



Infrastructure and Utilities in Relation to an Environmental Impact Assessment (EIA)

WASTESERV MALTA LIMITED

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SERVICE TENDER FOR THE ENGINEERING, PROCUREMENT
AND CONSTRUCTION OF A NEW MATERIALS RECOVERY
FACILITY

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1.0 INTRODUCTION

This report describes the infrastructure & utilities impacts arising from the construction and operation of the proposed development of a new Materials Recovery Facility (MRF). The facility is being proposed to treat source-separated and co-mingled dry recyclables collected in Malta, hereafter referred to as 'the Scheme'. The proposed development will form part of the ECOHIVE Complex and will operate in conjunction with the other waste management facilities at Magħtab.

This technical study identifies any infrastructure and utilities in the area and assesses the impacts caused in relation to the EIA for the proposed development, in line with the requirements issued by the ERA for EA/00042/20.

Source separated recyclable waste streams including paper, cardboard, plastics and metals were previously processed at a Material Recovery Facility at the Sant' Antnin Solid Waste Treatment Plant in Marsascale. This MRF operated between February 2008 and May 2017 but was destroyed during a fire. In the absence of such a facility, the processing of the aforementioned waste streams has been restricted to a manual sorting line and a more recent makeshift line at the Malta North Facility within the ECOHIVE complex.

The Scheme is being proposed to meet the provisions of Malta's Waste Management Plan and achieve recovery and recycling targets stipulated in the Circular Economy Package. The proposed Scheme aims to minimise as much as possible all landfilling and increase the efficiency of recyclables' recovery thus rendering them more suitable for sales and/or export. The facility has also been designed in such a way to ensure that any emissions and environmental impacts arising from operations are in conformity with the latest requirements and standards stipulated in the EU INDUSTRIAL EMISSIONS DIRECTIVE 2010/75/EU (IED). The Scheme also intends to have: a low processing cost per tonne of waste; good tolerance to contaminants in feed stock; low down time between failures; minimise extended periods when waste cannot be processed, and sufficient contingency planning for planned (or unplanned) maintenance and downtime.

The total processing capacity of the proposed MRF is 70 kilotons per annum to meet future waste demand projections. The site forms part of the ECOHIVE Master Plan and lies eastwards of the Żwejra landfill, adjacent to the existing Anaerobic Digester (AD) Plant. The development footprint of the entire site is around 21,373m². It currently comprises agricultural land, a dense cover of low-lying trees and remnants of local maquis/advanced garigue community.



Figure 1: Proposed site for the new material recovery facility

2.0 TERMS OF REFERENCE

The Terms of Reference related to the Environmental Baseline for the EIA were issued by the ERA in April 2023. This includes a Section on Infrastructure and Utilities.

Appendix 1 of this report contains a copy of the ToRs for ease of reference.



3.0 METHODOLOGY

This report presents the baseline infrastructure and utilities data from the Area of Influence (Aoi). The methodology was composed of four main elements:

1. A preliminary desktop study to familiarise oneself with the study area;
2. A site survey;
3. A secondary literature review to combine the findings of the initial research and site observations;
4. Final evaluation of the current situation.

An assessment of the potential impacts of the Scheme related to infrastructure and utilities was carried out once the baseline was established (refer to Section 5.0 for further detail).

3.1 Area of Influence

The Area of Influence (AOI) for the study comprised of a 100m buffer zone around the proposed site for the development. The AOI is mapped in Figure 2.

