Environmental Planning Statement

Demolition of all existing buildings forming part of St. George's Bay Hotel and ancillary facilities, Dolphin House, Moynihan House and Cresta Quay

Construction of parking facilities, hotels and ancillary facilities, commercial area multi ownership holiday accommodation, bungalows
language school with accommodation and lagoon

Restoration of the Villa Rosa and upgrading of the facilities including parking facility, kitchen and toilets all below existing site levels within the Villa Rosa area to address catering facilities/wedding hall

Coordinated Assessment

Volume Four

Summary of Impacts

21 July 2014

prepared by
ERSLI Consultants Limited

on behalf of
Garnet Investments Limited

Impact type and source			Impact receptor		Effect and Scale							Probability of impact occurring	Overall impact significance	Proposed mitigation measures	Residual impact significance	Other requirements
Impact type	Specific intervention leading to impact	Project phase	Receptor type	Sensitivity and resilience toward impact	Direct Indirect Cumulative	Beneficial Adverse	Severity	Physical geographic extent of impact	Short medium long term	Temporary Permanent	Reversible Irreversible					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Land use																
Smothering of vegetation (both natural vegetation and agricultural crops) by dust generated as a result of excavation works.	Excavation construction works	Construction	Surrounding natural semi-natural agricultural land	Low to moderate. Agricultural land areas are located at some distance from the development sites and therefore unlikely to be significantly affected by this impact. However, dust emissions could also adversely vegetation assemblages within Wied Ħarq Ħammiem	Direct	Adverse	Medium, depending on the extent of excavation, the effectiveness of containment measures taken, and the prevailing wind directions at the time	Dependent on predominant wind direction, but the severity of the impact is likely to decrease with distance from the site	Short to medium term	Temporary	Not easily reversible	Low to moderate, provided effective mitigation measures are in place	Low to moderate	Proposed mitigation measures include implementation of good construction management practices to minimize dust emissions.	Low	NA
Increased traffic generation, particularly of heavy vehicles, with consequent indirect impacts in terms of noise and emissions.	Excavation construction works	Construction	Surrounding roads and adjacent land uses	Moderate to high, given (i) pre-existing traffic congestion and high traffic density in the area, (ii) the scale of the proposed developments and by extension, the heavy volume of construction-related traffic expected, and (ii) the presence of residential dwellings along several of the roads in surrounding areas, together with other land uses subject to nuisance impact (e.g. hotels).	Direct and cumulative to some extent	Adverse	Moderate to high, depending on the extent of construction works involved, and the amount of associated traffic	Impact likely to extend to major thoroughfares in the area (beyond the AoS), through which construction traffic is likely to pass	Short to medium term	Temporary	Not reversible	High	Moderate to high	Limited; noise nuisance associated with such traffic can be limited through the use of vehicles of adequate standard and through the selection of appropriate vehicular routes, but residual impacts likely to remain.	Moderate to high	NA

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Land use																
Detrimental impact on residential land-uses as a result of nuisances (e.g. fine dust contamination, noise, vibrations) generated by construction activities in-situ, as well as by heavy vehicles approaching and leaving the site. The latter may be of particular concern, with respect to fugitive fine particulates, if sufficient measures are not taken to ensure trucks are adequately covered	Excavation construction works	Construction	Residential land uses in the surrounding area	Low to moderate, given the limited extent of residential land uses in the area	Direct and cumulative to some extent	Adverse	Medium to high	Likely to affect those residences lying in closest proximity to the sites	Short to medium term	Temporary	Not applicable; the impact of 'nuisance' cannot be reversed.	High	High	Moderate to high scope for mitigation– whilst some measures to limit nuisance can be taken (e.g. good construction management practices), residual impacts are likely to remain.	Moderate to high; while some aspects (e.g. dust contamination) can be mitigated to a large degree, others (e.g. noise) can only be mitigated to a very limited degree	NA
The proposed development will provide further commercial options within the area, spanning a range of uses including office space, hotel accommodation, language schools, and others. To some extent, the proposed facilities may therefore compete with existing ones in the wider Paceville area.	Construction re-development extension of existing structures within development sites	Operation	Surrounding commercial land uses	Unknown; this would depend on whether there is an adequate market for the range of commercial facilities being proposed, without detrimentally affecting existing businesses in the area	Direct	Adverse	Medium to high	Likely to affect the commercial zone within close proximity to the development area; the extent of impact would depend, however, on the size of the target market (i.e. how big an audience there is for the commercial facilities on offer), on wider financial economic developments, and on changes which may occur within the commercial facilities located beyond the site but within the Paceville area.	Long term	Somewhat permanent, but tied to the operational time frame of the project	Reversible if the 'competing' use were to be removed	Unknown	Unknown, for reasons outlined above	Low scope for mitigation	Unknown	NA

