

Environment Protection Directorate Report on Environment Impact Assessment

PA 05396/09 (GF 00248/07): Laying of submarine power cable from Sicily to Qalet Marku, excavation of link to pass cable under road by means of Horizontal Drilling, excavation and construction of culvert through Triq ir-Ramla, construction for Terminal Station at Magħtab and excavation of underground tunnel from Magħtab to Pembroke including 2 escape shafts, site at Interconnector Terminal Station, Wied ta' Kieli, Naxxar.

1. BRIEF DESCRIPTION OF THE PROPOSAL

The Malta Environmental and Planning Authority (MEPA) requested an Environmental Planning Statement (EPS) to support PA 05396/09 (GF 00248/07) for the laying of submarine power cable from Sicily to Qalet Marku, excavation of link to pass cable under road by means of Horizontal Drilling, excavation and construction of culvert through Triq ir-Ramla, construction for Terminal Station at Magħtab and excavation of underground tunnel from Magħtab to Pembroke including 2 escape shafts, site at Interconnector Terminal Station, Wied ta' Kieli, Naxxar (which amalgamated applications PA 05396/09: Interconnector Terminal Station at Magħtab, site at Interconnector Terminal Station, Wied Ta' Kieli, Naxxar, & PA 05584/09: Excavation and construction of tunnel from proposed tunnel leading St. Andrews DC to proposed Magħtab Terminal, site from Triq Tal-Francċiżi, Swieqi passing underground to Triq Il-Magħtab, l/o Naxxar) as per Schedule IA Category II projects section 2.6.2.3 of the EIA Regulations, 2007 (Legal Notice 114 of 2007). The application is for full development permission.

The EPS included a description of the project and its surroundings, relevant legislation and policies, an assessment of impacts and a description of mitigation measures, as required by the Terms of Reference. The EPS was co-ordinated by Ing. Mario Schembri from AIS Environmental Ltd.

THE PROPOSED DEVELOPMENT

Measure 3.3.2.1 of the National Reform Programme (April, 2011) establishes the need of linking the Maltese Islands to the European Energy Grid. The proposed establishment of a power link with Sicily is part of a series of projects that seek to reduce 210MW of electricity generating capacity in Malta. This requirement is central to Malta's obligations not to operate the existing Marsa Power Station for more than 20,000 operational hours between 2008 and end 2015, and this as per Directive 2001/80/EC. This project was selected as a solution over the possibility of constructing another energy production plant in Malta. The project, together with the existing energy generation facility, will offer a means of meeting the local energy demands, and a potential for reducing national emissions. It is expected that associated purchasing costs of power from mainland Europe will take into consideration compliance requirements of Directive 2003/87/EC.

The project consists of 3 components:

- (1) The construction of a 2x225MW Interconnector Terminal Station at Magħtab, covering an area of approximately 9,516sqm and a maximum height of 10m (document PA 05396/09/65B). The area includes the construction of the main terminal station that is proposed to be developed with the approval of this application, and a smaller area being reserved for the potential future extension to the terminal station in order to support a wind farm grid connection. A cable from the Interconnector Terminal Station at Magħtab will be led through trench works along Triq ir-Ramla to the Coast Road, and subsequently linked to a submarine cable by means of the horizontal drilling excavation of a tunnel, passing the cable beneath the Coast Road, and beneath the small bay of Qalet Marku, emerging onto the seabed at a distance of approximately 150m out at sea.
- (2) The construction of a tunnel from the St. Andrews Distribution Centre tunnel to the proposed Magħtab Terminal (the route extends from a site at Triq Tal-Francċiżi, Swieqi and then passes underground to Triq il-Magħtab, l/o Naxxar over a length of approximately 4km, excluding trenching works to the sea). The diameter of the tunnel is approximately 3.4m.. The development also includes an escape tunnel leading to the ex-White Rocks Holiday Complex (length approximately 350m), and 2 escape shafts along the length of the main tunnel – one at Triq Wied Mejxu, San Gwann (VS1) and another at Triq Santa Klara,

l/o Naxxar (VS4). The escape shafts consist of 16sqm stairwells approximately 3m high above ground level.

- (3) The laying of a submarine cable connecting the Malta landing point to another landing point at Marina di Ragusa in Sicily.

EXPLORATION OF ALTERNATIVES

The EPS discusses the consideration of alternative technologies, and an alternative site assessment exercise was also carried out prior to the EPS.

The technologies considered were: high voltage alternating current (HVAC) and the high voltage direct current (HVDC). Both Malta and Sicily use HVAC systems with different voltages and hence the installation of transformers, reactive power compensating equipment and switchgear are still required at the terminals, but at a smaller scale than is required for HVDC. HVDC would also require a converter station at each of the terminal stations at the 2 opposite ends of the submarine cable. HVDC systems are considered to have a very high reliability, and ultimately the HVDC option was selected due to limitations with HVAC cable lengths.

An alternative site assessment was also undertaken, and considered a total of 26 different sites; the following criteria were taken into consideration:

- The site needs to be located along the northern coast, at a distance from existing telecommunication cables, whilst seeking to minimise costs;
- The site needs to be located in proximity to the existing and proposed cable tunnel network which houses the current and planned 132kV electricity transmission system developments seeking to minimise costs;
- The site needs to be located at a distance from fishing & shipping grounds, areas earmarked for potential windfarm development, and any planned land reclamation projects;
- The site should be capable of housing a 80 metre x 80 metre terminal station in proximity to the landing point;
- The site should have ready access to a road network suitable for the transportation of large and heavy equipment to the site;
- The site should not be in an area of unspoilt natural beauty or a special area of conservation (SAC); and
- The area chosen should be Government-owned, preferably unused, and with no known industrial or tourism activities.

The site at Magħtab was selected as the best option; earlier proposed options such as the Pembroke garrigue were discarded on environmental grounds since the intervention would have resulted in unacceptable impacts. Reference is made to Appendix 1 of the Technical Appendices which details the site selection exercise.

2. EIA CONSULTATION

As part of the EIA process, consultation with various consultees was carried out during the scoping and EIA review stages. Public consultation was undertaken during the scoping stage and following the certification of the EPS.

2.1 Consultation during Scoping

During the scoping stage, the Project Description Statement (PDS) was circulated to the following consultees and was also made available for public consultation on 13th September 2010:

- Naxxar Local Council (NLC);
- Ħal Għargħur Local Council (GLC);
- Swieqi Local Council (SLC);
- Nature Group (NG);
- Superintendence of Cultural Heritage (SCH);

- Occupational Health and Safety Authority (OHSA);
- Environmental Health Directorate (EHD);
- Civil Protection Department (CPD);
- Malta Resources Authority (MRA);
- Other non-governmental organisations; and
- Internal key area experts.

Within the stipulated consultation period, comments were received from Superintendence of Cultural Heritage, the Environmental Health Directorate, and the Malta Resources Authority. These are inserted in Appendix 1 to this Report. Final terms of reference were issued on the 28th October 2010.

2.2 Consultation during Review

The first draft EPS was submitted to MEPA on 24th October 2011 and circulated for review to the following consultees:

- Naxxar Local Council (NLC);
- Hal Għargħur Local Council (GLC);
- Swieqi Local Council (SLC);
- Nature Group (NG);
- Superintendence of Cultural Heritage (SCH);
- Occupational Health and Safety Authority (OHSA);
- Environmental Health Directorate (EHD);
- Civil Protection Department (CPD);
- Malta Resources Authority (MRA);
- Transport Malta (TM);
- Ministry for Resources and Rural Affairs;
- Cultural Heritage Advisory Committee (CHAC);
- Natural Heritage Advisory Committee (NHAC); and
- Internal consultees (i.e. other MEPA units).

Within the stipulated consultation period, comments were received from the Environmental Health Directorate, the Malta Resources Authority, WasteServ Malta (through MRRA), and the Cultural Heritage Advisory Committee. Comments made by MEPA and its consultees during the review stage were forwarded to the EIA Coordinator, the developer and the architect on 25th November 2011. These comments were addressed by the EIA Coordinator and responses were submitted to MEPA, all of which can be found in an Addendum to the EPS Coordinated Assessment Report. Comments received during the review consultation period are inserted in Appendix 2 to this Report.

2.3 Consultation following Certification

The certified EPS was published for a three-week public consultation period on 29th February 2012. Deadline for submissions was 21st March 2012. No comments were received during this period.

3. EIA FINDINGS

The following characteristics of the site, assessment of impacts and mitigation measures were identified in the EPS.

