

21. CONCLUSIONS AND RECOMMENDATIONS

21.1 Introduction

21.1.1 This Chapter presents a discussion of the findings of the site specific evaluations presented in Chapters 6 to 20 and identifies those sites that are likely to be considered acceptable if investigated further in an EIA. *Table 21.1* provides a comparative summary of these evaluations.

21.1.2 All the sites considered in this assessment have been chosen through a site selection exercise, which contributes to the entire SEA process. The site selection process identified a number of environmentally sensitive receivers, where it was considered that development of a new landfill or landfill extension would not be acceptable under any circumstances, ("Areas of Absolute Exclusion"). Locations that were considered likely to be acceptable for development were also identified. This long-list of sites corresponds to the thirteen new sites and two extension sites assessed in this report.

21.1.3 Whilst the site selection exercise allowed the identification of areas of Hong Kong that are suitable in principle for development, the exercise did not take into account the specific environmental impacts associated with landfill development, or the sensitivity of adjacent sensitive receivers to those impacts. The purpose of this SEA is to qualitatively assess the specific environmental impacts of landfill development at each of the sites, taking those factors in to account.

21.2 Approach to the Strategic Environmental Assessment

Design Issues

21.2.1 At this stage in the project a number of issues have yet to be determined, precluding detailed quantitative environmental assessment of impacts. One of the benefits of addressing environmental impacts at this early stage of the overall process is that it allows a greater flexibility in design. Hong Kong has designed and implemented some of the most sophisticated landfill environmental control technology in the world. This has been successfully applied to the existing strategic landfills and in the restoration of old landfills. On the basis of Hong Kong's proven knowledge of the efficacy of existing control technologies, as well as an acknowledgement of the need to keep abreast of future developments, it is assumed in this SEA that certain environmental emissions (for example, effluent discharges and landfill gas flare emissions during landfill operations) can be effectively mitigated through design.

21.2.2 In order to reduce the overall impacts on water quality during construction of marine based sites, the design approach for the formation of the island sites has been to eliminate the need for dredging of underlying muds during the reclamation process.

21.2.3 In terms of wind and waves, whilst this "no-dredge" technique is considered suitable for "protected" seawalls, the ability of this approach to provide adequate stability for "exposed" seawalls is subject to verification. Some of the sites (particularly those in southern and eastern waters) will be exposed to considerable wave action and may require a dredged foundation trench to ensure adequate stability. For the purposes of this SEA and the water quality modelling exercise, a "worst case" approach has been adopted which includes for dredging of the foundation trench of exposed seawalls at sites in eastern and southern waters. However, the viability of the no-dredge option for all seawalls should be confirmed in subsequent stages of the design.

Table 21.1: Comparative Summary of Evaluations

Site	Overall Impacts								
	Air Quality	Noise	Water Quality	Waste Management	Ecology	Fisheries	Cultural Heritage	Landscape & Visual	Landfill Gas
M.1 Deep Bay Island Landfill	O / -	O	--	O	--	- / --	-	--	O
M.2 Sha Chau Island Landfill	O / -	O	-	O	- / --	-	-	--	O
M.3 Lantau Northwest Island Landfill	O / -	O / -	-	O	--	-	-	- / --	O
M.4 Soko Islands Landfill	O / -	O	-	O	- / --	- / --	-	- / --	O
M.5 South Cheung Chau Island Landfill	O	O	O / -	+	O / -	O / -	O	- / --	O
M.6 Lamma Breakwater Island Landfill	O	O	-	+	- / --	-	-	- / --	O
M.7 East Tung Lung Island Landfill	O / -	O	-	O	--	-	-	--	O
M.8 Eastern Waters Island Landfill	O / -	O	O / -	O	- / --	-	O	-	O
M.9 Tai Long Wan Offshore Island Landfill	O / -	O	-	O	- / --	O / -	O	-	O
M.10 Southeast Offshore Island Landfill	O / -	O	O / -	O	O / -	O / -	O	-	O
M.11 Lamma North Island Landfill	-	O / -	-	+	- / --	-	-	--	O / +
M.12 Lamma South Island Landfill	O	O	-	+	--	-	-	- / --	O
L.1 Pillar Point Valley North Landfill	-	O	O	-	-	O	O	-	O
E.1 NENT Landfill Extension	-	O / -	O	-	-	O	--	-	O
E.2&3 WENT Landfill Extensions	-	O	O	O / -	-	O	--	-	O

- Notes:
- “+ +” Positive – High
 - “+” Positive
 - “O” Neutral
 - “O / -” Neutral / Negative – Low
 - “-” Negative – Low
 - “- / - -” Negative – Low/ High
 - “- -” Negative – High

Selection and Application of Evaluation Criteria

21.2.4 The evaluation criteria for each environmental discipline are described in Part A – Section 5. Because the assessment is qualitative in nature, the evaluation criteria have been developed to ensure an assessment of sites that is transparent and consistent. To allow for future assessment of a preferred site under the EIAO-TM, evaluation criteria and individual thresholds have been developed based on the EIAO assessment criteria, but adapted on the basis of professional judgement where considered appropriate for a strategic environmental assessment. Modification has also been necessary to accommodate the different types of impact associated with land based development and marine development.

21.3 Brief Comparison of Environmental Impacts Associated with Land Based Sites and Marine Sites

General

21.3.1 As might be expected, the nature of impacts associated with land and marine based sites are quite different. A feature of the design approach to this Study has been to alleviate the burgeoning problem of managing a projected surplus of inert C&D material. At certain times, in the absence of identified public filling sites, C&D Material has been disposed of at the existing strategic landfills. This prematurely reduces landfill void space and lifespan. Because all marine sites can accept significant volumes of public fill for site formation, these sites provide enormous strategic benefits, both in the management of the supply of landfill space and the disposal of C&D material. This “strategic” factor contributes to the overall pursuit of sustainability for Hong Kong, but could result in adverse project-level impacts. Therefore it has not specifically been included in the assessment process, however, it may be taken into account when selecting a preferred site(s) from those ultimately identified in the site selection exercise.

Marine based Sites vs Land based Sites

21.3.2 By their nature, the principal impacts associated with marine based sites are those impacts upon water quality, and perhaps more importantly, the related impacts to marine ecology and fisheries. The impacts themselves are more complex and diverse than for land based sites. This is due to the media through which impacts arise and are transmitted as well as the relatively better understanding of the baseline situation and effects of development upon land based sensitive receivers.

