

Annex K

## Landscape and Visual Impact Assessment

## ANNEX K LANDSCAPE AND VISUAL IMPACT ASSESSMENT

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### K1 INTRODUCTION

K1.1 This Annex presents the Landscape and Visual Impact Assessment (LVIA) of the proposed International Theme Park and associated designated projects located at Penny's Bay in Northshore Lantau. An aerial view of the EIA project area that shall be contained in proposed development is illustrated in Figure K1.2. A summary of the Annex is included in Chapter 12 of the EIA report. The Annex is structured into assessments of the following components, the locations of which are shown on a key plan in Figure K1.1:

- (a) The Reclamation
- (b) The International Theme Park
- (c) The Penny's Bay Rail Link
- (d) The Road Works and Piers
- (e) The Water Recreation Centre with Artificial Lake
- (f) The Drainage Channel

K1.2 The cumulative impacts from these individual components are then examined to determine their overall acceptability.

K1.3 Section K2 of this Annex discusses the policy background of the development comprising the legislation and guidelines affecting the LVIA (including all relevant plans and policies) and the planning and development control framework which will have relevance to the development. Section K3 defines the study methodology, scope and parameters to be applied for the assessment of the project components. Sections K4 to K8 then address the landscape and visual impacts for each of the 9 designated projects Cho Ko Wan Link Road (part), Road P2 lands Resort Roads, namely the Penny's Bay Reclamation and Yam O Reclamation (Section K4), International Theme Park (Section K5), the Penny's Bay Rail Link (Section K6), road works and piers (Section K7), Water Recreation Centre (Section K8) and the Drainage Channel (Section K9). Section K10 summarises the cumulative impact of the various projects in total. Impacts on archaeological features and cultural heritage land uses have been incorporated in Chapter 11 of the EIA report.

### K2 POLICY BACKGROUND

#### LEGISLATION AND GUIDELINES

K2.1 The Environmental Impact Assessment Ordinance (E.I.A.O.) was introduced in 1997 and came into effect in April 1998. A Technical Memorandum on the Environmental Impact Assessment Process, which includes a set of guidelines on landscape and visual impact assessments in Annex 18 and criteria for evaluating visual and landscape impact in Annex 10, has also been produced in association with the E.I.A.O. These have been used to guide this assessment. The full list of legislation, standards and guidelines applicable to the

evaluation of the landscape and visual impacts associated with each project component is as follows:

- Environmental Impact Assessment Ordinance (Cap. 499.S.16) and the Technical Memorandum of EIA Process (EIAO TM), particularly Annexes 10 and 18.
- South West New Territories Development Strategy Review (August 1999),
- Draft North-East Lantau Outline Zoning Plan No. S/I-NEL/5 (13th August 1999);
- Hong Kong Planning Standards and Guidelines;
- WBTC No. 25/93 – Control of Visual Impact of Slopes;
- WBTC No. 18/94 – Management and Maintenance of Both Natural Vegetation and Landscape Works;
- WBTC No. 24/94 [PBLBTC No. 3/94] – Tree Preservation;
- GEO (1999) – Use of Vegetation as Surface Protection on Slopes.

K2.2 In addition, reference has been made to the Draft Recommended Outline Development Plan of North-East Lantau, currently under preparation under the auspices of the Northshore Lantau Development Feasibility Study.

#### PLANNING AND DEVELOPMENT CONTROL FRAMEWORK

K2.3 A review has been undertaken of the current planning policies, statutory land-use and landscape planning designations for the Study Area. The South West New Territories Development Strategy Review, August 1999 (SWNTDSR), sets out the recommended planning and development strategy for the South West New Territories, including North-East Lantau.

K2.4 The SWNTDSR identifies North-East Lantau as presenting potential for provision of tourism and recreational facilities. The proposed reclamation of Chok Ko Wan (Penny's Bay) is earmarked for an International Theme Park, resort, hotel and associated infrastructure supporting facilities. The hills north-east of Penny's Bay (Tai Yam Teng and Fa Peng Teng) are earmarked as a countryside conservation area. An extension to the Lantau North Country Park is proposed to extend eastwards as far as Tai Shan, which is located just west of Penny's Bay. A rail link, from Yam O to Penny's Bay will be in operation in 2005 .

K2.5 The statutory designations for North-East Lantau are shown on the Draft North-East Lantau Outline Zoning Plan No. S/I-NEL/5. On the OZP an area has been assigned for an international theme park as well as new transport infrastructure and G/IC provisions. The Civil Engineering Department has commissioned the Northshore Lantau Development Feasibility Study (NLDFS) to further study the development potential of North-East Lantau within the context of the SWNTDSR. A Recommended Outline Development Plan (RODP) has been produced in draft form which confirms the development of North-East Lantau for recreation and tourism use together with supporting infrastructure. The RODP also confirms the configuration of the proposed international Theme Park on reclamation to the south of Penny's Bay. It also defines the scale and intensity of proposed land uses in the surroundings of the Theme Park.

K2.6 Uses within the proposed developments include the project components being assessed in this report as shown in Figure K1.1; all the components conform to the OZP. A series of G/IC uses are proposed to the north of the proposed Theme Park, and longer term tourism and recreation uses to the east of Tsing Chau Tsai. Longer term port development (Container Terminals 12 and 13) is proposed to the south. The siting of designated projects covered by this EIA conforms with the planned use as shown in the Draft North-East Lantau Outline Zoning Plan No. S/I-NEL/5 and no further action under Town Planning Ordinance is required for implementation of these projects. In broad terms there is an expected lower visual quality associated with the proposed road corridors and container terminals. The North-East Lantau OZP and the Draft RODP were used as a basis to assess the expected visual quality of the area.

### K3 STUDY METHODOLOGY, SCOPE AND PARAMETERS

K3.1 Landscape and visual impacts have been assessed separately for the construction and operational phases. However, as works for all designated projects with the exception of Phase II of the Theme Park are scheduled to commence immediately after reclamation, construction impacts of the reclamation and the subsequent development in these areas are very similar and will be considered together. The impact arising from the vacant site of the Theme Park Phase II development will be assessed separately. The aim of this EIA is to provide adequate information to facilitate application of environmental permits of the designated projects.

#### METHODOLOGY FOR LANDSCAPE IMPACT ASSESSMENT

K3.2 The assessment of landscape impacts has involved the following procedures.

- *Definition of Study Area.* This has been defined as all areas within 500m distance of the project component.
- *Identification of the baseline landscape conditions and landscape character.* This has been achieved by a review of the development proposals, site visit and desk surveys.
- *Assessment of the level of sensitivity to change of the landscape resource.* This is influenced by a number of factors including whether the resource is common or rare, and whether there are any statutory or regulatory limitations/requirements relating to the resource.
- *Identification of Key Issues.* The key issues to be addressed are the determination of impacts on landscape sensitive receivers in the form of landscape elements and landscape character and the formulation of landscape mitigation measures. Elements of the construction works and operational procedures that would generate landscape impacts will be considered.
- *Identification of the magnitude of change.* Landscape impacts should be quantified to allow an assessment on the magnitude of change.

- *Assessment of landscape impacts.* Landscape impacts shall assess:
  - (a) direct impacts on specific landscape elements
  - (b) more subtle effects upon the overall pattern of landscape elements that give rise to landscape character and local and regional distinctiveness
  - (c) impacts upon acknowledged special interests or values such as areas of high land form with special landscape significance
- Identification of the significance thresholds of landscape impact

The system to be used for judging landscape impact significance shall be a product of predicted magnitude of change and the assessed sensitivity as indicated in the following Table K3.1. Impact can be classified as beneficial or adverse.

**Table K3.1 Landscape Impact Derivation and Rating**

			Sensitivity of Receiver Group		
			High	Medium	Low
Magnitude of Change	High	Severe Impact	Severe to Moderate Impact	Moderate to Slight Impact	
	Moderate	Severe to Moderate Impact	Moderate to Slight Impact	Slight to Negligible Impact	
	Low	Moderate to Slight Impact	Slight to Negligible Impact	Negligible Impact	

K3.3 The following method is used to determine the expected sensitivity and magnitude of change:

*Landscape Receivers Groups Sensitivity*

K3.4 The sensitivity rating of landscape elements is as follows:

- (a) **High Sensitivity:** a landscape element that is rare, protected or considered to be of high value within the study area or Hong Kong based on existing legislation and local baseline studies.
- (b) **Medium Sensitivity:** A landscape element that is of medium value, based on landscape baseline studies.
- (c) **Low Sensitivity:** A landscape element that is of low value, based on landscape baseline studies.

K3.5 Landscape character is defined as areas of the Study Area of common character formed by the overall pattern or combination of landscape elements. No territory-wide landscape assessment studies have as yet been undertaken within Hong Kong, therefore the sensitivity of the landscape character, shall as for landscape elements, be determined as either High,

Medium, or Low, based on study baseline conditions. Preliminary Landscape Zones were determined under the Preliminary Landscape and Visual Impact Assessment.

#### *Magnitude of Change*

K3.6 The magnitude of change for landscape elements is determined as:

- (a) High magnitude of change: High quantitative loss created by or area affected by the proposed development, or expected notable change in landscape characters.
- (b) Moderate magnitude of change: Moderate quantitative loss created by or area affected by the proposed development, or moderate change to the landscape character.
- (c) Low magnitude of change: Low quantitative loss created by or area affected by the proposed development, or negligible change to the landscape character.

#### *Identification of Potential Landscape Mitigation Measures.*

K3.7 These may take the form of adopting alternative designs or revisions to the basic engineering and architectural design to prevent and/or minimise adverse impacts; remedial measures such as colour and textural treatment of building features; and compensatory measures such as implementation of landscape design measures (e.g. tree planting, creation of new open space etc) to compensate for unavoidable adverse impacts and to attempt to generate potential beneficial long term impacts.

#### **METHODOLOGY FOR VISUAL IMPACT ASSESSMENT**

K3.8 The VIA shall consider both the construction and operation phases of the project life cycle. The methodology and scope of the VIA follows.

#### *Identification of the Visibility Contours during construction and operational Phases*

K3.9 The study area for the VIA is defined by the visibility contours of the proposed development for each of the designated projects. A series of photographic viewpoints were taken within the visual envelope to illustrate the existing visual baseline conditions and to develop photomontages for the proposed development. While the baseline studies provide a broad overview of the existing characteristics of the area, the following method is used to determine the expected severity of visual impact.