3.1 GENERAL DESCRIPTION OF LAND COVER AND LAND USE

The land uses of the site and surrounding area of influence are illustrated in Figure 4.2 of the EPS Coordinated Assessment Report and include the following:

- Bathing area,
- Garrigue,
- Residential areas,
- Agricultural land,
- Tree coppices,
- Valley system;
- Roads;
- Civic amenity site,

- Shooting range,
- Recycling facility,
- Magħtab Environmental Complex,
- Farms,
- Fort Madliena,
- Magħtab Riding Club,
- Victoria Lines,
- White Rocks Complex, and
- Ta' Ħammud dolmens

Environment Protection Directorate note: *Since most of the proposed development will be located underground, the impact of the proposed intervention on the land-use front is expected to be limited to the take-up of the agricultural land on the site of the proposed interconnector terminal building. This impact, as in all instances of developments involving construction and excavation works, is considered residual and irreversible, but its overall significance is limited when considering the site context, which essentially consists of relatively marginal land along the entrance to the ex-Magħtab landfill.*

3.2 GEOLOGY, GEOMORPHOLOGY, HYDROGEOLOGY, HYDROLOGY

The study was based on field surveys and subsurface investigation in relation to geology, geomorphology, hydrology and hydrogeology of the site.

Geology

The rock formation outcropping at the development site and the area of influence is the Lower Globigerina Limestone and the Lower Coralline Limestone (Xlendi, Attard, and Magħlaq Members) - refer to Figure 5.2 in the EPS Coordinated Assessment.

A number of geological faults intersect the area of influence, the main fault being the Great Fault (or Victoria Lines Fault). This consists of 2 conjugate faults (trending southwest-northeast and west to east) and 7 smaller faults, 5 of which trend southwest to northeast and belong to the older system of faults, and the remaining 2 trending in a north-south orientation (Table 5.1 of the EPS Coordinated Assessment).

Geomorphology

The relief and landforms within the proposed site and the surrounding area are predominantly controlled by tectonic activity, lithology, fluvial erosion and weathering processes, and anthropogenic influences, and the principal geomorphologic features within the area of influence include (Figure 5.3 & 5.4 of the EPS Coordinated Assessment refers):

- Fault scarps;
- Dry valleys;
- Uplands; and
- Gentle slopes on predominantly flat land around Magħtab.

Hydrology

The hydrological and hydrogeological features identified within the area of influence include (Figures 5.10, and 5.11 in the EPS Coordinated Assessment refer):

- A number of dry valleys and associated catchments areas: Il-Wied ta' Kieli (at Qalet Marku); a shallow valley at Magħtab; Wied Anġlu, Il-Wied ta' Pisswella, Il-Wied ta' Santa Katarina, Il-Wied ta' Santa Marija taż- Żellieqa, Wied id-Dis and Wied il-Faħam (all at Ħal Għargħur); Wied il-Kbir and Wied Għomor (between Swieqi, Il-Mensija); Wied Mejxu and Wied Ħarq il-Ħamiem (between San Ġiljan, Swieqi and Pembroke);, and an unnamed watercourse that crosses the garrigue at Pembroke; and
- A number of other major hydrological features: the tunnel falls within the limits of the mean sea level aquifer; whilst an aquifer protection zone, a number of boreholes, a pumping station, and a water gallery, are located beyond the footprint of the proposed tunnel).

Geotechnical Assessment and Site Investigations

The Xlendi member, Attard member, and Magħlaq member of the Lower Coralline Limestone formation were typical of the rock core samples recovered. The Attard member and Magħlaq member are characteristic of dense strong rock and are a potential source of good-quality hardstone aggregate with good mechanical properties.

IMPACTS ON THE GEO-ENVIRONMENT

The excavation process for the proposed development will result in the removal of approximately 155,000 cubic metres of mineral resource, including any undiscovered palaeontological features. In this regard, the impact on the geology due to resource extraction is considered to be of *major significance*. Excavated lower coralline limestone (żonqor) can be reused and recycled for construction purposes, whilst any Globigerina limestone waste may be used to backfill existing quarry depressions. The discovery of any palaeontological or geological features cannot be reasonably predicted at this stage and would need to be reported (if relevant) as works progress.

The EPS also identifies potential excavation risks (e.g. destabilisation of the surrounding land) as *not significant*, on the understanding that the tunnel will be reinforced, and that frequent tunnel inspections will be undertaken. Excavation works are recommended to be limited to the dry season to minimise risks of settling/subsidence within the Globigerina limestone, and are to be backed by a detailed stability risk assessment. The proposed tunnel will intersect the Great Fault below ground level, posing an impact of *minor* significance.

With respect to hydrology, the EPS identifies the following potential impacts: (i) changes to the hydrogeological regime; (ii) pollution of the aquifer; (iii) pollution of run-off; and (iv) modification of run-off patterns and volumes. These identified impacts are expected to be *not significant* as long as appropriate management practices (aiming at retaining impermeable tunnel walls, and preventing water runoff through the entrance to the shafts) are adopted.

MITIGATION MEASURES

Proposed mitigation measures include:

- Reuse and recycling of excavated lower coralline limestone for construction purposes;
- Use of excavated Globigerina limestone waste to backfill existing quarry depressions;
- Immediate reporting of any discovery of underground palaeontological or geological features;
- Reinforcement of the tunnel, and frequent tunnel inspections;
- Limiting of excavation works to the dry season, and backing by a detailed stability risk assessment;
- Adoption of appropriate management practices that aim at retaining impermeable tunnel walls; and
- Adoption of appropriate management practices seeking to prevent water runoff through the entrance to the shafts.

RESIDUAL IMPACTS

The above mitigation measures should mitigate most of the impacts identified; however impacts on the geology of the site in relation to resource extraction and resultant waste volumes may only be rendered insignificant should the excavated hard stone, which is expected to constitute in a major percentage of the excavated wastes be reused and not discarded.

3.3 LANDSCAPE AND VISUAL AMENITY

The landscape assessment and visual amenity assessment were based on a desk study (which determined the Zone of Visual Influence and the related viewpoints) and on-the-field survey.

Landscape Assessment

The site of the proposed Interconnector Terminal Station is located at the foot of the Magħtab waste disposal site (which was in operation from 1977 till 2004, and which is being converted into the Magħtab Waste Management Complex, and Magħtab Environmental Complex). The proposed development also falls within the limits of the Magħtab Category 2 Rural Settlement, and within approximately 800 metres of the coast. The proposed tunnelling works are located underground and hence are not expected to affect the landscape.

The two proposed escape shafts are located adjacent to an urban conurbation, and within an agricultural setting respectively.

The landscape types/character areas that form the landscape context of the identified zone of visual influence are as follows:

- *Character Areas*

1. Mellieħa Ridge Character area

- Urban conurbation,
- Mixed garrigue and agriculture.

2. Southern Mellieħa Slopes Character area

- Characterised by a number of undeveloped valleys,
- Cultivated agricultural land,
- Isolated tree coppices, and
- Rock escarpments.

3. Wied Qannotta Basin Character area

- Dominated by cultivated slopes and valleys, and
- A number of farms,

4. Magħtab Character area

- A relatively flat area characterised partly by garrigue and partly by agricultural land,
- A number of farms,
- A number of industrial units, and
- A number of scattered buildings

5. North Bingemma Escarpment Character area

- Dominated by cultivated slopes and valleys

6. Rabat-Dingli Northeastern Escarpment Character area

- Buskett woodland,
- Cultivated terraced fields and valleys,
- Verdala Palace,
- A number of farms, and
- Quarrying activity.

7. ħal Ġħargħur Valleys Character area

- Military fortifications,
- Urban conurbations of ħal Ġħargħur, and Madliena,
- Great Fault escarpment, and
- Deep valleys.

8. West Mosta Hinterland Character area

- Sloping cultivated agricultural land, and
- Urban conurbations.

Visual Amenity

The zone of theoretical visual influence (ZVI) for the proposed development (Figure 8.1 of the EPS Coordinated Assessment) was defined using a combination of desk and field-based techniques. Six viewpoints (Figure 8.1 of the EPS Coordinated Assessment) to assess the visual impact of the proposed development were identified:

- Viewpoint 1: Parking area next to Qalet Marku beach, Triq il-Kosta,
- Viewpoint 2: Triq is-Salina, l/o Naxxar,
- Viewpoint 3: Top of Triq is-Salina, l/o Naxxar,
- Viewpoint 4: Triq il-Fortizza tal-Mosta, l/o Mosta,
- Viewpoint 5: L-Imselliet,
- Viewpoint 6: Mtarfa promontory.