21.3.3 The hydrodynamic effects and resulting water quality impacts will vary across Hong Kong waters according to the existing and future predicted conditions. The geographical range over which marine based site formation can impact upon sensitive receivers is considerably greater than for land based sites, with significant variation depending upon the exact position of the site in Hong Kong waters. Water quality and associated impacts for marine sites have been assessed on the basis of a hydrodynamic and water quality modelling exercise carried out separately under this study. The assessment presented in this Report has taken into account the results of that modelling exercise.

21.3.4 Conversely, land based sites are characterised by the relatively localised effects of impacts. Whilst the actual degree of severity of any particular impact is dependent upon the nature of the sensitive receiver, land based sites tend to have greater opportunity for mitigation of impacts.

21.4 Discussion of Impacts

- 21.4.1 The following sections present a discussion of the predicted impacts upon each environmental discipline, as summed up in *Table 21.1*. Recognising that the SEA has been carried out in a qualitative manner, the following sub-sections identify sites which, if investigated further, are unlikely to comply with the EIAO-TM, (for that particular media), as well as those which are considered suitable for further investigation. This evaluation of “compliance ” should be taken in the context of this SEA, and it should be recognised that the actual design of new sites and extensions is preliminary in nature and an EIA under the EIAO will be necessary for those sites selected for further investigation.
- 21.4.2 The evaluation of likely acceptability of impacts has been based on a combination of qualitative judgement and quantitative assessment. Whilst the assessment process presented in *Table 21.1* uses a simple scoring technique for clarity, the final evaluation is also based upon professional judgement. It is not the intention that the scores in *Table 21.1* are compared numerically for each site. Furthermore, one of the purpose of the SEA is to identify those sites that are suitable for further investigation, the weighting of individual criteria has been avoided with each environmental discipline evaluated on its own merit.
- 21.4.3 Ranking of those sites considered likely to have acceptable environmental impacts has generally been avoided. However, in order to facilitate a clear understanding of the nature of predicted impacts, sites have been divided into broad categories according to the general severity of impacts, which in turn relate to the likely degree of mitigation that may be required. Because the sites have been divided in to broad categories, each categorisation does not necessarily correspond directly to the scores presented in *Table 21.1*.

Air / Noise / Landfill Gas

- 21.4.4 Impacts upon air quality, noise and landfill gas are considered to be acceptable for all sites.
- 21.4.5 For marine based sites this is predominantly due to the site selection exercise, which ensured that new sites are located well away from land based sensitive receivers. The influence of noise upon ecological sensitive receivers has been addressed under that section.
- 21.4.6 The effects of air/noise/landfill gas impacts upon construction workers, (for landfill gas) and afterusers, (for noise, air and landfill gas) is recognised – but can be readily mitigated through design. However the mitigation measures and their acceptability needs to be confirmed in the EIA stage when more detailed analyses would be carried out.
- 21.4.7 For land based extension sites, there is a potential for impacts, however, this is still limited. The process of site search and selection that was carried out for the existing NENT and WENT Landfills ensured that these are located in remote areas. Therefore, the proposed extensions are also located in remote areas where the effects upon sensitive receivers are likely to be limited.
- 21.4.8 Whilst landfill gas can be used as an energy source to support on-site activities at all sites, at this time there are no readily identifiable off-site users, to further offset greenhouse gas emissions.

Water Quality

21.4.9 The following sub-sections present a brief discussion of the key water quality impacts of each site. The water quality evaluation has been carried out with regard to the results of the water quality and hydrodynamic modelling exercise.

Sites with Overall Very Low Water Quality Impacts

21.4.10 The sites considered to have the lowest potential impact upon water quality are:

- Pillar Point Valley North Landfill (PPVNL);
- NENT Landfill Extension (NLES); and
- WENT Landfill Extensions (WLES).

21.4.11 The land based sites (PPVNL, NLES, WLES) are considered to have relatively low potential impacts. For these sites, impact avoidance can be readily achieved through sensitive design, and where necessary impact mitigation, can be achieved with a reasonably high degree of assurance on the basis of previous experience, both through design and management.

21.4.12 The existing strategic landfills (to which NLES and WLES would be extensions) have provisions in place for disposing of waste water discharges (e.g. an effluent discharge pumping main). Whilst the actual design has yet to be completed, the necessary infrastructure can either accommodate the additional loading or be upgraded to suit as necessary.

21.4.13 For PPVNL, the potential impacts are considered to be low because of the low sensitivity of the surrounding waters, coupled with the proven ability to manage site discharges during construction and operation.

21.4.14 At this strategic and qualitative level of assessment, these sites are considered likely to have acceptable impacts upon water quality. However, their overall acceptability needs to be confirmed in the EIA stage when more detailed analyses would be carried out.

Sites with Overall Low to Medium Water Quality Impacts

21.4.15 The sites considered to have potential to cause negative low to medium level impacts upon water quality are those sites generally located around the southern waters, and include:

- South Cheung Chau Island Landfill (SCCIL);
- Lamma Breakwater Island Landfill (LBIL);
- Eastern Waters Island Landfill (EWIL); and
- Southeast Offshore Island Landfill (SEOIL).

21.4.16 All the sites are characterised by uncontaminated sediments. LBIL and SCCIL have a low potential for cumulative effects from adjacent marine developments. The exception to this is the potential Lamma Breakwater, the location of which coincides with LBIL and which may, if constructed impact on the SCCIL and LBIL, however, the status of this project is uncertain. At EWIL, there is potential for cumulative effects from a number of dredging and backfilling projects in the area.

- 21.4.17 The potential for WQO exceedance for SS during construction has been predicted for SCCIL. The presence of an island at any of the sites during operation is not anticipated to contribute to any WQO exceedance. In addition, these sites are influenced to some degree by the Pearl River Estuary and generally have higher baseline levels of WQO criteria pollutants, than the eastern waters.
- 21.4.18 Although LBIL was categorised as 'Negative – Low', the water quality impacts, in fact, can either be at the upper end of 'Negative – Low' or at the lower end of 'Neutral / Negative – Low'. It was finally categorised as 'Negative – Low' so that the relative differences in water quality impacts with respect to SCCIL could be illustrated. Therefore, it is more appropriate to assign LBIL as having the low to medium water quality impacts.
- 21.4.19 Anticipated impacts upon EWIL, are judged to be marginally greater. Whilst the site is situated in oceanic waters, remote from WSRs, there are a number of projects in the general area (such as backfilling of East Tung Lung Chau MBA) that may give rise to cumulative impacts.
- 21.4.20 SEOIL is very remote, situated in waters heavily influenced by oceanic currents. The potential for impacts upon water quality sensitive receivers is low due to the high dispersion of sediment from dredging, also, due to its remoteness, the site is not likely to significantly impact upon the hydrodynamics of Hong Kong inland waters, however, due to its exposed location, the incidence of high winds and waves is likely to make it difficult to implement mitigation measures (should they be required).
- 21.4.21 At this strategic and qualitative level of assessment, a number of water quality issues were identified but the potential impacts could be minimised by careful design and planning of the facilities in the design stage. The overall acceptability would be confirmed in the EIA stage when more detailed analyses would be carried out.

