



Appropriate Assessment for the redevelopment of the Ex-Jerma

As per ERA requirements for PA/00437/23

Report



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1 SUMMARY

The below assessment considers the redevelopment of the Jerma Hotel site into a mixed development, including touristic, residential, retail and other commercial establishments, including two basement parking levels and two seven-storey blocks. The site of the development is Ras il-Gżira, an exposed outcrop of natural coastline and the derelict Jerma Hotel shell which rises to five floors. This assessment was focused on avifauna sensitive receptors which have been recorded in the MPA MT0000108 as per TORs for the AA of PA/00437/23.

The assessment highlights how the proposed development is expected to produce significant light pollution impacts on breeding procellariiform seabirds due to the grounding of fledged young which are expected to be present in the marine environment within sight of the development. Moreover, the low human disturbance in the area since the Jerma Hotel's abandonment, coupled with the increased habitat degradation and loss along the eastern coastline of Malta in the last decades, has made Ras il-Gżira and the surrounding marine environment habitable for seabirds wintering and stopping over in the Maltese Islands, some of which are of conservation concern and/or comprise significant proportions of the local non-breeding populations of these species.

Other impacts, such as noise, light, and chemical pollution, cumulative effects of overdevelopment and weakening climate change resilience, as well as alternative solutions for the site, are explored and discussed.

2 METHODOLOGY

The study at hand considers populations of wild birds, in particular populations of protected species and of species of conservation concern as relevant sensitive receptors.

Avian receptors can be highly mobile, many of them carrying out annual movements on a large geographic scale. Therefore, the avian study considers the occurrence of sensitive receptors according to the relevant seasons, i.e. breeding, migration and stopping over, as well as wintering.

The Area of Influence for the avifauna EIA and AA assessment of the proposed development consists of the footprint area of the proposed resort development and a buffer zone around this area (see Section 2.1).

The assessment of potential impacts of the proposed development on avifauna receptors in the identified AoI is performed mainly through a literature review.

The main references considered are:

- Malta Breeding Bird Atlas 2008 (BirdLife Malta 2009)
- Malta Breeding Bird Atlas 2018 (Epsilon 2019)
- Malta Breeding bird Atlas 2024 (Ecoserv, in press)
- The Breeding Birds of Malta (Sultana et al. 2011)
- European Breeding Bird Atlas 2: Distribution, Abundance and Change (Keller, Herrando, Vorisek, et al. 2020)
- Malta Marine IBA Inventory Report (BirdLife Malta 2015)
- MSFD second assessment report (ERA 2020)
- BirdLife International (2020) IUCN Red List for birds (<http://www.birdlife.org>)
- Bird species of Annex I of the Birds Directive (Last updated: 14/09/2020)
- Draft Guidelines for the Reduction of Light Pollution in the Maltese Islands (Environment and Resources Authority 2020)
- ERA's published Terms of Reference for the EIA regarding PA/00437/23
- ERA's published Terms of Reference for the AA regarding PA/00437/23
- Project Description Statement, regarding the Redevelopment of the Former Jerma Palace Hotel, Marsaskala; AIS Ref. no: TN 267145
- ERA's Standard Data Forms (SDFs) for the relevant terrestrial and marine Natura 2000 sites located in or overlapping with the AoI, accessed on 01/07/2025 from:
- <https://era.org.mt/topic/natura-2000-datasheets-maps/>
- ERA's Management Plans for relevant terrestrial Natura 2000 sites and Conservation Objectives and Measures for Malta's Marine Natura 2000 sites

2.1 THE AREA OF INFLUENCE

The site in question is that of the derelict Jerma Hotel in Marsascala, situated on Jerma Point (Ras il-Gżira), which has fallen into disrepair since 2008 and which is bordered by a rocky foreshore and surrounded to the north, east, and south by the marine environment.

The Area of Influence for the avifauna EIA and AA assessment of the Scheme, referred to as AoI, consists of the actual footprint area of the proposed development and a 5.0 km buffer zone around this area (see below, Figure 1) within which receptors can be expected to respond to certain activities related to the development and operation of the proposed resort.