IMPACTS ON LANDSCAPE AND VISUAL AMENITY

The changes to the landscape and visual amenity during construction and operation are assessed together. In terms of landscape character, the EPS establishes that overall impact significance is *neutral*, with an impact at view point 3 of *minor adverse* significance during the operation phase. The development of the Interconnector Station is however expected to generally blend into the surrounding landscape.

With respect to visual amenity, the impact of the proposed development on the visual amenity of the areas portrayed in the photomontages (Figures 7.19-30 of the EPS Coordinated Assessment) is defined as being of *slight adverse*, *neutral*, and *no change* impact significance, with a *slight adverse* impact at viewpoints 2, 3 & 4.

Proposed mitigation measures include the consideration of colours and textures that will contribute to the blending of the structure into the surroundings, coupled with a landscaping scheme, and the application of reduced lighting at night. A residual impact of *slight adverse* at the identified viewpoints is still expected following the application of the proposed mitigation measures.

3.4 NOISE EMISSIONS AND VIBRATIONS

Background noise levels were established by undertaking a daytime (weekday and weekend) and night-time survey at each of the seven noise monitoring locations. In each instance, assessment of noise arising from the construction and operation of the proposed project considered the closest noise receptor to the development site, so that the findings represent a worst-case scenario. Noise-sensitive receptors considered when identifying the noise monitoring points (Figures 10.1-3 of the EPS Coordinated Assessment) include:

- Location A Residential units in the Magħtab area, 100 m away from the excavation site
- Location B Residential area at Baħar iċ-Ċagħaq, 730 m away from the excavation site and 350 m away from the underground tunnelling.
- Location C Residential area at Madliena, 1500m away from the excavation site and 120 m away from the underground tunnelling.
- Location D Residential area at Ta' I-Ibraġ, 2200 away from the excavation site and just above the underground tunnelling.
- Location E Residential area at Ta' I-Ibraġ, 2700m away from the excavation site and just above the underground tunnelling.
- Location F Residential area at St. Andrews, 2900m away from the excavation site and just above the underground tunnelling.
- Location G Residential area at Swieqi, 3200m away from the excavation site and just above the underground tunnelling.

Noise readings and predictions resulted as follows:

LOCATION		CURRENT NOISE LEVELS		Weekday/ Weekend/ Night	WORST CASE PREDICTED NOISE LEVELS dB A									
		L _{max}	L _{eq}		Construction of terminal station			Excavation and Construction of tunnel			Total			
					Excavation & land clearing	Construct terminal station	Total dB A	Land clearing	Digging of trench	Boring machine prepare	Tunnel boring	Cable unloading	Cable placement	Total dB A
A		59.2	50.3	Weekday	69.8	61	70.3	67.7	67.4	61	62.3	62.3	66.3	72.9
		57.3	35.72	Weekend										
		53.9	35.3	Night										
B		51.4	45.3	Weekday	51.3	42.5	51.8	49.2	48.9	42.5	43.8	43.8	47.7	54.4
		48.1	38.4	Weekend										
		51.2	32.4	Night										
C		59.4	45.7	Weekday	46.5	37.7	47.0	44.4	44.1	37.7	39	39	42.9	49.6
		56.7	51.7	Weekend										
		52.5	30.1	Night										
D		55.7	42.9	Weekday	43.2	34.4	44.2	41.1	40.8	34.4	35.7	35.7	39.6	46.3
		54.6	47.4	Weekend										
		55.0	46.5	Night										
E		53.7	36.7	Weekday	41.2	32.4	42	39.1	38.8	32.4	33.7	33.7	37.6	44.3
		51.0	47.6	Weekend										
		45.4	39.7	Night										
F		48.1	35.4	Weekday	39.7	30.9	40.2	37.6	37.3	30.9	32.2	32.2	36.1	42.8
		58.1	41.1	Weekend										
		54.7	43.8	Night										
G		60.0	38.5	Weekday	38.3	29.5	38.8	36.2	35.9	29.5	30.8	30.8	34.7	41.4
		60.2	41.1	Weekend										
		47.2	36.9	Night										

With respect to vibrations, it is envisaged that a core-boring machine at a depth of 20 metres from the surface will be the cause of a peak particle velocity of 1.2mm/s.

IMPACTS IN TERMS OF NOISE AND VIBRATIONS

Perception of noise resulting from excavation and construction activities is likely to vary depending on the project component and the time of day and/or the time of week. The most noticeable noise will be that which results during the construction phase of both the Interconnector Station and the tunnel excavations. In this regard, the EPS recommends that any tunnel excavation works beneath the built-up area are to be limited to daytime hours.

Noise impact significance during construction phase at locations A, B and C has been identified as *severe to moderate*, in view of a perceived increase of 20dB during a normal weekday. Perceived noise levels above baseline levels would increase if the works continue throughout the night and during the weekend. Predicted construction-phase noise levels exceed the noise level limits advised in the Guidelines of the Department of Environment (DoE) advisory leaflet AL 72 (UK). At locations D, E and F, noise impacts are expected to range from *slight to substantial*, whereas in the case of location G the impacts range from *slight to moderate*.

The EPS does not perceive any significant noise impacts with respect to operational noise.

With respect to vibrations, it is envisaged that the predicted levels and their consequent impact significance are essentially *low* in all locations but may mildly affect residents at points A and B. However, this level of vibration is not expected to affect the overlying buildings.

MITIGATION MEASURES

Proposed mitigation measures include the following:

- Fitting effective exhaust silencers in all vehicles and mechanical equipment;
- All percussive tools should be fitted with mufflers or silencers of the type recommended by the manufacturers while works are being carried out;
- Machines known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby noise sensitive receptors;
- If necessary, acoustic barriers or enclosures should be used;
- No construction works should be carried out during the night-time hours;

- To minimise the likelihood of complaints, the local council and affected residents should be kept informed of the works to be carried out, and of any proposed work outside normal hours; and
- Residents should be provided with a point of contact for any queries or complaints.

RESIDUAL IMPACTS

It is anticipated that noise arising from construction activities will extend over the duration of the construction period. The significance of any residual impacts was not determined by the EPS, whereby monitoring is proposed to be carried throughout during the construction phase.

Environment Protection Directorate note: *The EPD notes the omission of an explicit reference to residual impacts regarding noise. In view of the impact significance reported in the EPS, the EPD considers the residual impact during the construction phase as being an issue of potential concern.*

3.5 TERRESTRIAL ECOLOGY

The EPS identifies ecological features within the area of influence, including habitat types, flora and fauna, wooded areas and other natural landscape features, also taking into consideration hydrology in the understanding of valleys and water-dependent habitats. This was achieved by means of a desktop study and on-the-field survey.

Particular attention was awarded to protected areas, areas of ecological and scientific importance, protected habitats and species, and any endangered, rare, unique, endemic or otherwise important species and habitat types.

Figures 6.2, 6.3, 6.4 & 6.5 of the EPS (Chapter 6 of the EPS refers) provide a habitats map of the areas within the area of influence of the proposed project. Identified habitats include:

- Agricultural land (cultivated or fallow);
- Andropogonid grass steppe/ Ermes/ Ruderal community on karstland or abandoned fields;
- Carob matorral and other maquis trees;
- Coastal halophytic community;
- Labiate garrigue including degraded patches;
- Mixed plantation of Mediterranean and exotic trees (e.g. tamarisk stands; tree plantation with Eucalyptus and pines);
- Small sandy beach at Qalet Marku;
- Valley floor at Il-Wied ta' Kieli, colonised by castor oil tree and great reed;
- Wetland at Qalet Marku.

