prejudice to SEWCU'S competence at law and to any comments and submissions which SEWCU may make.

ADI RESPONSE: NOTED

MEPA Comments

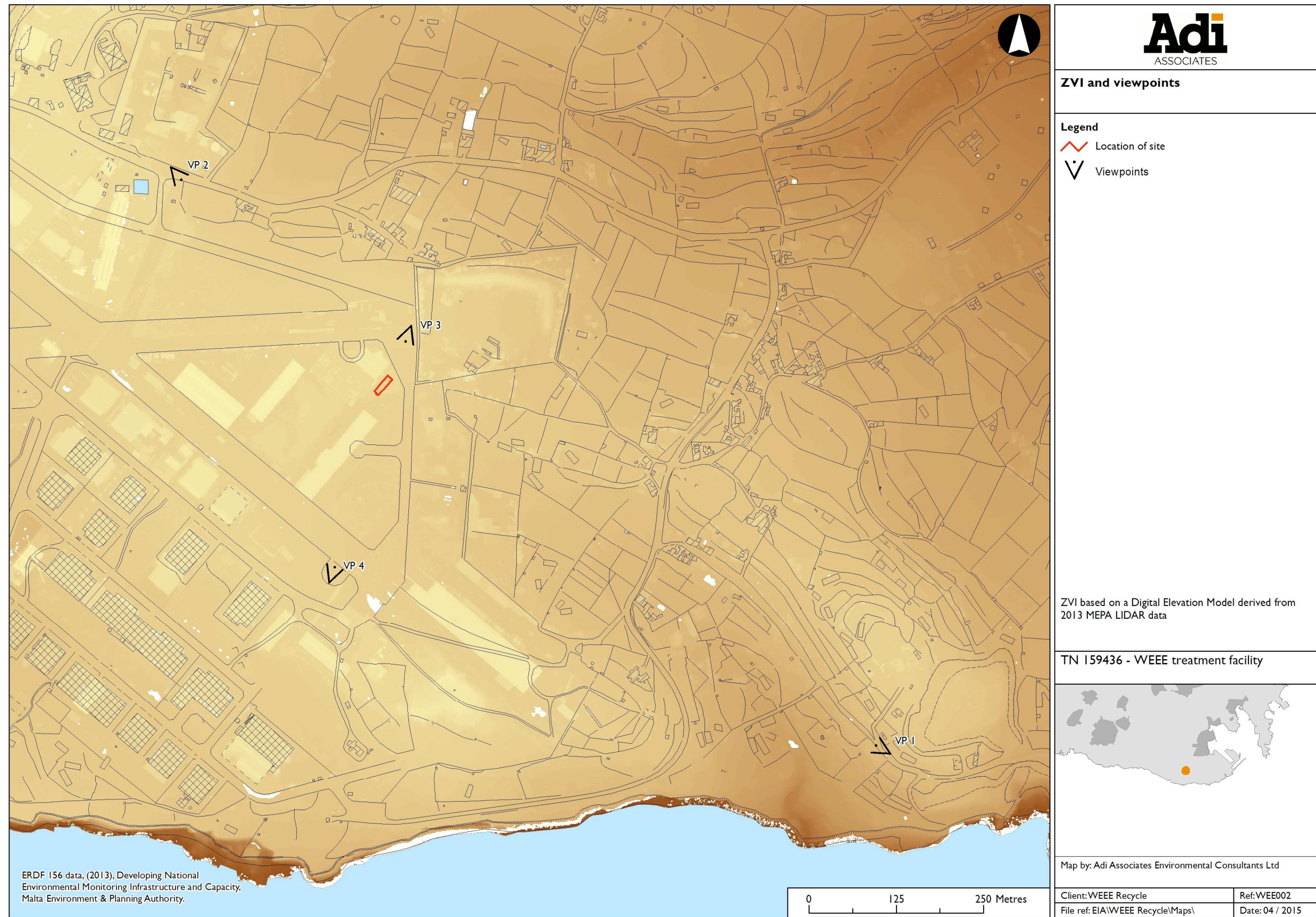
Viewpoint 1: Triq il-Fortizza



Viewpoint 2: Triq Hal-Far

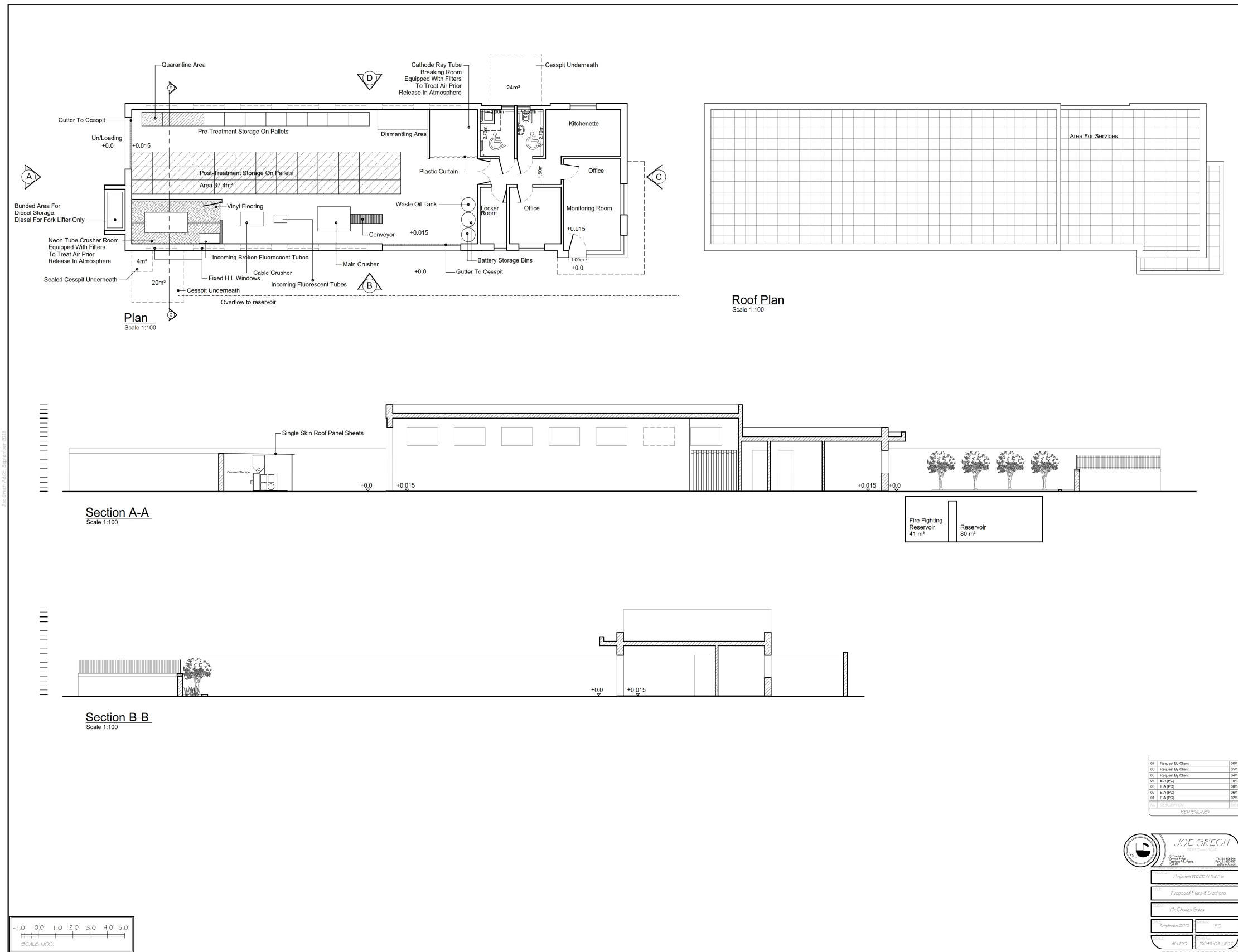


Figure 6.1: Zone of Visual Influence and selected viewpoints



INDICATIVE ONLY - Not to be used for direct interpretation

Figure 3.11: Scheme plans (central building) and sections



Comments on the Environmental Impact Assessment (EIA) following the public hearing held on 13th October 2015

TRK159436 (EA00003/15): Removal of dumped material & construction of industrial unit for the recycling /treatment of WEEE at HHF 040, Ħal-Far, Qasam Industrijali, Birżebbuġia, Malta

1. Comments from the Birzebbuga Environmental Action Group (BEAG)

Coordinated Assessment

BEAG Comments	Adi Response
<i>General comments</i>	
Since the processing of WEEE is in line with the EU Solid Waste Framework, local legislation and the Waste Management Strategy, in principle, BEAG is totally in favour of the proposed 'industrial unit' for the processing of WEEE. However, BEAG demands that such a unit, including its operator and its operations, be in full compliance with extant environmental laws, and safety norms, especially with regard to emissions to air and wastewaters.	Noted. In addition to requiring a development permit and an EIA the proposed development also requires an Integrated Pollution Prevention Control permit (the most onerous of environmental permits in Maltese legislature). The latter is also subject to public consultation.
Unfortunately, the EIS (Version1: July 2015) as prepared by Adi Associates, contains an inordinate number of misleading references, especially those relative to wood processing and gasification plants, which have no relationship to the current WEEE application and its related operational 'Scheme'. BEAG expected that Adi would have updated its EIS, eliminating all irrelevant information and data, and introducing any newly arising guidance information.	The EIS includes a description of the process in line with the Applicant's intention which is to first process wood in the main crusher but eventually to introduce a gasification plant; this is intended as a long-term project. The Consultants cannot withhold this information since these proposals are clearly in the Applicant's plans for development. This information will also be included within the IPPC application, which is being prepared concurrently with the EIA, indicating the Applicant's commitment to introduce a gasification plant at a later date. It is considered that all information provided in the EIS is relevant to appropriately inform the public – the Consultants should not withhold any information gathered about the process as this would not be in line with good practice and in line with MEPA's requirement in the Terms of Reference (section 1.2.7) to address longer term developments.
It is a pity that during her presentation and amplification on environmental risks and impacts, the ADI representative confirm during the Public Consultation that their low risk-impact EIS review was based on 'newly arising information', without ever providing any amplification	The presentation included the outcome of the risk assessment as presented in the EIA. Refer to slide 18 in presentation included as Appendix 1 to this Addendum. The Consultants then went on to explain that the Applicant had carried out further research into operational