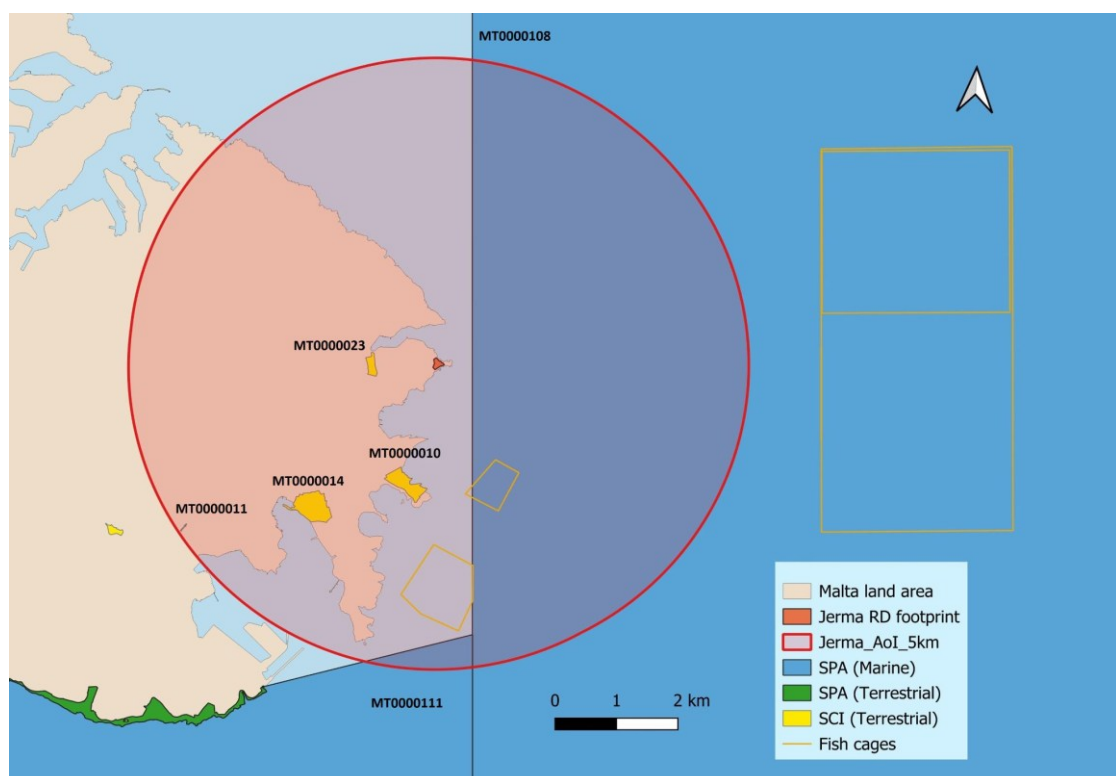


FIGURE 1: THE SITE OF THE RESORT REDEVELOPMENT AT JERMA (ORANGE) AND THE AREA OF INFLUENCE (SHADED RED) VIS-À-VIS PROTECTED SITES (SPECIAL PROTECTED AREAS AND SITES OF COMMUNITY IMPORTANCE) UNDER THE NATURA 2000 NETWORK.

3 BASELINE STUDY

3.1 BASELINE FOR AVIFAUNA IN THE MALTESE ISLANDS AND IN THE AoI

To date, more than 400 bird species have been recorded in the Maltese Islands, including within its Fisheries Management Zone (FMZ, 25 NM). Slightly more than half of them occur in the Maltese Islands regularly¹. Around 50 bird species have been recorded breeding on the Maltese Islands, of which 23 are regular breeders from wild populations². Three species, all pelagic seabirds, hold significant breeding populations in the Maltese islands from an EU, European and global perspective. These three species are listed under Annex I of the EU Birds Directive³. Information regarding the species' conservation status, population numbers, trend and range presented below are taken from BirdLife International's Data Zone⁴ and from the second edition of the European Breeding Bird Atlas⁵. All information regarding species listed in Annex I of the EU Birds Directive were obtained from the Environment, Nature and Biodiversity site of the European Commission⁶.

The baseline study informs which bird species have been recorded or can be expected to occur in the AoI with respect to the relevant protected areas (Natura 2000 sites), and thus be sensitive receptors for the proposed Jerma resort redevelopment.

3.2 PROTECTED AREAS OVERLAPPING WITH THE AoI

The proposed development itself is not situated within a protected site, nor does the footprint of the proposed development border directly with any site protected as part of the Natura 2000 network. However, the AoI contains four terrestrial Natura 2000 sites (SCI, SAC), and partially overlaps with two marine Special Protected Areas under the Natura 2000 network within direct line of sight of the proposed development:

- **SCI MT0000011 Għar Dalam**

¹Bonavia et al. (2005): *Systematic list 1996-1999, Il-Merill 31, 1-34.*

² Epsilon Malta Ltd, Nature Conservation Consultants (2019). *Malta Breeding Bird Atlas 2018. Malta: Wild Birds Regulation Unit, Ministry for the Environment, Sustainable Development and Climate Change*

³Maltese Environment and Resources Authority - ERA (2020): Update of Articles 8, 9 and 10 of the Marine Strategy Framework Directive (2008/56/EC) in Malta's Marine Waters. Second Assessment Report, pp.321-344.

⁴BirdLife International (2020) *IUCN Red List for birds*. Downloaded from <http://www.birdlife.org> on 02/07/2025.

⁵Keller, Herrando, Vorisek, et al. (2020): *European Breeding Bird Atlas 2: Distribution, Abundance and Change*

⁶https://ec.europa.eu/environment/nature/conservation/wildbirds/threatened/index_en.htm

Situated entirely underground at the southwestern edge of the AoI, this SCI is not relevant for the EIA/AA regarding avifauna and will therefore not be considered further in this report. However, the cave is designated as a Site of Community Importance (SCI) primarily due to its role as a roosting site for the Lesser Horseshoe Bat *Rhinolophus hipposideros* which might need further consideration.

- **SAC MT0000023 Il-Magħluq tal-Baħar ta' Marsascala**

This SAC is a small wetland, 1 km to the west of the planned development. The wetland shows strong signs of disturbance and degradation and is heavily encroached by urban settlements and roads. It is currently managed by Nature Trust Malta with restoration work ongoing. No sensitive avian receptor species have been recorded breeding there in relevant numbers (data available since 2008). Nevertheless, given the scarcity of wetland habitat in Malta and the improvement of the site due to the restoration efforts, the site is relevant for avifauna. Especially during the migratory and wintering periods, it can host sensitive avian receptors of a wide variety of waterbirds and shorebirds, including species on Annex I of the EU Birds Directive. A management plan for the SAC exists: https://era.org.mt/wp-content/uploads/2019/05/Il-Magħluq_ta_Marsaskala_ManagementPlan.pdf.

- **SAC MT10000010 Xrobb l-Għagin**

This coastal SAC is situated less than 2 km to the south-southwest of the planned development. It is currently managed by Nature Trust Malta. Especially during the migratory and wintering periods, it hosts a variety of sensitive avian receptors including species on Annex I of the EU Birds Directive. The proposed development would be in direct line of sight from this SAC, over Munxar. No actual management plan for the SAC is publicly available, however, the site has a designation report: https://era.org.mt/wp-content/uploads/2024/08/Xrobb_l-Għagin_Designation_Report.pdf.

