

10 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

10.1 Introduction and Background

10.1.1 This Section assesses the likely landscape and visual impacts of the future development and proposes strategic mitigation measures to alleviate the impacts caused. The nature and scale of the project will create a new landscape and visual environment within Telegraph Bay which will have limited opportunity for direct mitigation, such as screen planting, but has had key features, such as retention of visual corridors, designed within it in order to avoid a number of unacceptable impacts.

10.1.2 Telegraph Bay lies on the west coast of Hong Kong Island to the south of Pok Fu Lam and comprises an area of existing flat reclamation bordered to the north, east and south by densely wooded slopes, and some residential development, and to the west by the open waters of the East Lamma Channel between Lamma Island and Hong Kong Island. It is overlooked by a number of residential developments, notably Baguio Villas, Kong Sin Wan Tsuen village, Wah Fu Estate and houses along Sassoon Road. These currently have open views over the channel. Development of Telegraph Bay is likely to affect the local landscape and views from these residential properties.

10.2 Methodology

10.2.1 Definitions

10.2.1.1 The methodology for undertaking the landscape and visual impact assessment is in general accordance with Annex 18 of the Technical Memorandum to the Environmental Impact Assessment Ordinance (EIAO). The assessment of impacts is based on the criteria in Annex 10 of the EIAO. The main elements of the assessment are given below.

10.2.1.2 The Landscape and Visual Impacts are considered as follows:

- landscape impact assessment shall assess the source and magnitude of developmental effects on the existing landscape elements, character and quality in the context of the site and its environs; and,
- visual impact assessment shall assess the source and magnitude of effects caused by the proposed development on the existing views, visual amenity, character and quality of the visually sensitive receivers within the context of the site and its environs.

10.2.2 Landscape Impacts

10.2.2.1 The assessment of the potential impacts of a proposed scheme on the existing landscape comprises two distinct sections:

- baseline survey; and,
- potential landscape impacts assessment.

10.2.2.2 A baseline survey of the existing landscape character and quality will be undertaken from site and desk-top surveys. Landscape elements considered include:

- local topography;
- woodland extent and type;

- other vegetation types;
- built form;
- patterns of settlement;
- land use;
- details of local materials, styles, streetscapes, etc.;
- prominent watercourses; and,
- cultural and religious identity.

10.2.2.3 Proposed developments either within the study area or adjacent to it are also considered. The baseline survey will form the basis of the landscape context by describing broadly homogenous units of character. The landscape is rated into low, medium or high depending on not only the quality of elements present but also their sensitivity to change and local or regional importance. The quality of the landscape is not only related to its visual amenity.

10.2.2.4 The assessment of the potential landscape impacts of the proposals will result from:

- identification of the sources of impact, and their magnitude, that would be generated during construction and operation of the scheme; and,
- identification of the principal landscape impacts, primarily in consideration of the degree of change to the baseline conditions. The impacts are considered systematically in terms of the landscape elements, the site and the its context.

10.2.2.5 The overall landscape impact is a product of the following factors:

- the landscape character and its quality;
- source, nature and magnitude of potential impacts;
- the degree of change caused by each of the impacts to the existing landscape;
- tolerance of the landscape to absorb the change;
- significance of this change in consideration of the local and regional areas and other developments;
- cumulative effects on the landscape of this and neighbouring proposals; and,
- identification of plant species of significant value which should be conserved.

10.2.2.6 The degree of impact is considered as follows:

Adverse / Beneficial Impacts			
Significant adverse / beneficial impact: where the proposal would cause significant deterioration / improvement in existing landscape quality	Moderate adverse / beneficial impact: where the proposal would cause a noticeable deterioration / improvement in existing landscape quality	Slight adverse / beneficial impact: where the proposal would cause a barely perceptible deterioration in the existing landscape quality	Negligible impact: no discernible change in the existing landscape quality.

10.2.3 Visual Impacts

10.2.3.1 The assessment of the potential visual impact of the scheme comprises two distinct parts:

- baseline survey; and,
- visual impact assessment.

10.2.3.2 The baseline survey of all views towards the proposals is undertaken by identifying:

- the visual envelope or visual zone within which the proposed development may be contained either wholly or partially within views. This must also include indirect effects such as offsite construction activities; and,
- the visually sensitive receivers within the visual envelope whose views will be affected by the scheme. The potential receivers are considered as three groups:
 - (a) views from residences - the most sensitive of receivers due to the high potential of intrusion on the visual amenity and quality of life,
 - (b) view from workplaces - less sensitive than above due to visual amenity being less important within the work environment, and;
 - (c) views from public areas - including all areas apart from the above, e.g., public parks, recreation grounds, footpaths, roads, sea channels, etc. Sensitivity of this group depends on the transitory nature of the receiver, e.g. sitting in a park or travelling on a highway. Also considered is the degree of view or glimpsed views.

10.2.3.3 The sensitivity of each group is also influenced by its location and direction of view relative to the scheme. Typical viewpoints from within each of the visually sensitive groups are identified and their views described. Both present and future visually sensitive receivers will be considered.

10.2.3.4 The baseline survey will form the basis of the visual character and quality of the site. The assessment of the potential visual impacts will result from:

- identification of the sources of visual impacts, and their magnitude, that would be generated during construction and operation of the scheme; and,
- identification of the principal visual impacts primarily in consideration of the degree of change to the baseline conditions.