Tree and plant species that may be affected by the proposed project have been identified as per entries highlighted in grey in the table below (Drawings 6.6-6.8 identify tree species that fall within the area of influence of the access tunnel in proximity to the ex-White Rocks Holiday Complex, the escape shaft at Magħtab, and the interconnector station):

Species Name	Vernacular Name	Level of Protection (L.N. 200 of 2011 & L.N. 311 of 2006)
<i>Pinus halepensis</i>	Aleppo pine	Trees Protected in selected areas
<i>Morus nigra</i>	Black mulberry	Trees Protected in selected areas
<i>Tamarix africana</i>	African tamarisk	Trees Protected in selected areas
<i>Tamarix gallica</i>	French tamarisk	Trees Protected in selected areas
<i>Capparis orientalis</i>	Caper	Animal and plant species of national interest whose taking in the wild and exploitation may be subject to management measures
<i>Ricinus communis</i>	Castor oil tree	Invasive, alien, or environmentally-incompatible

		species
<i>Crataegus monogyna</i>	Hawthorn	Trees protected in selected areas
<i>Acacia saligna</i>	Blue-leaved acacia	Invasive, alien, or environmentally-incompatible species
<i>Anthyllis hermanniae</i> subsp. <i>melitensis</i>	Shrubby kidney vetch	Animal and plant species of national interest whose conservation requires the designation of special areas of conservation
<i>Ceratonia siliqua</i>	Carob	Trees protected in selected areas
<i>Eucalyptus gomphcephala</i>	Tuart tree	Invasive, alien, or environmentally-incompatible species
<i>Pistacia lentiscus</i>	Lentisk	Trees protected in selected areas
<i>Schinus terebinthifolius</i>	Brazilian pepper tree	Invasive, alien, or environmentally-incompatible species
<i>Pittosporum tobira</i>	Japanese cheesewood	Invasive, alien, or environmentally-incompatible species
<i>Rhamnus oleioides</i>	Olive-leaved buckthorn	Strictly protected tree species
<i>Olea europaea</i>	Olive tree	Trees protected in selected areas
<i>Rosmarinus officinalis</i>	Rosemary	Animal and plant species of national interest whose taking in the wild and exploitation may be subject to management measures
<i>Thymbra capitata</i>	Mediterranean Thyme	Animal and plant species of national interest whose conservation requires the designation of special areas of conservation
<i>Carlina involucreta</i>	Clustered carline-thistle	n/a
<i>Jasonia (=Chiliadenus) bocconei</i>	Maltese fleabane	Endemic species not covered by regulation 26
<i>Phagnalon graecum</i> ssp. <i>ginzbergeri</i>	Eastern phagnalon	n/a
<i>Allium melitense</i>	Maltese leek	Endemic species not covered by regulation 26 of LN 311/06
<i>Chamaerops humilis</i>	Dwarf fan palm	Trees protected in selected areas
<i>Juncus acutus</i>	Sharp rush	Animal and plant species of national interest whose conservation requires the designation of special areas of conservation

IMPACTS ON ECOLOGY

No significant impacts on ecology were identified, and the following identified potential impacts are of minor to moderate significance:

- Transport and disposal of excavated material from excavation of tunnels, including disturbance by heavy vehicle traffic – *Minor* impact significance
- Impact of noise and vibrations from excavation of tunnels - *Minor* impact significance
- Excavation of escape shafts - *Minor* impact significance
- Habitat loss, damage and alteration (Development of Magħtab DC) - *Minor* impact significance

- Habitat loss, damage and alteration (Trenching works at Triq ir-Ramla and landing point) - *Minor* impact significance
- Loss of protected species (development of Magħtab DC and opening of access tunnel) - *Minor* impact significance
- Loss of protected species (excavation of escape shafts and trenching works at Triq ir-Ramla and landing point) - *Minor* impact significance
- Loss of part of Qalet Marku designated/scheduled area (Development of Magħtab DC and trenching at landing point) - *Moderate* impact significance due to potential encroachment of works onto the marshland
- Removal of invasive alien species - *Minor* impact significance
- Generation of dust and silting of surface water runoff (Development of Magħtab DC and trenching works at Triq ir-Ramla and landing point) - *Minor* impact significance
- Leakage and emissions of chemical pollutants (development of Magħtab DC and trenching works at Triq ir-Ramla and landing point) - *Minor* impact significance

MITIGATION MEASURES

- The application of good construction practices in line with L.N. 295 of 2007, thus limiting project overflows onto surroundings not committed by the proposed project.
- Redesign the proposed interconnector station seeking to minimise uptake of land, limit the loss of protected tree species.
- Works on the proposed culvert along Triq ir-Ramla leading the cable to the sea should be limited to the footprint of the existing road.
- Uprooted trees should be replaced with compensatory planting.
- The removal of invasive alien species should be subject to a MEPA-approved method statement to prevent the dispersal of seeds.

RESIDUAL IMPACTS

Residual impacts of the project on ecology are expected to be of minor significance and include: the loss of a patch of rural land, the removal of a number of protected trees, and the partial loss of a site between the Magħtab environmental complex and Il-Wied ta' Kieli, which is identified in policy CG22 and Map NAM10 of the Central Malta Local Plan as an Area of Ecological Importance, albeit the latter has a relatively limited ecological value.

3.6 ARCHAEOLOGY AND HISTORICAL/CULTURAL HERITAGE FEATURES

Potential impacts on archaeological, historical or cultural features were established following a field survey and desktop study of the area and its immediate surroundings. These took into consideration all visible and documented cultural, archaeological and historical remains and/or structures within the footprint of the proposed project and its immediate surroundings, thereby identifying any direct and indirect impacts, as well as visual impacts on the context of the heritage features in question. Identified features of archaeological, cultural, and historic value include:

- Ta' Ħammud dolmens (along the road that flanks Il-Wied ta' Kieli, near Qalet Marku);
- The Victoria Lines;
- Fort Madliena;
- Old Farmhouses *en route* to the proposed escape shafts;
- Rubble walls (not all well-maintained); and
- The Great Fault escarpment (actually a natural geomorphological feature, but considered as an integral component of the Victoria Lines defensive system).

IMPACTS ON ARCHAEOLOGY AND HISTORICAL/CULTURAL FEATURES

- Potential discoveries - *Major*
- Damage to vernacular structures/ walls - *Insignificant*
- Ta' Ħammud dolmens - *Major*
- Military fortifications - *Minor*

MITIGATION MEASURES

- Monitoring of construction works
- Due care to avoid damaging such structures during construction works

RESIDUAL IMPACTS

The EPS identifies no residual impacts as long as the mitigation measures proposed (which constitute basic good practice) are duly enforced.

3.7 INFRASTRUCTURE & UTILITIES

The EPS chapter on infrastructure and utilities establishes that there are no substations or high-voltage cables, and no potable water or sewerage infrastructure, within the area of influence of the proposed Magħtab DC Station and the proposed surface culvert linking it to the coastal landing point of the submarine cable). The remainder of the project (i.e. tunnel) is located at a lower level and is not expected to intersect any such infrastructure. Drawing 9.1 further establishes the location of existing high-voltage points, whilst drawing 9.2 & 9.3 identifies the location of potable water pipes, and sewers/wastewater pipes respectively. These are not expected to be affected by the proposed project.

The EPS establishes that existing access routes to the 2 proposed escape shafts and the proposed Interconnector Station & tunnel are sufficient in terms of road dimensions, and vehicle capacity.

Environment Protection Directorate note: *Earlier in the case history, a different set of shafts were proposed, including among others a shaft near the valley bed at Wied id-Dis. This was objectionable from an environmental point of view, as the site is poorly accessible and topographically constrained, to the extent that the interventions associated with drilling of the shaft (including vehicular access and maneuvering) would have entailed major and irreversible construction-phase impacts. Following detailed negotiations with Enemalta, including on-site discussions, this was eliminated from the proposal and the overall arrangements for escape routes were revised accordingly.*

The existing network is considered capable of taking on 30 trucks of waste per day for 60 days for the proposed Interconnector station, 30 trucks of waste per day for 180 days for the proposed main tunnel, 8 trucks of waste per day for 90 days for the proposed escape tunnel, and 6 trucks per day for a length of 30 days for the proposed trenching works along Triq ir-Ramla. Enemalta and Transport Malta are in communication seeking to the phase the project construction periods. The Enemalta project is expected to be completed prior to any potential coast road works.

The application of traffic calming measures should further minimise any transportation-related nuisances which might arise in the vicinity of surrounding residential areas.

3.8 MARINE ENVIRONMENT

The EPS briefly discusses the nature of the works affecting the coast (including the coast road), noting that there will be no surface works on the coast surface since the creation of an underground chamber will facilitate the use of horizontal directional drilling creating a duct at a lower level, leading directly to open sea, through which the cable will be pulled without the need for trenching works on the coastline.

Issues relating to the submarine cable component were limited to potential impacts of the proposed cable laying on the Special Area of Conservation (SAC) of International Importance: Żona fil-baħar fil-Grigal ta' Malta (Government Notice 851/10). These were already sufficiently addressed through the Appropriate Assessment mechanisms regulated by Legal Notice 311/06, also benefiting from a detailed seabed survey that had been submitted by Enemalta, and were consequently scoped out of the EPS. Nevertheless, the EPS still provides a critical assessment of the G.A.S. Ecological Baseline Study covering the Malta inshore water phase (Chapter 11 of the EPS Coordinated Assessment), also making reference to other studies of the area. The chapter discusses anticipated impacts on marine ecology such as the smothering and fragmentation of a

largely continuous *Posidonia oceanica* meadow, the alteration of sediment budgets and existing hydrodynamic regime, and the temporary deterioration of water quality.