BEAG Comments	Adi Response
<p>as to what this info was all about, and how it was acquired. Those present for the public consultation were apparently expected to accept such unbecoming and unethical declarations.</p>	<p>issues related to the abatement system associated with the crushing of fluorescent tubes (as part of the IPPC application) and that a decision had been taken on the type of filtration system to be adopted – that is two Carbon filters and 1 high efficiency particulate air (HEPA) filter to be put in place to ensure that the emissions (from the neon tube crushing process) do not exceed the most stringent WHO air quality standards in terms of mercury. It was then explained that with this abatement system in place, the risk specifically associated with mercury emissions from fluorescent tube storage and crushing would be classified as low as opposed to the previous classification of ‘uncertain’. Given that the risk assessment classified a risk as uncertain, once further information was available to then classify the risk in accordance with the methodology presented in the EIA, it was considered good practice to do so and the Consultants felt that the public attending the public hearing had a right to know all developments in the process. The public hearing presented an opportunity to present this latest information. The filter specifications are presented in Appendix 2 of this Addendum.</p>
<p>The plans as submitted in the EIA and in any and all reference to MEPA application TN 159436 should be revised to reflect the actual recycling and treatment of WEEE, eliminating any and all references to a ‘gasification unit’ in the covered storage area since this is not related to the processing of WEEE, as per present considerations at MEPA.</p>	<p>The Applicant has included all planned aspects of the Scheme in the relevant plans. The EIA must ensure that all planned aspects are considered in the Scheme description as per best practice. The gasification plant can, however, be left as a reserved matter until a plant has been selected by the Applicant and further details are provided at a later stage (such as through an application for variation of the IPPC application); this would, however, be MEPA’s decision.</p>

Page	Para.	BEAG Comment	Adi Response
<i>Revision of submitted plans</i>			
47	Figure 3.16	<p>The collection and recirculation of ‘trapped’ mercury vapours and ‘treated’ wastewaters from the fluorescent / neon tube crusher at the ‘sealed cesspit’, should be revised to include a safe double jacketed cesspit (i.e. PVC / plastic container within a rendered concrete block cesspit) that allows for a</p>	<p>Figure 3.16 has been updated and is included as Figure 1 below. The updated figure illustrates that the cesspit connected to the neon tube crusher room will consist of a prefabricated stainless steel tank inserted into the constructed cesspit which is additionally lined with concrete, a geotextile membrane, followed by a final concrete layer. The design will allow for inclusion of a volumetric gauge, leak-proof verification and certification by a warranted engineer,</p>

Page	Para.	BEAG Comment	Adi Response
		<p>volumetric gauge, leak-proof verification and certification by a warranted engineer, safety factors against the potential release of mercury vapours, and facilities for the required testing prior to 'WSC / MEPA' approved sewer or eventual export disposal of this type of hazardous wastewaters.</p>	<p>Wastewater received by this tank will be filtered through a sand filter (to capture particulates that could compromise the following filter), followed by a Carbon filter (that will capture mercury). A reverse osmosis unit will also be installed to capture any residual dissolved metals</p> <p>This filtration plant will be housed adjacent to the fire suppression system, outside the main building as illustrated in Figure 2 below. The cesspit will include a ventilation pipe for displaced air that will emit into the neon tube crusher room and will thus also allow any mercury vapours to be captured by the air filter system. An automatic level gauge will also be installed to ensure there is always spare capacity in the tank.</p> <p>If discharge of effluent from this tank is required, this will only be carried out after treatment and analysis of the treated water to ensure it meets WSC's / MEPA's requirements.</p>
47	Figure 3.16	<p>Again the second hazardous wastewater cesspit, intended for the collection of hazardous floor wastewaters of the processing-storage area, containing hazardous PMs from eventual CRT neck breaking and other phosphors as arising from the neon tube crushing should be similarly constructed.</p>	<p>As described above, water reaching the larger cesspit will be treated; it is envisaged that the treatment system will consist of a sand filter followed by a Carbon filter and reverse osmosis unit, the latter to capture any residual dissolved metals. The cesspit will be constructed of concrete and lined with a geotextile membrane to ensure its impermeability, and will be tested for impermeability by a warranted engineer. An automatic level gauge will also be installed to ensure there is always spare capacity in the cesspit.</p> <p>If discharge of effluent from this cesspit is required, this will only be carried out after treatment and analysis of the treated water to ensure it meets WSC's / MEPA's requirements.</p>
47	Figure 3.16	<p>The finished flooring gradients as proposed in Figure 3.16 Surface water and wastewater management (Block Plan (rain / drainage system) should be revised in order to make it</p>	<p>As proposed and presented in the figure, the physical flooring gradients result in all surface water falling on the outdoor area and roof being captured in the reservoir after passing through the interceptor i.e. this water cannot leave the site without first being treated.</p>

Page	Para.	BEAG Comment	Adi Response
		<p>physically impossible for any storm water going out of the Scheme premises and potentially contaminate the nearby Wied il-Mixta watercourse and catchment area, or those in Wied Zhuber, since both are in the area of influence by the Scheme operations, as indicated in Figure 5.5: Hydrology and Hydrogeology (page 85). At this stage, one is to additionally point out that although not conveniently indicated in any layout plans included in the EIS for the scheme WEEE operations, the Scheme site for WEEE processing actually has two boreholes as confirmed by Figure 5.3 Location of bores, page 73 of the EIS. Although the nearest public (WSC) borehole is some 1,000 metres away, in the vicinity of the site there are 'a number of private boreholes' (see paragraph 5.52, page 83). It is true that the EIS confirms that a geotextile membrane would be provided under the concrete hardstanding; but considering the above, and</p> <ul style="list-style-type: none"> • The number of underground cesspits and reservoirs envisaged on site, with all the potential leakages, unless seriously technically mitigated, as explained above; • The EIS declared (para 5.58, pages 87-88) 'potential impacts on groundwater due to mercury deposition off-site are unknown'; • The weak and inefficient EIS 'mitigation' measures (para 5.60, page 88), including <ul style="list-style-type: none"> • 'The ground in outdoor areas 	<p>With reference to Figure 5.3 it should be noted that this figure illustrates the location from where core samples were taken as part of the geo-technical investigations and does not refer to boreholes from which groundwater is extracted.</p> <p>With reference to CRT processing, it should be clarified that particulate matter is airborne and captured via the HEPA filters within the processing area located inside the facility. Thus, there is no pathway whereby the PMs can reach the reservoir. Additionally, disposable overalls will be worn by employees working in the CRT / fluorescent tube crushing areas to ensure that any particles that adhere to clothing / shoes are not taken outside.</p> <p>In relation to the fluorescent tube crushing room, further details on mercury abatement have been included in Appendix 2 to this Addendum. The proposed system will mitigate mercury emissions to below 0.001 ppb (0.008 µg/m³), which is well below the tolerable concentration of 0.2 µg/m³ for long-term inhalation exposure to elemental mercury vapour estimated by the World Health Organisation (WHO). As a result, the environmental risk from this activity can be classified as low. Figure 3 provides design details of the neon tube crusher room.</p> <p>Wastewater treatment details have been described above. Additionally, it is to be noted that the plant will not discharge effluent from the tank / cesspit before the water has been analysed to ensure it meets WSC's / MEPA's requirements.</p>

Page	Para.	BEAG Comment	Adi Response
		<p>of the site will be laid to fall towards an oil-water interceptor before being received in the reservoir', which is useless and inefficient where ecotoxic and carcinogenic (H7 and H14) particulate matter (PMs) from the Cathode Ray Tube (CRT) processing, can easily find their way outside of the processing area through potential continual contamination from uncontrolled employee boots, amongst other;</p> <ul style="list-style-type: none"> • 'Wastewater from any washing of floors in the WEEE treatment building will be collected in gutters, filtered to remove trace contaminants, and received in an underground cesspit for reuse' – however, the EIS fails to provide details of any such filtering, and its efficiency factor; • In the case of the impact on mineral resources, the residual impact remains minor to major since the impact cannot be mitigated (para 5.61, page 88). 	
25	Figure 3.10	<p>We strongly recommend that the proposed public wayside 'skip', earmarked as a 'civic amenity site', allegedly introduced at the instance of MEPA, be eliminated, since this will give rise to abuse and littering. Moreover, it is considered superfluous when (a) there is a fully fledged, Wasteserv operated, Civic Amenity Site, in the vicinity; and (b) the Scheme Operator has publicly</p>	<p>Noted. The Civic Amenity Site was included following a request to do so from MEPA. Since the public hearing, it has been removed. See Figure 4 below.</p>

Page	Para.	BEAG Comment	Adi Response
		confirmed during the MEPA held consultation meeting that he will be providing a free WEEE waste collection service.	
25	Figure 3.10	Again, it has resulting from proceeding of the public consultation that no geotextile protection is envisaged for the proposed green strip at the front of the site under consideration. In view of the potential hazardous air emissions of PMs and mercury vapours from site, and the resulting boreholes on and near site under consideration, geotextile protection of this green skip is considered as an environmental 'must' to mitigate any potential risks from the indicated hazardous sources.	As explained above, there are no boreholes on site. Also, air emissions are abated through the use of carbon and HEPA filters. The geotextile membrane is not a mitigation measure that aims to address air emissions; it is included to mitigate potential contamination from hazardous liquids stored on site. The green landscaped strip is not exposed to the storage of such liquids, and therefore, in the absence of a pathway, there is no need to introduce this measure in the landscaped area.
25	Figure 3.10	Similarly, and for the same reasons, the proposed 28 Olive trees, earmarked to be planted at this green strip, should be replaced by indigenous decorative trees in order to forestall any human consumption of olive fruit potentially contaminated with hazardous air emissions from the Scheme site operations.	Although this was not considered to be a risk in the risk assessment, the Applicant has proposed alternative trees to be included in the landscaping scheme (see Figure 4 below).
<i>Reservations on the eventual attainment of the main objectives of the Scheme</i>			
9	3.2-3.3	Granted that the Operator would be following the EIS declared norms, procedures and work practices, the BEAG has strong reservations as to whether the EIS declared objectives of the proposed Scheme (i.e. the WEEE facility) would ever be satisfactorily attained. 'The primary objective of the Scheme is to provide a facility for the preparation for recovery of WEEE...According to EIS page 9, paras 3.2-3, the Scheme aims to:	Noted.

Page	Para.	BEAG Comment	Adi Response
		<ul style="list-style-type: none"> • Develop a new purpose-built WEEE treatment facility that is equipped with air abatement, surface water management and pollution prevention measures; • Facilitate Malta's achievement of the minimum WEEE collection rate and WEEE recovery targets set by the Waste Management Plan for the Maltese Islands (2014-2020). 	
32	3.38	<p>Para 3.38, page 32 reports that 'When a WEEE stream is not covered by an approved work plan, no treatment on site will be carried out. In these cases, the waste will be stored on site (typically in the shed) prior to shipment, without any dismantling or processing. This option is planned for those categories of WEEE that the site will not be equipped to treat, such as refrigeration equipment containing ozone-depletion substances...' This is confirmed by EIS Tables 3.1 Incoming waste and raw materials, where some 200 tonnes of fridges/freezers are reported to be earmarked annually for storage prior to export. EIS Table 3.4 Outgoing waste, confirms that these 200 tonnes of 'fridges / freezers will eventually be 'stored and contained' at a designated area in the shed, where the final destination shall be ;exported to authorized facility for recovery (and destruction of the refrigerant).</p>	Noted.
29; 35	Table 3.1; Table 3.4	The same EIS Tables 3.1 and 3.4 confirm that the same fate and 'laissez faire' are earmarked for an annual total of some 50	There will be no separation of batteries carried out as part of the Scheme.