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Land use																
As noted, the proposed development will provide further commercial options within the area, spanning a range of uses including office space, hotel accommodation, language schools, and others. This may consolidate, in a positive manner, the identity of this area for these uses; in terms of hotel accommodation, the area forms part of the so-called 'Golden Mile' area of up-scale hotels. Similarly, the area lies within a 'zone' which already accommodates office spaces, language schools, catering facilities, and other related land uses.	Construction re-development extension of existing structures within development sites	Operation	Surrounding commercial land uses	Low	Direct	Beneficial	Medium to high	Likely to affect the commercial zone within close proximity to the development area; the extent of impact would depend, however, on the size of the target market (i.e. how big an audience there is for the commercial facilities on offer), on wider financial economic developments, and on changes which may occur within the commercial facilities located beyond the site but within the Paceville area.	Long term	Somewhat permanent, but tied to the operational time frame of the project	Reversible if the proposed uses were to be removed in due course	High	High	NA	High	NA
The construction of high-rise buildings adjacent to lower-lying structures can be expected to have an impact in terms of shadowing and decreased exposure to sunlight.	Construction of high buildings	Operation	Land uses adjacent to proposed high buildings	Low, given that the structures in question are used as bars and not for residential purposes	Direct	Adverse	Moderate	Likely to affect the structures located in between the Moynihan Dolphin Houses site and Zone F of the proposed development area.	Long term	Permanent (or as long as high buildings remain in place)	Not reversible unless the high-rise structures are not constructed.	High	Insignificant to very low	Low scope for mitigation	Low	NA

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Land use																
Redevelopment and reorientation of existing commercial land use functions within the development sites	Construction re-development extension of existing structures within development sites	Operation	Present land uses within development sites	Low	Direct	Neutral	High, given the large scale of the proposed developments	Limited to the development sites	Long term	Somewhat permanent, but tied to the operational time frame of the project	The impact on areas which are presently not built up can be considered to be irreversible; the impact on areas which are already committed to development can be considered reversible to some degree, in the sense of there being potential for re-use and re-development of the properties for other uses in future.	Certain to occur, if the development takes places, as proposed and within the area s suggested	Moderate; as per impact assessment criteria defined above, the impact will have some effect on the functioning of the land use, but given that this is largely consistent with existing uses, this effect is not such as to alter the nature of use, intensity of use or amenity of use, to a substantial degree.	NA	Moderate; all impacts are considered to be residual, as this impact will not be mitigated.	NA

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Landscape and visual assessment																
Impact on the landscape and visual amenity	Presence of construction equipment in the sites	Construction	Residents Workers Visitors Tourists	Varies depending on the individual	Direct	Adverse	High	St George's Bay area	Short term	Temporary	Reversible	Certain	High	None	None	None
Impact of the proposed development on the landscape and visual amenity	Encroachment of physical development on areas which were previously undeveloped	Operations	Residents Workers Visitors Tourists	Varies depending on the individual	Direct	Varies depending on the individuals involved	High in cases where receptors consider the impact adverse. Neutral to low in cases of receptors who consider the impact neutral or beneficial	St George's Bay area	Long term	Permanent	Irreversible	Certain	Moderate to high depending on the viewpoint.	Good quality architectural and landscape design	Moderate to high	None