#### *Identification of Visual Sensitive Receivers (VSRs)*

K3.10 The viewpoints are selected to represent visual sensitive receiver areas that exist within the visual envelope. The sensitive receivers to be identified for this study are:

- a) Residents in residential buildings who are considered to have high sensitivity due to the permanent influence of views on them, and the greater value that views from their homes have;
- b) Users of non-residential buildings. These are considered to have lower sensitivity than residential receivers;
- c) Members of the public in public open spaces (including parks, roadways etc.). The sensitivity of this receiver group varies from walkers in Country Parks, considered to have high sensitivity as they are there to enjoy the visual amenity of the area, to drivers through Country Parks who have greater sensitivity to road conditions. Passengers within vehicles may also have high sensitivity to surrounding visual amenity.

### *Visual Magnitude of Change*

K3.11 The magnitude of change to the receiver groups is considered to be a product of:

- proximity and orientation of sensitive receivers;
- degree of change to views and ability of the visual system to accommodate change;
- value of existing views;
- availability and amenity of alternative views.
- the number of sensitive receivers; where exact numbers are unknown general reference only shall be made to this factor.

### *Assessment of Significance Thresholds of Visual Impact*

K3.12 The significance thresholds of visual impact is a product of both the sensitivity of the visual receiver group and the magnitude of change as scheduled below in Table K3.2. Impacts can be beneficial as adverse.

**Table K.3.2 Visual Impact Derivation and Rating**

		Sensitivity of Receiver Group		
		High	Medium	Low
Magnitude of Change	High	Severe Impact	Severe to Moderate Impact	Moderate to Slight Impact
	Moderate	Severe to Moderate Impact	Moderate to Slight Impact	Slight to Negligible Impact
	Low	Moderate to Slight Impact	Slight to Negligible Impact	Negligible Impact

### *Identification of Potential Visual Mitigation Measures*

K3.13 These may take the form of revisions/refinements to the engineering and architectural design to minimise potential impacts, and/or the implementation of landscape design measures (e.g.

screen tree planting, colour design of hard landscape features, etc) to alleviate adverse visual impacts and generate potentially beneficial long term visual impacts.

*Prediction of the significance of visual impacts before and after the implementation of the mitigation measures*

K3.14 By synthesising the magnitude of the various visual impacts and the sensitivity of the various VSRs it is possible to categorise the level of significance of the impacts in a logical, well-reasoned and consistent manner.

## **K4 PROPOSED RECLAMATION**

### **THE PROPOSED DEVELOPMENT**

K4.1 Reclamation shall consist of an area of approximately 280 ha which shall also include a sea wall of approximately 3.5 km length. The construction phase of the reclamation shall involve the deposition of marine sands to form new lands and the construction of the seawall. The proposed reclamation including phasing is illustrated in Figure K4.1. Reclamation shall consist of two stages. Phase I reclamation shall commence in May 2000 and the Phase II reclamation and excavation shall begin in late 2002. An area of 10 ha at Yam O will also be reclaimed for the works of public transport interchange.

K4.2 The sources of landscape and visual impacts are:

- (a) Loss of bay and coastal waters
- (b) Visual appearance of reclamation works in progress and on completion
- (c) Impact of reclamation edge on existing coast

K4.3 Cumulative impacts shall arise from associated development proposals in the Northshore Lantau area. These developments are assessed under the Northshore Lantau Development Feasibility Study EIA. The operational phase of the reclamation shall include a number of projects, of which those designated as key are considered under separate sections of this Annex.

### **LANDSCAPE BASELINE CONDITIONS**

K4.4 The baseline condition has been established by both field survey and desk survey in order to determine the landscape resources in the defined Study Area. These resources consist of the landscape elements and landscape character zones which are described below:

#### *Landscape elements*

K4.5 The landscape elements located within 500m of the proposed development are indicated on Figure K4.2 and scheduled below:



**Table K.4.1 Landscape Elements**

<i>1. Landscape Element</i>	<i>Vegetation Cover</i>
Description	
The vegetation is dominated by grassland with some shrub groups. Both vegetation types are not considered rare in Hong Kong. Woodland area is near Ngong Shuen Au and higher value is normally associated with this vegetation type.	
Quantity	
Shrub groups:	521,550m <sup>2</sup>
Grassland	1,756,427m <sup>2</sup>
Woodland	37,277m <sup>2</sup>
Sensitivity rating:	
Grassland	low
Scrub groups	medium
Woodland	high
<i>2. Landscape Element</i>	<i>Topography</i>
Description	
The topography is mainly of natural hillside and the study area contains two sections, one west of Penny's Bay and the other around Pa Tau Kwu. Disturbed topography is also present due to the old operations of the borrow areas at Chok Ko Wan Tsui and the Power Station. Natural topography is a finite resource in Hong Kong.	
Quantity	
Natural topography:	2,280,977m <sup>2</sup> (plan area)
Disturbed topography	140,457m <sup>2</sup> (plan area)
Sensitivity rating	
Natural topography	high
Disturbed topography	low
<i>3. Landscape Element</i>	<i>Stream</i>
Description	
Approximately eleven mountain streams are contained around the Pa Tau Kwu area and four on the Tai Shan slope descending eastwards into Penny's Bay. The flow status of the individual streams is unknown. These are natural elements of the landscape and are finite resources in Hong Kong.	
Quantity	
Natural stream course:	8,073m
Sensitivity rating	
Natural stream	high sensitivity
<i>4. Landscape Elements</i>	<i>Coastline</i>
Description	
Natural coastline extends throughout the Study Area and there are also man-made sections, especially on Penny's Bay. The natural coastline is typically formed by rocky coastline and it is a finite resource in Hong Kong. However there is no threshold indicating the length that could be removed.	
Quantity	
Natural coastline	4,774m
Man made coastline	2,133m

Sensitivity Rating	
Natural coastline	high
Man-made coastline	low
5. <i>Landscape Element</i>	<i>Bay and coastal waters</i>
This forms a dominant element in the landscape framework of the proposed development area.	
Quantity	5,270,493m <sup>2</sup>
Sensitive rating	moderate to high

### *Landscape character*

K4.6 The landscape character zones that have been identified within the Study Area of the LIA are scheduled below and indicated on Figure K4.3.

**Table K4.2 Landscape character zones**

1. <i>Landscape character zone</i>	<i>Pa Tau Kwu Headland</i>
Description	
The headland presents a distinctive character zone that is visually prominent, natural, and well vegetated with shrub/woodland.	
Sensitivity Rating	high
2. <i>Landscape character zone</i>	<i>Pa Tau Kwu Valley</i>
A small coastal valley area consisting of a beach, stream valley and associated shrub vegetation. A natural composition with no human intrusion.	
Sensitivity Rating:	high
3. <i>Landscape character zone</i>	<i>Fa Peng Teng and Tai Yam Teng</i>
The study area contains a part of the southern section of this extensive zone. Characterised by being upland, exposed, with a domination of grass vegetation. A natural landscape with high visual exposure to surrounding areas.	
Sensitivity Rating:	high
4. <i>Landscape character zone</i>	<i>Penny's Bay and Valley</i>
An extensive valley and bay with a strong degree of spatial enclosure. Intrusion by man has resulted in the eastern half of the bay being developed into a shipyard, power station and borrow area while the western half preserves its original natural landscape.	
Sensitivity Rating:	moderate
5. <i>Landscape character zone</i>	<i>Tai Shan and Lai Pik Shan</i>
A small area of this extensive upland character zone is located within the LIA study area. It is similar to the No. 3 character zone in most aspects.	
Sensitivity Rating:	high
6. <i>Landscape character zone</i>	<i>Sze Pak Wan and Valley</i>
A large valley zone with minimal intrusion by man. Composed of a bay and stream valleys creating a predominantly natural landscape	

Sensitivity Rating:	high

**LANDSCAPE IMPACT ASSESSMENT**

K4.7 The landscape impact assessment has been determined under the methodology as described in Section K3.2. The impact on landscape elements and landscape character are indicated on the following schedule, Table K4.3. The table includes the landscape resource (i.e. either landscape elements or landscape character zones), the source of impact and type and approximate quantity of impact, the magnitude of change, landscape sensitivity, mitigation measures and expected residual impacts. The impacts on landscape are shown in Figure K4.4.

The landscape impact of the Yam O reclamation shall result in the direct loss of 10 ha of coastal waters with a resulting moderate adverse impact. There will be a creation of a new landscape character area which shall be of relatively low value in its initial stage as reclamation. In general the impact level shall be lower in comparison to the Penny’s Bay reclamation which shall be of a much greater size.

Table K4.3 Landscape Impact Assessment

Ref.	Landscape Resource (Landscape element)	Impact Assessment	Magnitude of change	Sensitivity of Receiver Group	Mitigation measures	Residual impacts
1	Vegetation Cover	A minor loss of existing vegetation may occur arising from the reclamation affecting the coastline. This would affect grass/herb layer vegetation where the reclamation would meet the coastline. Area affected: 0.5 ha. <i>The impact is expected to be slight adverse to negligible.</i>	Low	Low	No mitigation required	Negligible residual impact expected
2	Topography	No adverse impact	-	-	-	-
3	Streams	The lower end of streams shall be affected as their existing outfall to sea shall be changed to a drainage system outfall. Two streams are expected to be affected. Length affected is in the order of 20 m in total. <i>A slight adverse impact is expected</i>	Low	High	Limit alteration of stream course to immediate connection area to drainage system. Use stone facing to construction that is visually exposed.	Negligible residual impact expected.
4	Coastline	The reclamation land edge shall cover sections of original natural coastline. A total loss of approximately 1,300m shall occur.  This length is less than the total coastline due to the existing disturbed coastline and proposed retention of natural coastline. <i>A moderate adverse impact is expected.</i>	Moderate	High	No identified mitigation	Moderate adverse residual impact expected.
5	Bay and Coastal Waters	The reclamation shall remove an area of approximately or 290 ha of existing bay and coastal waters. <i>This is a severe adverse impact.</i>	High	High	No identified mitigation	Severe adverse residual impact.