Page	Para.	BEAG Comment	Adi Response
		tonnes of batteries which shall be stored 'in battery storage bins indoors, and eventually exported to authorized facility for recovery'. The EIS fails to indicate if the Operator is even prepared to sort out and store separately hazardous lead, Ni-Cd and mercury containing batteries.	
		However, one cannot but adversely comment on the declared amateurish 'processing' that the Operator would be providing for the Cathod Ray Tubes televisions and monitors. In this instance, the EIS declares that the Operator would be partially dismantling some 300 tonnes annually of these WEEE items that contain highly hazardous 'ecotoxic' components.	The CRT processing to be carried out as part of the Scheme represents the first step in the treatment of this waste. This processed material will then be sent on to another facility for further treatment. The importance of this first step lies in the fact that the CRT is sealed under vacuum pressure. The seal needs to be broken to release pressure and reduce risks during storage and transport of this waste.
40	3.64	The EIS has reported: 'Cathode Ray Tubes (CRTs) include components such as lead oxide, barium, strontium and zirconium oxide and fluorescent coatings. Fluorescent coating are commonly referred to as 'phosphors', and in CRTs, these can include zinc, cadmium, and yttrium sulphides, copper or silver chloride and occasionally arsenic.	Noted.
		'While no crushing of the CRTs, is proposed, breaking of the CRT neck [actually proposed] could result in the release of dusts [hazardous particulate matter or PMs] containing these components'.	The EIS has been quoted, however, no comment has been made.
162; 163	Table 9.6; Table 9.7	Tables 9.6-7 of the EIS reporting on risk levels without mitigation: with mitigation: Mercury / phosphor emissions from breaking of the CRT neck: Environmental Consequences – Major (without mitigation); Insignificant (with	Noted. Refer also to the text that describes the assessment presented in the two tables.

Page	Para.	BEAG Comment	Adi Response
		mitigation) Likelihood of consequence – Almost certain; Almost certain Resultant risk level – extreme (without mitigation); Low (with mitigation).	
164	Para 9.59	The EIS reports: 'With mitigation, the environmental effects of CRT neck breaking are expected to be insignificant, since the HEPA filter has a 99.97% filtration efficiency on particles more than 0.3 microns. Emissions are routinely generated during dismantling and thus the frequency has been retained as almost certain'.	Noted.
161	Para 9.36	The EIS reports: Breaking of the CRT neck will take place in a CRT breaking room that includes a thick HDPE curtain with 1-2 inch overlapping panels, equipped with a negative pressure unit connected to a HEPA filter.'	Noted.
40	Para 3.64	EIS para 3.64 adds 'This design facilitates frequent entry and exit by site operators, while ensuring that a seal is quickly recreated and that dust is filtered'.	Noted.
		During the public consultation, when the Adi Associates representative was questioned about the inordinate low risk factor arising from doubtful mitigation, which include a HEPA filter of 3 microns, when one could easily install and maintain a HEPA filter with 1-2 micron filtration, thus providing a much better filtration efficiency for the hazardous PMs mentioned in para 3.5 above; and that these hazardous PMs would be continually transferred to the processing area and the concrete hardstanding through contaminated boots / shoes and clothing; the only reply	During the public hearing the Consultants clarified that the filters have a high efficiency, as stated in the EIS filtering particles as low as 0.3 µm and not 3 µm. Also, as explained above, fine particulate matter is airborne and will be preferentially filtered through the air filtration system in view of the negative pressure unit to be installed. As part of the operational procedures on site, operators will be required to wear disposable overalls when processing this waste. The risk factor result in this regard remain the same. It should be clarified that the Consultants were referring to the risk assessment for fluorescent tubes storage and crushing when describing that the abatement system for this area had now been decided upon (the referred to 'new information'), which resulted in a change in risk rating from uncertain to low.

Page	Para.	BEAG Comment	Adi Response
		furnished was that the official risk factor results following mitigation were provided after new information was acquired and assessed. However, no details of any such info was presented in amplification.	
		One noted that the inordinate quantity of hazardous PMs in the CRT treatment room will either be dealt with through a negative pressure and HEPA filter, or, otherwise through floor washing with filtration through a chemical filter.	Airborne particulate matter will be preferentially filtered through the HEPA filter rather than deposited. The filtration system for floor washing has been described above, and will be further elaborated as part of the IPPC application.
		Unfortunately, the EIS fails to provide any technical details of such chemical filters, including their efficiency values and their effective risk mitigation, and one is therefore required to take the reported low risk factor for granted, without any supplementary guidance.	The EIS does include reference to the efficiency of the air filters. Refer to para 3.61. The filtration system for floor washing has been described above, and will be further elaborated as part of the IPPC application and regulated as part of the IPPC permit; the design will be sufficient to ensure sufficient abatement of any hazardous substances in the wastewater, and there will be no discharge of effluent to sewer unless it meets WSC's / MEPA's requirements.
29; 35	Table 3.1; Table 3.4	On comparison between the EIS Table 3.1 – para 3.33 (Incoming waste and raw materials) and Table 3.4 (Outgoing waste) for the breaking of the CRT television / monitor necks activity, one notes that out of the estimated 300 tonnes of incoming such waste, an estimated 180 tonnes of hazardous CRT televisions / monitors would be 'exported to authorized recycling facility'. Apart from the 'lacquered' wooden component, one fails to account for the high discrepancy in the figures quoted in the EIS, which in theory should be the recycled factor.	The 180 tonnes refers solely to the glass component of this waste stream.
		In conclusion, BEAG is not convinced that the WEEE processing through the Scheme is an asset, and considering the quantity of highly hazardous PMs arising from the CRT	Opinion of BEAG noted.

Page	Para.	BEAG Comment	Adi Response
		neck-breaking, one concludes that this particular WEEE process, including the final export of a high percentage of the same waste, as amplified through the EIS, and proposed by the Operator is a great environmental liability that should be prohibited from ever getting any MEPA sanctioning.	
<i>The proposed fluorescent-neon tube crusher</i>			
31	Para 3.37	The EIS provides the background on the 'fluorescent tube crusher', its operations and related hazardous air and wastewater emission control measures. Bullet no. 3 of EIS para 3.37 appears to give more importance to the resulting facts that 'this activity allows clean glass to be generated and the volume of the tubes to be significantly reduced, thus reducing storage space requirements and the shipping costs'.	It is unclear what point is being made here.
40	3.61-3.63	EIS paras 3.61-63 provide the proposed processing procedures and alleged related emission risk reduction factors. One notes with regret that the EIS fails to provide the necessary manufacturer's safety and operational standards for this particular crusher, even though this is supposed to be an EU maxim. In like manner, Figure 3.14: Fluorescent Tube Crusher leaves much to be desired for one who is expected to report on this particular process.	It is beyond the scope of the EIA to enter into such detail in relation to the operational specifications of the crusher; the concern for the EIA is any emissions related to this process, not the machine itself. This detail will appear in the IPPC application as far as is relevant.
45	3.80	The EIS confirms, if any further confirmation on the environmental safety of this particular crusher was required, that all concerned, including and EIS expertise report that 'if any wastewater discharge is required, the	As described above, this is a precautionary measure, to be adopted in accordance with good practice.

Page	Para.	BEAG Comment	Adi Response
		wastewater will first be tested in accordance with WSC requirements and either discharged to the sewerage system or exported to an authorized facility’.	
35-36	Table 3.4	Outgoing waste reporting on the ‘wastewater from fluorescent tube crushing cesspit, the ‘destination’ caption reports ‘normally reused; however, if discharge is required the wastewater will be tested and either (a) discharged to the sewerage network if found to be below the WSC discharge limit; or (b) exported to an authorized facility if not.	Noted.
		The above comments confirm that all the reported air and wastewater control measures for the fluorescent tube crusher are in fact highly doubtful, and cannot be relied on to provide full compliance with the statutorily required emission limit values or those established by MEPA.	Opinion noted. Specifications on the air abatement system for the crusher are included in the Appendix 2 to this Addendum, and all operational aspects of the development will also be presented in the IPPC permit application that will also undergo public consultation. Monitoring will also be undertaken as part of IPPC permit requirements, to verify the efficiency or otherwise of the abatement systems.
		The EIS additionally provides the misleading information that there are no residents within a 180 metre radius from site that could possibly be adversely affected through hazardous high mercury emissions vapours from site. One is to note that within this radius there are a number of factory employees and other leisure activity personnel that would be directly affected with highly toxic mercury vapour emissions, let alone the continual health hazards arising from other hazardous PMs arising from the CRT neck breaking.	The information is correct and not misleading. Employees of nearby factories are not residents. In addition, further details on mercury abatement have been provided in the Appendix 2 to this Addendum.
		Under the circumstances, BEAG officially asks MEPA to curtail any and all WEEE operations as proposed in the Scheme, that	Noted. The EIA findings and IPPC application, based on research and assessment, should help to inform MEPA’s decision.

Page	Para.	BEAG Comment	Adi Response
		have high air and wastewater emission values, or that ultimately prove to be an unsustainable environmental liability. Until such time as Malta can be equipped with preventative emissions, MEPA should not entertain the building permit as proposed by the applicant. Just for the say to say that we are now recycling hazardous waste the risk is far too great.	