Sites with Overall Medium Water Quality Impacts

- 21.4.22 The sites considered to have potential to cause medium level impacts upon water quality sensitive receivers include:
- Sha Chau Island Landfill (SCIL);
 - Lantau Northwest Island Landfill (LNWIL);
 - Soko Islands Landfill (SIL);
 - East Tung Lung Island Landfill (ETLIL);
 - Tai Long Wan Offshore Island Landfill (TLWOIL);
 - Lamma North Island Landfill (LNIL); and
 - Lamma South Island Landfill (LSIL).
- 21.4.23 TLWOIL, LNWIL, SIL and LNIL are characterised by uncontaminated sediments and are generally either within the anticipated hydrodynamic influence of a number of WSRs or are in an area where there is the potential for cumulative impacts from adjacent marine based developments.
- 21.4.24 TLWOIL is remote, situated in waters heavily influenced by oceanic currents (similar to EWIL). The likelihood of impacts upon secondary contact recreation sub-zones along the Sai Kung Peninsula (including Tai Long Wan) is considered limited, however impacts could be exacerbated by cumulative impacts from the mud disposal at south of Victor Rock and the East Ninepin Marine Disposal Area.

- 21.4.25 SIL, LNIL, LSIL and LNWIL are all situated such that exceedance of WQO for SS is predicted at nearby water quality sensitive receivers during construction. For SIL, the water quality sensitive receiver is the north side of the Soko Islands; for LNIL, it is the north and north-west of Lamma; and for LNWIL, it is Tai O village and its environs. For LSIL, it is the south Ha Mei Wan and the secondary sub-zone located at south Lamma. For LNWIL there is also potential for cumulative impacts arising from further development at Tung Chung, although the likely influence is considered to be limited.
- 21.4.26 SCIL is located, in part, over the boundary of the East Sha Chau Contaminated Mud Disposal Area. Filling operations may result in release of contaminated sediment. In addition, cooling water intakes at Chek Lap Kok as well as Black Point and Castle Peak Power stations are close to the site and may be adversely impacted. No WQO exceedance is predicted during construction, however, the presence of the island is predicted to cause salinity WQO exceedance, due to the low baseline salinity in the area.
- 21.4.27 ETLIL is located in the eastern waters that are generally have high background water quality conditions. Nevertheless, according to the Hydrodynamic and Water Quality Modelling there is an exceedance in the baseline condition. The contribution of the island to exceedance during the operational phase was not significant. Also, no exceedance would be caused due to the construction of the island. However, the site is likely to impact on secondary contact recreation areas around Po Toi as well as cooling water intakes at Cape D'Aguilar. The site is in close proximity to the East Ninepin Marine Disposal Area, and cumulative impacts are likely.
- 21.4.28 Further investigation is required to determine the details of the design and mitigation measures to reduce the potential impacts to an acceptable level. The overall acceptability needs to be confirmed in the EIA stage when more detailed analyses would be carried out.

Sites with Overall High Level Water Quality Impacts

- 21.4.29 The only site considered to have potential to cause overall higher levels of impact upon water quality sensitive receivers, was:
- Deep Bay Island Landfill (DBIL).
- 21.4.30 DBIL is located in Deep Bay and in an area of contaminated sediments. The site is located close to the landmass of NWNT and impacts upon secondary contact recreation areas along the coastline are likely during construction when significant exceedance of the SS WQO is predicted. These impacts are likely to be exacerbated by the construction of the proposed SWC. During operational phase, the flushing capability of Deep Bay is predicted to be reduced. This is likely to make Deep Bay more vulnerable to deterioration of water quality due to increase in pollutant loading inside Deep Bay.

Waste Management

- 21.4.31 The following sections present a brief discussion of the predicted strategic-level impacts associated with waste management. Impacts associated with each site are considered in terms of materials balance, as well as relative greenhouse gas emissions associated with transportation of waste to the individual sites both in terms of distance and mode of transport.

Sites with Overall Positive Waste Management Impacts

21.4.32 The sites considered to have an overall positive waste management impact include:

- South Cheung Chau Island Landfill (SCCIL);
- Lamma Breakwater Island Landfill (LBIL);
- Lamma North Island Landfill (LNIL); and
- Lamma South Island Landfill (LSIL).

21.4.33 All of these marine sites are considered to have an overall positive impact on waste management / materials balance. As discussed in Section 21.3, marine sites can accept high volumes of public fill for site formation, providing significant strategic benefits in managing the predicted surplus of C&D materials across Hong Kong. In addition, off-shore sites would accept wastes via marine vessel, thereby rendering secondary environmental benefits of reduced greenhouse gas emissions (compared to land based delivery). Compared to other marine based sites, these sites are comparatively close to the source of waste (less than 300km), and consequently have comparatively lower overall GHG emissions.

21.4.34 All sites are considered likely to have acceptable impacts upon waste management, if considered further in an EIA. However their overall acceptability needs to be confirmed in the EIA stage when more detailed analyses would be carried out.

Sites with Overall Neutral Waste Management Impacts

21.4.35 The sites considered to have an overall neutral waste management impact include:

- Deep Bay Island Landfill (DBIL);
- Sha Chau Island Landfill (SCIL);
- Lantau Northwest Island Landfill (LNWIL);
- Soko Islands Landfill (SIL);
- East Tung Lung Island Landfill (ETLIL);
- Eastern Waters Island Landfill (EWIL);
- Tai Long Wan Offshore Island Landfill (TLWOIL); and
- Southeast Offshore Island Landfill (SEOIL).

21.4.36 These sites benefit from the same characteristics (i.e. off-shore based, with marine delivery of wastes) as the sites identified as having an overall positive impact on waste management above, however they are marginally differentiated by their increased distance from the source of waste.

21.4.37 All sites are considered likely to have acceptable impacts upon waste management, if considered further in an EIA. However their overall acceptability needs to be confirmed in the EIA stage when more detailed analyses would be carried out.

Sites with Overall Neutral to Negative Low Waste Management Impacts

21.4.38 The sites considered to have an overall neutral to negative low, waste management impact include:

- Pillar Point Valley North Landfill (PPVNL);
- NENT Landfill Extension (NLES); and
- WENT Landfill Extensions (WLES).

21.4.39 All land based sites are considered to have a neutral or low adverse impact on waste management / materials balance. Whilst they do not provide a sink for surplus C&D material, these sites do achieve a materials balance in terms of cut and fill for landfill development.