The EPS proposes the laying of the cable on the seabed instead of its burial, the routing of the cable to avoid sea-grass meadows, the deployment of silt curtains to contain the dispersal of fine sediments, and the application of a trefoil cable bundle as proposed for the landward part of the cable hence reducing electromagnetic radiation, and the application of monitoring programme that observes the extent and health of *Posidonia oceanica* meadows on site, as well as the sediment and eco-toxicological concentration of a number of heavy metals.

The EPS concludes that residual marine impacts are still expected even with the application of all the proposed mitigation measures.

Environment Protection Directorate note: *The EPD acknowledges the residual impact within the footprint of the cable itself and in the immediate area of influence, and notes that the affected area is ultimately a narrow strip that is proportionately negligible in comparison with the extensive Natura 2000 site that was designated for the purpose of protecting Posidonia meadows. In this regard, the EPD had looked into these issues at an earlier stage through the Appropriate Assessment screening mechanism, and had concluded that the overall impact on this count is localised and is not expected to be significant when considering the above factors and when taking into account the cable-laying methodology proposed by Enemalta for the purposes of minimising at source the impact on the seabed. This EPD position assumed a worst-case scenario wherein the affected stretches of Posidonia fail to recover. Further details are provided in the Appropriate Assessment documentation.*

3.9 PUBLIC HEALTH

The health assessment (Chapter 12 of the EPS Coordinated Assessment refers) sought to establish any potential health risks resulting from:

- Electric and Magnetic Fields (EMF) radiation from power lines;
- Impact of solid waste created during the construction phase (and resultant dust emissions);
- Impact of noise and vibration during the construction phases
- Noise and vibration from the transformers and power lines during operation;
- Fire and electrocution hazards; and
- Biological hazards (varmints).

HEALTH IMPACTS AND RISKS DURING CONSTRUCTION/OPERATION

The most significant impacts identified pertain to:

- air quality: significance is *Moderate at closest receptors, negligible at receptors >100m distant*; and
- noise: *Low to High*. (see also the above section on noise and vibrations)

The EPS establishes that both impacts can be mitigated to the extent of realistically achieving a *negligible*, and *very low to negligible* residual impact.

MITIGATION MEASURES

Proposed mitigation measures include:

- The application of standard construction dust abatement measures;
- The administration of normal industry health and safety measures;
- The use of personal ear protection for workers, sound barriers, and restricted working hours;
- Personnel are to be provided with proper training and safety practices;
- No long-term human occupancy within the zone with exposures above 0.4 μ T is to be ensured; and
- Appropriate varmint control methods are applied.

RESIDUAL IMPACTS

A slightly increased fire risk and biological risk are observed but both impacts may be mitigated, reducing the improbable occurrence of a fire outbreak, and seeking effective varmint control method to ensure a *very low* impact significance.

3.10 WASTE

The waste generated by the proposed development can be described as follows:

- Excavation waste from tunnel and site excavations: proposal is estimated to generate 155,000m³ equivalent to 10.9% of the national annual inert waste generation;
- Soil removal: proposal is estimated to generate 4,000m³;
- Organic waste;
- Packaging waste and off-cuts; and
- Contaminated/spent Sulphur hexafluoride (SF₆).

PROPOSED MEASURES

Proposed measures to manage the project's waste requirements include:

- The reuse of approximately 60% of the generated lower coralline limestone (*żonqor* excavation waste) as a hard stone aggregate;
- The application of dust abatement measures to waste carriers travelling to and from the site;
- The implementation of a Construction Management Plan establishing the requirements for transportation of waste to and from the site; and
- The exportation of contaminated/spent Sulphur hexafluoride (SF₆) to licensed facilities overseas.

Environmental Protection Directorate note: *The bulk of this waste relates to rock excavation waste and the same measures identified in relation to geology are also relevant for the purposes of this section. Soil removal can be addressed through permit conditions regarding the transportation and re-use of the displaced soil.*

3.11 SECONDARY & CUMULATIVE IMPACTS

With respect to cumulative impacts of the proposed development (Chapter 13 of the EPS Coordinated Assessment refers), the EPS states that:

- (i) There are no foreseen required upgrades or development of infrastructure to sustain the project (i.e. no consequential requirements), whilst the project construction phase is sought to be completed prior to any potential coast road works (i.e. no conflicts with other proposed projects in the area of influence of the development under consideration),
- (ii) There is a potential impact from the proliferation of varmits (as discussed in the Public Health Chapter),
- (iii) There is a perceived temporary oversupply of hard stone aggregate (Lower Coralline Limestone excavation waste) that might disrupt the mineral extraction market,
- (iv) The project will provide Malta with the required capacity of power, thus reducing its vulnerability, and
- (v) The project will contribute to Malta's achieving improved air quality levels, and reductions in greenhouse gas emissions.

Environment Protection Directorate note: *The EPD considers point (v) above to be an overriding environmental benefit.*

3.12 PLANNING, POLICIES AND LEGISLATION

The EPS considers the relevance of international and national legislation and Maltese planning policy to the proposed development. The following is list of main regulations to which the construction and operation of the proposal should conform:

3.12.1 National Environment Policy

The EPS was prepared prior to the publication of the National Environmental Policy (NEP) in February 2012. The proposed project as defined by measure 3.3.2.1 of the National Reform Programme (Section 1 above

refers) seeks the improvement of air quality levels, and is hence in line with the NEP which seeks to contribute to Malta's National Reform Programme by taking forward the energy and climate change priority area, targets and measures, by pursuing energy efficiency, seeking investments in renewable energies, achieving high levels of air quality, and reducing Malta's greenhouse gas Emissions. The project is thus expected to have a positive impact on this front.

3.12.2 National Legislative and Regulatory Framework

Act X of 2010 The Environment and Development Planning Act:

- Natural Environment:
 - **Legal Notice 311 of 2006** – Flora, Fauna and Natural Habitats Protection Regulations, 2006
 - **Legal Notice 160 of 1997** – Rubble Walls and Rural Structures (Conservation and Maintenance) Regulations, 1997
- Waste Management:
 - **Legal Notice 106 of 2007** – Environment Waste Management (Activity Registration) Regulations, 2007
 - **Legal Notice 126 of 2008** – Prevention and Remedying of Environmental Damage Regulations, 2008
 - **Legal Notice 63 of 2007** – Waste Management (Electrical and Electronic Equipment Regulations), 2007
 - **Legal Notice 168 of 2002** – Waste Management (Landfill) Regulations, 2002
- Air Quality:
 - **Legal Notice 291 of 2002** – National Emission Ceilings for Certain Atmospheric Pollutants (Amendment) Regulations, 2002
 - **Legal Notice 235 of 2004** – Ambient Air Quality Assessment and Management (Amendment) Regulations, 2004
 - **Legal Notice 231 of 2004** – Limit Values for Nitrogen Dioxide, Sulphur Dioxide and Oxides of Nitrogen, Particulate Matter and Lead in Ambient Air (Amendment) Regulations, 2004
 - **Legal Notice 140 of 2005** – European Community Greenhouse Gas Emissions Trading Scheme Regulations, 2005
- Noise:
 - **Legal Notice 193 of 2004** – Assessment and Management of Environment Noise Regulations, 2004
- Water:
 - **Legal Notice 194 of 2004** – Water Policy Framework Regulations, 2004
 - **Legal Notice 213 of 2001** – Pollution Caused by Certain Dangerous Substances Discharged into the Aquatic Environment Regulations, 2001
 - **Legal Notice 227 of 2001** – Limit Values and Quality Objectives for the discharges of certain dangerous substances into the aquatic environment Regulations, 2001
- Other:
 - **Legal Notice 295 of 2007** – Environmental Management Construction Site Regulations, 2007
- Government Notices:
 - **Government Notice 288 of 1995** – Scheduling of Property Section 46 of the Development Planning Act 1992, 1995
 - **Government Notice 200 of 2011** – Trees and Woodlands Protection Regulations, 2011
 - **Government Notice 328 of 1949** – Conifer Trees (Preservation) Regulations, 1949 (S.L.10.22)
 - **Government Notice 574 of 1994** – Scheduling of Property Section 46 of the Development Planning Act 1992, 1994
 - **Government Notice 729 of 1995** – Scheduling of Property Section 46 of the Development Planning Act 1992, 1995
 - **Government Notice 85 of 2001** – Scheduling of Property Section 46 of the Development Planning Act 1992, 2001