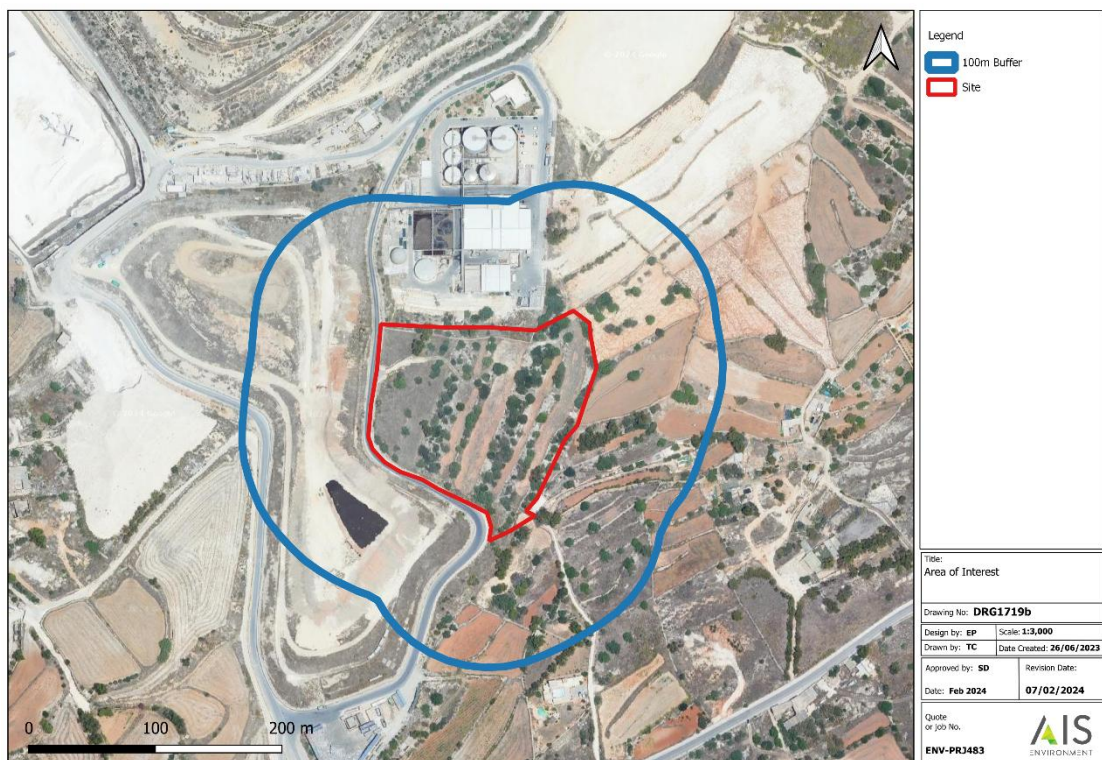


Figure 2: Area of Influence for the infrastructure and utilities study

3.2 Study Methodology

This study describes the existing infrastructures and utilities present within the project footprint and surroundings and outlines any proposed changes. The baseline research for the Infrastructure and Utilities Study was divided into two main components.

The first part of the study involved a thorough literature review to identify the existing infrastructure and utilities within the Scheme site and surrounding area. The information was gathered from third party utility providers and review of satellite images from sources such as Landsat/Copernicus (Google Earth). The findings from the desktop study were then verified through a field survey carried out on the 21st of February 2023, which also included the gathering of photographic evidence.

Once the Consultant completed both aforementioned components, they mapped the existing infrastructure and utilities as well as any proposed changes (if applicable) using Geographic Information Systems Software (GIS).

4.0 EXISTING INFRASTRUCTURE AND UTILITIES

Table 1, and Figure 9 and Figure 8 below provide an outline of the existing and planned infrastructure and utilities present within the AoI. Figure 3 to Figure 7 provide photographic evidence of the infrastructure and utilities observed during the site survey held on the 25th August 2023.