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Geology and geomorphology																
Impact on geology	Excavation works	Construction	Rock formation	Low to moderate	Direct	Adverse	Low to high depending on asset	Within the construction sites	Long term	Permanent	Irreversible	Certain	High	None	High	None
Impact on morphologic features	The finished development	Operations	Land forms	Low given that the areas to be excavated are already committed to development	Direct	Adverse given that excavation works are irreversible Neutral to beneficial as the changes will involve a smoother flow of run-off, the harvesting of water, and the creation of a water feature (albeit a man-made one) of a substantial size.	Low to high depending on who makes the judgement	In the proposed development sites and the surrounds	Long term	Permanent	Irreversible	Certain	Moderate	None	Moderate	None
Modifications to existing geomorphologic features, namely Għar Ħarq Ħammiem	Soil/material removal and rock-cutting	Demolition/Excavation/Construction	Land forms, namely Għar Ħarq Ħammiem	Moderate to high depending on which part of the cave is affected. The upper part would be the more sensitive	Direct	Adverse	Low to high depending on the intensity of vibrations emitted during excavation works	The cave	Long term	Permanent	Irreversible	Highly unlikely given that the Developer plans to use a chainsaw to excavate sensitive areas and to isolate the area to be excavated	NA	As per recommendations concerning cultural heritage assets.	NA	As per recommendations concerning cultural heritage assets

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Hydrogeology and hydrology																
Effects of windblown and waterborne limestone dust on aquatic environments	Demolition, excavation and construction works	Construction	Aquatic environments	Low	Direct	Adverse	Low to moderate (major catastrophic events are not expected)	Dependent on volume of emissions	Medium term	Temporary	Reversible	Remote	Low to moderate	A number of dust-suppression measures may be considered to minimize wind-blown dispersion. These include collection of fine particulates generated during any on-site working of stone, covering of stored material, and water-spraying of active areas. The PDS recommends that the site is 'regularly wet during the summer period', whilst vacuum assisted tools are proposed for use during construction. It would however be imperative that the water used to control windborne emissions to be controlled in order for it not to escape into aquatic environments.	Low	It is normal practice for the construction works of large projects to be monitored for air quality, noise, and liquid discharges

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Hydrogeology and hydrology																
Redistribution of particulates	Storage of excavated material	Construction	Aquatic environments	Low	Direct	Adverse	Low to moderate	Dependent on wind strength and direction and on rainfall episodes	Medium	Temporary	Reversible	Remote	Probably low	Stockpiles of excavated materials should either be removed or be underlain with porous bedding and covered with a tarpaulin in order to minimize redistribution by wind and water. Duration of on-site storage of excavated material should be as brief as possible to reduce opportunities for winnowing of sediment. Limiting the height and slope of the stockpiles in order to reduce wind erosion and wet suppression of dust, using sprinklers should also be considered. Wet suppression of dust may however generate fluid flows that, unless contained, may flow into the sea. Siting of stockpiles away from the boundary adjacent to Wied Ħarq Ħammiem should also be considered. The PDS indicates that 'minimal stock piling is to be stored on site, thus reducing the amount of dust generated by wind'	Probably low	It is normal practice for the construction works of large projects to be monitored for air quality, noise, and liquid discharges

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Hydrogeology and hydrology																
Degradation of aquatic environments due to leakages	Storage of construction materials, waste materials and possible contaminants	Construction	Aquatic environments	Any impacts arising from this source would be dependent on the materials and chemicals involved, on the volume of leakage and on specific weather conditions at the time of leakage	Direct/Cumulative	Adverse	Probably low to moderate	Restricted	Probably short term unless repeated input of pollutants occurs	Temporary	Probably reversible in the long term	Remote	Probably low	Secure storage of potential pollutants (including oils and cement) with secondary containment and fire-prevention systems. Storage of minimum quantities required and good operational practice will reduce the potential for accidents. A contingency plan to clean up spills, should such occur, should also be established. The PDS, specifies that 'all liquid stored on site is to be stored within a bund to make sure that all spillage is easily controlled. Furthermore all stationary machinery with-in the site is to be equipped with an adequate drip tray'	Probably low	It is normal practice for the construction works of large projects to be monitored for air quality, noise, and liquid discharges