Figure I: Surface water and wastewater management

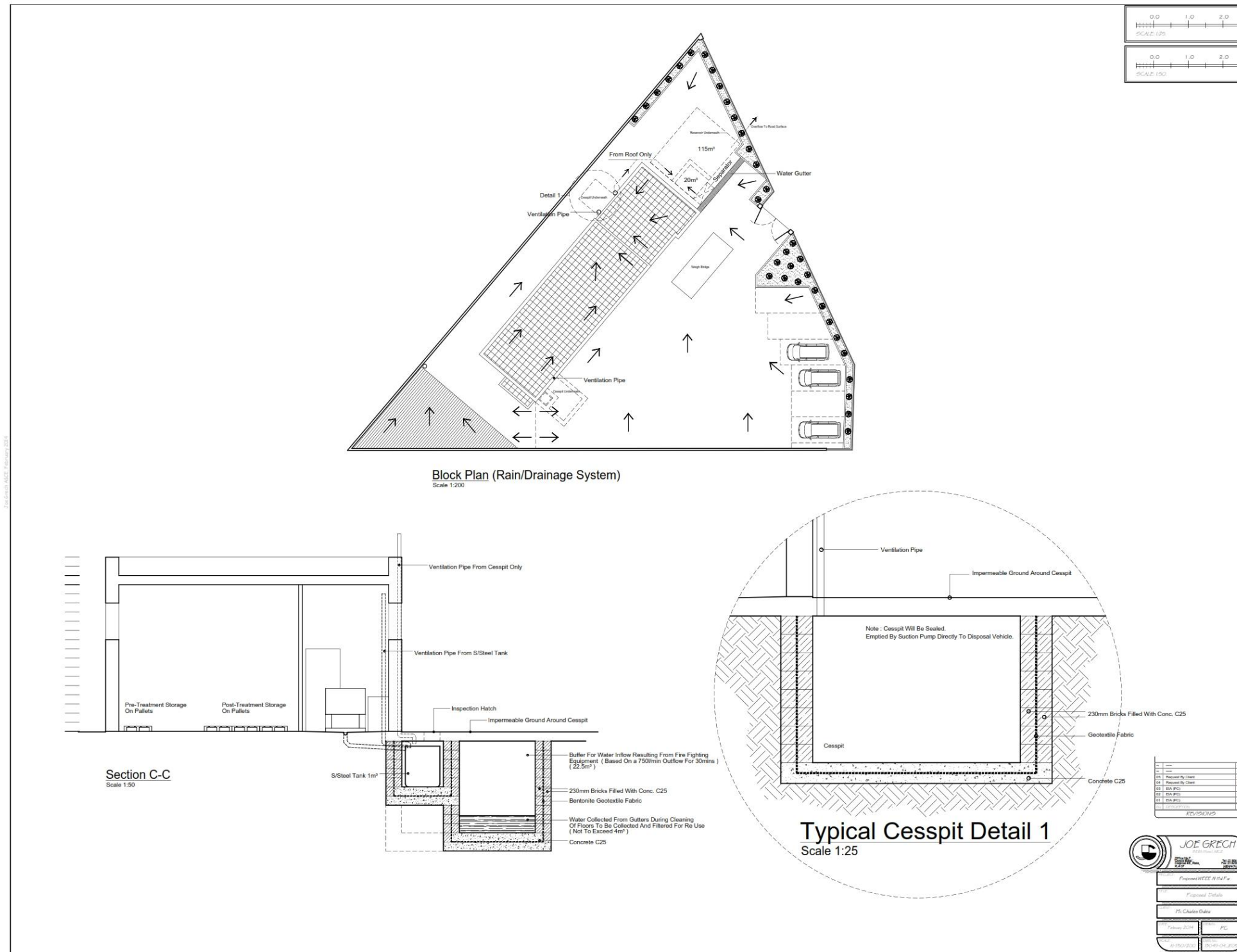


Figure 2: Scheme plans

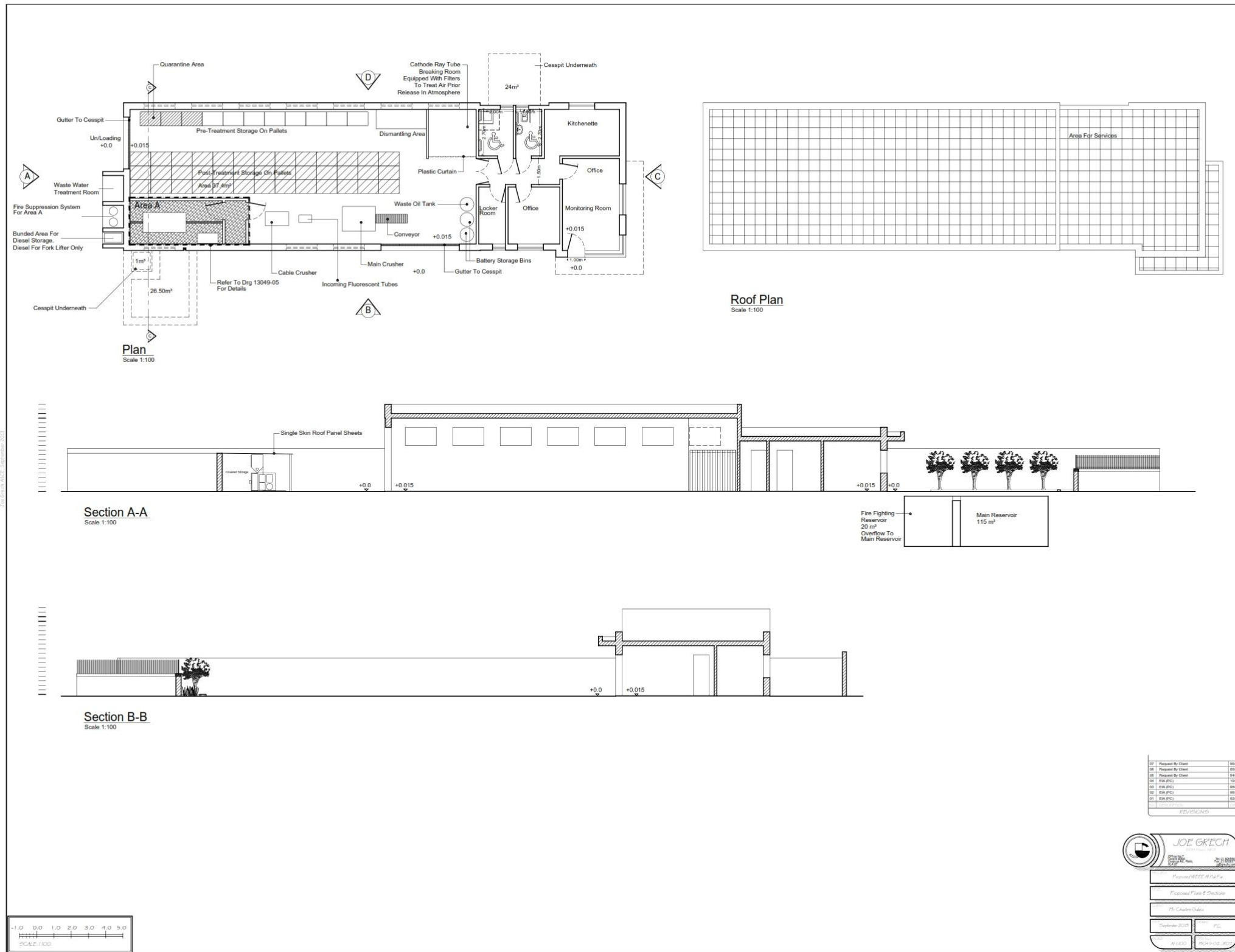
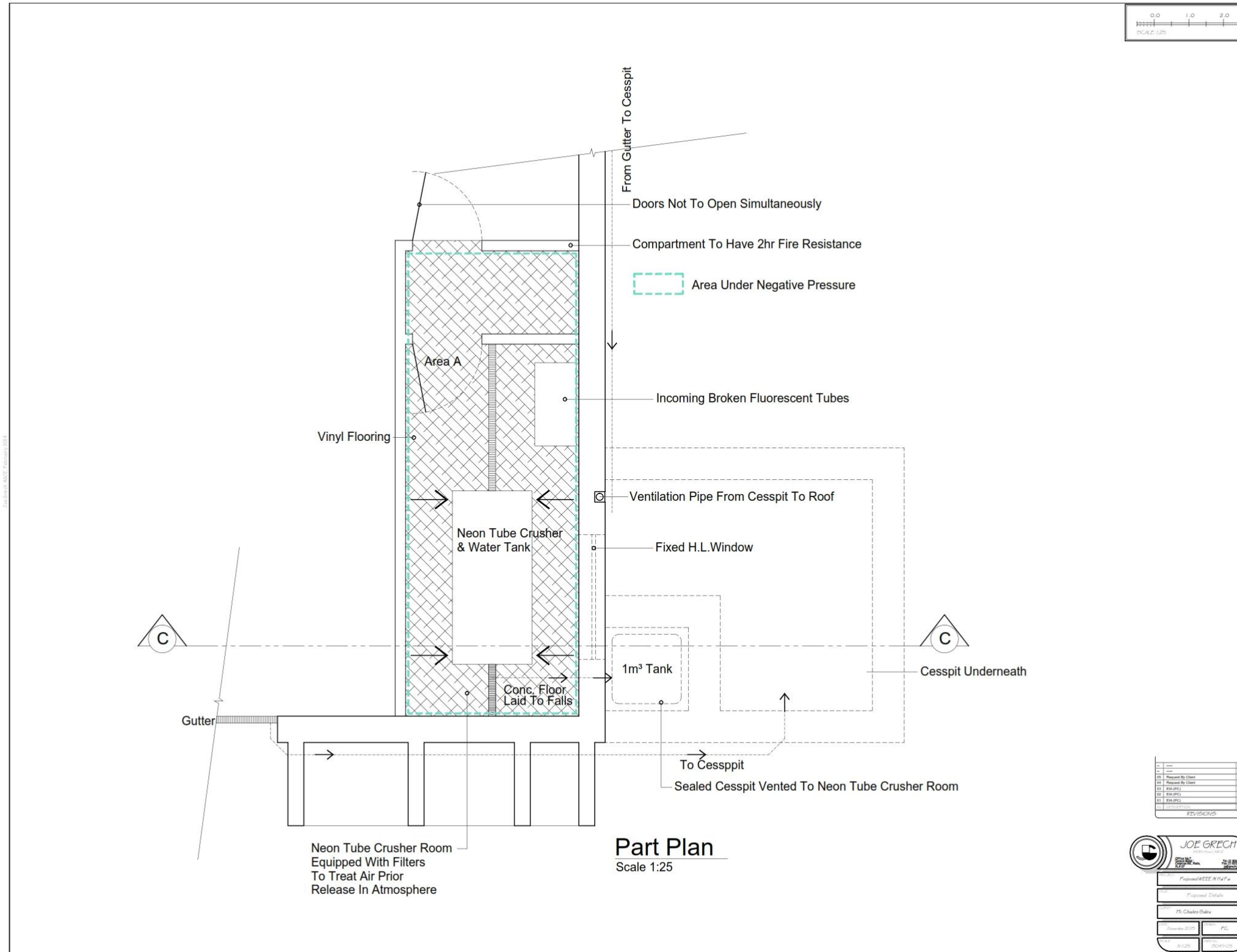


Figure 3: Neon tube crusher room



Appendix I: Public hearing presentation

Adi
ASSOCIATES



Public Hearing

TRK 159436

Construction of an Industrial Unit for the
Recycling / Treatment of WEEE at HHF 040
Hal-Far, Industrial Estate