Ref.	Landscape Resource (Landscape Character Zones)	Impact Assessment	Magnitude of change	Sensitivity of Receiver Group	Mitigation measures	Residual impacts
1	Pa Tau Kwu Headland	No impact shall occur to this landscape character zone	Nil	High	N/A	None
2	Pau Tau Kwu Valley	No impact shall occur to this landscape character zone	Nil	High	N/A	None
3	Fa Peng Teng and Tai Yam Teng	No impact shall occur to this landscape character zone	Nil	High	N/A	None
4	Penny's Bay and Valley	<i>This landscape character zone shall experience a major change as the reclamation replaces all of the existing bay area and further southern coastal waters. It is expected that a new landscape character zone shall be derived which shall retain some of the characteristics of the old zone (such as spatial enclosure of the valley)</i>  <i>There shall be an adverse impact to this character zone resulting in creation of a new character zone based on the reclamation which has a lower sensitivity. This impact shall be temporary in nature. The removal of the shipyard will be beneficial.</i>	high	medium	No identified mitigation	Change of original character zone to new character zone which shall be temporarily adverse.
5	Tai Shan & Lai P'ik Shan	No impact shall occur to this landscape character zone	Nil	High	N/A	None
6	Sze Pak Wan and Valley	No impact shall occur to this landscape character zone	Nil	High	N/A	None

## VISUAL BASELINE CONDITIONS

### *Visibility Contour Plan*

- K4.8 The visibility contour plan is shown in Figure K4.5. This indicates the areas that are intervisible with the proposed development area, which is an extensive area of Hong Kong. The visibility is strongly confined to the immediate north of the proposed development due to higher topography which limits available views to the local area. The visibility however is more open and exposed to the south covering extensive areas of the Lantau Island coastal sections in the west, the islands of Peng Chau, Chau Kung To, Hei Ling Chau, Kau Yi Chau and Siu Kau Yi Chau to the south, Tsing Yi to the north-east, and Kowloon western coast with Hong Kong Island and Lamma Island to the east and southeast.
- K4.9 Sections showing particular sightlines have been identified (Figure K4.6). Sections AA and BB are illustrated on Figure K4.7, and Sections CC and DD on Figure K4.8.
- K4.10 Local topographical conditions within the defined visibility contour plan shall give rise to small local areas that will not be intervisible to the development and are indicated as visual shadow areas on the visibility contour plan. The majority of views from land-based areas shall have some extensive distances (e.g. Hong Kong Island to the proposed development is approximately 7.5km) and therefore local weather and atmospheric conditions can severely reduce visibility.

### *Visual Amenity*

- K4.11 There is a high degree of visual amenity associated with the local visual system of the proposed development area. This is created by the extensive panoramic views of what is prominent natural landscape and seascape scenery of Northshore Lantau.
- K4.12 Visual amenity is reduced in the NLH Airport Railway corridor area due to the intrusion of extensive infrastructural components into the original coastline there with associated slope cutting causing significant scarring. The visual amenity of Penny's Bay is also reduced due to the presence of a shipyard which is dilapidated to some degree and a power station with associated power lines which extend along the northern valley edge. The Chok Ko Wan Tsui area of Penny's Bay is also affected by an extensive scarring of the local landscape caused by previous borrow activities there.
- K4.13 The Tsing Ma Bridge is located between the study area and Tsing Yi Island and serves to connect the airport transport corridor. The bridge structure is a major landmark to the local visual system and Hong Kong.

### *Viewpoints*

- K4.14 A number of key viewpoints have been selected to illustrate the views within the visual system and to prepare the assessments and associated photomontages, which show an indicative representation of the proposed development. The viewpoint locations are selected to represent the general sensitive receivers areas determined within the visual envelope and a description of these follow in Table K4.4.

**Table K4.4 Viewpoints**

Viewpoints Reference	Viewpoint Description
1,2,3. Tsing Ma Bridge Crossing (Figures K4.9 & K4.10)	This series of viewpoints illustrates views available from the NLH as one travels westwards over the Tsing Ma Bridge to the study area. From viewpoint 1 the full eastern coast of the study area is available. From viewpoints 2 and 3 more detail of the study area coastline is revealed, and the distant southern portions of the coastline are gradually lost from view. This route is important as it is one of the main entry and exit corridors from and to Hong Kong International Airport where first and last impressions shall be made. The views of the study area present a high scenic quality with natural hillside, coastline and sea forming the principal components. The Tsing Ma Bridge structure is also a dominant visual element as one travels along the NLH. No views are available from the airport railway which is enclosed within the bridge structure.
4. Ting Kau (Figure K4.10)	This viewpoint is some 6km from the proposed development area. The view is picturesque and comprises the Tsing Ma Bridge which acts as a focal point together with the hillside and coastal waters around Northshore Lantau.
5. Tsing Yi (Figure K4.11)	This viewpoint is from Tsing Yi Island from a point approximately 6 km from the Northshore area. Extensive panoramic views are available from this mountain top location (approx. elevation 218mPD). The views are of good quality and dominated by natural landscape and seascape. The Tsing Ma Bridge (off photo) also provides a dominant focal point from this location.
6. Mount Davis, Hong Kong Island (Figure K4.11)	This viewpoint is located some 8km from the proposed development area at Northshore Lantau and visibility is constrained due to distance and atmospheric conditions. The island of Kai Yi Chau is clearly visible, however Lantau is less so in the distance. Scenic panoramic views are available in all directions from this elevation (269mPD).
7. Peng Chau (Figure K4.12)	This viewpoint is located approximately 2km south of the proposed development area. From this elevated vantage point an extensive area of the southern coastal area of Northshore Lantau is visible. At Penny's Bay the power station and exposed slope cutting at Chok Ko Wan Tsui detract from the quality of the scenery. Views of Tsing Ma bridge are also present.
8,9,10 Discovery Bay Ferry (Figure K4.12 & K4.13)	This viewpoint is taken from the Discovery Bay Ferry boat which travels between Central on Hong Kong Island and the Discovery Bay residential area on Lantau Island. From the ferry wide panoramics are available of the Northshore Lantau area. The views are generally scenic however the cumulative impact of the power station and slope cutting at Chok Ko Wan Tsui detract from the local quality at Penny's Bay.  The view is composed of dominant elements of hillside (with Tai Shan, Tai Yam Teng and Fa Peng Teng clearly visible), coastline and coastal waters. The headland at Pa Tau Kwu is also visually distinctive.

Viewpoints Reference	Viewpoint Description
11. Discovery Bay, Tsoi Yuen Wan (Figure K4.14)	The viewpoint is taken at the public promenade at Discovery Bay's Tsoi Yuen Wan area. Residential property in the vicinity shall also have similar views. At this location the viewer is some 3 km from the proposed developments. Existing views are composed of the local headland of Tsoi Yuen Wan, the headland of Tai Shan to Sze Pak Tsui and the Tsing Chau Tsai headland at the furthest distance. The cut slope scar at Chok Ko Wan Tsui and the Pa Tau Kwu headland are still discernible at this distance.
12. Ngong Shuen Au (Figure K4.14)	This viewpoint is located in the valley area of Ngong Shuen Au which is located north of Penny's Bay approximately 0.5km from the proposed development area. The view is composed of a collection of shipyard buildings in the foreground, Penny's Bay, and the valley slopes to the left and right which direct one's vision out to sea. The three chimneys of the power station visually intrude and contrast to the otherwise low lying man made structures here.
13. Fa Peng Teng (Figure K4.15)	Panoramic views of high amenity are available from this mountain top (273m) in all directions. Some coastal areas and sections of Penny's Bay are blocked from view.
14. Tai Shan Western Slopes (Figure K4.15)	Panoramic views are available to the east and contain the airport/Tung Chung transport corridor, the upland areas of Tai Yam Teng and Fa Peng Teng, and Penny's Bay.

#### VISUAL IMPACT ASSESSMENT OF PROPOSED RECLAMATION

K4.15 The VIA examines the expected impact of the proposed development to identified visual sensitive receivers that exist during the construction phase of the total reclamation. The assessment is carried out on a receiver area-by-area basis and the receivers are subdivided into residential, non-residential and public in external public space. Impacts are indicated with respect to the construction phase only. Eleven receiver areas have been defined (Areas A to K) as described in the Table K4.5 and expressed in terms of viewpoints in Figures K4.9 to K4.15.

K4.16 Table K4.5 shows analysis of the level of impact based on the methodology as described in Section K3.1. As can be seen, the level of mitigation for proposed development is expected to have a minimum reduction in the level of residual impact. Photomontages are presented in Figures K4.5 to K4.21 and a map of impacts shown in Figure K4.22. The sensitive visual receivers associated with the Yam O reclamation include the adjacent NLH and airport railway users who have a high sensitivity, the local hill walkers also with high sensitivity, the ferries in adjacent coastal waters with moderate sensitivity and the village area of Luk Keng Tsuen with high sensitivity. The visual impact shall be more relevant to the adjacent transport corridor and a slight to moderate adverse impact is expected. Slight adverse impact shall also occur to the other remaining receivers who are in general further from the development. This impact shall be temporary and lasting until the subsequent reclamation development.



**Table K4.5 Visual Impact Assessment of Proposed Reclamation (Phase I)**

Receiver Area	Assessment	Sensitive Receiver Groups (Sensitivity Rating)	Resulting Magnitude of Change	Expected Visual Impact	
				Construction Phase before mitigation	Residual after mitigation
<p><u>Area A</u> Northwest New Territories Coastal (see Viewpoint 4 at Figure K4.10)</p>	<p>The receiver area is located on a short section of coastline between the eastern outskirts of Sham Tseng to the western edge of Yau Kom Tau. This area contains a series of public beaches, Castle Peak Road, the Tuen Mun Road and Tai Lam Country Park. Low level residential buildings are also located along the coastline. In general the local receivers are situated 6km from the proposed development.</p> <p>Orientation is generally southwards to sea views due to the sloping nature of the local topography.</p> <p>Magnitude of change to views is not expected to occur for the Phase I reclamation. The existing views have high value and alternative views are available. The number of sensitive receivers is expected to be high.</p>	<p>Residential buildings (high sensitivity)</p> <p>Public in external public space: including (high sensitivity)</p> <p>(a) public beaches (b) Castle Peak Road and Tuen Mun Road (c) Hill trail walkers</p>	<p>Nil</p> <p>Nil</p> <p>Nil</p> <p>Nil</p>	<p>None</p> <p>None</p>	<p>None</p> <p>None</p>

Receiver Area	Assessment	Sensitive Receiver Groups (Sensitivity Rating)	Resulting Magnitude of Change	Expected Visual Impact	
				Construction Phase before mitigation	Residual after mitigation
<u>Area B</u> Tsing Yi (see Viewpoints 1 & 5 at Figures K9.9 and K4.11)	<p>The Tsing Yi area within the visual envelope is limited to the western half due to the existing topography which is elevated up to 200mPD. The residential area on Tsing Yi is therefore not intervisible and the main receivers are public in external public space and non-residential buildings. The number of sensitive receivers is considered to be low.</p> <p>Orientation is variable on the coastal reclamation area however views from the hills shall be oriented to the west and south.</p> <p>There is expected to be a slight to moderate change to views (and) the visual system may accommodate. These existing views are of high value and alternative views of similar quality are available.</p>	<p>Non residential buildings (low sensitivity)</p> <p>Public in external public space including: (a) Hill walkers (high sensitivity)</p>	Low to moderate	Slight adverse impact	Slight adverse impact
<u>Area C</u> Kowloon Western Coastal Area	<p>This receiver area is located approximately 1 km from the proposed development, making it one of the longer range areas in the visual envelope. The coastal buildings are generally oriented to the west and seawards. Magnitude of change of views is expected to be insignificant-to-none due to the extensive distances involved. Existing sea views are of higher value to coastal areas. Alternative views are available and a high number of receivers are located here.</p>	<p>Residential buildings (high sensitivity)</p> <p>Non-residential buildings (low sensitivity)</p> <p>Public in external Public space (high sensitivity)</p>	Nil	None	None
				None	None
				None	None
				None	None