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Hydrogeology and hydrology																
Degradation of aquatic environments	Use of pesticides and fertilisers for maintenance of landscaped areas	Operations	Aquatic environments	Flows of leachate from the sites are likely to travel downslope towards the sea, and would be unlikely to generate impact on sensitive biological resources in Wied Ħarq Ħammiem. If landscaping includes lawns, which require almost daily irrigation, excess runoff water will leach away pesticides and fertilizers in small quanti-ties, potentially leading to chronic effects in receptor areas. Leachate from the Dolphin House/Villa Moynihan area would be in the vicinity of Għar Ħarq Ħammi-em, and would therefore represent a potential source of impact on this habitat	Direct/cumulative	Adverse	Probably low	Dependent on the chemicals involved and on the environmental sinks in the vicinity. May extend for tens of metres, depending on the volume of leakages and on the efficiency of attenuation	May be long-term	May be temporary, with reversion to natural vegetation when no more input occurs	Depends on the timescale, on the chemicals, and on the species. May be reversible	Likely	Probably low	The gardeners should be trained be familiarised and expected to follow the guide-lines identified in the 'Nitrates Action Programme - Malta' (GoM, 2011) and the 'Action Plan for Sustainable Use of Pesticides' (MCCAA, 2013). The use of biocides may be considered	Probably low	

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Ecology																
Obliteration of biological communities	Demolition, excavation and construction works	Construction	Flora within the footprint	High	Direct	Adverse	Low	Footprint of development and immediate margins	Long-term	Permanent	Irreversible	Inevitable	Low to moderate	None	Low to moderate	

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Ecology																
Effects of windblown limestone dust on habitats and biota	Demolition, excavation and construction works	Construction	Flora and fauna	Low (unless catastrophic input occurs)	Direct	Adverse	Moderate to high	Dependent on volume of emissions and on wind characteristics at the time of emission	Medium term	Probably temporary	Reversible if not a catastrophic input	Likely	Low to moderate	Collection of fine particulates generated during any on-site working of stone, covering of stored material, and water-spraying of active areas	Probably Low	
Obliteration of biological communities in possible storage sites	Storage of excavated material	Construction	Any biota (mainly flora) within the footprint of stockpiles	Low	Direct	Adverse	Insignificant	Footprint of stockpiles and their margin	Medium-term	Temporary (throughout construction phase)	Irreversible	Inevitable	Low	None	Low	
Redistribution of particulates	Storage of excavated material	Construction	Flora and fauna	Low (unless catastrophic input occurs)	Direct	Adverse	Moderate to high	Dependent on wind strength and direction and on rainfall episodes	Medium term	Probably temporary	Reversible if not a catastrophic input	Likely	Probably low	Reduced on-site stockpiling; covering of stockpiles, wet suppression; siting away from Wied Ħarq Ħammiem	Probably low	
Proliferation of ruderal species	Storage of excavated material	Construction	Flora	Impact has already occurred; further development will modify the magnitude not the nature of the impact	Direct	Adverse	May be moderate to high	May be widespread	Medium to long term, depending on the species	May be permanent	May be irreversible	Likely	Probably low	Insulation of stockpiles in order to minimise dispersal of propagules	Probably low	
Disturbance arising from noise and vibration	Demolition, excavation and construction works	Construction	Fauna	May be high but Impact is ongoing	Direct	Adverse	May be moderate to high	May be widespread	Probably Medium-term	Temporary; impact will persist throughout construction phase	Probably reversible	Likely	Probably low to moderate	Use of damping mechanisms to reduce effects of vibrations.	Probably low	
Degradation of biological communities due to leakages	Storage of construction materials, waste materials and possible contaminants	Construction	Flora and fauna	Probably high along the pathway of spilled fluids	Direct/Cumulative	Adverse	Probably low to moderate	Restricted	Probably short term unless repeated input of pollutants occurs	Temporary (duration of construction phase)	Probably reversible in the long term	Likely	Probably low	Secure storage of potential pollutants (including oils and cement) with secondary containment and fire-prevention systems	Probably low	
Degradation of biological communities due to leakages	Increased vehicular traffic	Construction	Flora and fauna	Dependent on the volume of spillage and on specific weather conditions at the time of spillage	Direct/Cumulative	Adverse	Probably low to moderate	Dependent on wind direction, but would only be expected to be relevant within tens of metres of the source (except in the case of catastrophic input) of emissions/leakages	Dependent on the nature of the emission/leakage. Effects may range from short-term to long term 'chronic' effects	Probably temporary, persisting throughout the construction phase	Probably reversible in the longer term	Likely	Probably low	Containment of spillages through secure storage and confinement of loads in vehicles	Probably low	