Act XXV of 2000 Malta Resources Authority Act, 2001:

- **Legal Notice 203 of 2002** – Regulations for the protection of groundwater against pollution caused by certain dangerous substances, 2002

Act XVI of 1977, as amended by Acts XXIX of 1979, XIII and XVII of 1983, XVI of 1987, XXXIV of 1989, XXIII of 1991, XV of 1995, XVI of 1997, XXV of 2000, XXII of 2005, and XXVII and XXXII of 2007; and Legal Notice 423 of 2007. The Enemalta Act:

- **Legal Notice 166 of 2011** – Electricity Market Regulations, 2011

- **Legal Notice 511 of 2004** – Electricity Regulations, 2004

Act XXVII of 2000 The Occupational Health and Safety Act:

- **Legal Notice 44 of 2002** - Work Place (Minimum Health and Safety Requirements), 2002
- **Legal Notice 36 of 2003** - General Provisions for Health and Safety at Work Places, 2003
- **Legal Notice 121 of 2003** - Minimum requirements for the use of personal protective equipment at work, 2003
- **Legal Notice 282 of 2004** - Work Equipment (Minimum Safety and Health Requirements), 2004

3.12.3 Local Planning Policy

Structure Plan Policies:

- Built Environment: BEN 1; BEN 2; BEN 3; BEN 12;
 - Conservation Policies: UCO 7; UCO 10; UCO 12; UCO 13;
 - Rural Conservation Areas: RCO1;
 - Ecology: RCO 10; RCO 11; RCO 12;
 - Archaeology: ARC 1; ARC 2; ARC 6;
 - Electricity: PUT 23.
- *North Harbours Local Plan: NA04: Protection of the Natural Coastal, NHCV01: Protection of SACs, SSIs, AElS and AHLSS*
- *Central Malta Local Plan: CG22: Protection of SACs, SSIs, AElS and AHLSS, CG23: Protection of Sites of Archaeological Importance, CG24: Protection of Areas of Agricultural Value*

3.12.4 European Commission Communications

COM (2006) 846 *Priority Interconnection Plan*

COM (2007) 528 *Directive of the European Parliament and of the Council amending Directive 2003/54/EC concerning common rules for the internal market in electricity*

COM (2010) 639 *Energy 2020: A new strategy for a competitive, sustainable and secure energy*

COM (2010) 677 *The Energy infrastructure priorities for 2020 and beyond – A blueprint for an integrated European energy network*

COM (2011) 21 *A resource-efficient Europe – Flagship initiative under the Europe 2020 Strategy*

COM (2011) 112 *A roadmap for moving to a competitive low carbon economy in 2050*

3.12.5 Further Legislation & Policy

The proposal also falls within the scope of the following legislation & policy, not referred to in the EPS:

Act XXIX of 1973 Fertile Soil (Preservation Act):

- **Legal Notice 104 of 1973:** Preservation of Fertile Soils Regulations.

Others:

- **Legal Notice 238 of 2006:** Minimum Requirement on the Energy Performance of Buildings.
- **Legal Notice 217 of 2001:** Freedom of Access to Information on the Environment Regulations.
- **Legal Notice 64 of 2002:** Protection of Workers from the risks related to exposure to noise at work Regulations, 2002;
- **Legal Notice 337 of 2001:** Waste Management (Permit and Control) Regulations, 2001;
- **Legal Notice 161 of 2002:** Waste Management (Waste Oils) Regulations, 2002;
- **Legal Notice 98 of 2004:** Waste Management (Packaging and Packaging Waste) Regulations, 2004.

Policy:

- Guidelines on Trees, Shrubs, and Plants for Planting and Landscaping in the Maltese Islands, 2002
- Solid Waste Management Strategy
- Space for Waste: the Waste Management Subject Plan

4. EIA CRITIQUE & EPD COMMENTS AND CONCLUSIONS

The Environment Protection Directorate acknowledges the proposed project as an important alternative to conventional power generation facilities in Malta, and considers it to be an important step in the potential reduction of their environmental impacts (e.g. on air quality), without entailing major adverse impacts on the physical environment and landscape. The Environment Protection Directorate notes that the proposal would act as a key contributor to the attainment of measure 3.3.2.1 of the National Reform Programme which seeks

the improvement of air quality, and that it is also in line with both the National Environment Policy and the Air Quality Plan.

The Environment Protection Directorate also generally agrees with the EPS Consultants' coordinated assessment and with their ensuing recommendations. The EPS has predicted a number of potential impacts on the environment as a result of the proposed development, some of which are of major significance. Most of these can be satisfactorily mitigated as long as the measures proposed in the EPS are duly implemented. Some short term and major residual impacts were identified, as follows:

- Rock-excavation waste produced by the project; and
- Construction-phase noise emissions in the vicinity of Magħtab, Baħar iċ-Ċagħaq and Madliena (receptors A, B & C).

In the case of residual impact related to resource extraction, the consultants have proposed that approximately 60% of the excavated hardstone waste is re-used as stone aggregate and that other lower-quality softstone waste is used for quarry infilling. Noting that more stringent waste-reduction at source is not a feasible alternative when considering the nature of the project under assessment, the Environment Protection Directorate agrees with the EPS consultants' recommendations in this regard.

With respect to predicted noise emissions during the construction phase of the project and impacts on the closest residential receptors, the Environment Protection Directorate notes that this may be an issue of concern as for three of the receptors (points A, B, & C) the EPS has predicted significant impacts and even after the application of suggested mitigation measures there is still a degree of uncertainty as to whether a slight residual impact may be achieved. In this regard, the application of mitigation measures vis-à-vis construction-phase noise impact should be given due attention, and their implementation should be stringently monitored and enforced so as to limit noise levels to acceptable limits.

The Environment Protection Directorate has proposed various permit conditions addressing the required impact-mitigation measures.

Appendix 1: Scoping comments submitted to MEPA during scoping consultation (13/09/10- 04/10/10).

Reference	Comment		
Environmental Health Directorate	DIRETTORAT GHAS - SAHHA AMBJENTALI SERVIZZI TA' L-ISPETTORAT TAS-SAHHA 37-39, RUE D'ARGENS, MSIDA MSD 1368	 MALTA	ENVIRONMENTAL HEALTH DIRECTORATE HEALTH INSPECTORATE SERVICES 37-39, RUE D'ARGENS, MSIDA MSD 1368 TELEPHONE: +356 21322305 +356 21334299 FAX: + 356 2134 4767 e-mail: miriam.a.greech@gov.mt
	Our Ref: DH 54/2010/335 Your Ref: PA 5396/09 & PA 5584/09		

27 September June 2010

Director of Environment Protection
Attn. Ms. Noelle Cardona
Environment Protection Officer
Malta Environment & Planning Authority
Floriana

APPLICATION NUMBER : PA 5396/09 & PA 5584/09

LOCATION : Interconnector Terminal Station, Wied ta' Kieli, Naxxar & Site from Triq Tal-Francizi, Swieqi passing u/g to, Triq il-Maghtab, l/o Naxxar

PROPOSAL : Proposed interconnector terminal station at Maghtab, Interconnector Terminal Station, Wied ta' Kieli, Naxxar & Excavation and construction of tunnel from proposed tunnel leading St. Andrews DC to proposed Maghtab Terminal, site from Triq Tal-Francizi, Swieqi passing u/g to, triq il-Maghtab, l/o Naxxar

With reference to your e-mails dated 13th and 23rd September 2010 regarding proposal indicated in caption and following review of the Project Description Statement, please be informed that we would like to have the following issues related to public health included in the terms of reference for this proposed development :

Air pollution especially from dust generation/dispersion during the construction of the terminal station and from excavation of the tunnel, the improper storage, handling, loading and transport of dust laden/inert waste materials onto transport vehicles and emissions from heavy equipment/vehicles

Noise and vibration impacts during the excavation of the tunnel and the construction of terminal station.

Details of appropriate noise and vibration control measures to be taken by developer to protect workers from such impacts especially during the excavation of the tunnel. Noise study required for operational stage (from the cooling fans and transformers) to assess impact of noise on residences at Maghtab and Bahar ic-Caghaq. Mitigation and monitoring measures to be included in operational permit

Electromagnetic radiation impacts from the HV system at the terminal station and lines on on-site workers and local residences

**Access arrangements on and off site both during construction and operation of the terminal station
and excavation of tunnel including traffic management and related problems especially problems
related to increased volume of heavy vehicles through residential areas**

Ground water and surface water in terms of water quality

Waste disposal issues on site and off site including details of waste management and construction plan

Storm water drainage

Details of sanitary facilities for workers

Pest Control measures especially with regards to rodents

The EPS should also include a detailed description of the measures envisaged to prevent, minimize and where possible offset any significant adverse health effects on the general public. This should include details of monitoring programmes that may be proposed. The EPS should also identify, describe and discuss in detail the possible health effects of any residual impacts that cannot be mitigated.