- **SAC MT0000014 Il-Ballut ta' Marsaxlokk**

This SAC is a small coastal wetland, slightly more than 3 km to the southwest of the planned development. The wetland shows strong signs of disturbance and degradation and is threatened by the impacts of climate change (sea-level rise, salt-water incursion, increased wave energy). It is currently managed by Nature Trust Malta with restoration work ongoing. No sensitive avian receptor species have been recorded breeding there in relevant numbers (data available since 2008). Nevertheless, given the scarcity of wetland habitat in Malta and the improvement of the site due to the restoration efforts, the site is relevant for avifauna. Especially during the migratory and wintering periods, it can host sensitive avian receptors of a wide variety of waterbirds and shorebirds, including species on Annex I of the EU Birds Directive. An actual management plan for the SAC exists: https://era.org.mt/wp-content/uploads/2019/05/Il-Ballut_ta_Marsaxlokk_ManagementPlan.pdf.

- **SPA MT0000108 il-Baħar tal-Lvant**

The marine SPA il-Baħar tal-Lvant (MT0000108) has its western border less than 500 m east of the proposed development and constitutes nearly half of the AoI. The SPA

designation is triggered by the Maltese populations of *Calonectris diomedea* and *Hydrobates pelagicus*, of which it hosts internationally important numbers (c. 3800 individuals of each of the species). The area is used by these two species mainly as an important foraging ground, but also during commutes and for social interactions and resting. Other relevant sensitive avian receptors in the SPA are the Maltese population of *Puffinus yelkouan* as well as large numbers of *Chlidonias niger* passing through the area and stopping over for extended periods of time during migration, especially in late summer/early autumn⁷. All four species are listed in Annex I of the EU Birds Directive and Appendix II of the Bern Convention, and the three species of procellariiform seabirds (*C. diomedea*, *H. pelagicus* and *P. yelkouan*) are also listed in Annex II of the SPA/BD protocol of the Barcelona Convention. No specific Management plan exists for this Natura 2000 site. However, a document on Conservation objectives and measures has been published and approved: https://era.org.mt/wp-content/uploads/2023/02/MPAs-Conservation-Objectives-and-Measures_final_Feb2023.pdf.

- **SPA MT0000111 Il-Baħar tal-Lbiċ**

The marine SPA Il-Baħar tal-Lbiċ (MT0000111) has its closest border approximately 4.5 km south of the proposed development. It overlaps only slightly with the marine part of the AoI, but is within direct line of sight from the site of the proposed development. The SPA designation is triggered by the Maltese populations of *Calonectris diomedea* (6000 individuals), *Hydrobates pelagicus* (15000 to 20000 individuals) and *Puffinus yelkouan* (840 to 1350 individuals), all reaching numbers of international significance. The area is used by these three species as an important foraging ground, during commutes and for social interactions and resting. Other relevant sensitive avian receptors in the SPA are significant numbers of *Chlidonias niger* passing through the area and stopping over during migration, especially in late summer/early autumn⁷. As mentioned above, all four species are listed in binding international legal instruments. No specific Management plan exists for this Natura 2000 site, however a document on Conservation objectives and measures has been published and approved: https://era.org.mt/wp-content/uploads/2023/02/MPAs-Conservation-Objectives-and-Measures_final_Feb2023.pdf

This report will include the assessment of avifauna sensitive receptors which have been recorded in the MPA MT0000108 only as per TORs for the AA of PA/00437/23.

⁷ Gatt & Metzger (accepted paper) At-sea surveys expose pelagic migration of seabirds in the Central Mediterranean. Il-Merill.

4 ASSESSMENT

4.1 CONSTRUCTION PHASE

4.1.1 Temporary disturbance of habitat in the AoI

The site of the Jerma Hotel Redevelopment will be a source of noise, vibration, dust and direct disturbance during the construction phase. Additionally, the construction site will create light pollution during night-time activities and from security lighting (see below). These factors are expected to have a significant negative affect the avian assemblages in the AoI.

Temporary habitat loss and disturbance is expected to result in a significant reduction and disturbance of foraging, resting and roosting areas for many other bird species that are breeding, wintering, or stopping over in the AoI. As the construction phase is expected to span more than one year, works will impact various seabird species which currently make use of the rocky promontory and the shallow waters above the reef in the vicinity of the proposed development to rest and forage during migration stopover in both spring and autumn and while wintering in the Maltese Islands.

Overall, the direct impacts are expected to be significant during the construction phase of the Jerma redevelopment which act temporarily and mainly on a localised scale in the AoI and, but also along the access roads. The works can be expected to significantly impact local breeders of common species, as well as individuals of non-breeding species stopping over in the AoI significantly, some of which are of conservation concern, at least short-term.

4.1.2 Light pollution during night-time construction (AoI)

Artificial light at night (ALAN) is well documented to negatively affect birds, including seabirds. Adults from the two procellariiform species nesting on the Maltese Islands actively avoid approaching breeding areas under high levels of illumination and may desert colonies as a result of exposure to ALAN. Furthermore, ALAN causes the stranding and grounding of seabird fledglings on their first flight out of the colony. Unless grounded individuals are found and released, they are likely to die⁸. In general, light pollution from ALAN is additive and light trespass that creates skyglow adds to light pollution in areas in the AoI (and potentially even beyond) that are otherwise dark. Furthermore, birds attracted to ALAN may be injured or killed by collisions with manmade structures.