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Ecology																
Disturbance of susceptible fauna	Site illumination during the night	Construction	Birds, bats, other nocturnal mammals, nocturnal reptiles, and nocturnal insects that respond to intense light sources	Additional illumination will modify the magnitude of the impact rather than the nature of the impact	Direct	Adverse	May be moderate to high	Probably tens of metres from the source, depending on the light source	Short to medium term	Probably temporary, persisting throughout the period of site-illumination	Probably reversible	Likely	Probably low, for most faunal groups	Use of downward facing , low-intensity lighting	Probably low	
Disturbance of susceptible fauna	Site illumination during the night	Operation	Birds, bats, other nocturnal mammals, nocturnal reptiles, and nocturnal insects that respond to intense light sources	Additional illumination will modify the magnitude of the impact rather than the nature of the impact	Direct	Adverse	May be moderate to high	Probably tens of metres from the source, depending on the light source	Short to medium term	Probably temporary, persisting throughout the period of site-illumination	Probably reversible	Likely	Probably low, for most faunal groups	Use of downward facing , low-intensity lighting	Probably low	
Infiltration of invasive species into adjacent habitats	Introduction of species for landscaping	Operation	Flora	Impact has already occurred multiple times in the past	Direct	Adverse	May be high	May be widespread	May be long term, depending on the species concerned	Depends on the timescale considered. Such impacts may last for several decades	Depends on the timescale and on the species. May be irreversible	Likely	May be moderate	Use of indigenous and slow-growing shrubs, similar to those found in adjacent natural habitats.	May be moderate to high	

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Ecology																
Degradation of biological communities	Use of pesticides and fertilisers for maintenance of landscaped areas	Operation	Vegetation assemblages downslope of the two areas of AoS; mainly ruderal species colonising derelict agricultural areas	Flows of leachate from the two areas of AoS are likely to travel downslope towards the sea, and would be unlikely to generate impact on sensitive biological re-sources in Wied Ħarq Ħammiem. If landscaping includes lawns, which require al-most daily irrigation, excess runoff water will leach away pesticides and fertilizers in small quantities, potentially leading to chronic effects in receptor areas. Leach-ate from the Dolphin House/Villa Moynihan area would be in the vicinity of Għar Ħarq Ħammiem, and would therefore represent a potential source of impact on this habitat	Direct/cumulative	Adverse	Probably low	Dependent on the chemicals involved and on the environmental sinks in the vicinity. May extend for tens of metres, depending on the volume of leakages and on the efficiency of attenuation	May be long term	May be temporary, with reversion to natural vegetation when no more input occurs	Depends on the timescale, on the chemicals, and on the species. May be reversible	Likely	Probably low	The gardeners should be trained be familiarised and expected to follow the guide-lines identified in the 'Nitrates Action Programme - Malta' (GoM, 2011) and the 'Action Plan for Sustainable Use of Pesticides' (MCCAA, 2013). The use of biocides may be considered	Probably low	