Table 1: Existing infrastructures and utilities

FEATURE NAME	FEATURE TYPE	OWNER
Approved 2nd Interconnector (IC2) cable	Underground cable	Interconnect Malta Enemalta
Street lighting	Underground cables, street lamps	Wasteserv Malta
Street infrastructure	Crash barriers, pavements, fencing	Wasteserv Malta
Fire management infrastructure	Pipes to supply fire-hydrants with fluids	Wasteserv Malta



Figure 3: Pavement along the internal access road within the ECOHIVE Complex (25th August 2023)

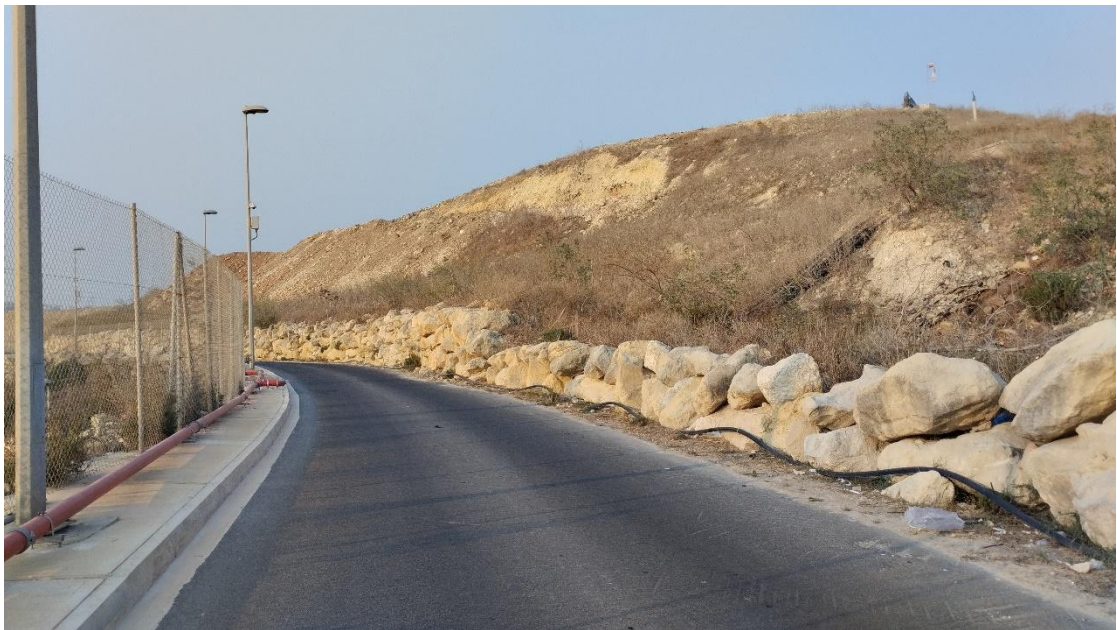


Figure 4: Street lights along the internal access road within the ECOHIVE complex (25th August 2023)



Figure 5: Fencing and fire hydrant within the ECOHIVE complex (25th August 2023)



Figure 6: Mobile atomiser misting system within the internal access road of the ECOHIVE complex (25th August 2023)



Figure 7: Crash barriers along the internal access road within the ECOHIVE complex (25th August 2023)