While the site of the proposed development is not situated within the immediate line of sight of any seabird nest sites, seabird fledglings are known to strand at light

⁸ Rodríguez, A., Holmes, N. D., Ryan, P. G., Wilson, K. J., Faulquier, L., Murillo, Y., Raine, A. F., Penniman, J. F., Neves, V., Rodríguez, B., Negro, J. J., Chiaradia, A., Dann, P., Anderson, T., Metzger, B., Shirai, M., Deppe, L., Wheeler, J., Hodum, P., ... Corre, M. Le. (2017). Seabird mortality induced by land-based artificial lights. *Conservation Biology*, 31(5), 986–1001. <https://doi.org/10.1111/cobi.12900>

polluted sites across the Maltese Islands⁹. This is relevant if night-time construction activities are carried out during the fledging seasons of the sensitive avian receptors. The most sensitive periods for fledging seabirds are during their respective fledging periods which is September/October for Scopoli's Shearwaters. Mediterranean Storm-petrels have an asynchronous breeding season, with fledglings expected between June and October.

Due to the exposed location of the proposed development at the easternmost promontory of the Maltese Islands and its direct line of sight with marine SPAs of importance to procellariiform seabirds, the temporary negative impact of ALAN during construction, if not mitigated, will potentially act on significant numbers on the two breeding seabird species (Scopoli's Shearwater, and European Storm-petrel) found in MT0000108.

Additionally, ALAN is known to have negative consequences on nocturnally migrating birds. Bright lights are known to attract, disorient, trap and ground birds in active migration during the night¹⁰. The lit-up construction site during night-time operation is highly likely to have the above-mentioned impacts on nocturnally migrating birds passing within the AoI. This is especially problematic for shore- and waterbirds using the coastline along the promontory as a guidance line, and species which may be making use of protected sites and rare habitats within the AoI and within direct line of sight (e.g. wetlands and other terrestrial SPAs listed above). Due to the varied phenology of the species involved, sensitive periods to migrating land-, shore- and waterbirds are spread across the year. However, due to the temporary nature it is unlikely that the additional ALAN from the construction site will impact threshold numbers of significance of birds of any species during their nocturnal migration, especially if mitigation measures are implemented. Therefore, ALAN is expected to have no significant impact on nocturnal migrating birds during the construction phase.

4.1.3 Pollution during the construction phase (including demolition)

The demolition of the derelict Jerma hotel is expected to create substantial amounts of dust and waste. If this waste is not contained appropriately and spills into the environment it can be expected to have a significant negative impact on sensitive receptors, including birds.

Likewise, the construction of the proposed development will produce large amounts of waste material from the excavation, packaging material (plastic sheets, styrofoam, etc.), the netting of the scaffolding etc.

Situated on a headland, the area of the proposed development is very exposed and can experience strong winds and high waves under certain meteorological conditions. This is expected to elevate the risk that waste material, such as harmful

⁹ Crymble et al. (2020): *Identifying light-induced grounding hotspots for Maltese seabirds. Il-Merill 34, 23-43.*

¹⁰ Evans Ogden, L. J. (2002). *Summary report on the bird friendly building program: Effect of light reduction on collision of migratory birds. In Fatal Light Awareness Program (Vol. 1).*

dust, micro- and macroplastics, will end up in the marine environment, including protected Natura 2000 sites in the AoI and potentially beyond. Such unintended spills can have significant detrimental effects on sensitive receptors including marine and coastal avifauna, if left unmitigated. Once released into the environment, plastic fragments persist, with their physical breakdown into smaller fragments actually facilitating their take-up by living creatures. They are also known to absorb toxins and harmful chemicals such as persistent organic pollutants (POPs), increasing further their potential negative impact on sensitive receptors when ingested and when accumulating along the food chain. Bioaccumulation and biomagnification are particularly problematic phenomena for seabirds which are long-lived organisms on top of marine food webs. The increased contamination of the marine SPAs within the AoI is of concern due to their importance for foraging seabirds, including SPA trigger species and species of conservation concern.

Given the reasons explained above, pollution impacts are expected to have a significant impact on avifauna.

4.2 OPERATIONAL PHASE

4.2.1.1 Pollution and disturbance

The operation of the Jerma development, with two underground stories of carpark, 134 rooms and 259 serviced apartments, 155 residential units, as well as the commercial outlets is expected to increase vehicular traffic and human pressure at site and in the wider area drastically. This is expected to permanently and significantly increase the noise pollution but also the air pollution from vehicular combustion engines and tyre abrasion in the area, both with negative impact on avifauna. Direct disturbance from increased human activities in the AoI, including the introduction of domestic animals such as cats and dogs, is expected to have a significant negative impact on sensitive receptors feeding and resting in the area during stopover on migration and when wintering, including the rocky shores. It is also expected to increase the pressure on sensitive receptors in the wider AoI including wider marine environment inside the relevant marine SPA due to the expected increase in maritime activities (e.g. leisure crafts, diveboats, boatparties, jetskies, craft rental etc...).

Situated on a headland, the area of the proposed development is very exposed and can experience strong winds and high waves under certain meteorological conditions. This is expected to elevate the risk that waste material resulting from increased human activities will end up in the marine environment, including protected Natura 2000 sites in the AoI (and potentially beyond). Such unintended spills can have significant detrimental effects on sensitive receptors including marine and coastal avifauna, if left unmitigated. Once released into the environment, plastic fragments persist, with their physical breakdown into smaller fragments actually facilitating their take-up by living organisms. They are also known to absorb toxins and harmful chemicals such as persistent organic pollutants (POPs), increasing further their potential negative impact on sensitive receptors when ingested and when accumulating along the food chain. Bioaccumulation and biomagnification are

particularly problematic phenomena for seabirds which are mostly long-lived organisms on top of marine foodwebs. The increased contamination of the marine SPAs within the AoI is of concern due to their importance for foraging seabirds, including SPA trigger species and species of conservation concern.