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Cultural heritage																
Impact on the following cultural heritage assets: Għar Ħarq Ħammiem	Soil/material removal and rock-cutting	Demolition/Excavation/Construction	Cultural heritage assets	Moderate to high depending on which part of the cave is affected. The upper part would be the more sensitive	Direct	Adverse	Low to high depending on the intensity of vibrations emitted during excavation works	The cave	Long term	Permanent	Irreversible	Highly unlikely given that the Developer plans to use a chainsaw to excavate sensitive areas and to isolate the area to be excavated	NA	Archaeological monitoring/investigation will prevent possible damage to existing cultural heritage assets and allow for the recording and conservation of unknown cultural heritage assets	NA	Archaeological Monitoring/Investigation of proposed development
Impact on the following cultural heritage assets: Villa Rosa Villa Rosa Gardens	Demolition of buildings to be replaced by one building of a contemporary architectural design	Demolition/Excavation/Construction	Cultural heritage assets	High	Direct	Adverse	Low to high depending on the intensity of vibrations emitted during excavation works	Villa Rosa Gardens	Long term	Permanent	Irreversible	Highly unlikely given that the Developer plans to use a chainsaw to excavate sensitive areas and to isolate the area to be excavated	NA	Archaeological monitoring/investigation will prevent possible damage to existing cultural heritage assets and allow for the recording and conservation of unknown cultural heritage assets	NA	Archaeological Monitoring/Investigation of proposed development
Impact on the following cultural heritage assets: Moynihan House Dolphin House	Demolition of buildings to be replaced by one building of a contemporary architectural design	Demolition/Excavation/Construction	Cultural heritage assets	Moderate in the case of Moynihan House Low in the case of Dolphin House	Direct	Depends on the level of protection that the MEPA decide to assign	Depends on the level of protection that the MEPA decide to assign	Dolphin House and Moynihan House site	Long term	Permanent	Irreversible	Certain in the event that the MEPA approves he current proposals submitted by the Developer	High	None with respect to the demolition High quality architectural design of the replacement building	High	NA
Impact on the following cultural heritage assets: Cart ruts Rubble walls Masonry block paving pathways Military guardroom Rooms [on the beach] Entrenchment wall Surface quarry	Demolition of buildings to be replaced by one building of a contemporary architectural design	Demolition/Excavation/Construction	Cultural heritage assets	Moderate	Direct	Adverse	Low to high depending on the intensity of vibrations emitted during excavation works	The features themselves	Long term	Permanent	Irreversible	Highly unlikely given that the Developer plans to use a chainsaw to excavate sensitive areas and to isolate the area to be excavated	NA	Archaeological monitoring/investigation will prevent possible damage to existing cultural heritage assets and allow for the recording and conservation of unknown cultural heritage assets	NA	Archaeological Monitoring/Investigation of proposed development

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Air quality																
Air contamination due to heavy and light vehicle increase	Increase of vehicular combustion gases and particulates	Demolition	General population	High sensitivity; limited resilience of affected persons; legal/environmental limits in place	Direct	Adverse	Low	Extends to several kilometres	Long term	Permanent	Irreversible	Remote	Low overall significance	Use of euro 5 approved vehicles	Low significance	Monitoring of traffic impact to steer towards projections compliance
Air contamination due to heavy and light vehicle increase	Increase of vehicular combustion gases and particulates	Construction	General population	High sensitivity; limited resilience of affected persons; legal/environmental limits in place	Direct	Adverse	Low	Extends to several kilometres	Long term	Permanent	Irreversible	Remote	Low overall significance	Use of euro 5 approved vehicles	Low significance	Monitoring of traffic impact to steer towards projections compliance
Air contamination due to traffic increase	Increase of vehicular combustion gases and particulates	Operations	General population	High sensitivity; limited resilience of affected persons; legal/environmental limits in place	Direct	Adverse	Low	Extends to several kilometres	Long term	Permanent	Irreversible	Remote	Low overall significance	Green plan to curtail impact effect;	Low significance	Monitoring of traffic impact to steer towards projections compliance