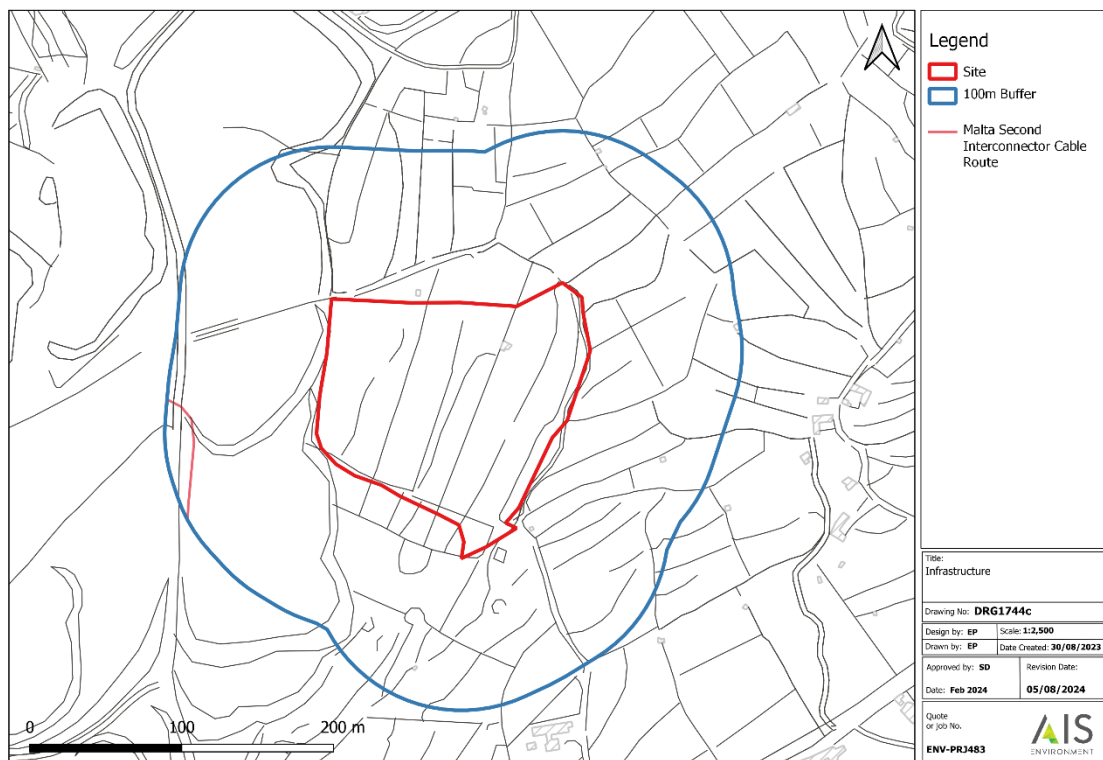


Figure 8: Planned infrastructure within the AOI (Malta's second interconnector – IC2)