Overall, pollution and disturbance impacts are expected to have a significant impact on avifauna as explained above.

4.2.1.2 Permanent light pollution

Artificial light at night (ALAN) is well documented to negatively affect birds, including seabirds. Adults from all three procellariiform species nesting on the Maltese Islands actively avoid approaching breeding areas under high levels of illumination and may desert colonies as a result of exposure to ALAN. That seabirds are negatively affected even by temporary light pollution in front of their colonies has been recently proven for *P. yelkouan* in Malta¹¹. Furthermore, ALAN causes the stranding and grounding of seabird fledglings on their first flight out of the colony. Unless grounded individuals are found and released, they are likely to die¹². In general, light pollution from ALAN is additive and light trespass that creates skyglow adds to light pollution in areas in the AoI (and potentially even beyond) that are otherwise dark. Furthermore, birds attracted to ALAN may be injured or killed by collisions with manmade structures.

While the site of the proposed development is not situated within the immediate line of sight of any seabird nest sites, seabird fledglings are known to strand at light polluted sites across the Maltese Islands¹³. The derelict hotel at the site of the proposed development is currently dark and is shielding light from the built-up and urbanized area of Marsaskala from spilling out to the shoreline of the promontory and the surrounding sea, keeping the area relatively darker at night. Therefore, so far no seabird fledglings have been reported being grounded due to ALAN in this area.

The proposed development is situated at an exposed location, the easternmost promontory of the Maltese Islands. The two main blocks of the developments tower to a significant height of eight stories and are characterized by wide fronts each facing one of the sea fronts of the promontory. This is expected to lead to a significant light spill far out into the marine environment, including relevant marine SPAs, which are in its direct line of sight. This can be expected to lead to a significant number of seabird groundings in the area. Thus, the significant negative impact of ALAN during operation is expected to act permanently on a significant number of the

¹¹ Austad, M., Oppel, S., Crymble, J., Greetham, H., Sahin, D., Lago, P. & Metzger, B. (2023). The effects of temporally distinct light pollution from ships on nocturnal colony attendance in a threatened seabird. *J Ornithol* 164, 527–536. <https://doi.org/10.1007/s10336-023-02045-z>

¹² Rodríguez, A., Holmes, N. D., Ryan, P. G., Wilson, K. J., Faulquier, L., Murillo, Y., Raine, A. F., Penniman, J. F., Neves, V., Rodríguez, B., Negro, J. J., Chiaradia, A., Dann, P., Anderson, T., Metzger, B., Shirai, M., Deppe, L., Wheeler, J., Hodum, P., ... Corre, M. Le. (2017). Seabird mortality induced by land-based artificial lights. *Conservation Biology*, 31(5), 986–1001. <https://doi.org/10.1111/cobi.12900>

¹³ Crymble et al. (2020): Identifying light-induced grounding hotspots for Maltese seabirds. *Il-Merill* 34, 23-43.

identified breeding seabird species (Scopoli's Shearwater and European Storm-petrel) within the Marine SPA, if not adequately mitigated.

4.2.1.3 Urban heat island effect

The increase in concreted and asphalted areas is expected to raise the ambient temperature in and around the footprint of the proposed development significantly. This increase in ambient air temperature, known as the urban heat island effect, will be additive to the temperature rise in the area caused by the large number of air conditioning systems of all the hotel rooms, serviced apartment and residential units, etc. If not mitigated, the rise in ambient air temperature is expected to have an impact on the local microclimate, detrimental to the avifauna community in the AoI.

4.2.1.4 Cumulative effects of overdevelopment, mass tourism, climate change

Malta is currently by far the most densely populated and built-up country in Europe. Additionally, to the growth of its permanent population, the unsustainable increase in tourist numbers puts severe direct stress on the country's natural habitats and resources, as well as on its infrastructure, such as landfills, waste management, and wastewater treatment plants, resulting in failures of mitigation measures against spills into the natural environment. These pressures act on open, undisturbed terrestrial areas, groundwater supply, but also unpolluted and undisturbed marine habitats. Malta is also characterized by an ongoing construction boom, including large-scale and high-rising development projects, still using widely unsustainable designs, materials and building practices, cumulatively contributing to the negative impacts of habitat loss and climate change.

The increasing construction of higher buildings along most of Malta's low-lying eastern shorelines, including Bugibba, Qawra, Pembroke, St Julians, Tigne, Xghajra etc. is continuously reducing available habitat for sensitive avian receptors that require undisturbed and unobstructed coastal areas.

The effects of climate change, such as sea level rise, increasing average ambient temperatures and marine heat waves, increasing drought stress, etc. are further exacerbating the pressures on the environment, with indirect, permanent, and adverse long-term negative effects on local avian biodiversity¹⁴. Increased storm frequencies and amplitudes caused by climate change are further threatening avian biodiversity at land at sea. Furthermore, sea level rise paired with an increase in severe storms is expected to increase the erosion and destruction of Maltese coastlines and coastal habitats. It can also lead to potential destruction of coastal developments and flooding of underground car parks next to the sea. This in turn will further increase the risks of debris and problematic material ending up in the marine environment, where it will be detrimental to sensitive avian receptors. Apart from the direct contributions that increasing urbanisation has on climate change impacts,

¹⁴ BirdLife International. (2018). *State of the world's birds: taking the pulse of the planet*. BirdLife International.

these developments also work counter to adaptation and mitigation measures necessary.