21.4.40 WLES has a marine frontage, so it can accept wastes from both land and sea. Whilst this has operational benefits, the secondary environmental benefits of reduced GHG emissions are not as high as for marine based sites. Similarly these benefits are not achieved for PPVNL and NLES, which would receive wastes exclusively by road (although PPVNL could be designed to accept waste transferred by road from the existing WENT Landfill Marine Waste Reception Area).

21.4.41 All sites are considered likely to have acceptable impacts upon waste management, if considered further in an EIA. However their overall acceptability needs to be confirmed in the EIA stage when more detailed analyses would be carried out.

Ecology

21.4.42 Through the efforts of botanists, biologists and ecologists, there is a broad ecological database available for habitats and species across the SAR. For most of the waste disposal site options there have been specific studies conducted in the immediate vicinity of the sites that give good insight as to the conservation value of their existing ecological resources. For other more remote marine sites however, such as SEOIL and TLWOIL, site-specific data and information is scarce. In these cases reasonable assumptions have been made based on available data from adjacent waters. The following sections present a brief discussion of the predicted impacts upon ecology.

Sites with Overall Low to Medium Ecological Impacts

21.4.43 The sites considered to have the lowest potential ecological impact include:

- South Cheung Chau Island Landfill (SCCIL); and
- Southeast Offshore Island Landfill (SEOIL).

21.4.44 Potential impacts at SCCIL are considered low because the site footprint and adjacent waters do not provide a habitat to any species of note. There have been observations of marine mammals in the area, but these are relatively scarce compared to other waters in the west and the south of the SAR. Other sensitive ecological receivers in south-west waters are remote from the site and given the history of the site as a mud disposal ground there is only marginal potential for adverse ecological impacts.

21.4.45 Although proposed for open waters that are contiguous with ecologically valuable coastal waters, SEOIL is considered too remote to be of significant threat to ecological receivers. The potential for impacts upon water quality sensitive is low due to the high dispersion and dilution of dredged / disturbed sediment.

21.4.46 These sites are considered likely to have marginal impacts upon the ecosystem in their vicinity. Development at these sites is not expected to give rise to any significant ecological impacts. However their overall acceptability needs to be confirmed in the EIA stage when more detailed analyses would be carried out.

Sites with Overall Medium Ecological Impacts

21.4.47 The sites considered to have moderate potential ecological impact include:

- Pillar Point Valley North Landfill (PPVNL);
- NENT Landfill Extension (NLES); and
- WENT Landfill Extensions (WLES).

21.4.48 Development of PPVNL would adversely affect an otherwise undisturbed habitat that supports a mosaic of habitat types. There is potential that flora of conservation importance are within the site, whilst fauna may use the site directly or use the adjacent undisturbed areas. As the site is in a valley area with no other activities planned, there is limited potential for cumulative impacts.

- 21.4.49 The ecological impacts associated with land based NLES are potentially significant. The site is adjacent to the proposed Country Park at Robin's Nest and NLES would also be in proximity (about 200m) to the Lin Ma Hang stream that is of high conservation value. The site is in a location which is sensitive, but which is marginally acceptable assuming strict protection of adjacent sensitive receivers (particularly Lin Ma Hang Stream).
- 21.4.50 WLES would be developed adjacent to the existing WENT Landfill and there is also some flora of conservation value in the area: in this case, a population of the Pitcher Plant *Nepenthes mirabilis* in the valley of Tsang Kok stream. This species is protected, but is also abundant in Hong Kong and, subject to further investigation at the EIA stage its loss could likely be mitigated.
- 21.4.51 Overall it is considered that these sites possess some attributes of ecological importance, and that potential impacts upon these could be adequately mitigated. However their overall acceptability needs to be confirmed in the EIA stage when more detailed analyses would be carried out.

Sites with Overall Medium to High Ecological Impacts

- 21.4.52 The sites considered to have medium to high potential ecological impact include:
- Sha Chau Island Landfill (SCIL);
 - Soko Islands Landfill (SIL);
 - Lamma Breakwater Island Landfill (LBIL);
 - Eastern Waters Island Landfill (EWIL);
 - Tai Long Wan Offshore Island Landfill (TLWOIL); and
 - Lamma North Island Landfill (LNIL);
- 21.4.53 SCIL is located within an ecologically important fisheries habitat and forms part of the core area for the Chinese White Dolphin *Sousa chinensis*. Whilst the pelagic groups are adapted to the high background concentrations in suspended solids and also have the ability to avoid areas of disturbance at the island landfill site, ecological impacts from the site works may be significant.
- 21.4.54 SIL is in proximity to two proposed Marine Parks and habitat for species of conservation value, including corals at the Soko Islands and open water habitat for the Chinese White Dolphin *Sousa chinensis*. Another species of note in the broader area that may be adversely affected by direct habitat loss and off-site sediment plume includes the Horseshoe Crab.
- 21.4.55 The proposed South Lamma Marine Park and the Sham Wan SSSI / "Restricted Area" are located 2km and 5km to the east of LBIL respectively. Construction and operational phase water quality and hydrodynamic impacts could adversely affect these waters. The site is also adjacent to the core habitat area of the Finless Porpoise – a locally, regionally and internationally protected species.
- 21.4.56 EWIL is located in the eastern oceanic waters of the SAR. The inner eastern waters support scattered coral communities of high conservation value and in this regard the waters around the Sai Kung Peninsula are currently being investigated by AFCD to determine their suitability for designation as Marine Park / Reserve¹. To the north of EWIL is the submerged pinnacle of Victor Rock that is of recognised conservation value for the high diversity community of hard and soft corals and associated reef species it supports.

¹ Hong Kong Institution of Education. Study on the suitability of Tai Long Wan Area as marine park or marine reserve.
Hong Kong Institution of Education. Study on the suitability of Long Ke Wan and East High Island Dam, Pak Lap Tsai and Pak Lap as marine park or marine reserve.
Hong Kong Institution of Education. Study on the suitability of Bluff Island, North and South Ninepin as marine park or marine reserve.