Receiver Area	Assessment	Sensitive Receiver Groups (Sensitivity Rating)	Resulting Magnitude of Change	Expected Visual Impact	
				Construction Phase before mitigation	Residual after mitigation
<p><u>Area D</u> Hong Kong Island (see Viewpoint 6 at Figure K4.11)</p>	<p>The receiver area is located approximately 7 to 8 km from the proposed development and is composed of densely developed coastline area with the hill backdrop of Mount Davis (269mPD) and Victoria Peak (552mPD). Orientation is generally to the north and west due to the local topography. Existing visual obstructions by Green Island, shipping and atmospheric conditions due to weather and pollution may significantly reduce visibility. Existing views are of high value and alternative views are available. The number of sensitive receivers on the coastal zone (e.g. Kennedy Town) is high in comparison to the hill area.</p>	<p>Residential sensitive receivers: (high sensitivity) Non-residential receivers: (low sensitivity) Public in external public space including: (high sensitivity) (a) Mount Davis and Victoria Peak</p>	<p>Low  Low  Low</p>	<p>Slight adverse impact Negligible impact Slight adverse impact</p>	<p>Slight adverse impact Negligible impact Slight adverse impact</p>
<p><u>Area E</u> Lamma Island</p>	<p>The receiver area includes the northern coastline section of Lamma Island which is located approximately 10km from the proposed development. Orientation of views is in general to the north and north west. The magnitude of change to views is expected to be insignificant due to the extensive distance from the proposed development.  Existing views are of good value and there is availability of and amenity in alternative views. The area is not urbanised and a lower number of sensitive receivers is expected.</p>	<p>Residential buildings: (high sensitivity) including: (a) Pak Kok San Tsuen Non Residential buildings (low sensitivity) Public in external public space (high sensitivity)</p>	<p>Nil  Nil  Nil</p>	<p>None  None  None</p>	<p>None  None  None</p>

Receiver Area	Assessment	Sensitive Receiver Groups (Sensitivity Rating)	Resulting Magnitude of Change	Expected Visual Impact	
				Construction Phase before mitigation	Residual after mitigation
Area F Hei Ling Chau and Chau Kung To	<p>These islands are located approximately 5 to 6 km from the proposed development and are generally of lower inhabitation levels compared to other outlying islands. Orientation shall be to the north where Peng Chau shall obstruct views to the development area. A low to moderate change in views is expected.</p> <p>Alternative views of high amenity value are available.</p> <p>The number of sensitive receivers is expected to be low</p>	<p>Residential sensitive receivers: (high sensitivity)</p> <p>Public in external public space (high sensitivity)</p>	<p>Low</p> <p>Low</p>	<p>Slight adverse impact</p> <p>Slight adverse impact</p>	<p>Slight adverse impact</p> <p>Slight adverse impact</p>
Area G Peng Chau Island (see Viewpoint 7 at Figure K4.12)	<p>The island is located approximately 2 to 3 km from the proposed development. The island topography shall screen the majority of the urban area from views to the Northshore Lantau area. Orientation is northwards within the intervisible areas due to local topography. A high magnitude of change shall occur. Value of existing views are good although the existing borrow area at Chok Ko Wan Tsui and the Penny's Bay power station detract from the general visual amenity. Alternative views of high amenity are available at hill top locations. The number of receivers is expected to be low.</p>	<p>Residential sensitive receivers (high sensitivity)</p> <p>Non-residential sensitive receivers: (low sensitivity)</p> <p>Public in external public space (high sensitivity)</p>	<p>High</p> <p>High</p> <p>High</p>	<p>Severe adverse impact</p> <p>Slight adverse impact</p> <p>Severe adverse impact</p>	<p>Severe adverse impact</p> <p>Slight adverse impact</p> <p>Severe adverse impact</p>

Receiver Area	Assessment	Sensitive Receiver Groups (Sensitivity Rating)	Resulting Magnitude of Change	Expected Visual Impact	
				Construction Phase before mitigation	Residual after mitigation
Area H Chi Ma Wan Peninsula	This area of south eastern Lantau is located approximately 9km from the proposed development area and consists primarily of Country Park lands. Orientation is generally north to north east. The magnitude of change to views is expected to be insignificant. Value of existing views are high and alternative views of high amenity are also available. The number of sensitive receivers is expected to be low.	Residential building (high sensitivity) Public in external public space (high sensitivity)	Nil Nil	None None	None None
Area I Discovery Bay Area (see Viewpoint 11 at Figure K4.14)	This coastal area of Lantau is between 1km to 5km from the proposed development. It consists of one of the largest residential communities in close proximity to the proposed development with approximately 12,000 people. The area also consists of open hillside and the Trappist Haven monastery at Tai Shui Hang. Orientation is generally to the east due to the local topography. The magnitude of change to views is expected to be moderate to high. Value of existing views is high and alternative views of high amenity are also available.	Residential building including: (a) Discovery Bay (b) Tai Shui Hang Non-residential buildings (low sensitivity) Public in external public space (high sensitivity)	Moderate to high Moderate High High	Moderate to severe adverse impact Moderate adverse impact Slight adverse impact Moderate to severe adverse impact	Moderate to severe adverse impact Moderate adverse impact Slight adverse impact Moderate to severe adverse impact

Receiver Area	Assessment	Sensitive Receiver Groups (Sensitivity Rating)	Resulting Magnitude of Change	Expected Visual Impact	
				Construction Phase before mitigation	Residual after mitigation
<p><u>Area J</u> Penny's Bay and Pa Tau Kwu (see Viewpoints 12, 13 &amp; 14 at Figures K4.14 and K4.15)</p>	<p>This area is the closest land area to the proposed development and ranges in proximity from 0m to 3km. The number of existing receivers are low and restricted to power station and hill walkers as well as isolated village area at Fa Peng Teng.</p> <p>Orientation within the receiver area is variable. A high magnitude of change shall occur to existing sensitive receivers. The value of existing views are high except for the local Penny's Bay area where there is an existing cumulative visual impact from , power station and borrow area. Alternative views exist from the elevated hill sides. The number of existing sensitive receivers is low and formed primarily by non-residential receivers.</p>	<p>Non-residential buildings (low sensitivity) (a) power station  Existing public in external public space: high (a) Hill Walkers (high sensitivity)</p>	<p>High  High</p>	<p>Slight adverse impact  Severe adverse impact</p>	<p>Slight adverse impact  Severe adverse impact</p>
<p><u>Area K</u> Ma Wan Island (see Viewpoint 2 at Figure K4.9)</p>	<p>This receiver area is located approximately 3km from the proposed development. Orientation is variable. Magnitude of change to views is low. Existing views are of high value and there are alternative views. There is a high number of sensitive receivers associated with the NLH which crosses through Ma Wan. West-bound traffic (to Tung Chung and the airport) shall have views to the proposed development.</p>	<p>Public in external public space including:  Passengers travelling along NLH (high sensitivity)</p>	<p>Low</p>	<p>Slight adverse impact</p>	<p>Slight adverse impact</p>

**Table K4.6 Visual Impact Assessment of Proposed Reclamation (Phase II)**

Receiver Area	Assessment	Sensitive Receiver Groups (Sensitivity Rating)	Resulting Magnitude of Change	Expected Visual Impact	
				Construction Phase before mitigation	Residual after mitigation
<p><u>Area A</u> Northwest Territories Coastal (see Viewpoint 4 at Figure K4.10)</p>	<p>The receiver area is located on a short section of coastline between the eastern outskirts of Sham Tseng to the western edge Yau Kom Tau. This area contains a series of public beaches, the Castle Peak road, the Tuen Mun Road and Tai Lam Country Park. Low level residential buildings are also located along the coastline. In general the local receivers are situated 6km from the proposed development.</p>	<p>Residential buildings (high sensitivity)  Public in external public space: including (high sensitivity) (a) public beaches (b) Castle Peak Road and Tuen Mun Road (c) Hill trail walkers</p>	<p>Low</p>	<p>Slight adverse impacts</p>	<p>Slight adverse impacts</p>
	<p>Orientation is generally southwards to sea views due to the sloping nature of the local topography.</p>		<p>Low</p>	<p>Moderate adverse impacts</p>	<p>Moderate adverse impacts</p>
	<p>Magnitude of change to views is expected to be very low and the visual system shall be able to accommodate it. Existing views have a high value and alternative views are available. The number of sensitive receivers is expected to be high.</p>		<p>Low</p>	<p>Slight adverse impacts</p>	<p>Slight adverse impacts</p>

Receiver Area	Assessment	Sensitive Receiver Groups (Sensitivity Rating)	Resulting Magnitude of Change	Expected Visual Impact		
				Construction Phase before mitigation	Residual after mitigation	Residual after mitigation
<p><u>Area B</u> Tsing Yi (see Viewpoints 1 &amp; 5 at Figures K4.9 and K4.11)</p>	<p>The Tsing Yi area within the visual envelope is limited to the western half due to the existing topography which is elevated up to 200mPD. The residential area on Tsing Yi is therefore not intervisible and the main receivers are public in external public space and non-residential buildings.</p> <p>Orientation is variable on the coastal reclamation area, however views from the hills shall be orientated to the west and south.</p> <p>There is expected to be a slight change to views and the visual system may accommodate this. Existing views are of high value and alternative views of similar quality are available.</p>	<p>Non residential buildings (low sensitivity)</p> <p>Public in external public space including: (a) Hill trail walkers (high sensitivity)</p>	<p>Low</p> <p>Low to moderate</p>	<p>Negligible impact</p> <p>Moderate adverse impact</p>	<p>Negligible impact</p> <p>Moderate adverse impact</p>	<p>Negligible impact</p> <p>Moderate adverse impact</p>
<p><u>Area C</u> Kowloon Western Coastal Area</p>	<p>This receiver area is located approximately 11km from the proposed development, making it one of the longer range areas in the visual envelope. The coastal buildings are generally oriented to the west and seawards. Magnitude of change of views is expected to be insignificant to none due to the extensive distances involved. Existing sea views are of higher value to coastal areas. Alternative views are available and a high number of receivers are located here.</p>	<p>Residential buildings (high sensitivity)</p> <p>Non-residential buildings (low sensitivity)</p> <p>Public in external Public space (high sensitivity)</p>	<p>Nil</p> <p>Nil</p> <p>Nil</p>	<p>None</p> <p>None</p> <p>None</p>	<p>None</p> <p>None</p> <p>None</p>	<p>None</p> <p>None</p> <p>None</p>