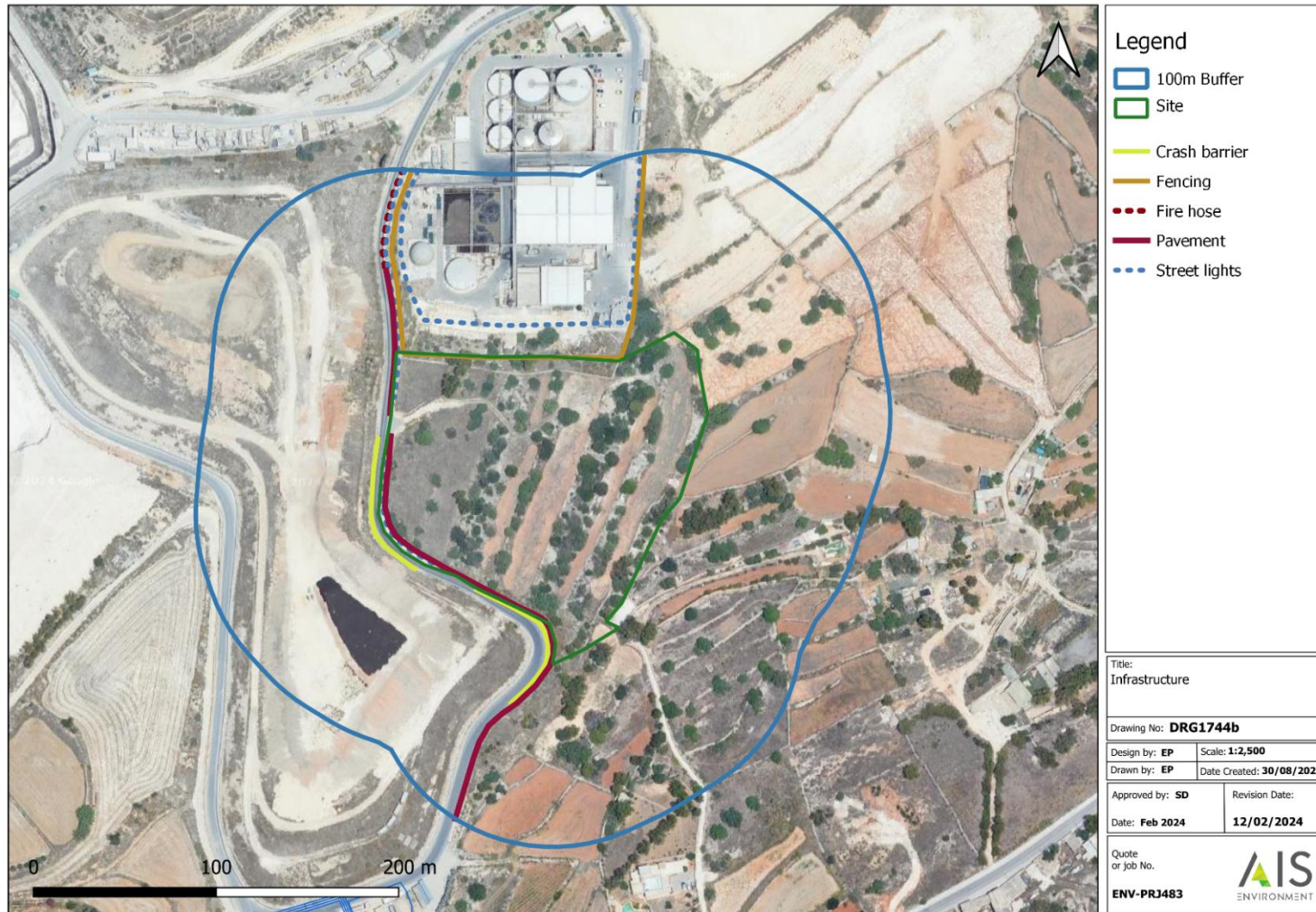


Figure 9: Overview of the existing utilities within the AOI

5.0 IMPACT ASSESSMENT

The following is a description of the potential impacts on the infrastructure and utilities of the Aol.

5.1 Impact Significance Criteria

The qualitative assessment determines the potential impacts on infrastructure and utilities arising from the proposed development of a materials recovery facility within the ECOHIVE complex.

The potential impacts that may arise from the Scheme include the potential physical damage on the existing infrastructure and utilities and service interruptions during the proposed works (construction phase). The operations of the MRF are also expected to increase loads on both the national electricity grid and the water/sewage system.

The tables below (Table 2 to Table 10) provide a definition for each of the criteria used in Table 11, which summarises the assessment of impacts on infrastructure and utilities.

Table 2: Criteria for the sensitivity of resources to impact

SENSITIVITY OF RECEPTORS TO IMPACT	
LEVEL	DEFINITION
High	The receptors which will be highly sensitive to the impact and consequently impacted to a major degree.
Medium	The receptors which will be moderately sensitive to the impact and consequently impacted to a moderate degree.
Low	The receptors which will be minimally sensitive to the impact and consequently impacted to a minor degree.

Table 3: Criteria for the consequences of impact

CONSEQUENCES OF IMPACT	
LEVEL	DEFINITION
Direct	Changes that result from direct cause-effect consequences of interactions between the result of action under consideration and the proposed project.
Indirect	Result from cause-effect consequences of interactions between the action under consideration and indirect impacts.
Cumulative	Result from cause-effect consequences of interactions between the action under consideration and other related projects.

Table 4: Criteria for the effect of impact

EFFECT OF IMPACT	
LEVEL	DEFINITION
Adverse	Infrastructure and utilities would suffer consequences as a direct result of the proposed development.
Beneficial	Infrastructure and utilities would benefit as a direct result of the proposed development.

Table 5: Criteria for the severity of impact

SEVERITY OF IMPACT	
LEVEL	DEFINITION
High	This action is a major contributor to the infrastructure and utilities in the area of influence.
Medium	This action is a moderate contributor to the infrastructure and utilities in the area of influence.
Low	This action is a minor contributor to the infrastructure and utilities in the area of influence.