- 21.4.57 In the vicinity of TLWOIL, the Tai Long Wan SSSI and other coastal areas of the Sai Kung East Country Park and coral habitats of conservation value in the area are prone to adverse impact from increased suspended sediment levels from dredging and reclamation activities. The potential for cumulative effects is considered marginal due to the distance and hydrodynamics between the island landfill site and possible reclamation to the south.
- 21.4.58 The waters near LNIL are of ecological value due to the presence of the coral community at Pak Kok. Water quality modelling predicts that corals would be exposed to a significant increase in suspended solids. The waters to the south are of limited use by the Finless Porpoise, although marine access to the site may lead to increased potential for vessel collision.
- 21.4.59 The ecological significance of these sites is notable, including proximity to particular habitats and species of high conservation significance. There are also a number of areas in the vicinity of these sites that are of designated conservation importance, either existing or proposed. Mitigating potential impacts upon ecological sensitive receivers from the development of any of the above sites is likely to be very difficult. Proposals to develop any one of the above sites should be subject to very thorough ecological investigation as part of an EIA Study.
- 21.4.60 From a review of AFCD data for the distribution of the Finless Porpoise, although LBIL is in proximity to the core habitat, it does not appear to be within the core area. It is considered that there is potential to avoid unacceptable adverse impacts upon this species. However, this will be subject to confirmation at the detailed EIA stage. In contrast, AFCD data for the Chinese White Dolphin shows that SCIL is located within the core area of this mammal, as such, relocating SCIL would not significantly reduce the potential for disturbance / vessel collision on this species.
- 21.4.61 For the remaining four 'Medium to High Impact' sites the key issues relate to coral communities that are sedentary and, as such, are unable to avoid sediment-induced impacts. However, in most cases the landfill site location is not immediately adjacent to the coral communities and it is thus considered that there is some opportunity to manage the works in such a manner that impacts (i.e., from sediment release / transportation) may be avoidable or limited to within acceptable levels. It is thus recommended that these sites be subject to detailed investigation at the EIA stage. The exception to this is SIL that has added sensitivity due to proposals to establish a Marine Park / Reserve in coastal waters around the Soko Islands.

Sites with Overall High Ecological Impacts

- 21.4.62 There are a number of sites for which the potential ecological impacts are anticipated to be unacceptably high to the extent that they could not be adequately mitigated. These include:
- Deep Bay Island Landfill (DBIL);
 - Lantau Northwest Island Landfill (LNWIL);
 - East Tung Lung Island Landfill (ETLIL); and
 - Lamma South Island Landfill (LSIL).
- 21.4.63 Deep Bay has a unique ecological context. The immediate vicinity of DBIL is a habitat of Horseshoe Crab – a restricted species – and is close to the Pak Nai SSSI. The Inner Deep Bay ecosystem is comprised of shallow sub-tidal waters and inter-tidal flats and mangroves that together form one of the most bio diverse ecosystems in the South China region. The potential adverse impacts on Deep Bay from a decline in water quality and hydrodynamic change would not be acceptable.

- 21.4.64 The ecological significance of LNWIL is broadly similar to that of Deep Bay in that the immediate footprint area would infringe upon, or be in proximity to, habitat for the Horseshoe Crab. There is also a diverse array of shallow sub-tidal and inter-tidal habitats and species along the adjacent Lantau coastline. Whilst the habitat and species diversity is not as great as DBIL, the deeper coastal and offshore waters are at the edge of the core habitat for the Chinese White Dolphin *Sousa chinensis*. There is also potential for adverse impacts on water quality from hydrodynamic change and cumulative effects from future works at Tung Chung.
- 21.4.65 The aquatic environment at ETLIL is quite different from that in the vicinity of DBIL and LNWIL. The waters around ETLIL are only marginally influenced by flow from the Pearl River and so water clarity is far greater. This is conducive to coral growth on island shelves. Accordingly, there are highly valued coral communities and associated species of conservation importance on all sides of the site, including SSSIs of ecological importance.
- 21.4.66 LSIL would be immediately adjacent to the proposed Lamma South Marine Park, and is approximately 1km south of the Green Turtle Restricted Area at Sham Wan. The area is the most important in the SAR for the Green Turtle and is near to a core habitat for the Finless Porpoise. There are also coral communities of high conservation value on the south-facing Lamma coastline, and so overall the area is of high ecological sensitivity and conservation value.

Fisheries

- 21.4.67 The following sections present a brief discussion of the predicted impacts on fisheries resources, indicating that impacts upon fisheries are likely to be acceptable at all sites.

Sites with Overall Very Low Fisheries Impacts

- 21.4.68 Sites with neutral or very low potential for fisheries impact are the three land based sites:

- Pillar Point Valley North Landfill (PPVNL);
- NENT Landfill Extension (NLES) and
- WENT Landfill Extensions (WLES)

- 21.4.69 The three terrestrial sites are not in proximity to any land based aquaculture activities. Likewise there is no potential for mariculture zone impacts from NLES. There is in theory some potential impact on mariculture and coastal / marine fisheries from the development of PPVNL or WLES as watercourses from both of these sites will ultimately drain into the coastal waters off Castle Peak. These coastal waters are of some fisheries significance. However, water quality control measures can effectively be incorporated into landfill design to ensure there are no construction or operational phase discharges to coastal waters.

Sites with Overall Low to Medium Fisheries Impacts

- 21.4.70 Sites with low to medium potential fisheries impact include:

- South Cheung Chau Island Landfill (SCCIL);
- Tai Long Wan Offshore Island Landfill (TLWOIL); and
- Southeast Offshore Island Landfill (SEOIL).

- 21.4.71 SCCIL is located across two moderately productive fishing zones. However, assuming sediment impacts are not exacerbated significantly above existing, impacts are not considered to be insurmountable.

21.4.72 The remote location of TLWOIL relative to areas of fisheries importance means that the hydrodynamics are not particularly conducive to generate adverse impact. However, as there are sensitive areas to the north-west and the south-east there is slight impact potential. Likewise, the remoteness of SEOIL is such that there is very little potential for adverse fisheries impact. Fisheries resources of note in the broader area are the fisheries spawning area west of the site, and marginal potential for impact upon the Fisheries Protection Area and the artificial reef deployment area at Port Shelter, some 20km to the north-west of SEOIL. The potential for cumulative impacts at these sites is also marginal.

21.4.73 These sites are considered likely to have acceptable impacts related to fisheries if considered further in an EIA. However their overall acceptability needs to be confirmed in the EIA stage when more detailed analyses would be carried out.

Sites with Overall Medium Fisheries Impacts

21.4.74 The sites considered to have moderate potential fisheries impact are the marine sites:

- Sha Chau Island Landfill (SCIL);
- Soko Islands Landfill (SIL);
- Lamma Breakwater Island Landfill (LBIL);
- Eastern Waters Island Landfill (EWIL);
- Lamma North Island Landfill (LNIL); and
- Lamma South Island Landfill (LSIL).

21.4.75 The area around SCIL is of importance as a spawning ground for several commercially valuable fish species. However, as the extent of the impact zone from site reclamation activities is not expected to infringe on the core fisheries resource area, impacts should be limited.