Receiver Area	Assessment	Sensitive Receiver Groups (Sensitivity Rating)	Resulting Magnitude of Change	Expected Visual Impact	
				Construction Phase before mitigation	Residual after mitigation
<u>Area D</u> Hong Kong Island (see Viewpoint 6 at Figure K4.11)	The receiver area is located approximately 7 to 8 km from the proposed development and is composed of densely developed coastline area with the hill backdrop of Mount Davis (269mPD) and Victoria Peak (552mPD). Orientation is generally to the north and west due to the local topography. Existing visual obstructions by Green Island, buildings, shipping and atmospheric conditions due to weather and pollution may significantly reduce visibility. Existing views are of high value and alternative views are available. The number of sensitive receivers on the coastal zone (e.g. Kennedy Town and Pok Fu Lam) is high in comparison to the hill area.	Residential sensitive receivers: (high sensitivity) Non-residential receivers: (low sensitivity) Public in external public space including: (high sensitivity) (a) Mount Davis and Victoria Peak	Nil Nil Nil	Slight adverse impact Negligible impact Slight adverse impact	Slight adverse impact Negligible impact Slight adverse impact
<u>Area E</u> Lamma Island	The receiver area includes the northern coastline section of Lamma Island which is located approximately 10km from the proposed development. Orientation of views is in general to the north and north west. The magnitude of change to views is expected to be insignificant due to the extensive distance from the proposed development.  Existing views are of good value and there is availability of and amenity in alternative views. The area is not urbanised and a lower number of sensitive receivers is expected.	Residential buildings: (high sensitivity) including: (a) Pak Kok San Tsuen Non Residential buildings (low sensitivity) Public in external public space (high sensitivity)	Nil	None None None	None None None

Receiver Area	Assessment	Sensitive Receiver Groups (Sensitivity Rating)	Resulting Magnitude of Change	Expected Visual Impact	
				Construction Phase before mitigation	Residual after mitigation
<p><u>Area F</u> Hei Ling Chau and Chau Kung To</p>	<p>These islands are located approximately 5 to 6 km from the proposed development and are generally of lower inhabitation levels compared to other outlying islands. Orientation shall be to the north where Peng Chau shall obstruct views to the development area. A low to moderate change in views is expected.</p> <p>Alternative views of high amenity value are available.</p> <p>The number of sensitive receivers is expected to be low. Only Chau Kung To is expected to be intervisible with the Phase II reclamation area and the change to views is expected to be low.</p>	<p>Residential sensitive receivers: (high sensitivity)</p> <p>Public in external public space (high sensitivity)</p>	<p>Low</p> <p>Low</p>	<p>Slight adverse impact</p> <p>Slight adverse impact</p>	<p>Slight adverse impact</p> <p>Slight adverse impact</p>
<p><u>Area G</u> Peng Chau Island (see Viewpoint 7 at Figure K4.12)</p>	<p>The island is located approximately 2 to 3 km from the proposed development. The island topography shall screen the majority of the urban area from views to the Northshore Lantau area. Orientation is northwards within the intervisible areas due to local topography. The Phase I reclamation shall have significantly changed the available views to the Penny's Bay area and the general visual quality shall be lower due to the reclamation, borrow area and power station. Alternative views of high amenity are available at hill top locations. The number of receivers is expected to be low.</p>	<p>Residential sensitive receivers (high sensitivity)</p> <p>Non-residential sensitive receivers: (low sensitivity)</p> <p>Public in external public space (high sensitivity)</p>	<p>Moderate</p> <p>Moderate</p> <p>Moderate</p>	<p>Moderate impact</p> <p>Slight adverse impact</p> <p>Moderate impact</p>	<p>adverse impact</p> <p>Slight adverse impact</p> <p>adverse impact</p>

Receiver Area	Assessment	Sensitive Receiver Groups (Sensitivity Rating)	Resulting Magnitude of Change	Expected Visual Impact	
				Construction Phase before mitigation	Residual after mitigation
<u>Area H</u> Chi Ma Wan Peninsula	This area of south eastern Lantau is located approximately 9km from the proposed development area and consists primarily of Country Park lands. Orientation is generally north to north east. The magnitude of change to views is expected to be insignificant. Value of existing views are high and alternative views of high amenity are also available. The number of sensitive receivers is expected to be low.	Residential building (high sensitivity)  Public in external public space (high sensitivity)	Nil  Nil	None  None	None  None
<u>Area I</u> Discovery Bay Area (see Viewpoint 11 at Figure K4.14)	This coastal area of Lantau is between 1km to 5km from the proposed development. It consists of one of the largest residential communities in close proximity to the proposed development with approximately 12,000 people. The area also consists of open hillside and the Trappist Haven monastery at Tai Shui Hang. Orientation is generally to the east due to the local topography. The magnitude of change to views to be low to insignificant as Phase I reclamation shall screen the Phase II area or form the baseline for views. Value of existing views is high and alternative views of high amenity are also available.	Residential building (high sensitivity) (a) Discovery Bay area (b) Tai Shui Hang area  Non-residential buildings (low sensitivity)  Public in external public space (high sensitivity)	Low  Low  Low  Low	Slight adverse impact Slight adverse impact Negligible impact  Slight adverse impact	Slight adverse impact Slight adverse impact Negligible impact  Slight adverse impact

Receiver Area	Assessment	Sensitive Receiver Groups (Sensitivity Rating)	Resulting Magnitude of Change	Expected Visual Impact	
				Construction Phase before mitigation	Residual after mitigation
Area J Penny's Bay and Pa Tau Kwu (see Viewpoints 12, 13 & 14 at Figure K4.14 and K4.15)	<p>This area is the closest land area to the proposed development and ranges in proximity from 0m to 3km. The number of existing receivers are low and restricted to the power station and hill walkers as well as isolated village areas at Fa Peng Teng.</p> <p>Orientation within the receiver area is variable. A moderate magnitude of change shall occur to sensitive receivers. The value of existing views shall change from a lower value after completion of Phase I to a higher value after completion of the Theme Park. Visual impact will also be improved due to the removal of the ship yard and replacement by the Theme Park. Alternative views exist from the elevated hill sides. The number of existing sensitive receivers is low and formed primarily by non-residential receivers.</p>	<p>Non-residential buildings (low sensitivity)</p> <p>(a) power station</p> <p>Future non-residential buildings: (a) Theme Park Phase I buildings (high sensitivity)</p> <p>Existing public in external public space: e.g. (high sensitivity)</p> <p>(a) Hill Walkers (high sensitivity)</p>	<p>Nil</p> <p>Moderate</p> <p>High</p>	<p>None</p> <p>Moderate adverse impact</p> <p>Severe adverse impact</p>	<p>None</p> <p>Negligible to slight adverse impact</p> <p>Severe adverse impact</p>

Receiver Area	Assessment	Sensitive Receiver Groups (Sensitivity Rating)	Resulting Magnitude of Change	Expected Visual Impact	
				Construction Phase before mitigation	Residual after mitigation
		Future public in external public space: (a) Theme Park Phase I users (high sensitivity) (b) Road and Rail users (medium sensitivity)	High  Low	Severe adverse impact  Slight to moderate adverse impact	Residual after mitigation  Negligible to slight adverse impact  Negligible if any impact
Area K Ma Wan Island (see Viewpoint 2 at Figure K9.9)	This receiver area is located approximately 3km from the proposed development. Orientation is variable. Magnitude of change to views is low. Existing views are of high value and there are alternative views. There is a high number of sensitive receivers associated with the NLH which crosses through Ma Wan. West-bound traffic (to Tung Chung and the airport) shall have views to the proposed development.	Public in external public space including: (a) NLH (high sensitivity)	Low	Slight adverse impact	Slight adverse impact

### MITIGATION MEASURES

- K4.17 The mitigation measures determined for the reclamation project are described and an implementation schedule is presented in Table K4.7.
- K4.18 The reclamation proposed already includes the retention of natural coastline edge along the west side of Penny's Bay within the proposed drainage channel. Connection of existing streams to drainage systems elsewhere should be undertaken with minimum alteration of the streamcourse. Visually exposed structures associated with the connection should be stone faced to reflect the rural character of the local area. Temporary landscape treatment such as hydroseeding should be recommended for reclaimed sites if the lapse time between completion of reclamation and the subsequent development is one year or above.

### RESIDUAL IMPACT

- K4.19 The major residual landscape impact associated with the proposed reclamation development is the loss of bay and coastal waters. This is expected to be a severe adverse impact as this landscape element is a natural and finite resource. The Yam O Reclamation residual impact on its own however shall be less due to size when compared to Penny's Bay. Similarly, the loss of natural coastline is considered to be severe adverse. There is no established threshold determining the maximum amount of coastal waters that may be removed in Hong Kong, though the issue is of public concern as noted in the recent harbour reclamation proposals.
- K4.20 The landscape character of the area shall also change and in particular the Penny's Bay and Valley zone shall change into a new character type with an expected lower sensitivity value. This shall contrast to the present zone which is considered to have a moderate sensitivity. There will therefore be a high residual impact by loss in landscape character for the duration of the new character zone. There is less significance with the Yam O reclamation as it is of a smaller size when compared to Penny's Bay.
- K4.21 Residual visual impact shall also occur as the wide extent of reclamation shall be exposed to views from sensitive receivers in Tsing Yi, Peng Chau, Discovery Bay and the local Northshore area around the reclamation. This impact shall be derived from the replacement of bay and coastal waters, which have a high visual value, by reclamation which at the initial stages (prior to further development), shall have a lower visual value.

### ACCEPTABILITY OF IMPACT

- K4.22 In accordance with Annex 10 of the Technical Memorandum of the E.I.A.O. the impact is considered acceptable with mitigation.

**Table K4.7 Implementation Schedule of Mitigation Proposals for the Reclamation**

Mitigation Proposals	Funding	Implementation Agent	Maintenance Dept/Agent	Management Dept.	Implementation Year
Connection of existing streams to drainage systems should be undertaken with minimal alteration of the stream course. Visually exposed structures associated with the connection should be stone faced to reflect the rural character of the area	CED	CED/DSD	DSD	DSD	2001/2
Temporary hydroseeding along surcharged reclamation	CED	CED	CED	CED	2002

## **K5 LANDSCAPE AND VISUAL IMPACT ASSESSMENT OF THE PROPOSED THEME PARK**

### **STUDY METHODOLOGY, SCOPE AND PARAMETERS**

K.5.1 The study methodology, scope and parameters will be as for Section K3 above except for the following:

- The study area for the LIA is defined as all areas within a 500m distance from the proposed development.
- The landscape and visual impact assessment will consider the construction phase and operation phase of the proposed Theme Park.
- The study area for the visual impact assessment is the defined visibility contour in Figure K5.10.