Table 6: Criteria for the physical extent of the impact

PHYSICAL EXTENT OF IMPACT	
LEVEL	DEFINITION
Local	Impact would affect the areas in the nearby surroundings.
National	Impact would affect Malta on a national scale.
International	Impact would affect Malta and/or other countries.

Table 7: Duration of impact

DURATION OF IMPACT	
LEVEL	DEFINITION
Permanent	Impact would still be detectable after the concerned phase.
Temporary	Impact would not persist through the whole duration of the concerned phase.

Table 8: Criteria for the reversibility of the impact

REVERSIBILITY OF IMPACT	
LEVEL	DEFINITION
Reversible	State of the activity/action is potentially expected to return to baseline background level following cessation of the source of impact.
Irreversible	Impact is expected to cause partial or total destruction of the action under consideration and a return of the state of the resource to baseline levels should be considered highly improbable.

Table 9: Criteria for the probability of impact occurring

PROBABILITY OF IMPACT OCCURRING	
LEVEL	DEFINITION
Inevitable	Level of certainty that impact will occur is greater than 90%
Likely	Level of certainty that impact will occur ranges between 50-90%
Unlikely	Level of certainty that impact will occur ranges between 30-50%
Remote	Level of certainty that impact will occur is below 30%

Table 10: Criteria for the overall impact significance

IMPACT SIGNIFICANCE	
LEVEL	DEFINITION
Not significant	Negligible significance.
Minor significance	Low order impact and therefore likely to have little real effect on infrastructure and utilities. In the case of adverse impacts, mitigation is either easily achieved or little will be required, or both.
Moderate significance	Impact on infrastructure and utilities is real but not substantial in relation to other impacts that might take effect within the bounds of those that could occur. In the case of adverse impacts, mitigation is both feasible and fairly easily possible.
Major significance	Of the highest order possible within the bounds of impacts on infrastructure and utilities that could occur. In the case of adverse impacts, there is little or no possible mitigation that could offset the impact.

5.2 Construction Impacts

During the construction phase of the proposed Materials Recovery Facility, accidental damages may occur to the pre-existing infrastructure and utilities present within close proximity of the site development. No infrastructure or utilities exist directly within the development's footprint.

Second Interconnector

The route for the planned second interconnector runs through the periphery of the 100m buffer to the West of the Scheme. The construction related to the second interconnector is scheduled to commence in 2026, and conclude in 2028. The site of the Scheme is separated from the route of second interconnector by an uncovered landfill pile, therefore the likelihood of potential of impacts of the Scheme construction on the second interconnector within the buffer is considered **negligible**.

Construction vehicles related to the Scheme will access the site from the South gate, where works on the second interconnector are also envisaged. In this area, the precautions already planned for the protection of the second interconnector from construction vehicles and others apply. No further mitigation measures are required as a result of the planned development at this Scheme.

ECOHIVE complex – Existing Infrastructure

The Scheme's footprint encroaches agricultural land which does not contain any infrastructure. However, within the buffer area, several utility features are currently present. The access road which will be used by construction vehicles to access the site contains pavements, crash barriers, fire hydrants, street lamps and fencing. The fencing surrounds the current buildings adjacent to the proposed Scheme. Street lamps are also present to illuminate the access road surrounding these buildings. These utilities are owned by Wasteserv Malta. Some items are in need of repairs and/or replacement.

Prior to the commencement of works, the chosen contractor needs to liaise with Wasteserv Malta to confirm which infrastructure is to be retained, thus eliminating the possibility of accidental damages to functioning utilities. Additionally, indirect impacts may occur through dust generated by the construction operations. Should the Contractor accidentally damage such infrastructure, they must report any damage to Wasteserv Malta and operators to coordinate a prompt repair operation at the Contractor's expense. Since the impact is known and can be prevented through a series of discussions and consultations, the envisaged impact is considered **adverse** and of **minor significance**.