21.4.76 The southern waters of Hong Kong have been identified as an important spawning and nursery ground for a range of commercially important fish and crustaceans. This "zone" encompasses the waters around SIL, LBIL and LSIL. However, the area of this productive spawning zone is considerable and the water quality impacts from development activities for these sites are generally not anticipated to be significant.

21.4.77 The fishing zone in the vicinity of EWIL has generally low fisheries productivity in the SAR. Spawning and nursery ground for a range of commercially important fish and crustaceans are found some distance from the site at Port Shelter. Whilst not considered likely to be significant, any reduction in water circulation / quality in inner Port Shelter could result in adverse impacts upon capture fisheries.

21.4.78 The small but productive Po Lo Tsui fisheries zone is close to LNIL. Any impact on the water column from reclamation works would drive the fish from these coastal waters into other protected waters. Thus the potential impact would be marginal.

21.4.79 These sites are considered likely to have acceptable impacts related to fisheries if considered further in an EIA. However their overall acceptability needs to be confirmed in the EIA stage when more detailed analyses would be carried out.

Sites with Overall Medium to High Fisheries Impacts

21.4.80 The sites considered to have medium to high potential fisheries impact include:

- Deep Bay Island Landfill (DBIL);
- Lantau Northwest Island Landfill (LNWIL); and
- East Tung Lung Island Landfill (ETLIL).

- 21.4.81 DBIL would be located adjacent to the mariculture sub-zone in Deep Bay where historical oyster farming activities continue today. The short-term economic viability of these activities is questionable, particularly given the proximity of the proposed Shenzhen Western Corridor. However, for DBIL the fisheries impact is considered to be of medium to high significance.
- 21.4.82 At LNWIL the broader area is of importance as a spawning ground for several commercially valuable fish species, with productive fish spawning areas defined at northeast and south Lantau. The coastal waters near the site, including Outer Tai O, support several fish species of commercial value. There is also some potential for cumulative effects in the area. As the Tai O fishery is still active the potential for adverse fisheries impact at this site is potentially significant.
- 21.4.83 The immediate ETLIL area is of fisheries significance as a spawning ground, whilst the Port Shelter area to the north is also a nursery ground where fisheries protection measures including designation of a Fisheries Protection Area and artificial reef deployment have been undertaken. Whilst impacts may be significant in the immediate vicinity of the site, it is considered that there is limited potential for adverse impact upon fisheries resources at Port Shelter due to the hydrodynamics of the area.
- 21.4.84 These sites are considered likely to have acceptable impacts related to fisheries if considered further in an EIA. However their overall acceptability needs to be confirmed in the EIA stage when more detailed analyses would be carried out.

Cultural Heritage

- 21.4.85 The following sections present a brief discussion of the predicted impacts upon cultural heritage. As noted in Section 5.8, a fundamental difference between evaluating impacts upon marine based sites and land based sites, is the greater understanding of the existing archaeological value of land based sites. In this regard, marine based sites have been considered to have potentially adverse cultural heritage impacts where they have a reasonable potential to yield deposits of archaeological interest, by virtue of known land based activities in their vicinity.
- 21.4.86 For marine based sites, the absence of existing information prevents evaluation of potential impacts in the same manner as for the land based sites, which have been subject to detailed investigation. At this stage no marine sites have been excluded from further investigation. However, it has been requested that any marine based sites that are investigated further should include a marine archaeological investigation as part of future studies.

Sites with Overall Low Potential Cultural Heritage Impacts

- 21.4.87 The sites considered to have an overall low potential to cause impacts upon cultural heritage include:
- South Cheung Chau Island Landfill (SCCIL);
 - Eastern Waters Island Landfill (EWIL);
 - Tai Long Wan Offshore Island Landfill (TLWOIL);
 - Southeast Offshore Island Landfill (SEOIL); and
 - Pillar Point Valley North Landfill (PPVNL).
- 21.4.88 None of these sites demonstrate any direct evidence of archaeological potential / impact. This is due to the absence of previous investigations in these areas.
- 21.4.89 SCCIL is located over disposal / borrow areas and as such has been subject to considerable disturbance, rendering the likelihood of finding or impacting upon any remains of cultural heritage interest remote.

- 21.4.90 The sites located in the eastern waters, EWIL, TLWOIL and SEOIL are situated in open waters remote from land based sites of known historical significance. Whilst there remains considerable uncertainty over the potential for marine archaeological finds at these sites, their remote location in open waters limits the possibility of potential impacts, compared to say inland sites, close to recognised land based sites with historical links to maritime activities.
- 21.4.91 PPVNL is situated within the boundary of the Castle Peak Firing Range (no known surveys have been carried out here due to the limited access).
- 21.4.92 These sites are considered likely to have acceptable impacts upon cultural heritage if considered further in an EIA. However their overall acceptability needs to be confirmed in the EIA stage when more detailed analyses would be carried out.

Sites with Overall Low to Medium Potential Cultural Heritage Impacts

- 21.4.93 The sites considered to have an overall low to medium potential to cause impacts upon cultural heritage include:
- Deep Bay Island Landfill (DBIL);
 - Sha Chau Island Landfill (SCIL);
 - Lantau Northwest Island Landfill (LNWIL);
 - Soko Islands Landfill (SIL);
 - Lamma Breakwater Island Landfill (LBIL);
 - East Tung Lung Island Landfill (ETLIL);
 - Lamma North Island Landfill (LNIL); and
 - Lamma South Island Landfill (LSIL).

21.4.94 None of these sites have any direct evidence of archaeological potential / impact. With the exception of LNWIL, this is due to lack of previous investigations in these areas. The marine archaeological investigation previously carried out in the vicinity of LNWIL was confined to the inner bay of Tai O but did not yield any evidence of historical interest.

21.4.95 ETLIL is located over disposal / borrow areas and as such has been subject to considerable disturbance, rendering the likelihood of finding or impacting upon any remains of cultural heritage interest remote.

21.4.96 All marine based sites in this category are those considered to have the potential to yield information of cultural heritage interest and are potentially subject to negative impacts. All sites are located in inland waters either in reasonable proximity to land based sites with a known history of maritime activities and/ or are situated in marine vessel routes used by merchants along the South China Coast. Of this group of sites, due to its slightly exposed location in more open waters, and the history of sand dredging over part of its area, SIL is considered least likely to yield finds of archaeological interest.

21.4.97 Notwithstanding, these sites are considered likely to have acceptable impacts upon cultural heritage if considered further in an EIA. However their overall acceptability needs to be confirmed in the EIA stage when more detailed analyses would be carried out.

Sites with Overall High Potential Cultural Heritage Impacts

21.4.98 The sites considered to have an overall high potential to cause impacts upon cultural heritage include:

- NENT Landfill Extension (NLES) and
- WENT Landfill Extensions (WLES).