Moreover, the proposed development can be expected to result in knock-on effects on the adjacent areas, increasing the extent of large, commercial projects, human activity, infrastructural improvements to cater for increased use and associated impacts leading to increased cumulative effects of habitat degradation and loss.

Overall, the aforementioned cumulative effects brought by the proposed scheme with respect to overdevelopment, mass tourism, climate change is expected to have a significant impact on avifauna.

4.2.2 Decommissioning phase

Comparable impacts as listed in the construction phase will apply to the decommissioning phase.

5 MITIGATION

5.1 CONSTRUCTION PHASE

To mitigate the impact of the proposed development during the construction phase, including the demolition of current structures, on local breeding birds, it is recommended that the demolition takes place outside the breeding seasons of the relevant terrestrial avian receptors (February - August). This will ensure that no active nests will be destroyed within the footprint of the proposed development.

To reduce the impacts of noise, vibration, dust and direct disturbance, it is highly recommended that physical barriers are erected around the footprint of the proposed development to mitigate its impact on sensitive avian receptors in the AoI. Such a physical barrier is expected to also prevent some of the ALAN spilling into the AoI and can potentially keep debris and building material from being washed or blown into the marine environment.

All material from demolition, excavation and construction would need to be processed, transported, stored and disposed of or recycled according to the highest standards in order to mitigate any potential negative impact of such material on the avian receptors, including that from spillover into the marine environment.

The construction period is to be kept as short as possible in order to reduce the disturbance of the avian community in the AoI during construction.

Night time construction is to be avoided in order to mitigate the potential impact of ALAN during this period. This is especially important if the construction phase coincides with any of the fledging periods of sensitive receptors, in this case procellariiform seabirds nesting in the Maltese islands. Any required lighting during the construction phase would need to follow the Guidelines for the Reduction of Light Pollution in the Maltese Islands (2020) published by ERA/PA, in order to further mitigate potential impacts of ALAN on sensitive avian receptors in the AoI: The extent of lighting should be reduced, not be directed towards the sea, upwards towards the sky, or onto adjacent peripheral habitat, and avoiding the use of bright “cold” white lights in favour of warm light (< 3000 K). In the event that bright lights at night must be used, it is recommended to avoid the most sensitive periods for seabirds, which would experience the most significant impact from such disturbance. In addition, staff and management should be appropriately informed on procedures for the rescue of grounded seabirds.

Apart from a physical barrier around the proposed development during construction, it is crucial that highest standards are implemented at site to avoid any accidental spillage of construction waste, insulation material, paint, packaging etc. into the environment. As the site is known to be exposed in rough weather, it is very important that e.g. netting of scaffolding, plastic sheets etc. are carefully secured at all times. All waste material would need to be removed from site asap and disposed of adequately. Any leaking of any substances hazardous to sensitive avian receptors into the marine environment has to be avoided at all costs.

5.2 OPERATIONAL PHASE

To mitigate the impact of increased vehicular traffic on sensitive receptors in the AoI, it is highly recommended to reduce the amount of parking spaces of the proposed development and take other measures that disincentivize car use in the area and, instead, incentivize other means of mobility, such as electric shuttle buses, cycle lanes, pedestrianized roads etc.

To mitigate the permanent and significant increase in disturbance and noise from heavily increased human density and activities in the area, it is highly recommended to create buffer zones and closed off areas along the shore that are out of bounds for people. This will allow sensitive receptors on migration or when wintering to continue using the area and to find undisturbed habitat pockets. It is important that such areas are sheltered from human activities with buffer zones from both the land and the sea sides. It is also important that such areas effectively exclude domestic animals, such as cats and dogs. Any activities creating excessive noise levels in the area, such as boat parties, speed boat, jet ski and quad bike rentals, loud music from bars or lido clubs, festivals, fireworks etc. would need to be avoided to mitigate the expected permanent and significant impact of noise disturbance on sensitive receptors in the AoI.

Activities making use of bright lights would need to be avoided in order to mitigate the potential impact of ALAN on sensitive receptors in the AoI. This is especially important for times of the year that coincide with the fledging periods of procellariiform seabirds nesting in the Maltese Islands. Any lighting of the proposed development would need to strictly follow the Guidelines for the Reduction of Light Pollution in the Maltese Islands (2020) published by ERA/PA, in order to further mitigate potential impacts of ALAN on sensitive avian receptors in the AoI. In particular, care would have to be taken in all lighting design to avoid light spilling into the marine environment, which includes relevant Natura 2000 sites in the AoI within line of sight of the proposed development. In addition, staff and management should be appropriately informed on procedures for the rescue of grounded seabirds.

To mitigate the impact of the proposed development on the ambient temperature and to reduce the urban heat island effect, it is highly recommended to reduce the overall volume of the project, the number of air-conditioning units, reduce sealed surface areas exposed to the sun, and seek alternative building materials that have a lower climate impact. Effective landscaping with green open areas, green roofs and green walls as well as large evergreen trees are proposed as potentially suitable measures.

6 RESIDUAL IMPACTS

Minor and/or non-significant residual impacts are expected with respect to the local terrestrial breeding bird population in the AoI during the construction phase. While these widely temporary impacts are expected to be significant within the footprint of the proposed development and its direct vicinity, it will likely not have significant residual impacts on the overall breeding populations of avian receptors in the AoI, as long as the relevant mitigation measures as outlined above are carefully implemented.