- PDS submitted in January 2015
- MEPA requested an EIS (and an IPPC permit application)
- Terms of Reference issued by MEPA
- All EIA Consultants approved by MEPA
- Method Statements agreed by MEPA
 - Geo-Environment
 - Landscape and visual assessment
 - Ecology
 - Noise

- Chapter 1: Introduction
 - Chapter 2: EIA Methodology
 - Chapter 3: Description of Scheme and Site
 - Chapter 4: Legislation and Policy Context
 - Chapter 5: Geo-Environment
 - Chapter 6: Landscape and Visual Amenity
 - Chapter 7: Ecology
 - Chapter 8: Noise
 - Chapter 9: Environmental Risk Assessment
 - Chapter 10: Summary of key impacts, interaction between impacts and mitigation
- Appendices + Technical Appendices

Scheme Location



Location of site within the
Hal Far Industrial Estate

Legend

 Location of site

TN 159436 - WEEE treatment facility



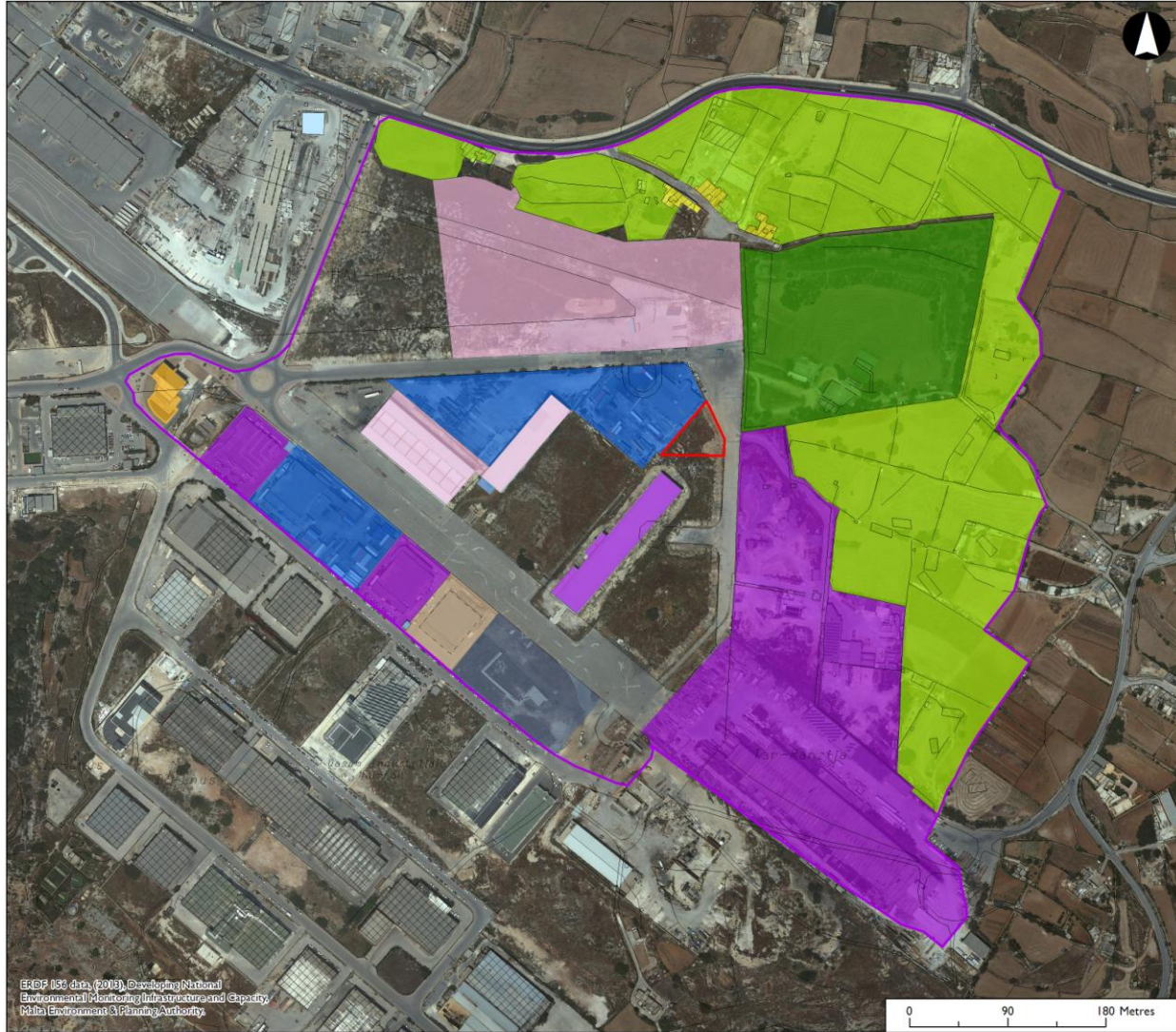
Map by: Adi Associates Environmental Consultants Ltd

Client: WEEE Recycle	Ref: WEE002
File ref: EIA\WEEE Recycle\Maps\	Date: 10 / 2015

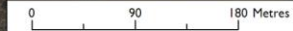
ERDF 156 data, (2013), Developing National
Environmental Monitoring Infrastructure and Capacity,
Malta Environment & Planning Authority.

0 250 500 Metres

Land Use Survey



ES&P 156 data, (2013), Developing National Environmental Monitoring Infrastructure and Capacity, White Environment & Planning Authority



Surrounding land uses

Legend

- Location of site
 - Area of study
- Land uses
- Agriculture
 - Commercial / Community services
 - Energy production and distribution
 - Goods and freight terminals
 - Fuel storage and distribution
 - Manufacturing
 - Residential
 - Sports facilities
 - Storage
 - Vacant

TN 159436 - WEEE treatment facility



Map by: Adi Associates Environmental Consultants Ltd

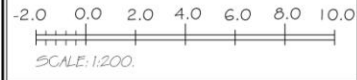
Client: WEEE Recycle	Ref: WEE002
File ref: EIA/WEEE Recycle/Maps	Date: 04 / 2015

Examples of waste to be treated

- Small & medium-sized household appliances e.g. microwave ovens, fans, toasters, irons
- IT and telecommunications equipment e.g. computers, photocopiers, mobile phones
- Cathode ray tube monitors (CRT) and liquid crystal displays (LCDs)
- Consumer electronics e.g. DVD players, hi-fi equipment, electric guitars, amps, radios
- CRT TVs and flat panel TVs
- Fluorescent and neon tubes / lights
- Medical devices

Note:

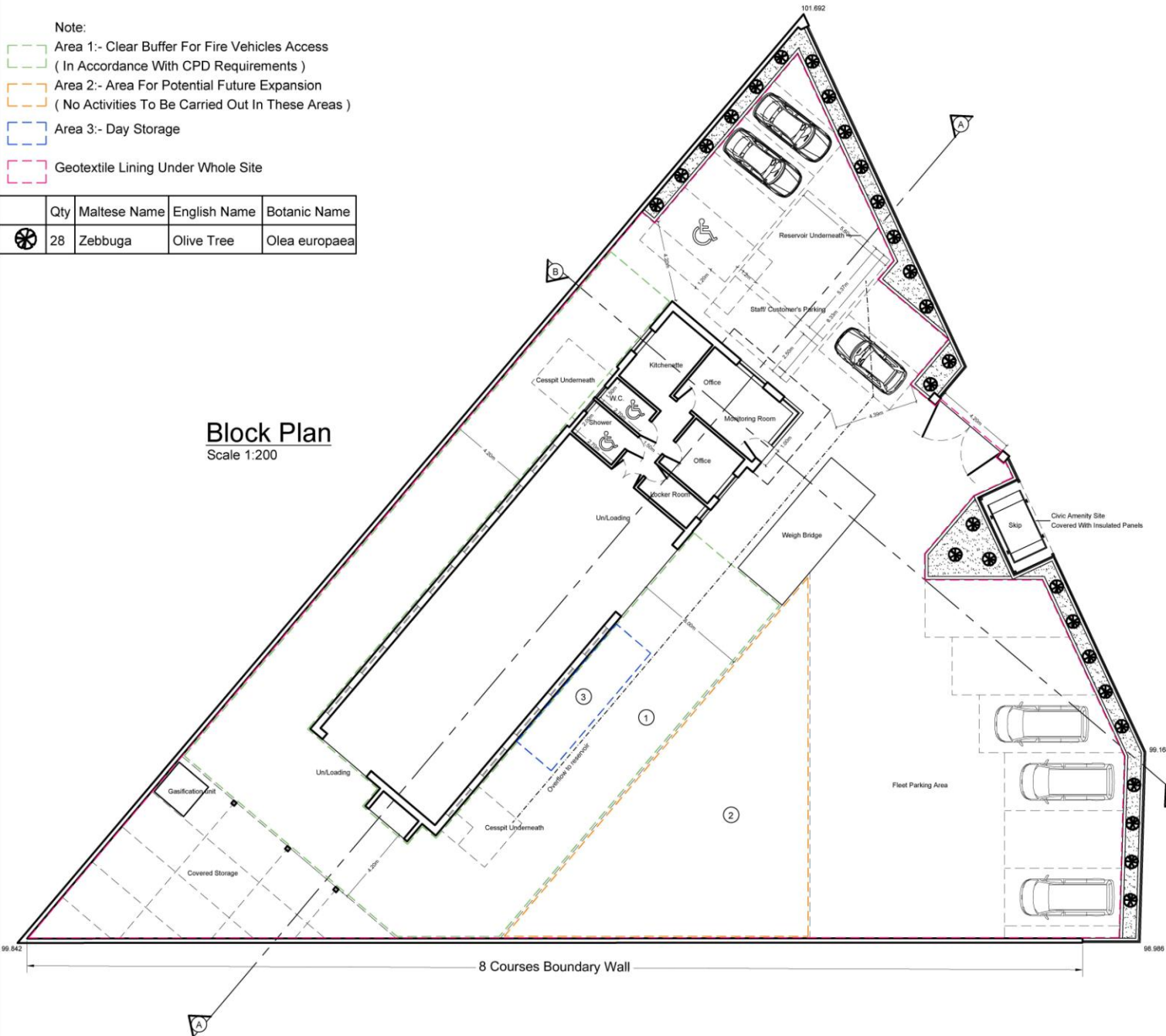
- Area 1:- Clear Buffer For Fire Vehicles Access
(In Accordance With CPD Requirements)
- Area 2:- Area For Potential Future Expansion
(No Activities To Be Carried Out In These Areas)
- Area 3:- Day Storage
- Geotextile Lining Under Whole Site



	Qty	Maltese Name	English Name	Botanic Name
	28	Zebbuga	Olive Tree	Olea europaea

Block Plan

Scale 1:200



No.	DESCRIPTION	DATE
06	Request By Client	05/15
05	Request By Client	04/15
04	EIA (PC)	10/14
03	EIA (PC)	08/14
02	EIA (PC)	06/14
01	EIA (PC)	02/14

REVISIONS



JOE GRECH
PELA (Contract) REG.