The overall cumulative impacts of the development on the general public are also to be assessed.

Malta Resources
Authority
(Energy
Directorate)
Occupational
Health and
Safety Authority

The MRA has no objection to both PA 5396/09 and PA5584/09 and has no comments to add.



Our ref: 53 / CON / 4997 hs
Your ref: PA 5396 / 09 & PA 5584 / 09

2nd November 2010

The Director of Environment Protection
Malta Environment and Planning Authority
Floriana

Attn. Ms. Noelle Cardona

**Subject: PA 5396 / 09 & PA 5584 / 09 – Interconnector Terminal Station at Maghtab –
Excavation and construction of tunnel from St. Andrews to Maghtab...**

Ms. Cardona,

Reference is made to your email to the Occupational Health and Safety Authority (OHSA) of the 23rd September 2010 re subject in caption. Having reviewed the documentation made available by MEPA, the following comments are being sent for inclusion in the eventual conditions issued to the applicant:

1. The contractor /s and / or self employed persons entrusted with the various works required to execute this application shall ensure the health and safety of themselves, their workers and any third parties as stipulated in Act XXVII of 2000 and in various subsidiary regulations, particularly LN 36 / 2003 and LN 281 / 2004;
2. The anticipated works required to execute these applications shall be carried out in conformity with the requirements of the Work Place (Minimum Health and Safety Requirements for Work at Construction Sites) Regulations, 2004 (LN 281 / 2004) in particular:
 - (a) The appointment by the client of a Project Supervisor for the Design Stage and a Project Supervisor for the Construction Stage (vide reg. 3) to oversee the development;
 - (b) The prior notification to the OHSA by the appointed Project Supervisor for the Design Stage of the works required (vide reg. 4) at last four calendar weeks before work commences;
 - (c) The maintenance of a Health and Safety file by the client, appropriate to the characteristics of the project containing relevant health and safety information to be taken into account during any subsequent works (vide regs. 3 & 4) and
 - (d) The drawing up of health and safety plan by the Project Supervisor for the Design Stage prior to the setting up of the planned construction works (vide regs. 4 & 5);

3. The employer at the finished place of work shall ensure that that all work activities carried out at the finished workplace are covered by a suitable, sufficient and systematic risk assessment carried out by a person competent in OHS matters, as per LN 36 / 2003 and other relevant OHS regulations;
4. Tunnelling works shall be carried out in conformity with the requirements of the Work Place (Minimum Requirements for Work) (Confined Spaces and Spaces having Explosive Atmospheres) Regulations, 2004 (L.N. 41/2004);
5. The finished building shall comply with the various provisions of the Workplace (Minimum Health and Safety Requirements) Regulations 2002 (LN 44 / 2002). The applicant shall ensure that at the planning stage a *Perit* is appointed to certify that the finished place of work will be built according to the various provisions of these Regulations, particularly with respect to suitable emergency preparedness and response arrangements, fire detection and fire fighting equipment;
6. If at the finished place of work there will be a sufficient number of workers, the employer shall ensure that there has been elected, appointed or otherwise designated by workers, a Workers' Health and Safety Representative/s as per requirements of Art. 6 (4) of Act XXVII of 2000 and Reg. 13 of the LN 36 / 2003, who shall be duly consulted on OHS matters according to prevailing OHS legislation;
7. The employer at the finished place of work shall take adequate measures to ensure that workers are protected from the harmful effects of noise, vibration and electromagnetic radiation according to the requirements of prevailing OHS legislation;
8. All machinery, equipment, plant and installations used at this place of work shall comply with the relevant OHS regulations on this area particularly, but not limited to the Work Equipment (Minimum Safety and Health Requirements) Regulations, 2004 (LN 282 / 2004) and,
9. All electrical equipment and installations shall be duly examined, maintained and tested by a competent person¹ and a report shall be drawn up by this competent persons verifying the safety of such examinations, maintenance and test, which report shall be kept by the employer and made available to the OHSA for inspection.

You may wish to contact the undersigned for further clarifications. Kindly note that electronic copies of the various legal notices referred to in this communication may be downloaded free of charge from the OHSA's website <http://www.ohsa.org.mt>. Official copies of these regulations may be obtained from the Department of Information.

¹ For the examination of electrical installations and equipment, a competent person shall be deemed to be an electrical engineer with a warrant to practice his / her profession.

Superintendence
of Cultural
Heritage

To the attention of:
Director of Planning
MEPA

Attn. Ms. Noelle Cardona

5 October 2010

Our Ref. SCH 407/10 & 408/10
Your Ref. PA 05584/09 & 05396/09

EIA: Terms of Reference for:

Ref. Cultural Heritage Act 2002, (CAP 445)
PA 05584/09 – Excavation and Construction of Tunnel from Triq il-Francizi, Swieqi to Triq il-Maghtab l/o Naxxar. PA 05396/09 – Interconnector Terminal Station, Wied ta'Kieli, Naxxar

1.0 Preamble

The Superintendence of Cultural Heritage has reviewed the case and notes that the proposed development will involve major excavations works from Swieqi to Naxxar, where an interconnector terminal station will be built.

The proposed developments will have two (2) components

1. Underground excavation for the construction of the tunnel.
2. Surface developments including: trenching and terminals.

It is understood that the proposed development works will have physical impact on various locations which must be considered:

- a. Special study must be made on the potential impact on the Victoria Lines and other cultural heritage features.
- b. With reference to point (1) it is believed that the proposed excavation depths might pose a threat to the stability of heritage remains existing at ground surface, such as shelters, caves or buried archaeological rock-cut features; and
- c. With reference to point (2) remains of military architectural features are known to exist in the vicinity of the proposed development. These remains are to be protected. Further, other yet undiscovered archaeological remains may lie buried within the footprint.

2.0 Scope

For the purposes of this document, cultural heritage is defined by Article 2 of the Cultural Heritage Act (2002). This includes movable or immovable objects of artistic, architectural, historical, archaeological, ethnographic, paleontological and geological importance.

2.1 The study area will include:

- a) **the footprint of the proposed underground tunnel; and**
- b) **50 metre radius around the entry and exit of the tunnel
25 metre radius around trenching shafts and other surface works**

2.2 In the context of this particular application, cultural heritage considerations include:

- Areas of archaeological and cultural heritage such as the Victoria lines
- Military architecture
- Rural Heritage such as field patterns, rubble walls and water management systems.

2.3 The EIS will:

- Describe the Cultural Heritage assets within the study area
- Analyse the features within the context of the cultural landscape
- Assess the impacts of the proposed development
- Propose corrective measures for the protection of the cultural landscape and features.

The cultural heritage considerations as indicated above are not to be considered as exclusive of other cultural heritage considerations, both known and unknown.

3.0 Methodology

3.1 Cultural evaluation will include:

- **Desktop and archival research**
- Fieldwork and research

This includes field walking, topographic survey and remote sensing as necessary. All such fieldworks investigations need authorisation by the Superintendence of Cultural Heritage as defined below in point 4.0

3.2 Consultation to relevant bodies is necessary, including the Superintendence of Cultural Heritage, Heritage Malta, NGOs and Local Councils.

3.3 Any previously unrecorded cultural heritage features that are identified are to be immediately reported to the Superintendent of Cultural Heritage and should be left undisturbed, as per heritage legislation law.

3.4 The features of cultural heritage identified are to be described and plotted

with grid references, on Data Capture Sheets, the design of which should be approved in advance by the Superintendence of Cultural Heritage. The Data Capture Sheets will be presented as an appendix. The analysis of the features will be included in the main report.

3.5 This analysis should be holistic, and must treat the cultural landscape in its integrity. Attention should be given to the relationships between features of cultural heritage and their landscape context.

3.6 This analysis should include a study of visual impacts, paying particular attention to existing relationships (including visual and spatial) between cultural features and the visual impact of the project on the landscape.

4.0 Authorisation by the Superintendence of Cultural Heritage

As per Cultural Heritage Act 2002, any form of investigation or prospection required for the identification of cultural heritage, (including excavation, field walking, topographic survey and remote sensing), may only be undertaken by the Superintendence of Cultural Heritage as required by law or with its written approval.