21.4.99 Both these sites include areas of recognised historical and archaeological significance and have been surveyed by the Antiquities and Monuments Office (AMO).

- 21.4.100 NLES is located adjacent to the Tong To Shan Settlement (TTSS) District, which dates back a period of nearly 300 years and is of recognised cultural and historical significance. The settlement district comprises a scattering of stone footpaths, ancient walls and buildings. The footprint of NLES impacts upon some, but not all, representatives of these features.
- 21.4.101 Because of its high cultural heritage value, it is recommended that the TTSS be protected as much as possible, with as many of its stone features excluded from the design of NLES as possible. Whilst complete avoidance of the TTSS is the preferred approach, this option is not considered practicable, and a portion of two stone footpaths overlaps with the NLES footprint. Options for minimising impacts, including construction of a cavern to access relics, have been considered. However, the most practicable option involves creating a record of all relics to be lost prior to construction of the landfill. Where features cannot be preserved, these should be excavated and relocated to a visitor centre set up in the vicinity of the TTSS. The Ngong Tong area can be used for the landfill development but some graves with early dating and unique structural style should be preserved. If historic graves have to be removed before the commencement of the proposed construction, photographic and cartographic recording of the historic graves should be carried out by a qualified archaeologist in accordance with requirements provided by AMO.
- 21.4.102 NLES is considered likely to have acceptable impacts upon cultural heritage, if considered further in an EIA. However, the design should be developed in order to maximise the in-situ preservation of existing relics of the TTSS as far as possible, with survey and relocation of other elements of cultural heritage interest as required by AMO.
- 21.4.103 Part B of WLES is located over the existing boundary of the Tsang Tsui Archaeological Site (TTAS), that is a recorded item by AMO. Recent excavations in this area have revealed extensive remains of the late Neolithic period (c 2500-1500 BC). There is also a large grave of the Tang Clan, dating to the late Qing period (c. 100 years old). If historic graves have to be removed before the commencement of the proposed construction, photographic and cartographic recording of the historic graves should be carried out by a qualified archaeologist in accordance with requirements provided by AMO. There are no other declared, deemed or graded sites in the vicinity.
- 21.4.104 As construction of WLES would result in the loss of the TTAS, impacts upon cultural heritage are considered to be significant. Due to its location, opportunities to avoid the TTAS have been investigated but are considered unacceptable due to the significant loss in landfill capacity. For an acceptable development option at this site, relocation of the relevant features would be required. Details of the mitigation measures required would be subject to agreement with AMO during subsequent studies.
- 21.4.105 However the mitigation measures for these sites and their acceptability needs to be confirmed in the EIA stage when more detailed analyses would be carried out.

Landscape and Visual Impacts

- 21.4.106 The following sections present a brief discussion of the merits or otherwise of each site in terms of landscape and visual impact.

Sites with Overall Negative Low Landscape/Visual Impact

21.4.107 The sites considered to have an overall potential to cause low negative landscape and visual impacts include:

- Eastern Waters Island Landfill (EWIL);
- Tai Long Wan Offshore Island Landfill (TLWOIL);
- Southeast Offshore Island Landfill (SEOIL);
- Pillar Point Valley North Landfill (PPVNL);
- NENT Landfill Extension (NLES); and
- WENT Landfill Extensions (WLES).

21.4.108 The site with the lowest landscape and visual impact is SEOIL. This is due to its remoteness from VSRs, especially land based ones, which are over 20km distant and who would not be significantly impacted by the project. In addition, the remoteness of the site from the coast and landscape context will serve to reduce its impacts on landscape character.

21.4.109 The land based landfills give rise to lower levels of landscape and visual impact than all other island sites, for the following reasons:

- They are located adjacent to existing landfills in areas where existing landscape character is somewhat degraded and where further landfilling will not appear wholly incongruous.
- They are also located in or adjacent to upland areas where they can be modelled to simulate surrounding upland topography, thus reducing impacts on landscape character. Upland locations also tends to reduce the extent of their visual envelopes;
- They are located in areas where population density and therefore the number of VSRs is low.

21.4.110 Of the land based sites, PPVNL has the least impact, as both the NLES and WLES are covered by landscape planning designations, which construction of the landfills will be contrary to.

21.4.111 EWIL will give rise to no landscape resource or landscape planning impacts. There will be impacts on landscape character due to the somewhat artificial character of the new island. The site will give rise to low levels of visual impact due to its distance from the shore, where for most of the time, it will be scarcely visible and due to the fact that only a relatively small number of VSRs are exposed to it, compared to those sites on the western side of Hong Kong.

21.4.112 TLWOIL will give rise to similar levels of landscape and visual impact to EWIL, However, these impacts will be slightly higher due to the closer proximity of the island landfill to the coast (giving rise to increased impacts on landscape character) and to recreational VSRs in Sai Kung East Country Park (giving rise to increased levels of visual impact).

21.4.113 Assuming sensitive development of the design in future studies, there is potential for mitigation proposals to be further refined at detailed EIA stage such that the significance of landscape and visual impacts are likely to be acceptable. However their overall acceptability needs to be confirmed in the EIA stage when more detailed analyses would be carried out.

Sites with Overall Negative Low/High Landscape/Visual Impact

21.4.114 The sites considered to have an overall potential to cause low to high landscape and visual impacts include:

- Lantau Northwest Island Landfill (LNWIL);
- Soko Islands Island Landfill (SIL);
- Lamma Breakwater Island Landfill (LBIL);
- South Cheung Chau Island Landfill (SCCIL); and
- Lamma South Island Landfill (LSIL).

21.4.115 LNWIL will not give rise to landscape planning or resource impacts and is actually more remote from VSR centres of population than some of the other sites in this category. However, the landfill will have extremely high impacts on VSRs in Tai O due to its proximity to them and will have very significant impacts on the landscape character of Lantau coast, due to its coastal setting.

21.4.116 SIL will have no landscape planning or resource impacts. In addition, the landfill is located away from major VSR centres of population. The landfill's proximity to an overwhelmingly natural area of coastal landscape will give rise to very significant impacts on landscape character.

21.4.117 Similarly, LSIL will have no landscape planning or resource impacts. It is slightly more exposed visually to major VSR population centres than SIL (notably distant ones on Hong Kong Island), and will similarly have very significant impacts on the coastal landscape character of south Lamma.

21.4.118 LBIL, like the other sites in the Low/High ranking, does not give rise to landscape planning or resource impacts. It is however visually exposed to significant VSR centres on Hong Kong Island, Lamma, Cheung Chau, ferries etc. Its proximity to the coast of Lamma will mean that, like the sites above, it will give rise to very significant impacts on landscape character.