### **THE PROPOSED DEVELOPMENT**

K.5.2 A description of the proposed Theme Park follows, and should be read in conjunction with the Plan shown in Figure K5.1 and the overview of the Theme Park as shown in Figure K5.2. Phasing of the proposed development is shown in Figure K5.3.

K.5.3 The hotels are located along the bay and act as a visual buffer for views from Peng Chau Island, Discovery Bay, and other areas to the south of the Penny's Bay Development Area, including current ferry routes. The OZP allows for a maximum height of 40 metres in this district. The development for the district is envisioned as five- to seven-storey themed buildings (20 to 35 metres high) with architectural elements up to the maximum height limit. The plot ratio is limited to 1.5 in the OZP. The low-density "themed" hotels are envisioned to have lushly landscaped grounds surrounding each hotel, similar to the Walt Disney World Resort. The colors of the hotels façade and roof will be consistent with the hotel themes.

K.5.4 The Theme Park is located north of the hotels and surrounded by 5 to 9 metre high landscaped berms. It is expected that the trees planted on such berms will average a height of 5 to 10 metres at maturity and screen views into the Theme Parks from the surrounding resort roads. Also, the hotels buffer views into the Theme Park district from the bay. The OZP allows for a maximum height of 100 metres in the Theme Park district with a maximum plot ratio of 1.0. The majority of the buildings and attractions in the Theme Park, however, will be between 30 to 60 metres and icons of approximately 70 metres high. Each Theme Park will have an overall theme with sub-themes for each land area within the Theme Park. The Magic Kingdom for example includes Adventureland, Fantasyland, Tomorrowland, and Frontierland. Usually there are icons or landmark structures in each Theme Park that symbolize the place and will be higher than the surrounding buildings. For example, the Phase I of Hong Kong Disneyland will be a Magic Kingdom Theme Park similar to Anaheim, Orlando, Paris and Tokyo. Each of the parks has a castle ranging in height from 23 to 59 metres high from ground level as the primary icon. In addition, certain lands within the parks have their own icons such as the Matterhorn at 45 metres, Splash Mountain at 27 metres and Space Mountain at 36 metres (as measured in Disneyland in Anaheim).



K5.5 The theme for the Phase II Hong Kong Disneyland Theme Park has not yet been chosen. However, using other Disney Theme Parks as an example the tallest features as shown in Figures K5.4 and K5.5 are as follows:

1)	Animal Kingdom – Tree of Life	46 meters
2)	EPCOT – Spaceship Earth	54 meters
3)	Disney MGM – Tower of Terror	60 meters
4)	Tokyo Disney Seas – Volcano	60 meters
5)	Disney California Adventure – Space Shot	61 meters

K5.6 Icons similar to those mentioned above could be anticipated in the Phase II Theme Park. In order to emphasize the importance of the Theme Park icons, it is not anticipated that one individual Theme Park would have more than a few tall visual icons. Due to the maximum plot ratio, design requirements for open space, and the need to maintain a clear icon hierarchy, few structures over 50 metres tall are anticipated in both phases of the Theme Park. Figure K5.6 shows the concept plan of development heights.

K5.7 The RD&E is located in the centre of the Theme Park and runs in a north/south orientation from the Ferry Pier to the Public Transport Interchange (PTI). It is located in the Theme Park district, generally behind the hotels. Although the OZP allows for a maximum height of 100 metres in the retail, dining and entertainment (RD&E) area, most buildings will be one, two or three stories tall with architectural elements not significantly taller than the surrounding buildings. Similar to the Theme Park district, icons in the RD&E at selected locations will be limited.

K5.8 G/IC facilities are surrounded on the south by the Penny's Bay Rail Line and on the north by the Frontage Road (Road P2). The facilities located in this area are the utility yards, fire station, police station, car park, PTI and coach parking. Adjacent to the road and surrounding the area are landscaped berms ranging in height from 5 to 9 metres. It is expected that the trees planted on the berm will average a height of 5 to 10 metres at maturity and will screen views from the Theme Park into the GIC area from the surrounding roads. The OZP allows for a maximum height of 15 metres in the GIC area. All structures will be within the prescribed height limits.

K5.9 In order to maintain a high quality environment at the Hong Kong Disneyland resort, utilities and related infrastructures will be hidden from view when possible. Water, sewer, electricity, and gas utility lines will be installed underground with service and access areas hidden from public view. Public access to service areas in which storage and waste areas would be located would not be permitted. All roads would be landscaped with mature trees in either medians, parkways or on berms to ensure a high quality environment to the resort guest. Lighting and signage programmes in all public areas will be consistent and complementary to both the architecture and landscape of the development.

K5.10 The construction phase of the development will begin in 2002 and be completed in 2005. The operation phase will commence in 2005. The construction phase will be located on the formed reclamation which is the subject of assessment in Section K4 of this Chapter.

K5.11 The sources of visual impacts arising from the proposed development are:

- (a) Visual appearance of the construction site and construction activities
- (b) Visual appearance of operation phase

K5.12 The sources of landscape impact are:

- (a) Further alteration of the landscape character zone in which the development is occurring, given that the character zone has already been changed by the reclamation.

#### LANDSCAPE BASELINE CONDITIONS

K5.13 The baseline condition has been established by both field survey and desk survey in order to determine the landscape resources in the defined study area.

K5.14 These resources consist of the landscape elements and landscape character zones which are described below.

#### *Landscape Elements*

K5.15 The landscape elements located within 500m of the proposed development are indicated on Figure K5.7 and described in Table K5.1.

**Table K5.1 Landscape Elements**

<i>1. Landscape Element</i>	<i>Vegetation Cover</i>
Description	
The vegetation is dominated by grassland with some shrubs groups. Both vegetation types are not considered rare in Hong Kong	
Quantity	
Shrub groups	230,854m <sup>2</sup>
Grassland	949,636m <sup>2</sup>
Sensitivity rating:	
Grassland	low
Shrub groups	medium
<i>2. Landscape Element</i>	<i>Topography</i>
Description	
The topography is mainly of natural hillside and the study area contains two sections, one west of Penny's Bay and the other around Pa Tau Kwu. Disturbed topography is also present due to the old operations of the borrow areas at Chok Ko Wan Tsui and the Power Station. Natural topography is a finite resource in Hong Kong.	
Quantity	
Natural topography:	1,180,490 (plan area)
Disturbed topography	53,304(plan area)
Sensitivity rating	
Natural topography	high
Disturbed topography	low

3.	<i>Landscape Element</i>	<i>Stream</i>
Approximately seven mountain streams are contained around the Pa Tau Kwu area and four on the Tai Shan slope descending eastwards into Penny's Bay. The flow status of the individual streams is unknown. These are natural elements of the landscape and are a finite resource in Hong Kong.		
Quantity		
Natural stream course:		3,364m
Sensitivity rating		
Natural stream		high sensitivity
4.	<i>Landscape Elements</i>	<i>Coastline</i>
Description		
Natural coastline extends throughout the study and there are also man-made sections, especially on Penny's Bay. The natural coastline is typically formed by rocky coastline and is a finite resource in Hong Kong. However there is no threshold indicating the length that could be removed.		
Quantity		
Natural coastline		3,610m
Man made coastline		4,142m
Sensitivity rating:		
Natural coastline		high
Man-made coastline		low
5.	<i>Landscape Element</i>	<i>Bay and coastal waters</i>
This forms a dominant element in the landscape framework of the proposed development area.		
Quantity		
		2,447,477m <sup>2</sup>
Sensitivity rating		moderate to high
6.	<i>Landscape Element</i>	<i>Reclamation</i>
Description		
This will be a future element within the landscape system when the Theme Park construction commences. The reclamation is expected to be a large flat platform formed of marine sands with low visual and landscape value. A new landscape character area is created.		
Quantity		
		290 ha
Sensitivity rating		low

### *Landscape Character*

K5.16 The landscape character zones that have been identified within the Study Area of the LIA are described in Table K5.2 and indicated on Figure K5.8.

**Table K5.2 Landscape Character Zones**

<i>1. Landscape character zone</i>	<i>Pa Tau Kwu Headland</i>
Description	
The headland presents a distinctive character zone that is visually prominent, natural, and well vegetated with shrub/woodland.	
Sensitivity rating:	high
<i>2. Landscape character zone</i>	<i>Pa Tau Kwu Valley</i>
A small coastal valley area consisting of a beach, stream valley and associated shrub vegetation. A natural composition with no intrusion by man.	
Sensitivity rating:	high
<i>3. Landscape character zone</i>	<i>Fa Peng Tong and Tai Yam Teng</i>
The study area contains a part of the southern section of this extensive zone. Characterised by being upland, exposed with a domination of grass vegetation. A natural landscape with high visual exposure to surrounding area.	
Sensitivity rating:	high
<i>4. Landscape character zone</i>	<i>New Reclamation, Valley and Coastal Area</i>
This is expected to be a new character zone formed by the reclamation. It will be characterised by the same spatial enclosure of the Penny's Bay area. The bay and coastal waters will now be replaced by marine sands forming a new uniform landscape for future development purposes.	
Sensitivity rating:	low
<i>5. Landscape character zone</i>	<i>Tai Shan and Lai Pik Shan</i>
A small area of this extensive upland character zone is located within the L.I.A. study area. It is similar to the No. 3 character zone in most aspects.	
Sensitivity rating:	high
<i>6. Landscape character zone</i>	<i>Sze Pak Wan and Valley</i>
A large valley zone with minimal intrusion by man. Composed of a bay and stream valleys creating a predominantly natural landscape.	
Sensitivity rating:	high

#### LANDSCAPE IMPACT ASSESSMENT

K5.17 The landscape impact assessment has been determined under the methodology as described in Sections K3.2 through K3.7. As the landscape impacts during the construction phase will be similar to those as assessed in Section K4 for the reclamation, this phase is not separately assessed here. The potential impact on both landscape elements and landscape character as a result of the operation phase of the Theme Park is scheduled in Table K5.3 and shown on Figure K5.9.

K5.18 The table includes the landscape resource (i.e. landscape elements and landscape character zones), the source of impact and type of impact, the magnitude of change, landscape sensitivity, mitigation measures and residual impacts.