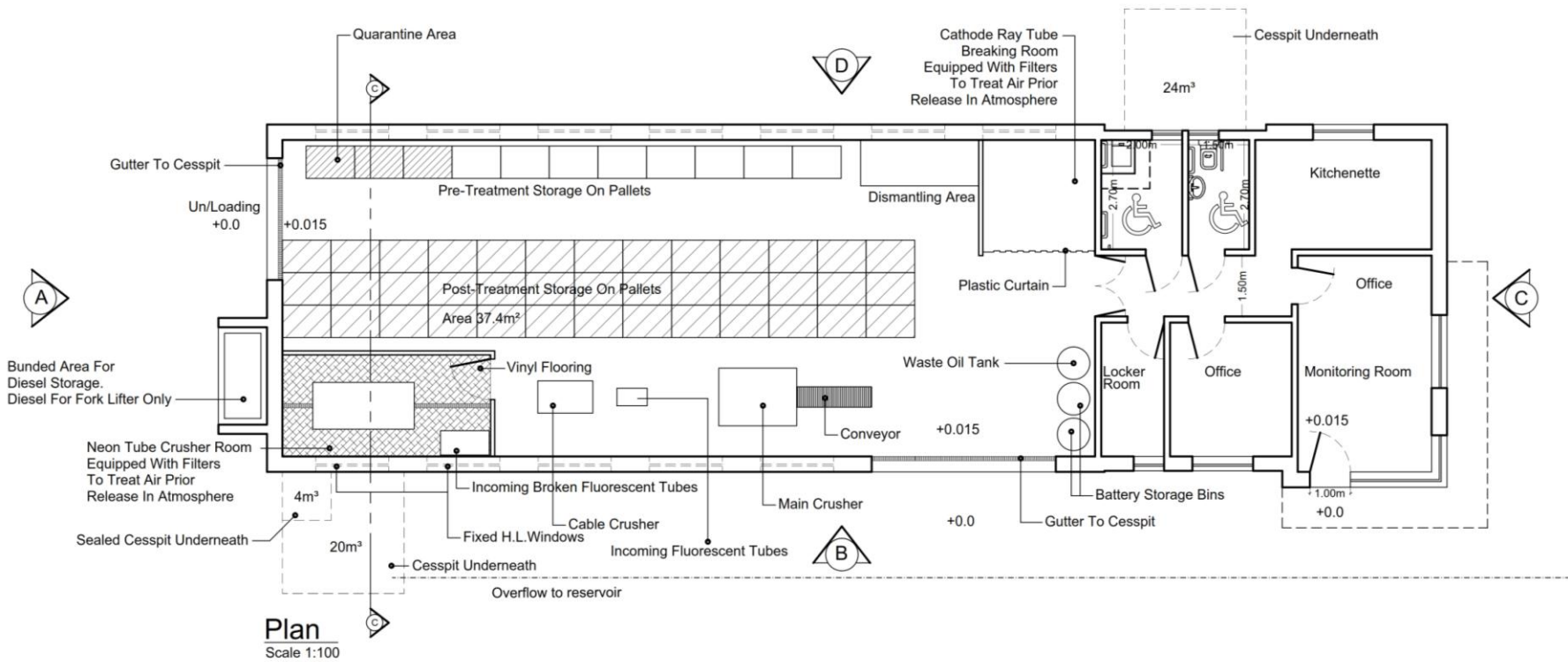
Office No 7
 Censuq Bldg,
 Gargano Rd., Paola,
 P.A. 07

Tel: 21 806548
 Fax: 21 830637
 jg@jgrech.com

PROJECT	Proposed WEEE M Hd Pa
TYPE	Proposed Layout Plan
BY	Mr. Charles Galea
DATE	September 2015
SCALE	A5-1:200
FILE NO	15049-01_R06

Joe Grech ACE - September 2013

WEEE building layout



Potential Impacts

- Extraction of mineral resources
- Impact on groundwater & on surface water run-off

Mitigation measures

- Entire site surface covered in concrete underlain by a geotextile membrane
- Outdoor areas will be laid to fall towards an oil-water interceptor and then collected in a reservoir
- Wastewater from washing of floors will be collected in gutters, filtered, and received in an underground cesspit for reuse
- Only treated surface water will be received in the underground reservoir and cesspits
- Impermeable cesspits

Landscape & visual amenity

- Effects on the landscape setting of the Scheme (AHLV) – No significant impacts identified
- Changes in views of receptors – site is not visible from most viewpoints
- 1 photomontage prepared based on ZVI
- Impact is not significant



VP 2

VP 3

VP 4

VP 1





Findings:

- Land cover – disturbed ground
- Vegetation assemblages – typical of disturbed ground
- Fauna – some species of conservation interest, e.g. snakes

Key issues considered:

- Direct habitat loss / species of conservation importance during site clearance.



Noise

Findings:

- Construction noise during the week is not significant. Minor significance during the weekend.
- Operational noise – not significant

Mitigation:

- Construction Management Plan (CMP) with specific noise mitigation measures – residual impact is not significant



Noise monitoring point and noise sensitive receptors

Legend

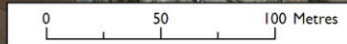
- Location of site
- Noise monitoring point
- Noise sensitive receptors
- Residential properties
- Western edge of the Benghisa rural hamlet

TN 159436 - WEEE treatment facility



Map by: Adi Associates Environmental Consultants Ltd

Client: WEEE Recycle	Ref: WEE002
File ref: EIA\WEEE Recycle\Maps\	Date: 06 / 2015



ERDF 156 data, (2013), Developing National Environmental Monitoring Infrastructure and Capacity, Malta Environment & Planning Authority.

- Risks identified:
 - Spillage of diesel / oils (low)
 - Metal emissions from manual dismantling of general WEEE and storage of separated components (very low)
 - Mercury / phosphor emissions from fluorescent tube storage and crushing (uncertain)
 - Metal / phosphur emissions from breaking of CRT neck (low)
 - Leakage of lead / acid from batteries (very low)
 - Used firefighting water (very low)
 - Fire / explosion (immediate response) (very low)
 - Fire / explosion (delayed response) (moderate)
 - Contamination from flooding (low)
 - Contamination from earthquake (low)

- Impermeable hardstanding & oil-water interceptor
- Filtration of wastewater from washing floors
- WEEE dismantling & hazardous waste storage will be carried out indoors & abatement (except in dismantling area)
- HEPA filter with 99.97% filtration efficiency on particles $\geq 3 \mu\text{m}$
- Secondary containment for storage of batteries
- Used firefighting water will be collected in the cesspit / reservoir; any overflow will be treated
- Reduced quantity of combustible material kept on site; firefighting procedures & equipment

Written submissions can be made
within 7 days of this public hearing
either by e-mail

[\(eiamalta@mepa.org.mt\)](mailto:eiamalta@mepa.org.mt)

or by post :

The Director
Environment Protection Directorate
P.O. Box 200
Marsa MRS1000

Copies of the draft Environmental Impact Statement Update may be viewed at:

- The offices of the Malta Environment & Planning Authority (St Francis Ravelin, Floriana); and
- Birzebbuga Local Council during office hours.

Further details can be obtained from:

<http://www.mepa.org.mt/permitting-ea-cons>

Tel/Fax +356 21378172 / 21378177
info@adi-associates.com
www.adi-associates.com

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Kappara Business Centre
113 Triq Birkirkara
San Gwann SGN 4197, Malta

Appendix 2: Specification Sheets for Air Abatement Components

“CLEANING THE WORLD WITH ACTIVATED CARBON”



To whom it may concern,

The Client 'Electronic Products Ltd' will be installing two special carbon filters as follows. The F-55 unit will be filled with sulfur impregnated carbon and the Dorex unit will be filled with activated carbon. The sulfur impregnated carbon will adsorb mercury until the effluent mercury concentration is less than 0.001 ppb.

The F-55 unit will be placed inside the crusher room. With an air pick-up hose located close to the crusher for good air capture, any mercury laden air will be pulled through the F-55 unit where the sulfur impregnated carbon will remove the mercury from the air to a level exceeding a 99% removal efficiency. The room will have an exhaust fan that will create a negative pressure in the room. The fan will push the room air through a Dorex filter containing activated carbon which will remove any remaining mercury from the air.

In order to control if the F-55 Drum carbon should be replaced, the said unit needs to be weighted every week. When it reaches 85 lbs. of additional weight, the carbon should be replaced.

The above installation gives a 99+% mercury capture.

Regards,

Kristen Ascione

Kristen Ascione
Sales Engineer
General Carbon Corp.
973-523-2223

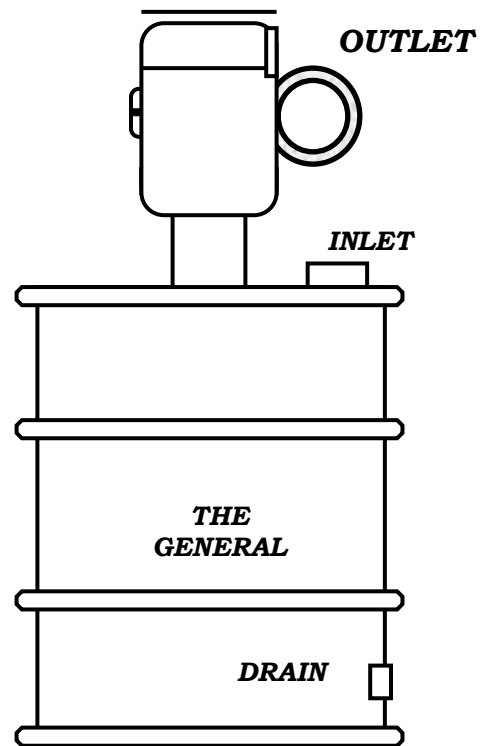


F - SERIES

vapor adsorber and fan a simple air pollution solution

GENERAL CARBON CORP, has added a fan to their user friendly Air Pollution Control Barrels to provide a quick and easy solution for simple VOC and odor control applications. The high volume aluminum fan mounted on the top of the General provides efficient control of minor point source pollution problems.

The **F-SERIES** units are available in three sizes that cover a wide range of airflow requirements. The F-55 is our basic unit and will move 125 CFM of air at 4" WC static pressure. The motor is 115/230 VAC, 1 Ph, 60 Hz, TEFC and is weather proof. Wiring of the motor is not included to provide adaptability to site requirements. Loading the unit with impregnated carbon can improve the removal efficiency for Hydrogen Sulfide, Mercaptans, ammonia, formaldehyde, or other problem contaminants.