21.4.119 SCCIL will have no landscape planning or resource impacts. It is more visually exposed to VSR centres (notably on Lantau and on ferry routes) than the above sites and, like them, will have very significant impacts on landscape character.

Sites with Overall Negative High Landscape/Visual Impact

21.4.120 The sites considered to have an overall potential to cause overall negative high landscape and visual impacts include:

- Deep Bay Island Landfill (DBIL);
- Sha Chau Island Landfill (SCIL);
- East Tung Lung Island Landfill (ETLIL); and
- Lamma North Island Landfill (LNIL).

21.4.121 DBIL will give rise to indirect impacts on a designated Coastal Protection Area, but will not give rise to landscape resource impacts. Its proximity to the coast will give rise to very significant impacts on landscape character. In addition, the landfill will be extremely visible and will change the character of views of high numbers of VSRs in Shenzhen and those using the future Shenzhen Western Corridor.

21.4.122 SCIL will not give rise to landscape planning or resource impacts. It is however located close to significant centres of VSR population in Tung Chung and Tuen Mun as well as being exposed to the Hong Kong International Airport and the North Lantau Expressway. In addition, it will have a significant impact on the landscape character of Chi Shui-men and its relationship to the Pearl River Estuary.

- 21.4.123 Assuming sensitive development of the design in future studies, there is potential for mitigation proposals to be further refined at detailed EIA stage such that the significance of landscape and visual impacts are likely to be acceptable. However their overall acceptability needs to be confirmed in the EIA stage when more detailed analyses would be carried out.
- 21.4.124 ETLIL will give rise to significant impacts on the designated Inshore Protection Area, but will not give rise to landscape resource impacts. Its proximity to the coast will mean that it gives rise to very significant impacts on the natural landscape character of the area. The area is also the locus of relatively high numbers of recreational receivers who will also experience high levels of visual impact.
- 21.4.125 LNIL will not give rise to landscape planning or resource impacts. However, its proximity to significant numbers of VSRs on Hong Kong Island, Lamma, Cheung Chau, Penny's Bay Theme Park and major ferry routes means that visual impacts will be extremely significant. In addition, its proximity to the coast of Lamma will result in very significant impacts on landscape character.
- 21.4.126 These sites are considered likely to have impacts that are "too excessive" and therefore "unacceptable" if considered further in an EIA.
- 21.4.127 To some extent, this assessment would depend on future development of the engineering designs and associated landscape and visual mitigation measures. However, the currently assessed "high" adverse landscape and visual impacts for these sites derive largely from the close proximity of the sites to valued landscapes and/or highly sensitive VSRs, and the ability to mitigate such impacts with mitigation measures is considered to be relatively low.

21.5 Conclusions

21.5.1 Following on from a site selection exercise, this strategic environmental assessment has assessed the environmental impacts associated with the development and operation of twelve marine based new landfill sites, one new land based landfill site and two extensions to existing landfills.

21.5.2 Following assessment of the potential environmental impacts associated with the construction and operation of the landfill, each site has been assessed on the basis of whether it would have significant impacts if investigated further under the EIAO, or whether it is likely to have acceptable impacts if investigated further. *Table 21.2* summarises the likely environmental acceptability of the sites under the EIAO, although it should be recognised that the environmental acceptability of any sites considered suitable for further investigation should be confirmed in an EIA Study, when more project details are available.

21.5.3 The following sites are considered likely to have insurmountable environmental impacts, if investigated further under the EIAO and are not recommended for further investigation:

- Deep Bay Island Landfill (DBIL);
- Sha Chau Island Landfill (SCIL);
- Lantau Northwest Island Landfill (LNWIL);
- Soko Islands Landfill (SIL);
- East Tung Lung Island Landfill (ETLIL);
- Lamma North Island Landfill (LNIL); and
- Lamma South Island Landfill (LSIL).

21.5.4 Recognising the qualitative nature of the assessment, the following sites are considered acceptable for further investigation however their overall acceptability needs to be confirmed in the EIA stage when more detailed analyses would be carried out:

- South Cheung Chau Island Landfill (SCCIL);
- Lamma Breakwater Island Landfill (LBIL);
- Eastern Waters Island Landfill (EWIL);
- Tai Long Wan Offshore Island Landfill (TLWOIL);
- Southeast Offshore Island Landfill (SEOIL);
- Pillar Point Valley North Landfill (PPVNL);
- NENT Landfill Extension (NLES); and
- WENT Landfill Extensions (WLES).

Table 21.2: Summary of Environmental Acceptability of Sites

Site	Overall Acceptability									Recommended for Further Investigation
	Air Quality	Noise	Water Quality	Waste Management	Ecology	Fisheries	Cultural Heritage	Landscape & Visual	Landfill Gas	
M.1 Deep Bay Island Landfill	✓	✓	✗	✓	✗	✓	✓	✗	✓	No
M.2 Sha Chau Island Landfill	✓	✓	✓	✓	✗	✓	✓	✗	✓	No
M.3 Lantau Northwest Island Landfill	✓	✓	✓	✓	✗	✓	✓	✓	✓	No
M.4 Soko Islands Landfill	✓	✓	✓	✓	✗	✓	✓	✓	✓	No
M.5 South Cheung Chau Island Landfill	✓	✓	✓	✓	✓	✓	✓	✓	✓	Yes
M.6 Lamma Breakwater Island Landfill	✓	✓	✓	✓	?	✓	✓	✓	✓	Yes
M.7 East Tung Lung Island Landfill	✓	✓	✓	✓	✗	✓	✓	✗	✓	No
M.8 Eastern Waters Island Landfill	✓	✓	✓	✓	?	✓	✓	✓	✓	Yes
M.9 Tai Long Wan Offshore Island Landfill	✓	✓	✓	✓	?	✓	✓	✓	✓	Yes
M.10 Southeast Offshore Island Landfill	✓	✓	✓	✓	✓	✓	✓	✓	✓	Yes
M.11 Lamma North Island Landfill	✓	✓	✓	✓	?	✓	✓	✗	✓	No
M.12 Lamma South Island Landfill	✓	✓	✓	✓	✗	✓	✓	✓	✓	No
L.1 Pillar Point Valley North Landfill	✓	✓	✓	✓	✓	✓	✓	✓	✓	Yes
E.1 NENT Landfill Extension	✓	✓	✓	✓	✓	✓	?	✓	✓	Yes
E.2&3 WENT Landfill Extensions	✓	✓	✓	✓	✓	✓	?	✓	✓	Yes

- Notes:
- “✓” Denotes anticipated impacts likely to be acceptable
 - “?” Denotes anticipated impacts potentially high, requirements for mitigation would require further investigation
 - “✗” Denotes anticipated impacts are not acceptable