**Table K5.3 Landscape Impact Assessment**

Ref.	Landscape Resource (Landscape elements)	Impact Assessment	Magnitude of change	Sensitivity of Receiver Group	Mitigation measures	Residual impacts
1	Vegetation cover	The Theme Park development will be based on the reclamation and shall not affect hillside areas containing existing vegetation. <i>Slight beneficial impact due to additional planting on reclamation.</i>	Low	Woodland (High sensitivity) Shrub (Moderate sensitivity) Grass (Low sensitivity)	Planting at temporary and permanent berms	Slight beneficial impact
2	Topography	Natural topography will not be affected. Disturbed topography at Chok Ko Wan Tsui borrow area will be developed. <i>No impact.</i>	Nil	Disturbed topography (low)	N/A	None
3	Streams	The Theme Park shall be based on existing reclamation and shall not affect streams on adjacent hillside. <i>No impact.</i>	N/A	N/A	N/A	None
4	Coastline	The Theme Park development shall be reclamation based and has no direct impact on coastline. <i>No impact</i>	N/A	N/A	N/A	None
5	Bay and Coastal Waters	The Theme Park shall be developed on existing reclamation and shall not impact on the bay and coastline waters. <i>No impact</i>	N/A	N/A	N/A	None

Ref.	Landscape Resource (Landscape elements)	Impact Assessment	Magnitude of change	Sensitivity of Receiver Group	Mitigation measures	Residual impacts
6	Reclamation	The Theme Park shall be developed over the new reclamation. However the value of the undeveloped reclamation as a landscape element is low.  <i>A negligible impact is expected.</i>	Low	Low	No mitigation required	Negligible impact

Table K5.3 Landscape Impact Assessment (cont'd)

Ref.	Landscape Resource (Landscape Character)	Impact Assessment	Magnitude of change	Sensitivity of Receiver Group	Mitigation measures	Residual impacts
1.	Pa Tau Kwu Headland	There shall be no impact on this character zone by the Theme Park development.  <i>No impact</i>	None	High	N/A	None
2.	Pai Tau Kwu Valley	There shall be no impact on this character zone by the Theme Park development.  <i>No impact</i>	None	High	N/A	None
3.	Fa Peng Teng & Tai Yam	Fa Peng Teng and Tai Yam Teng character zone shall have no impact from the Theme Park development.  <i>No impact.</i>	None	High	N/A	None

Ref.	Landscape Resource (Landscape Character)	Impact Assessment	Magnitude of change	Sensitivity of Receiver Group	Mitigation measures	Residual impacts
4.	New Reclamation Valley and Coastal Area	This existing character zone has a low sensitivity value as it is largely formed by new reclamation. The development of the Theme Park shall contribute to adding a finished landscape on to the reclamation. It shall introduce on new character to the area and in association with the other facilities planned for the reclamation it shall improve the overall value. <i>A beneficial impact is expected on this character zone</i>	High	Low	Creation of new landscape character zone of high value.	Beneficial residual impact.
Ref.	Landscape Resource (Landscape Character)	Impact Assessment	Magnitude of change	Sensitivity of Receiver Group	Mitigation measures	Residual impacts
5.	Tai Shan and Lai Pik Shan	There shall be no impact on this character zone from the Theme Park development.	None	High	N/A	None
6.	Sze Pak Wan and Valley	<i>No impact</i> There shall be no impact on this character zone, from the Theme Park development. <i>No impact</i>	None	High	N/A	None

## VISUAL BASELINE CONDITIONS

K5.19 The visual baseline conditions at the commencement of the construction phase of the Theme Park will vary due to the initial development of the reclamation. The main changes to the original baseline conditions (presented in Section K4.2 above) are described below.

### *Visibility Contour Plan*

K5.20 The visibility contour plan is similar to the reclamation visibility contour plan and the associated visual contours are presented in Figure K5.10. Figure K5.11 shows details of the visibility contour plan, and Figure K5.12 illustrates sections AA, BB and CC.

### *Visual Amenity*

K5.21 The visual amenity around Penny's Bay and the local coastal area is affected by reclamation in that its expected value shall be reduced as there will be a replacement of existing waters by the reclamation.

### *Viewpoints*

K5.22 A series of key viewpoints were used to illustrate the baseline visual system (see Table K5.4 below). As this baseline condition will include the reclamation, the viewpoints are represented by the photo montages presented in Section K4 (Figures K4.13 to K4.16) The expected changes, if any, are described below in a review inclusive of the reclamation.

**Table K5.4 Viewpoints**

Viewpoint reference	
Tsing Ma Bridge Crossing (see Figure K4.10)	At the commencement of construction phase of the Theme Park, the reclamation will be visible in some views from the NLH westbound lanes. The majority of the reclamation however will be visually hidden behind the hills at Pa Tau Kwu (Route 10)
Ting Kau, NWNT coast	No major differences are expected in this view at the commencement date of the Theme Park construction as the existing landform shall screen views to it.
Tsing Yi (see Figure K4.11)	The new reclamation will intrude into views of this location south of the Northshore Lantau. The remainder of the extensive panoramic views have no expected change.
Mount Davis, Hong Kong Island (see Figure K4.11)	No major differences are expected to these long range views due to the considerable distances involved.
Peng Chau (See Figure K4.11)	The views available to the north at the commencement of the Theme Park construction will be changed significantly by the reclamation. There will be an expected lower visual amenity associated with these views due to the loss of the original bay and coastal waters. No other significant changes are expected in the baseline conditions here.



Viewpoint reference	
Discovery Bay Ferry (see Figure K4.12)	Views to the Northshore area will significantly change with the new reclamation presenting an extensive component of views. A lower visual amenity is generally expected due to the loss of original bay and coastal waters by the reclamation. It is unknown if the alignment of the ferry route will change as a result of the reclamation, however if this is the case then the available views may vary.
Discovery Bay Tsoi Yuen Wan (see Figure K4.12)	The reclamation will extend to existing views of the Northshore area and no other major visual changes are expected.
Ngong Shuen Au (see Figure K4.13)	The visual appearance of Penny's Bay from this vantage point will have changed extensively at the commencement of the construction phase. The shipyard and bay waters will have been replaced by reclamation and the overall visual quality is expected to be lower than the original view. The power station shall however be retained and shall be a main focal point.

### VISUAL IMPACT ASSESSMENT

K5.23 The visual impact assessment of the proposed development of the Theme Park is given on the following Table K5.5, and impacts are shown on plan in Figure K5.17. The assessment gives the expected visual impact of the Theme Park during its construction phase and operation phase, together with the residual impact after mitigation. The reclamation of Penny's Bay and associated coastal waters will have preceded the construction phase of the Theme Park and as such will have changed the baseline conditions into which the Theme Park will be situated, as previously discussed.

#### *Light and Glare*

K5.24 Due to the significant distance from the Penny's Bay Development Area to potential light and glare receivers (located over two kilometers away), the substantial light shielding provided by the hotels and berms, and the operator's interest to minimise light and glare impacts within the Theme Parks, impacts to receivers outside the Penny's Bay Development Area should not be considered significant. Lights used in attractions or shows (including fireworks) will be focused on the inside of the Theme Park with a height limit of 100m high. The duration of each fireworks display will be around 15 minutes in the centre of the Theme Park. Smoke plumes associated with the fireworks are expected to cause no visual impact due to fact that the fireworks will take place at night. All lasers used in attractions would terminate in fixed objects inside the Penny's Bay Development Area so as to not adversely impact pilots in aircraft flying near the site or other sensitive receivers. Street lighting will be bright enough to facilitate way finding for both drivers and pedestrians, but not too bright to create excess glare, or generate adverse impacts to sensitive receivers.

**Table K5.5 Visual Impact Assessment of Proposed Theme Park**

Receiver Area	Assessment	Sensitive Receiver Groups (Sensitivity Rating)	Resulting Magnitude of Change	Construction Phase before mitigation	Operation Phase before mitigation	Residual after mitigation
<u>Area A</u> Northwest New Territories Coastal Area (Fig. K4.10)	<p>The receiver area is located on a short section of coastline between the eastern outskirts of Sham Tseng to the western edge of Yau Kom Tau. This area contains a series of public beaches, the Castle Peak Road, the Tuen Mun Road and Tai Lam Country Park. Low level residential buildings are also located along the coastline. In general these receivers are situated up to 6 km from the proposed development.</p> <p>Orientation is generally southwards to sea views due to the sloping nature of the local topography.</p> <p>Magnitude of change to views is expected to be very low and the visual system will accommodate this. These existing views have a high value and alternative views are available. The number of sensitive receivers is expected to be high.</p>	<p>Residential buildings (high sensitivity)</p> <p>Public in external public space: including (high sensitivity)</p> <p>(a) public beaches</p> <p>(b) Castle Peak Road and Tuen Mun Road</p> <p>(c) Hill trail walkers</p>	<p>Low</p> <p>Low</p> <p>Low</p> <p>Low</p>	<p>Slight adverse impact</p> <p>Slight adverse impacts</p>	<p>Negligible impact</p> <p>Negligible impact</p>	<p>Negligible impact</p> <p>Negligible impact</p>

Receiver Area	Assessment	Sensitive Receiver Groups (Sensitivity Rating)	Resulting Magnitude of Change	Expected Visual Impact		
				Construction Phase before mitigation	Operation Phase before mitigation	Residual after mitigation
<p><b>Area B</b> Tsing Yi (See Figure K4.16)</p>	<p>The Tsing Yi area intervisible with the development is limited to the western half due to the existing topography which is elevated up to 200mPD. The residential area on Tsing Yi is therefore not intervisible and the main receivers are public in external public space and non-residential buildings. The number of sensitive receivers is expected to be low.</p> <p>Orientation is variable on the coastal reclamation area however views from the hills will be orientated to the west and south.</p> <p>There is expected to be a slight to moderate change to views and the visual system may accommodate this. The existing views are of high value and alternative views of similar quality are available.</p>	<p>Non residential buildings (low sensitivity)</p> <p>Public in external public space including: (i) Hill trail walkers (high sensitivity)</p>	<p>Low to moderate</p> <p>Moderate</p>	<p>Slight adverse impact</p> <p>Moderate adverse impact</p>	<p>Negligible impact</p> <p>Slight beneficial impact</p>	<p>Negligible impact</p> <p>Slight beneficial impact</p>
<p><b>Area C</b> Kowloon Coastal Area  Western</p>	<p>This receiver area is located approximately 11km from the proposed development, making it one of the longer range areas in the visual envelope. The coastal buildings are generally orientated to the west and sea views. Magnitude of change of views is expected to be insignificant to none, due to the extensive distances involved. Existing sea views are of higher value to coastal areas. Alternative views are available and a high number of receivers are located here.</p>	<p>Residential buildings (high sensitivity)</p> <p>Non-residential buildings (low sensitivity)</p> <p>Public in external public space (high sensitivity)</p>	<p>Nil</p> <p>Nil</p> <p>Nil</p>	<p>None</p> <p>None</p> <p>None</p>	<p>None</p> <p>None</p> <p>None</p>	<p>None</p> <p>None</p> <p>None</p>