The scale and significance of the permanent residual impact from noise and all other forms of human disturbance, including light pollution, on avian receptors in the AoI during the operational phase will widely depend on how strictly the relevant mitigation measures will be implemented. Potentially significant numbers of procellariiform seabird fledglings will be at risk of grounding from light pollution caused by the proposed development. Whether or not this residual impact will be significant depends on the strict implementation of mitigation measures. However, it is unlikely that the project and associated infrastructure catering for increased activity in the area would not contribute to increased skyglow, especially given the exposed nature of the proposed project and its direct line of sight to relevant marine SPA. Therefore, funding should be made available for monitoring and rescue efforts within the AoI by the relevant entities.

The residual impact caused by harmful substances such as micro- and macroplastics ending up in the environment will be not significant if mitigation measures are adequately implemented. However, as many of such substances can remain in the marine environment for extended periods and are accumulating along the food chains, their impact can be harmful to avian receptors, especially seabirds at the top of marine food webs long-term.

Residual cumulative impacts from non-sustainable development in the Maltese islands and specifically along the eastern shoreline, of which the proposed development forms part, will potentially remain significant on avian receptors in the long-term. Such impacts also include those caused by climate change and the urban heat island effect. As long as developments are not climate neutral and do not make use of truly sustainable designs and materials and procedures and as long as the population numbers and tourist arrivals grow further alongside non-sustainably, residual cumulative impacts on avian receptors are expected to remain significant. In this case, compensatory measures would need to be considered.

7 ALTERNATIVE SOLUTIONS

Since the proposed project is not considered a public project of national interest, there is no scope in exploring alternative sites for its development. The project is specific to the site in question and is covered by a Development Brief for the area¹⁵. This document, approved by Malta's Planning Authority following a series of public consultations with residents and stakeholders, highlights the spatial, environmental and architectural criteria to develop and regenerate the Urban Coast at the ex-Jerma Palace Hotel site.

The major concerns regarding this proposed project relate to the loss of habitat, through direct destruction and disturbances resulting in its reduction in appropriateness, for sensitive avian receptor species, including disturbances that are predicted to act on protected areas in the Natura 2000 framework, such as the aforementioned marine SPAs, and the trigger species within them, particularly procellariiform seabirds. A substantial reduction in the project volume may proportionally reduce the impacts, but these would be expected to remain, resulting in an overall net negative effect on avian receptors.

The zero-option would result in the retention of the derelict Jerma Hotel shell and a relatively undisturbed stretch of coastline. Terrestrial breeding bird species would be expected to continue breeding in and around the site. Indeed, some of these species are experiencing increasing population trends locally. Paired with an ecology that permits breeding within urban landscapes, these species could be expected to increasingly colonise the site. Passage and wintering species which make use of the shore and coastline for resting and staging would be expected to persist in doing so relatively undisturbed, and marine breeding, passage, and stopover species would remain unaffected by the current site. A small positive effect on nocturnal migrants and fledgling seabirds can be expected to persist due to the shielding of ALAN by the derelict Jerma Hotel shell. With time, the derelict site would continue to deteriorate and debris would pollute the adjacent areas, with small negative impacts on avian assemblages.

Another alternative for the site in question would be the demolition of the derelict Jerma Hotel and the restoration of the shoreline to approach a natural state. The location of the proposed development shares characteristics with other headlands of importance to migratory shore- and water-birds, notably Il-Ponta tal-Qawra, which has been established as a Nature reserve by virtue of S.L. 549.150¹⁶. In this alternative, impacts related to the demolition of the current site would still be relevant and be similar to those detailed above for the construction phase, but with appropriate mitigation measures their impact would be temporary and reversible. Moreover, the restoration of the site to unseal the ground surface, incorporate appropriate flora, and limit human activities on the shore and adjacent marine

¹⁵ <https://parlament.mt/media/107542/dok-78-l22.pdf>

¹⁶ <https://legislation.mt/eli/sl/549.150/eng>

coastal area would result in a permanent, significant, positive impact for avian communities.

Notwithstanding the potential ecological benefits associated with the demolition of the existing structures and restoration of the site to a more natural state, such an alternative is not considered a reasonably feasible option for the site owners. This scenario would entail substantial costs associated with demolition, waste management, site remediation and ecological restoration, while also giving rise to temporary environmental impacts during the demolition and rehabilitation works. This is particularly relevant given that the site is designated for redevelopment and regeneration through the applicable Development Brief, which establishes a policy framework for its future development subject to the relevant planning and environmental requirements. While complete restoration may represent a beneficial scenario from an ecological perspective, it does not constitute a realistic or economically viable alternative to the proposed development.

8 SUMMARY OF IMPACTS TABLE

TABLE 1: SUMMARY IMPACTS TABLE FOR AVIFAUNA

IMPACT TYPE AND SOURCE			IMPACT RECEPTOR		EFFECT & 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 & RESILIENCE TOWARD IMPACT	DIRECT/INDIRECT/CUMULATIVE	BENEFICIAL/ADVERSE	SEVERITY	PHYSICAL/ GEOGRAPHIC EXTENT OF IMPACT	SHORT-/MEDIUM-/LONG-TERM	TEMPORARY/PERMANENT	REVERSIBLE/IRREVERSIBLE					
Loss of roosting and foraging habitat for avian assemblages	Direct human disturbance, noise and light pollution	Construction, operation, decommissioning	All avian species making use of the AoI, including wintering and passage populations of conservation concern	High & Moderate	Direct	Adverse	Moderate to High	Local in footprint and AoI	Long-term	Permanent	Reversible	Inevitable	Significant	Install containment barriers during construction/decommissioning, reduce nighttime activities, create buffer zones along the shore, avoid activities that produce excessive noise and light pollution, follow guidelines on avoidance of light pollution	Significant	N/A
ALAN negatively impacting nocturnally migrating birds	ALAN	Construction	Nocturnally migrating birds	Moderate & Moderate	Direct	Adverse	Low	Broad)	Long-term	Permanent	Reversible	High	Not significant	Limit night-time activities, reduce light pollution in accordance with published guidelines, avoid sensitive periods	Not significant	N/A
ALAN negatively impacting nocturnally	ALAN	Operation, decommissioning	Nocturnally migrating birds	Moderate & Moderate	Direct	Adverse	Low	Broad)	Long-term	Permanent	Reversible	High	Significant	Limit night-time activities, reduce light pollution in accordance with published guidelines, avoid sensitive periods	Not significant	N/A