<u>UNIT</u>	<u>DRUM SIZE</u>	<u>LBS. CARBON</u>	<u>FLOW RATE</u>	<u>INLET</u>	<u>OUTLET</u>
F-55	55 Gallon	150	75-125 CFM	4" FPT	4"
F-85	85 Gallon	300	100-210 CFM	4" FPT	4"
F-110	110 Gallon	400	120-350 CFM	4" FPT	5"

AVAILABLE OPTIONS: Special Application Carbons, Polyethylene Drum Liners, Damper, OSHA Safety Guards, Custom Inlet/Outlet Sizes, Full Selection of NEMA Rated Motors, Corrosion Resistant FRP Fans, Remote Mounted Fans, and more...

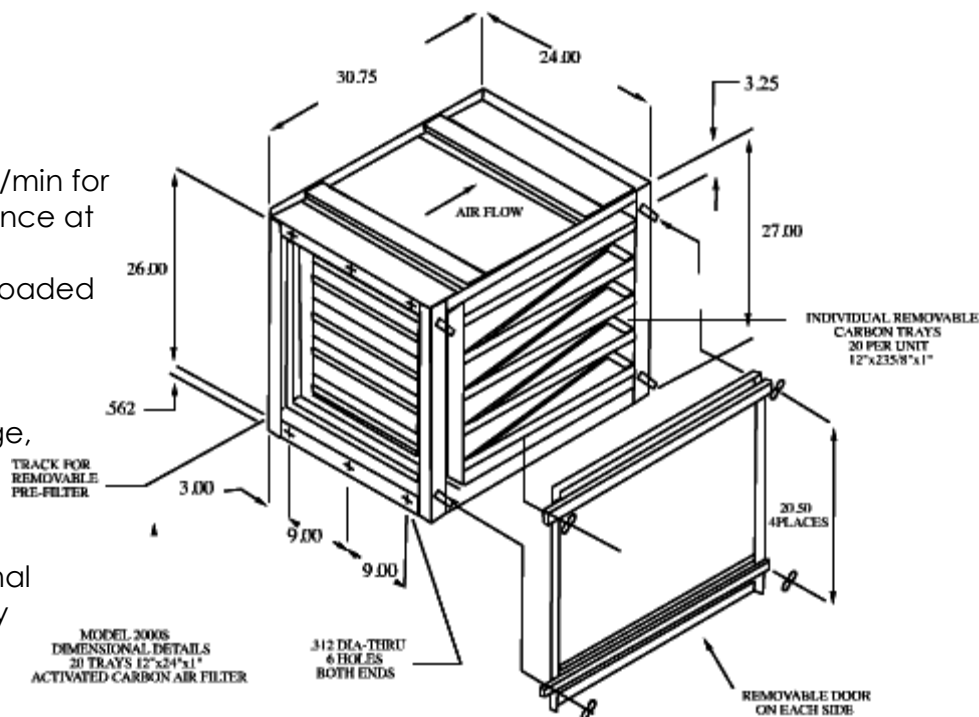


DOREX 2000S & 2000S2

side access carbon filters

Features:

- High single-pass efficiency
- 500 ft/min design velocity
- 0.25 wg resistance at 500 ft/min for 1" trays and 0.75 wg resistance at 500 ft/min for 2" trays
- Trays can be loaded or unloaded from either side of housing
- Units contain a two inch pre-filter track
- Standard trays are 14 gauge, cold rolled steel with a black powder coat finish. Stainless steel and galvanized trays are optional
- Units can be bolted directly together or stacked to fill individual needs



Specifications:

The 2000S and 2000S2 are side access housing which are used to treat high airflow rates containing limited levels of contaminants. They are both unique in design and versatility. Being modular in design they can be bolted together or stacked like building blocks to fill various needs. While in this configuration, all filter tracks will align so the side-loading feature will not be lost. The 2000S2 is similar to the 2000S, but holds more carbon for increased removal capacity.

Unit Designation	Number of Carbon Trays	Rated Flow at .25 W.G.	Lbs. of Carbon (Approximate)
2000S	10	2000 C.F.M.	90
2000S2	8	2000 C.F.M.	132



GC-IPSp

pelletized impregnated activated carbon

GC IPSp is a pelletized, steam activated carbon is impregnated with sulfur. This product provides superior mercury removal when treating natural gas, air, hydrogen or other gas streams. The impregnation process utilizes the S2 form of sulfur only and the sulfur is uniformly distributed throughout the carbon pores. This allows the carbon to have the following characteristics:

- Greater total capacity for mercury adsorption.
- Near virgin CCL₄ activity of the impregnated carbon for superior organic removal.
- Greater stability of the mercuric sulfide formed on the carbon ensures that mercury will not leach into the environment from the spent carbon.
- Superior moisture resistance ensures product performance on high humidity waste streams.
- Superior temperature resistance ensures product performance at elevated temperatures.
- Improved adsorption kinetics allows for faster adsorption and less carbon is required on-line.

Specifications:

Pre-impregnation:

Particle Size, mm:	4
Surface Area (pre-impregnated), m ² /gm:	1000 (min)
Carbon Tetrachloride Activity, % (base)	60 (min)
Hardness, %:	97 (min)

Post-impregnation:

Moisture, % (as packed)	3 (max)
Sulfur Content, %	13 (min)
Apparent Density, g/ml:	0.50-0.57
Typical Mercury Capacity, %:	65 (weight)

Standard packaging is in 55 lb. bags. Other packaging is available upon request.

Caution!

Wet activated carbon removes oxygen from air causing a severe hazard to workers inside carbon vessels. Confined space/low oxygen procedures should be put in place before any entry is made. Such procedures should comply with all applicable Local, State and Federal guidelines.

Model 400 Portable Floor Sentry

Model # SS-400-PFS

Product Specifications

BASE UNIT DIMENSIONS

22.5" Length, *Including Control Box*
20" Width
19.5" Height

ARM DIMENSIONS

6" Dia., 72" Long Fire-Retardant Flex Hose (10.5" Dia. Round Hood)

CABINET MATERIAL

16 ga. Carbon Steel

WEIGHT

Approx. 50 lbs. - 100 lbs.
Varies Depending on Filter Media Installed

AIR VOLUME

Variable Speed Control Standard on 115V
700 CFM High, Down to 50 CFM Low
On/Off Toggle Switch Standard on 220V

ELECTRICAL

115/1/60, 2.5 amps
220/1/50, 1.5 amps
8' grounded power cord with NEMA 5-15P Plug

SOUND LEVEL

Approx. 72 dba @ 3'

FILTRATION

Depending on the Application:

- HEPA [up to 99.97% efficient on particles 0.3 microns and larger]
- ASHRAE [up to 95% efficient on particles 0.5 microns and larger]
- ACTIVATED CARBON
- SPECIALTY-BLENDED FILTER MEDIA [i.e. Acid Gas, Mercury, Aldehyde, Ammonia]

WARRANTY

Limited two-year warranty from date of shipment on defects due to materials or workmanship.
PATENT #5,843,197



Dimensions are Approximate
Shown with Optional Accessories



Product Features

- Variable Speed Controller *Included*
- Portable Handle *Included*
- Quiet Operation
- Reliable, Low Maintenance Operation
- Self Supportive, Flexible Arm
- Simple, Quick "No Tool" Filter Change
- Low Power Consumption
- Optional Magnehelic Gage
- Optional Hour Counter

The **Portable Floor Sentry fume extractor** is used as a respiratory safety control for a variety of industrial applications that require the capture and filtration of airborne contaminants and chemical fumes. This source-capture fume extractor features quiet operation, a powerful fan, a flame-retardant and self-supportive flex arm, and a variety of high-quality filtration media.

Typical applications for this unit include: welding fume control, chemical fume extraction, solvent and epoxy fume control, particulate extraction, powder filling, soldering, light grinding, clean room applications, and a variety of applications involving chemical fumes and dust.

Several filter media options are available for this unit and include: HEPA filtration [up to 99.97% efficient on particles 0.3 microns and larger, ASHRAE filtration [up to 95% efficient on particles 0.5 microns and larger], Activated Carbon, and specialty-blended filter media [i.e. Acid Gas, Mercury, Aldehyde, Ammonia]. The Portable Floor Sentry allows multiple filter media to be housed inside the filter chamber for applications that emit both particulate and fume.

Other unit features include a variable speed controller, portability handle, 360-degree swivel arm, simple and quick "no-tool" filter change, and optional accessories including a magnehelic gauge, digital hour counter, and quick change pre-filter.

A smaller model [SS-300-PFS] and two larger models [SS-450-PFS & SS-500-BU-MP1] are also available.



1.800.799.4609
www.sentryair.com
sales@sentryair.com





Appendix 6: Police Conduct Certificates



Appendix 7: CVs and Relevant Certificates

Charles Galea

Managing Director
Electronic Products Ltd
WEEE Recycle 4U Ltd

93 Old Railway Track ST Venera SVR 9014
9949 6645 | 2144 5190 | elecpro@eplmalta.com

Profile

Competent electronic engineer with over 30 year's professional experience, with a strong ability to mentor others.

- Versed in troubleshooting and repairing malfunctioning hardware and software.
- Having good customer service with sound judgment and the ability to resolve problems tactfully and diplomatically.

Skills Matrix

- | | |
|--------------------------------------|--------------------------------------|
| ➤ Organized | Product Development |
| ➤ Excellent time management | Deadline Driven |
| ➤ Managed multiple projects | Expert in hardware/software recovery |
| ➤ Able to identifying best practices | Customer oriented |
| ➤ Performance management | Bid Management |

Personal Attributes

- Fast Learner
- Experience in Project Management
- Able to Work under pressure

Career Detail

Tudor Film Laboratory – Technical support assistant **June 1985 – September 1985**

- Taking care and maintaining all equipment at the Lab

Office Electronics Ltd – Electronic Technician **September 1985 – May 1987**

- Repairing photocopier machines mostly at clients' sites
- Training personnel in Libya on photocopier machine repairs

Office Electronics Ltd – Technical Director **May 1987 – April 2007**

- Managing the company's technical department both locally and in Libya

Electronic Products Ltd - Managing Director **May 2007 – present**

- Managing the company, retailing electronic equipment with bespoke software

WEEE Recycle 4U Ltd – Managing Director **October 2015 - present**

- Managing WEEE recycling for the Maltese Islands into different waste streams

Professional Development –

- Fellenberg Training Centre in Industrial Electronics
- Managerial & Sales training
- Familiarisation course in ISO 9001:2008
- Familiarisation course in ISO 14001:2004
- Internal Auditing course in ISO 9001
- ISO 9001:2015 Awareness
- Security Management & Software Development Standards
- CPC Truck Driver course
- Health & Safety course
- ADR Hazardous Driver course
- Fire Awareness
- Principles of Safe Forklift Operation
- Mcast Waste Collection & Transportation
- MEPA Waste Brokers Seminar



CERTIFICATE No: 2009-205

This is to certify that

Charles Galea

has attended an information session on

***Security management, service management and software
development standards***

Organised by the Malta Standards Authority

19th May 2009

A handwritten signature in black ink, appearing to read 'Bogac Ozgen', written over a horizontal line.