Appendix 2: Review Consultation comments submitted to EPD (25/10/11- 23/11/11)

A. COMMENTS FROM THE ENVIRONMENTAL HEALTH DIRECTORATE

DIRETTORAT GHAS - SAHHA MBJENTALI
SERVIZZI TA' L-ISPEKTORAT TAS-SAHHA

37-39, RUE D'ARGENS,
MSIDA MSD 1368



MALTA

ENVIRONMENTAL HEALTH DIRECTORATE
HEALTH INSPECTORATE SERVICES

37-39, RUE D'ARGENS,
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Our Ref: DH 54/2010/335
Your Ref: PA 05396/09 & PA 05584/09

26 November 2011

Director of Environment Protection
Attn. Ms. Noelle Cardona
Environment Protection Officer
Malta Environment & Planning Authority
Floriana

APPLICATION NUMBER : PA 05396/09 & PA 05584/09

LOCATION : Maghtab & Wied ta' Kieli, Naxxar

PROPOSAL : Interconnector bTerminal Station at Maghtab and Wied ta' Kieli, Naxxar & Excavation and construction of Tunnel from proposed tunnel leading St.Andrews Dc to proposed Maghtab

With reference to your e-mail dated 25 October 2011 regarding subject indicated in caption and following review of the Environmental Impact Statement forwarded, please be informed that the following issues and impacts which may have an adverse effect on public health should be taken into consideration by Applicant regarding this proposed development:

Averse impacts from Noise, Vibration and Air Quality:

HIA does not discuss possible impacts of air quality resulting from excavation and increased HGV traffic on residents. Moreover, there is concern regarding the statement "waste material will be disposed of at a convenient and safe place until it is carted away to a licensed site or to the site of re-use" (description of development, pg 14). "A convenient and safe place" also referred to as "designated area" and its management should be further specified e.g. enclosed, to avoid dust dispersal during dry windy days and runoff into public roads during rains. It should also be "carted away" using appropriate sealed vehicles. Cleaning or washing down of vehicles before leaving construction site is also highly recommended. The possible impact from excavation material would seem to be highly significant in view of its considerable amounts (1.20).

Bullets 1 and 2 question the statement in the non-technical summary “*Solid waste and dust production – During the construction phase there will be a negligible and transient increase in particulate matter in the air that should not produce a significant health impact*”.

Consultation with relevant authorities and the concerned public (local council, administrative committee and residents) should be carried out **with special emphasis on air quality and noise issues** following the drafting of the construction and waste management plan when the contractor is selected. Special reference to enforcement should be made.

Proposed and other if necessary mitigation measures and management of environmental impacts related to noise, vibration and dust pollution arising during both Project Component Phases (1 and 2) are to be implemented by Applicant to mitigate potential adverse impacts and nuisances on receptors in the surrounding area and on the general public. Hence the importance of drawing up and implementation of a Construction Management Plan (in the EIS it is stated that in view that contractors have not yet been appointed, such plan have not yet been drawn up) to ensure adherence to proper site management practices. Adequate, safe and proper handling of raw materials on site should also be ensured. Emissions from heavy vehicles/equipment should also be taken into consideration and adequate mitigation measures implemented.

Moreover all necessary safety precautions should be taken at the construction site during the construction and design phases.

Monitoring of works and good practice during all the duration of both Project Component phases should also be strictly implemented to avoid nuisances and adverse impacts on public health.

In view that during the excavation and construction phases, noise impacts, especially in Locations A, B and C are expected to be severe while construction vibration emanating from the proposed tunnel construction is expected to be perceived by residents in Locations A and B residing just above the proposed tunnel, effective noise and vibration control measures are to be implemented especially during these two phases to protect on-site workers and nearby receptors and to avoid nuisances and complaints.

Consultation should also be carried out with residents and their representative with regards to the statement “*It is also probable that any residents in Locations A and B residing just above the proposed tunnel would at times perceive the construction vibration emanating from the trenching equipment*” (non-technical summary). N.B. There is no reference to where locations A and B (residential) are in the non-technical summary. This should be available to non-technical interested parties.

The proposal that working hours will be restricted together with other proposed noise abatement measures such as the integration of noise abatement mechanism within the machinery used on site should be strictly implemented.

Noise and vibration monitoring should be implemented if necessary and especially in case of complaints

Electric and Magnetic Field radiation Impacts:

Adequate measures should be taken to limit the exposure to electromagnetic fields to the general public, which should be in accordance to the current and any future National legislation as determined by MRA and European Union recommendations whilst ensuring that the general public especially effected residents and their representatives are adequately informed and consulted.

Waste Management:

A Waste management strategy should be adopted and implemented during the excavation/ construction and operational phases 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 disposal of contaminated SF6 and any hazardous waste, adherence to regulatory codes and procedures and due diligence is important in view of the health and safety of on-site workers and any adverse impacts on nearby sensitive receptors.

Generated wastes, cleaning chemicals, etc from the proposed sanitary facilities which will be available for on-site workers should be properly disposed of. Moreover all water for human consumption and personal use including that of any showers at said facilities is to be adequate, potable and from an approved source (preferably from the Water Utility Supply i.e. Water Services Corporation)

All soil removed from site is to be disposed off as directed by the competent authority

Impacts on aquatic environments

All proposed mitigation measures regarding the protection of aquatic environment should be implemented. Should these be insufficient additional measures are to be considered and implemented to avoid pollution of aquifer

Traffic management:

Regarding “The routes that construction vehicles will use to and from the site will depend on the contractor chosen” (1.15), it is our recommendation that such routes should be identified to cause least inconvenience and health impacts from emissions (air, noise, vibrations from HGV) on residents.

Thus it is pertinent that construction traffic follows established specific routes (approved by MEPA) and adequate measures (such as covering of all trucks leaving site with proper tarpaulin sheets) are taken to mitigate adverse dust impacts and nuisances from HGVs during transportation.

Pest Control:

It is pertinent that effective pest control measures are implemented especially in the proposed tunnel system that will link the Maghtab landfill to the St.Andrews DC in Pembroke in view that the proposed tunnels will be affording harbourage for rats and other vermin.

Other Issues and Comments:

It is also important that the oil sumps at the Maghtab Terminal Station be of sufficient size to contain all the oil and avoid spills to the environment in the case of unexpected massive loss of insulating oil.

The right of residents to information about such developments is set out in LEGAL NOTICE 116 of 2005, FREEDOM OF ACCESS TO INFORMATION ON THE ENVIRONMENT REGULATIONS

whose purpose include: “(a) to guarantee the right of access to environmental information held by or for public authorities

The necessary mitigation measures are to be taken by Applicant to prevent nuisances and adverse impacts at all stages of the development on the Area of Influence and to prevent, minimise and where possible offset any significant/adverse and unpredicted health effects and nuisances which may arise. The possible health effects of any residual impacts that cannot be mitigated should also be taken into consideration.

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.

B. COMMENTS FROM THE MALTA RESOURCES AUTHORITY

[refer to attached comments - .pdf]

C. COMMENTS FROM MRRA – WASTESEV MALTA

1. Although the EPS delves into the current land uses of the areas concerned and indicates that a potential impact is construction related traffic, the assessment fails to discuss possible impacts on current land uses.
2. WasteServ is particularly concerned about the possible significant impact that trenching along Ramla Road will have on current operations conducted at the Magħtab waste facilities.
3. There is no indication whatsoever as to whether traffic along the road will need to be restricted or otherwise particularly during the construction phase. This is of major concern to WasteServ in view of the national essential service that needs to be provided at the Magħtab facilities.

D. COMMENTS FROM THE HERITAGE ADVISORY COMMITTEES

1. Il-Kumitat iddiskuta l-Environmental Planning Statement (volume 1 & 2) ta' Ottubru 2011 dwar dan il-proġett u jagħmel riferenza għad-Dolmens imsemmija f'paġna 17 'Historical Sites' immarkata 3.2.3. Il-Kumitat hu tal-fehma li għandu ikun hemm Archeological Survey ta' dawn is-siti li huma skedati u dak li għadu jeżisti fihom għandu jiġi preservat. Il-Kumitat ma jsibx oġġezzjoni għax-xogħol propost iżda qed jitlob lis-Supretendenza tal-Patrimonju Kulturali biex tassigura li ma issir l-ebda ħsara lil l-istrutturi eżistenti fejn ser isir l-iskavar, bħal ma huma il-Victoria Lines u Forti Madliena.