ECOHIVE complex – New Infrastructure

During the construction phase, connections between the proposed development and the water and electricity amenities pre-existing within the ECOHIVE complex will need to be set up. This may cause temporary interruptions to the water and/or electricity supply within the

ECOHIVE complex. Since these interruptions are expected to be localised and temporary, the impact is considered as **adverse** but of **minor significance**.

Other third-parties - Existing Infrastructure

All utility companies related to telecommunications, sewers, potable water systems, and power supply were contacted to confirm whether they own any infrastructure within the proposed site and/or a 100m buffer (See 3.1). With the exception of Enemalta (i.e. the second interconnector cable), all entities confirmed that no infrastructure is present within the site to be developed or its boundary, therefore there are **no envisaged impacts** in this regard.

5.3 Operational Impacts

Centralising and increased recycling capacity

The operation of the Scheme will expand the ECOHIVE's current capacity to process source separated recyclable waste streams. This constitutes a **major beneficial impact** towards Malta's national recycling targets.

As a result, the complex will experience a higher flow of traffic to and from the site area. This heightened activity is not expected to exert any impacts on the surrounding infrastructure and utilities.

Increased electricity load

The plan for the electricity supply of the MRF and the surrounding planned developments is still in elaboration. The operation of the MRF within the proposed site will necessitate new connections to Malta's national grid system. The project is envisaged to include a dedicated switch gear and transformer to ensure a steady supply to the site. The development will inevitably increase the load on the national grid. However, particularly following the implementation of the second interconnector, this impact is considered to be **negligible** when compared to the national demand and is well within the capacity of the national grid. Furthermore, due to the close proximity of the site to the Enemalta Maghtab Terminal substation, additional electrical infrastructure connecting the site to the proposed grid will be minimal.

Increased load on potable water and sewage infrastructure

A new sewage system linked to national infrastructure is being planned and implemented on site. The current Masterplan envisages connections between the plants and existing cesspits available within the ECOHIVE complex intended for the collection of domestic and effluent waste water. These cesspits will be emptied periodically by bowzers and transferred between the plants or discharged into the public sewer. Eventually, the sewage system will be connected to the national infrastructure. The MRF will house a cesspit to pump its own waste fluids to main sewer, in line with the requisites of local legislation.

The impact of the new scheme on the existing public sewer is considered **adverse** but of **minor significance** due to the provision of substantial water treatment infrastructure planned for within the ECOHIVE complex which will minimise the outflow of effluent into the public system. The foreseen impacts on the potable water system are considered negligible as these relate to domestic uses.

6.0 MITIGATION MEASURES, RESIDUAL IMPACTS AND MONITORING

6.1 Mitigation Measures

6.1.1 Construction Phase

During the construction phase, a range of mitigation measures should be implemented to reduce the likelihood of adverse impacts upon the existing local infrastructures and utilities. Recommended mitigation measures include:

- » Liaising with the operators of the existing infrastructure and utilities of the proposed work to open up communication channels.
- » Taking extra precautions when working in close proximity to existing infrastructures and utilities to avoid accidental damage.
- » Informing Wasteserv Malta of any accidental damage to existing infrastructure and utilities so that damages can be repaired at the expense of the Contractor.
- » Site hoarding and other dust mitigation measures should be implemented as necessary to avoid indirect impacts from dust accumulation on existing infrastructure.

6.1.2 Operational Phase

The operational phase is not expected to give rise to any significant impacts. However, it is required that Wasteserv Malta work in close liaison with Enemalta and the Water Services Corporation when designing and implementing connections to the national systems so that the system loads and specifications are respected accordingly. Any changes to the complex requirements in terms of loads need to be preempted and communicated accordingly. With these precautions in place, any negative impacts may be entirely avoided.

6.2 Residual Impacts

If the Contractor works with care, adopts extra precautions around the existing infrastructure and utilities and carries out any accidental repair work correctly (should the need arise) there should be no residual impacts arising from the Scheme.

6.3 Monitoring

If the Contractor accidentally damage the infrastructure and utilities during the construction phase, a technically competent person should oversee the repair work. This will ensure that the repair work is up to standard and restores the damaged items to their original state with the least possible inconvenience.