Mr. Bogac Ozgen
BSI Lead Auditor

A handwritten signature in black ink, appearing to read 'Francis E. Farrugia', written over a horizontal line.

Francis E. Farrugia
Chairman
Malta Standards Authority



CERTIFICATE

No: 2006-010

This is to certify that

Charles Galea

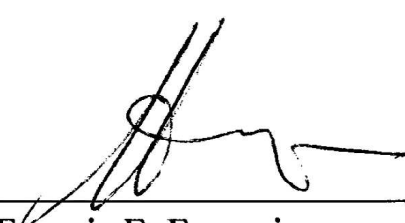
*has satisfactory completed a Training Course on
ISO9001:2000 and Internal Auditing*

Organised by the Malta Standards Authority

29th March 2006



Joseph Caruana
Lecturer



Francis E. Farrugia
Chairman
Malta Standards Authority



CERTIFICATE

No: 2009-24

This is to certify that

Charles Galea

has attended an Information Session on

ISO 9001:2008

Organised by the Malta Standards Authority

26th January 2009

A handwritten signature in black ink, appearing to read 'Francis E. Farrugia', is written over a horizontal line.

Francis E. Farrugia

Chairman

Malta Standards Authority



CERTIFICATE

No: 2010-046

This is to certify that

Charles Galea

has satisfactorily completed a Training Course on
Familiarisation of ISO 14001:2004

Organised by the Malta Standards Authority

22nd April 2010

Joseph Carrana
Lecturer

Francis E. Farrugia
Chairman
Malta Standards Authority



Certificate of Attendance

This certificate is presented to

CHARLES GALEA

for attendance to the ***Waste Brokers Seminar***

on *24th May 2012* held at

The Victoria Hotel

Kevin Mercieca
Unit Manager

Michael J Sant
Unit Manager

CERTIFICATE

This is to certify that

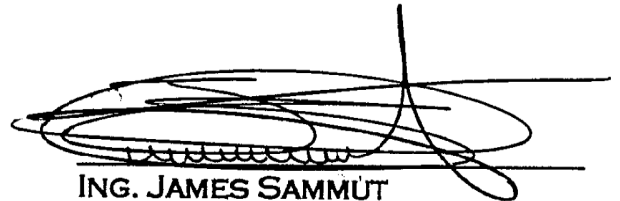
Mr Charles Galea

has successfully completed a

**'ISO9001:2008 AWARENESS, IMPLEMENTATION &
ON-THE-JOB TRAINING'**

at Electronic Products Ltd

APRIL – SEPTEMBER 2010

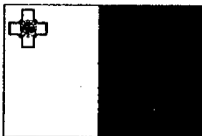


ING. JAMES SAMMUT
B. MECH. ENG. (HONS.)
TRAINER & PROJECTS MANAGER

**This Training Aid Framework is an integral part of the European Social Fund
available to Malta for the period 2007-2013.**

This scheme is being managed by Employment & Training Corporation.

**Under this scheme the Training is being co-financed to train those entitled through the
European Social Fund**



Operational Programme II – Cohesion Policy 2007-2013
Empowering People for More Jobs and a Better Quality of Life
Aid Schemes part-financed by the European Union
European Social Fund (ESF)
Co-financing: EU Funds, National Funds, and Private Funds
Investing in your future



CERTIFICATE

This is to certify that

Charles Galea

*has successfully completed an assessed
familiarisation course on*

'ISO 9001:2000'

on

10TH & 11TH MAY 2006


ING. JOSEPH CARUANA
B. MECH. ENG. (HONS.) MBA (BRU)

MANAGING DIRECTOR

The Chartered Institute of Logistics and Transport (UK)

This is to certify that

Charles Galea(715460M)

has successfully completed the Training Programme in

Driver CPC Periodic Training

Date: 21st February 2013

Signed:



A. Borg

Director of SSM Group Ltd

Endorsed by: Centre for The Chartered of Logistics & Transport (UK)
www.ciltuk.org.uk



MI-F038

*Instruction course in basic seamanship and safe boathandling
leading to the issue of a driving licence for mechanically driven craft*

Surname Galea Name Charles

ID No. 715460 m

Address Amitie Trig il-Bethrija

Town Zabbar Post Code 1

Tel. No. 21602072

Signature of applicant _____ Date of Issue 20.10.2008

For Official Use only

THEORY BOAT HANDLING FIRST AID FIRE FIGHTING TEST

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THIS DOCUMENT HAS A VALIDITY OF TEN (10) YEARS FROM THE DATE OF ISSUE.

Course No. m1mc29/08

Receipt No. A 85414

0-3668

DIRECTOR

ADR DRIVER TRAINING CERTIFICATE

M



1. 715460M

2. Charles

3. Galea

4. 10/24/1960

5. Maltese

6.

7.  Transport
Malta

8. VALID TO: 8/13/2019



VALID FOR CLASS(ES) OR UN Nos.:

TANKS

OTHER THAN TANKS

CLASS 9

Technically Competent leader CV

Name: Mr. Collins Kyereme

Address: Bellagio Block C Flat 5
Triq San Ġuzepp
Tal-Pieta' PTA 1140

Mobile: 9907 6176

Position in organization: WEEE Operator and Technically Competent Person

Work Experience: Mr Kyereme has been employed in the waste management sector for over four years. Over this period he has learned to distinguish between different waste streams and has also become a mentor to other employees in this sector.

Education and training: Primary School in Ghana

Familiarisation course in ISO 14001:2004 (2013)

Fire fighting certificate (2013)

Fire fighting awareness training (2015)

Fire Fighting Certificate

This is to certify that

Mr. Collins Kyereme
ID: 0052588(A)
of Electronic Products Ltd

Has successfully completed a Basic firefighting course
Course included
Theory of fire combustion
Practical use of fire extinguishers and fire blanket

Date of Issue
July 2013

Christopher Buttigieg GIfireE
FIRE FIGHTING
INSTRUCTORS SERVICES
CHRISTOPHER BUTTIGIEG
NO 79432995 F.F. LARO

Valid for two years from date of issue

Fire Fighting Awareness Training

This is to certify that

Mr Collins Kyereme
I.D. No 52588 A

Of: Electronic Products Ltd Malta

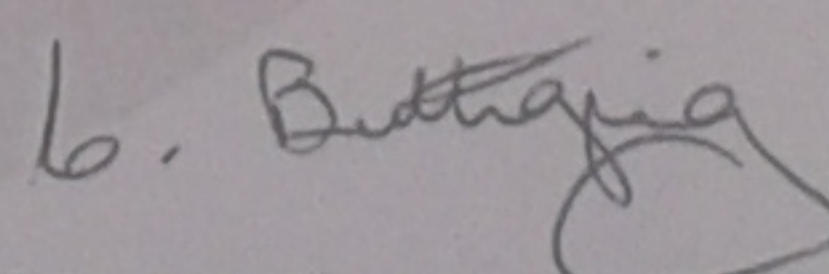
Has successfully completed basic fire fighting course

Course included

Theory of fire combustion

use of fire extinguishers and fire Blankets

Date of issue:
Sept 2015


Christopher Buttiegig

Instructor

FIRE FIGHTING
TRAINING SERVICES
CHRISTOPHER BUTTIGIG
32995 F.E. LARO

Valid for two years from date of issue



This is to certify that

*Kyereme Collins
(I.D. No. 52588A)
Ref: 6769*

Employee of WEEE Recycle 4U

*has successfully completed the
Basic HAZMAT Training Course*

Modules

*Signs, Placards, IMDG, UN Numbers
Material Safety Data Sheets
Emergency Response Guidebook and Cargo Decoder
Basic Awareness of Hazardous Materials
Identifying Hazards & Establishing a Safety Zone
Lifesaving Actions & Decontamination of a person
How to Prevent the spread of a chemical*

*Held on the
16th November 2019*

*Mr. Emanuel Psaila B.A. (Hons), M.A. (Melit),
Director
Civil Protection Department*

*Mr. James Newell
Chief Assistance Rescue Officer
Civil Protection Department*

This certificate will expire within 3 years from the date shown above.



St Bernard's

Safety Training Centre

Emergency First Aid Certificate

Collins Kyereme
0052588A

This is to certify that the above has attended an Emergency First Aid course which covered the below topics:

Course Contents:

Aims of First Aid | Hygienic & Legal Aspects | First Aid Boxes | Emergency Planning | Contacting Emergency Services | Nose Bleeding | Panic Attack | Asthma | Eye Injuries | Splinters | Bruises & Grazes | Primary Survey - CPR | Secondary Survey – Recovery Position | Choking | Poisons | Head Injuries | Epilepsy & Seizures | Diabetes | Fainting | Bleeding | Sprains & Strains | Fractures & Dislocations | Burns & Scalds

This certificate expires on 04/09/22

Marcel Mejlaq
f/St Bernard's Safety Training Centre
Date of Issue: 05/09/19

St Bernard's Safety Training Centre
E: safetytrainingmalta@gmail.com M: 99248968 W: www.healthandsafety.com.mt



Appendix 8: Management of Other Installations



Mr Charles Galea and Mr Collins Kyereme currently provide the technically competent management at the following installations:

Installation name	Electronic Products Ltd	Electronic Products Ltd
Installation address	Garages 12, 27 & 28 Ta' Maggi Industrial Zone Żabbar	HHF 040 Hal Far Industrial Estate Hal Far
Permit reference number	EP 009/10/K	EP 033/18/A

The Applicant intends to relocate, expand and upgrade his current operations at Electronic Products Ltd from the current location at the Ta' Maggi Industrial Zone to the Scheme site. The Applicant will trade under the company WEEE Recycle 4U Company Limited at the Scheme site.

Appendix 9: Expenditure Plan

1. MEPA's ToR in respect of expenditure are:

Please provide a plan of the estimated expenditure for each phase of the following specified activities.

The plan should include the likely costs of:

- *monitoring (emission/discharge and ambient monitoring);*
- *clearing the installation (including drainage systems) of all wastes;*
- *remedial action in the event of the failure of pollution control systems.*

We recognise that this plan may need to be revised before the issue of the final permit.

2. **Table 1** provides an expenditure plan for various planned activities.

Table 1: Expenditure plan

Activity	Estimated costs
Air monitoring	First year: €20,000 Thereafter: €5,000 Additionally: <ul style="list-style-type: none"> • €5,550 to conform to BAT 8 • €6,000 for purchase of real-time mercury monitoring equipment
Clearing the site of all wastes	€2,000
Cleaning the oil-water interceptor and cesspits	€1,000
Wastewater testing	€1,000
Spill kit	€200