Impact type and source			Impact receptor		Effect and Scale							Probability of impact occurring	Overall impact significance	Proposed mitigation measures	Residual impact significance	Other requirements
Impact type	Specific intervention leading to impact	Project phase	Receptor type	Sensitivity and resilience toward impact	Direct Indirect Cumulative	Beneficial Adverse	Severity	Physical geographic extent of impact	Short medium long term	Temporary Permanent	Reversible Irreversible					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Noise & vibration																
Noise	On-site construction activities	Phase 1 Cresta Quay	Residential properties adjacent to/overlooking Cresta Quay	Moderately sensitive to day time noise due to existing moderately-high levels of existing noise in the area	Direct	Adverse	-	Localised to properties close to or overlooking site	Short term	Temporary	Reversible with ease	Likely but occasional	Low to high, variable between no noise and worst case predicted to be up to 17 dB greater than threshold value of 70 dB L_{Aeq}	Site boundary screening barrier or localised temporary/movable noise barriers and compliance with CMP.	Low to moderate – up to 7 dB greater than 70 dB L_{Aeq} limit value	As necessary
Noise	On-site construction activities	Phase 1 Dolphin House	Residential properties adjacent to/overlooking Dolphin House	Highly sensitive to day time noise due to existing low levels of existing noise in the area	Direct	Adverse	-	Localised to properties close to or overlooking site	Short term	Temporary	Reversible with ease	Likely but occasional	Low to moderate, variable between no noise and worst case predicted to be 9 dB greater than threshold value of 65 dB L_{Aeq}.	Site boundary screening barrier or localised temporary/movable noise barriers and compliance with CMP.	None - 1 dB lower than 65 dB L_{Aeq} limit value	As necessary

Impact type and source			Impact receptor		Effect and Scale							Probability of impact occurring	Overall impact significance	Proposed mitigation measures	Residual impact significance	Other requirements
Impact type	Specific intervention leading to impact	Project phase	Receptor type	Sensitivity and resilience toward impact	Direct Indirect Cumulative	Beneficial Adverse	Severity	Physical geographic extent of impact	Short medium long term	Temporary Permanent	Reversible Irreversible					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Noise & vibration																
Noise	On-site construction activities	Phase 2	Residential properties adjacent to Triq Emm Decelis and Villa Rosa to north-west of site	Highly sensitive to day time noise due to existing low levels of existing noise in the area	Direct	Adverse	-	Localised to properties close to or overlooking site	Short term	Temporary	Reversible with ease	Likely but occasional	Low to high, variable between no noise and worst case predicted to be 13 dB greater than threshold value of 65 dB L_{Aeq}.	Site boundary screening barrier or localised temporary/movable noise barriers and compliance with CMP.	Low – up to 3 dB greater than 65 dB L_{Aeq} limit value	As necessary
Noise	On-site construction activities	Phase 3 north-western extent	Residential properties adjacent to Triq Emm Decelis and Villa Rosa to north-west of site	Highly sensitive to day time noise due to existing low levels of existing noise in the area	Direct	Adverse	-	Localised to properties close to or overlooking site	Short term	Temporary	Reversible with ease	Likely but occasional	Low to high, variable between no noise and worst case predicted to be 13 dB greater than threshold value of 65 dB L_{Aeq}.	Site boundary screening barrier or localised temporary/movable noise barriers and compliance with CMP.	Low – up to 3 dB greater than 65 dB L_{Aeq} limit value	As necessary
Noise	On-site construction activities	Phase 3 southern extent	Principally tourist accommodation /hotels, also commercial and any residential in the area of Bay Street	Low sensitivity to day time noise due to existing elevated levels of existing noise in the area	Direct	Adverse	-	Localised to properties close to or overlooking site	Short term	Temporary	Reversible with ease	Inevitable	Low to high, variable between no noise and worst case predicted to be 14 dB greater than threshold value of 75 dB L_{Aeq}.	Site boundary screening barrier or localised temporary/movable noise barriers and compliance with CMP.	Low – up to 4 dB greater than 75 dB L_{Aeq} limit value	As necessary
Noise	On-site construction activities	Phase 4	Principally tourist accommodation /hotels, also commercial and any residential in the area of Bay Street	Low sensitivity to day time noise due to existing elevated levels of existing noise in the area	Direct	Adverse	-	Localised to properties close to or overlooking site	Short term	Temporary	Reversible with ease	Inevitable	Low to high, variable between no noise and worst case predicted to be 20 dB greater than threshold value of 75 dB L_{Aeq}.	Site boundary screening barrier or localised temporary/movable noise barriers and compliance with CMP.	Low to moderate – up to 10 dB greater than 75 dB L_{Aeq} limit value	As necessary
Noise & vibration	Off-site construction-related vehicle movements activities	All Phases	Residential properties adjacent to/overlooking transport-related traffic routes (Triq Santu Wistin, Triq Prof W Ganado, Ix-Xatt Ta' S Giorgio)	Variable but most roads have existing high volumes of traffic	Direct	Adverse	-	Localised to properties close to or overlooking roads	Medium term	Temporary	Reversible with ease	Unlikely	No impact (<1dB change in noise levels)	None required beyond generic/best practice compliance with CMP	No impact	As necessary
Perceptible vibration affecting human comfort	On-site construction activities	Phase 1 Cresta Quay, Phases 2 to 3	Residents in properties adjacent to/overlooking Cresta Quay, Triq Emm Decelis and Villa Rosa	Highly sensitive to perceptible vibration	Direct	Adverse	-	Localised to properties close to or overlooking site	Short term	Temporary	Reversible with ease	Unlikely	None, ground-borne vibration unlikely to be perceptible	None necessary beyond generic/best practice compliance with CMP.	None	As necessary