Monitoring of infrastructure and utilities is not required during the operational phase.

7.0 SUMMARY OF IMPACTS

Table 11: Summary of expected impacts on the proposed Scheme

IMPACT TYPE AND SOURCE			IMPACT RECEPTOR		EFFECT AND SCALE							PROBABILITY OF IMPACT OCCURRING	OVERALL IMPACT SIGNIFICANCE	PROPOSED MITIGATION MEASURES	RESIDUAL IMPACT SIGNIFICANCE	OTHER REQUIREMENTS
IMPACT TYPE	SPECIFIC INTERVENTION LEADING TO IMPACT	PROJECT PHASE	RECEPTOR TYPE	SENSITIVITY TOWARDS IMPACT	DIRECT / INDIRECT / CUMULATIVE	BENEFICIAL / ADVERSE	SEVERITY	PHYSICAL / GEOGRAPHIC EXTENT OF IMPACT	SHORT / MEDIUM / LONG TERM	TEMPORARY / PERMANENT	REVERSIBLE / IRREVERSIBLE					
Potential interruptions of second interconnector cable	Dust-generating activities, traffic	Construction	National power supply	High	Direct & Indirect	Adverse	High	National	Medium	Temporary	Reversible	Remote	Negligible	N/A	Negligible	N/A
Damage to existing infrastructures/utilities	Mechanical damage	Construction	Existing infrastructure and utilities within the access route	High	Direct	Adverse	Low	Local	Short	Temporary	Reversible	Unlikely	Moderate	Liaison between WSM and contractor, Precautions taken	Minor	N/A
Damage to existing infrastructures /utilities	Dust-generating activities	Construction	Existing infrastructure and utilities within the buffer zone	Medium	Indirect	Adverse	Medium	Local	Short	Temporary	Reversible	Unlikely	Minor	Liaison between WSM and contractor, Dust-mitigation measures	Negligible	N/A
Interruptions to water and electricity supply	Connection of services to electricity grid & water network	Construction	Existing facilities within the ECOHIVE complex	Medium	Direct	Adverse	Medium	Local	Short	Temporary	Reversible	Inevitable	Minor	Liaison between WSM and contractor	Negligible	N/A
Increase in Malta's waste recovery capacity	Operation of a new MRF	Operations	Existing waste recovery capacity	High	Direct	Beneficial	High	National	Long	Permanent	Irreversible	Inevitable	Major	N/A	Major	N/A

Increased load on national electricity grid	Operation of a new MRF	Operations	National electricity grid	Low	Cumulative	Adverse	Low	National	Long-term	Permanent	Irreversible	Inevitable	Negligible	Direct liaison between WSM and Enemalta regarding the connections and loads	Negligible	N/A
Increased load on national potable water and sewage systems	Operation of a new MRF	Operations	National sewage and potable water network	Low	Cumulative	Adverse	Low	National	Long-term	Permanent	Irreversible	Inevitable	Minor	Direct liaison between WSM and Water Services Corporation regarding connections and loads	Negligible	N/A

APPENDIX 1

TERMS OF REFERENCE

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 (including depth of multiple sampling points at a single sampling point in the case of water media and sediment, where applicable) 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 ERA 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 and*

Marine Strategy Framework Directive) may need to be factored into more than one aspect of the discussion.

3.6 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 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.

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 pressures on the environment in the surroundings of the project, including pressures which may be exacerbated by the proposal but of which effects may go beyond the area of influence; 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.

5.0 REQUIRED MEASURES, IDENTIFICATION OF RESIDUAL IMPACTS, AND MONITORING PROGRAMMES

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 ERA'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, their units of measurement, the monitoring indicators to be used; and standard analytical methods in line with relevant EU policy;*
- 3. An effective indication of the required action to address any exceedances, risks, mitigation failures or noncompliances 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 ERA (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 3 – attached to Method Statement as Appendix 1.