Receiver Area	Assessment	Sensitive Receiver Groups (Sensitivity Rating)	Resulting Magnitude of Change	Expected Visual Impact		
				Construction Phase before mitigation	Operation Phase before mitigation	Residual after mitigation
<u>Area D</u> Hong Kong Island (Fig. K4.17)	The receiver area is located approximately 7 to 8 km from the proposed development and is composed of densely developed coastline area with the hill backdrop of Mount Davis (269Mpd) and Victoria Peak (552Mpd). Orientation is generally to the north and west due to the local topography. Visual obstructions by Green Island and shipping occur. Atmospheric conditions due to weather and pollution will also significantly reduce visibility. Existing views are of high value and alternative views are available. The number of sensitive receivers on the coastal zone (e.g. Kennedy Town) is high in comparison to the hill area.	Residential sensitive receivers: (high sensitivity) Non-residential receivers: (low sensitivity) Public in external public space including: (high sensitivity) (a) Mount Davis and Victoria Peak	Low  Low  Low	Slight adverse impact  Negligible impact  Slight adverse impact	Negligible to slight beneficial impact  Negligible to slight beneficial impact  Negligible to slight beneficial impact	Negligible to slight beneficial impact  Negligible to slight beneficial impact  Negligible to slight beneficial impact
<u>Area E</u> Lamma Island	The receiver area includes the northern coastline section of Lamma Island which is located approximately 10km from the proposed development. Orientation of views is in general to the north and north west. The magnitude of change to views is expected to be insignificant due to the extensive distance between.	Residential buildings: (high sensitivity) including: (b) Pak Kok San Tsuen Non Residential buildings (low sensitivity)	Nil  Nil	None  None	None  None	None  None

Receiver Area	Assessment	Sensitive Receiver Groups (Sensitivity Rating)	Resulting Magnitude of Change	Expected Visual Impact		
				Construction Phase before mitigation	Operation Phase before mitigation	Residual after mitigation
	Existing views are of good value and there is availability of and amenity in alternative views. The area is not urbanised and a lower number of sensitive receivers is expected.	Public in external public space (low sensitivity)	Nil	None	None	None
Area F Hei Ling Chau and Chau Kung To	These islands are located approximately 5 to 6 km from the proposed development and are generally of lower inhabitation levels compared to other outlying islands. Orientation will be to the north where Peng Chau will obstruct views to the development area. A low to moderate change in views is expected.  Alternative views of high amenity value are available.  The number of sensitive receivers is expected to be low	Residential sensitive receivers (high sensitivity)  Public in external public space (high sensitivity)	Low  Low	Slight adverse impact  Slight adverse impact	Negligible to slight beneficial impact  Negligible to slight beneficial impact	Negligible to slight beneficial impact  Negligible to slight beneficial impact

Receiver Area	Assessment	Sensitive Receiver Groups (Sensitivity Rating)	Resulting Magnitude of Change	Expected Visual Impact		
				Construction Phase before mitigation	Operation Phase before mitigation	Residual after mitigation
<u>Area G</u> Peng Chau Island (see Figure K4.17)	The island is located approximately 2 to 3 km from the proposed development. The island topography will screen the majority of the urban area from views to the Northshore Lantau area. Orientation is northwards within the intervisible areas due to local topography. A low magnitude of change will occur. Value of existing views is good although the existing borrow area at Chok Ko Wan Tsui and the Penny's Bay power station detract from the general visual amenity. Alternative views of high amenity are available at hill top locations. The number of receivers is expected to be low.	Residential sensitive receivers (high sensitivity) Non-residential sensitive receivers: (low sensitivity) Public in external public space (high sensitivity)	Low to moderate  Low  Low	Moderate adverse impact  Negligible impact  Negligible impact	Negligible beneficial impact  Negligible impact  Slight beneficial impact	Slight impact  Negligible impact  Slight beneficial impact
<u>Area H</u> Chi Ma Wan Peninsula	This area of south eastern Lantau is located approximately 9km from the proposed development area and consists primarily of Country Park lands. Orientation is generally north to north east. The magnitude of change to views is expected to be insignificant. Value of existing views is high and alternative views of high amenity are also available. The number of sensitive receivers is expected to be low.	Residential building (high sensitivity) Public in external public space (medium to high sensitivity)	Nil  Nil	None  None	None  None	None  None

Receiver Area	Assessment	Sensitive Receiver Groups (Sensitivity Rating)	Resulting Magnitude of Change	Expected Visual Impact		
				Construction Phase before mitigation	Operation Phase before mitigation	Residual after mitigation
<p><u>Area I</u> Discovery Bay Area (see Figure K4.18)</p>	<p>This coastal area of Lantau is between 1km to 5km from the proposed development. It consists of one of the largest residential communities in close proximity to the proposed development, with approximately planned population of 25,000. The area also consists of open hillside and the Trappist Haven monastery at Tai Shui Hang. Orientation is generally to the east due to the local topography. The magnitude of change to views is expected to be low. Value of existing views is high and alternative views of high amenity are also available.</p>	<p>Residential building including: (high sensitivity)</p> <p>(a) Discovery Bay</p> <p>(b) Tai Shui Hang</p> <p>Non-residential buildings (low sensitivity)</p> <p>Public in external public space (high sensitivity)</p>	<p>Medium to high</p> <p>Medium</p> <p>Low</p> <p>High</p>	<p>Moderate to severe adverse impact</p> <p>Moderate adverse impact</p> <p>Slight adverse impact</p> <p>Moderate adverse impact</p>	<p>Slight beneficial impact</p> <p>Slight beneficial impact</p> <p>Slight beneficial impact</p> <p>Slight beneficial impact</p> <p>Slight beneficial impact</p>	<p>beneficial</p> <p>beneficial</p> <p>beneficial</p> <p>beneficial</p> <p>beneficial</p>
<p><u>Area J</u> Penny's Bay &amp; Pa Tau Kwu (see Figure K4.20)</p>	<p>This area is the closest land area to the proposed development and ranges in proximity from 0m to 3km. The number of existing receivers are low and restricted, to the power station and hill walkers as well as an isolated village area at Fa Peng.</p>					

Receiver Area	Assessment	Sensitive Receiver Groups (Sensitivity Rating)	Resulting Magnitude of Change	Expected Visual Impact		
				Construction Phase before mitigation	Operation Phase before mitigation	Residual after mitigation
	Orientation within the receiver area is variable. A high degree of change will occur to existing sensitive receivers. The value of existing views are high except for the local Penny's Bay area where there is an existing cumulative visual impact from the power station and borrow area. Alternative views exist from the elevated hill sides. The number of existing sensitive receivers is low and formed primarily by non-residential receivers.	Non-residential buildings (low sensitivity) (b) power station Existing public in external public space: (high sensitivity) Future public in external public space (high sensitivity)	Low Moderate Nil Low	Slight adverse impact Severe adverse impact N/A	Negligible impact Slight beneficial impact Slight beneficial impact	Negligible impact Slight beneficial impact Slight beneficial impact
Area K Ma Wan Island (see Figure K4.16)	This receiver area is located approximately 3km from the proposed development. Orientation is variable. Magnitude of change to views is low. Existing views are of high value and there are alternative views. There is a high number of sensitive receivers associated with the NLH which crosses through Ma Wan. West bound traffic (to Tung Chung and the airport) will have views to the proposed development.	Public in external public space including travellers along (high sensitivity) NLH	Low to moderate	Slight adverse impact	Slight beneficial impact	Slight beneficial impact



## MITIGATION MEASURES

K5.25 The mitigation measures proposed for the Theme Park are shown in Figure K5.18. Figure K5.19 shows also the temporary mitigation proposals for Phase I during operation phase. An implementation schedule is presented in Table K5.6.

### *Construction Phase*

K5.26 The construction phase of the Theme Park will create the highest level of visual impact and the following mitigation measures should be considered:

- (a) advance planting of the proposed soil berms is considered necessary, as advance planting will not only assist to visually screen the internal Theme Park during construction but will also be able to present an early green façade to the development. Advanced construction of the soil berms should also occur prior to the construction of the Theme Park. Typical sections of proposed berms are shown in Figure K5.20.
- (b) a temporary berm with landscape planting is also proposed east of the proposed central pedestrian walkway to screen views to the east where undeveloped reclamation and new reclamation shall occur.

### *Operation Phase*

K5.27 As the Theme Park will be extensively landscaped to a high standard, it is expected to be properly maintained to a high landscape and visual quality based on existing examples elsewhere and therefore no further mitigation is required. Typical images of the landscape and visual character of existing Theme Parks are presented in the Figures K5.3 and K5.4. In general the objective of the Theme Park operation is to provide a high quality in the development for the visitors to enjoy. Such high quality is developed through well designed architecture and landscape architecture as well as a high level of maintenance. Figure K5.19 shows the proposed mitigation measures for the Theme Park Phase II and includes temporary planting of berms east of the RD&E to screen Phase II construction phase activities.

## RESIDUAL IMPACT

K5.28 The main residual impact of the Theme Park is the visual intrusion of the building height and mass within the backdrop of natural scenery which will not be mitigated by the extensive landscape planting including berms. The colour of the Theme Park Structures should also be integrated with the natural scenery to enhance the attractiveness of the theme park.

K5.29 Given the building height envisaged by the operator (Figure K5.5, ranging from 30 to 60 metres within the Theme Park), lining the perimeter area with hotels of 20 to 35 metres in height, placement of the landscaped berm, and screen planting will together be able to screen part of the building mass. Colour between the Theme Park structures and the colour

of the natural scenery should also be integrated to enhance the attractiveness of the Theme Park.

K5.30 There shall be a beneficial landscape impact in terms of enhancement of vegetation as a resource and the creation of a new character area with high quality landscape as illustrated at other parks world wide.

#### **ACCEPTABILITY OF IMPACT**

K5.31 In accordance with Annex 10 of the Technical Memorandum of the EIAO the impact is considered beneficial.

**Table K5.6 Implementation Schedule of Mitigation Proposals for the Theme Park**

Mitigation Proposal	Funding Agent	Implementation Agent	Maintenance Dept./Agent	Management Dept.	Implementation Year
(a) Advance planting of soil berms and advanced construction of soil berms.	CED	CED	CED/WD	LCSD/WD	2002/3
(b) Temporary berm	CED	CED	CED/WD	CED/WD	2004

Note: Project proponent shall be required to determine other agents, it required for implementation, maintenance and management as required.