Impact type and source			Impact receptor		Effect and Scale							Probability of impact occurring	Overall impact significance	Proposed mitigation measures	Residual impact significance	Other requirements
Impact type	Specific intervention leading to impact	Project phase	Receptor type	Sensitivity and resilience toward impact	Direct Indirect Cumulative	Beneficial Adverse	Severity	Physical geographic extent of impact	Short medium long term	Temporary Permanent	Reversible Irreversible					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Noise & vibration																
Perceptible vibration affecting human comfort	On-site construction activities	Phase 4	Principally tourist accommodation /hotels, also commercial and any residential in the area of Bay Street	Highly sensitive to perceptible vibration	Direct	Adverse	-	Localised to properties close to or overlooking site	Short term	Temporary	Reversible with ease	Possible when significant excavation works approach boundary of site with Bay Street area	Low to moderate depending on severity, duration and frequency of perceptible vibration	None available beyond generic/best practice compliance with CMP	Low to moderate	As necessary
Vibration causing risk of damage to cave below Dolphin House	On-site construction activities	Phase 1 Dolphin House	Cave below Dolphin House	Highly sensitive to high levels of ground-borne vibration	Direct	Adverse	-	Localised to cave	Short term	Temporary	Irreversible	Unlikely	No impact	Use of non-percussive demolition/excavation/construction methods and generic/best practice compliance with CMP.	No impact	As necessary
Vibration causing risk of damage to other buildings	On-site construction activities	All other Phases except Dolphin House	Buildings and structures adjacent/close to site boundary	Low sensitivity to ground-borne vibration – most buildings very resilient to low levels of vibration	Direct	Adverse	-	Localised to properties close to or overlooking site	Short term	Temporary	Reversible with ease	Unlikely	No impact	Generic/best practice compliance with CMP	No impact	As necessary
Noise affecting existing noise sensitive residential properties surrounding site	On-site operational activities – building plant equipment	All Phases/aspects	Existing residential properties adjacent/close to site boundary	Variable	Direct	Adverse	-	Localised to properties close to or overlooking site	Long term	Permanent	Reversible with difficulty	Unlikely	No impact	Building design/layout and plant equipment specification specifically intended to ensure plant equipment noise levels are significantly below existing 'background' noise levels.	No impact	As necessary
Noise & vibration affecting existing noise sensitive residential properties adjacent to local roads leading to and from the site	Off-site development-generated (operational) traffic	All Phases/aspects	Existing residential properties adjacent/close to local roads	Low due to existing high levels of traffic on roads	Direct	Adverse	-	Localised to properties adjacent to local roads	Long term	Permanent	Irreversible	Unlikely	No impact	None required	No impact	Not necessary