migrating birds																
Grounding of seabird fledglings, associated induced mortality caused by ALAN	ALAN	Construction, operation, decommissioning	Breeding procellariiform seabirds	High & Low	Direct	Adverse	High	Broad	Long-term	Permanent	Reversible	High	Significant	Limit night-time activities, reduce light pollution in accordance with published guidelines, avoid sensitive period	Not significant	Funding the monitoring and rescue of seabird grounding in the AoI.
Exposure of avifauna to harmful substances, reducing life expectancy, physiological health state, reproductive success	Pollution and spillage of material during construction, operation, decommissioning	Construction, operation, decommissioning	Avian species	Moderate & Low	Direct	Adverse	High	Broad (AoI and beyond)	Long-term	Permanent	Irreversible	High	Significant	Infrastructure and procedures to minimise and address pollution events	Not significant	N/A
Cumulative effects impacting biodiversity, including	Cumulative habitat degradation and loss along eastern shore, urban	Operation	Biotic and abiotic environment	Moderate & Low	Indirect / Cumulative	Adverse	Moderate	Very broad	Long-term	Permanent	Reversible with difficulty	Inevitable	Significant	Take holistic approach to planning, reduce footprint, floor area and parking, shift to climate neutral or positive design, construction and	Not significant	Consider alternative solutions for area

overall habitat destructi on and climate change	heat-island effect																	operation, implement adequate landscaping	
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APPENDIX I

TERMS OF REFERENCE

The proposal requires the submission of an Appropriate Assessment (AA) as per Regulation 19(1) of the Flora, Fauna and Natural Habitats Protection Regulations, 2006 (S.L. 549.44), given that the project may cause significant impacts on protected marine environment; MT0000108 - Iż-Żona fil-Baħar tal-Lvant designated as a Special Protection Area (SPA) as declared through the provisions of the Flora, Fauna and Natural Habitats Regulations of 2006 (S.L. 549.44).

Note: It should be noted that the AA shall not be restricted to the above-mentioned protected sites only, which have been identified through screening to determine whether the proposal requires the submission of an AA. It is the consultants' responsibility to adopt and justify the appropriate area of influence, based on the available information, which takes into consideration any relevant protected site, ecosystems, habitats and species covered by the provisions of the Flora, Fauna and Natural Habitats Regulations (S.L. 549.44).

The Appropriate Assessment report should follow the following format:

1. Executive Non-Technical Summary

A description of the salient points of the AA study including surveys, impacts and their significance, proposed mitigations measures, and any residual impacts.

2. Project Description

A description of the proposed project, with particular emphasis on those elements that are likely to give rise to potentially significant effects on the on the integrity of the protected site, or on its habitats, species and ecosystems. The description shall also address any foreseeable consequential requirements or implications of the proposal (e.g. need for new or altered access or infrastructure).

3. Site Description

A general description of the site environment within the area of influence, with particular emphasis on the salient features of the site and its species, habitats and ecosystems. Any other aspects of the physical environment and its processes that may in any way interact with the development or its impacts shall also be described.

The description shall also address any other constraints relevant to the site, including statutory legal protection, any relevant management plan framework.

4. Impact Assessment vis-à-vis the integrity of the site and its species, habitats and ecosystems.

An evaluation of the way in which the integrity of the site and its species, habitats and ecosystems are likely to be affected by the project.

Impact assessment should clearly indicate all foreseeable direct and indirect impacts, and their expected timeframes (short/long-term, etc.). Any impact interactions (e.g. accumulation, synergy, interaction with natural forces) shall also be identified and assessed. The significance of all AA-relevant impacts must also be discussed.

Impact assessment shall also take into account practical implications (e.g. conflicts with site protection or management plan implementation, any foreseeable constraints on future management plan formulation, etc.)

5. Mitigation Measures

Where possible, measures should be identified to eliminate and/or mitigate adverse effects on the integrity of the site as well as on the relevant habitats and species.

In this regard, the AA should include:

A reasonably detailed identification of the measures to be introduced for all relevant phases of the project;

An explanation of how the measures will eliminate and/or mitigate adverse effects;

Evidence of how the mitigation measures will be tangibly implemented and by whom;

Evidence of the degree of confidence in their likely success;

A timescale, relative to the project, when they will be implemented;

An explanation of any proposed monitoring scheme and how any mitigation failure will be addressed; and

Proposals for decommissioning as may be appropriate.

6. Residual Impacts

The report should include a prediction of residual impacts and implications of the proposal on the site and its species, habitats and ecosystems, following the implementation of the mitigation measures. The report shall also evaluate the significance of such residual impacts and implications. Residual impacts are to be evaluated individually as well as holistically. The latter should indicate whether the proposal will or will not adversely affect the integrity of the site(s) concerned.

7. Alternative solutions

A list of alternatives to the proposal is to be submitted. Examples of alternatives may include, but not necessarily limited to, alternative technologies, alternative layouts, and relocation or downsizing of the project. The zero-option (do-nothing scenario) should also be considered. Each alternative is to be thoroughly assessed by comparing it with the original proposal and clearly indicating the relative effects on the site's listed habitats and species.