10.2.3.5 The impact assessment will relate to the typical viewpoints within the visual receiver group, as identified previously, and their existing and potential views subsequent to the scheme development. The visual impact will result from consideration of the following:

- character of existing view;
- quality of existing view;
- context and location of the visually sensitive receiver;
- visual receiver group sensitivity;
- degree of change to existing views;
- other views available to visual receiver group; and,
- the cumulative effects on views of this and other neighbouring developments.

10.2.3.6 The degree of visual impact is rated in a similar fashion to the landscape impact, i.e. substantial, moderate, slight and no change. The impacts may be beneficial or adverse.

10.2.4 Mitigation Measures

10.2.4.1 The identification of the landscape and visual impacts will highlight those sources of conflict requiring landscape design solutions to reduce the impacts, and, if possible, blend the development and associated activities, in with the surrounding landscape. These mitigation measures should take into account factors including:

- woodland, tree and shrub planting of new or disturbed slopes, amenity strips and areas central reservations and adjacent to any new structures;
- consideration of the contouring of new slopes in order to blend them in with the existing topography;
- earth mounding and screening, structural or vegetated;
- highlighting unacceptable impacts and considering alternative scheme proposals;
- treatment of structural forms;
- hard landscape, furniture and other landscape; and,
- significant landscape elements.

10.2.4.2 This will result in the formation of landscape mitigation measure proposals which will alleviate the previously identified landscape and visual impacts as far as possible. Strategic mitigation measures will be recommended where a development will result in the formation of new landscape and visual characters.

10.3 Landscape and Planning Context

10.3.1 The development control context of Telegraph Bay is governed by Hong Kong Planning Area No. 10 - Pok Fu Lam Outline Zoning Plan (OZP), Plan No. S/H10/6. The zonings of the site at Telegraph Bay include "Residential (Group B) (R(B), Residential (Group C) (R(C)5), and G/IC towards the northern end (refer to Figure 10.1).

10.3.2 There are two proposed land use zones adjacent to the site which are of particular relevance to landscape planning. These are the provision of Open Space, for active and passive recreational uses, and Green Belt, to prevent encroachment of urban development on the natural environment. Within the Study Area, the OZP identifies Open Space along the waterfront of the Telegraph Bay Reclamation, adjacent to the proposed Route 7 and to the west of Baguio Villas, and above Waterfall Bay, to the south. Green Belt zones are proposed on the steep slopes above and below Victoria Road and in Telegraph Bay (Kong Sin Wan Tsuen) Valley. These features are examined for their opportunities and constraints on the proposed housing.

10.3.3 Additional to the above, there are a number of other zoned uses within the vicinity, namely Residential (primarily Class C, such as Baguio Villas, but also including some Class A, such as Wah Fu Estate) development, together with some areas of G/IC zoning, within the surrounding vicinity. Only two small areas of G/IC zoning in the south border the site, while all of the Residential zones are remote. These land uses are all reviewed as part of this study.

10.4 Existing Landscape and Visual Resources

10.4.1 Existing Landscape Resources

10.4.1.1 This Section examines the existing landscape resources of the Study Area.

10.4.1.2 The context of the Study Area is the western coast of Hong Kong Island between Pok Fu Lam and Wah Fu. It is defined by Victoria Road to the east at about 60 to 70 mPD and is contained between two headlands to the north and south, which rise to about 90 mPD. To the east, the Study Area is bounded by the East Lamma Channel. The majority of the Study Area of flat reclamation located between these two headlands, at a height of approximately 3

mPD. A small section of it comprises an undeveloped platform on top of the southern headland at approximately 90 mPD. To the north, between Victoria Road and the reclamation, are steep slopes which form a narrow valley, namely Telegraph Bay Valley, running north-south. To the south, there is a small bay with a waterfall called Pok Po Wan (Waterfall Bay). This waterfall is fed by a stream contained within a small valley. The study area context is illustrated on Figure 10.2.

10.4.1.3 The steep slopes below Victoria Road and Sassoon Road are densely wooded with a continuous band of secondary woodland approximately 20 hectares in area. The small valley feeding the waterfall at Waterfall Bay is heavily wooded with trees and shrubs associated with natural watercourses. Telegraph Bay is also very densely wooded. The reclamation area has regenerated naturally colonised pioneer tree and shrub species. There are areas of scrub and woodland near the steep slopes below Sassoon and Victoria Roads, however this gives way to grass and low-level scrub nearer the coastline.

10.4.1.4 The large areas of woodland on the slopes within the Study Area are a major landscape resource for the following reasons:

- as a major source of ecological habitat and wildlife corridors;
- stabilisation of steep slopes; and,
- potential areas of Fung shui significance.

10.4.1.5 The existing landscape context of the site and its surrounding environment are classified into homogenous units of landscape character. These Landscape Character Units (LCU) are shown on Figures 10.3 and 10.4 and summarised in Table 10.1. The landscape character units of the Study Area form the elements of the local visual context and hence their quality also reflects, to a degree, its visual amenity.

10.4.2 Existing Visual Resources

10.4.2.1 The existing visual resources within the Study Area are based on the type of landscape character units. They vary from the visually soft and attractive steep naturally wooded hillsides and valleys, including the Kong Sin Wan Tsuen village, adjacent to the site, to the barren open engineered expanse of the reclamation. The existing visual resources, together with their relation to the landscape character units and the extent of visual envelope or catchment, are summarised on Figures 10.5 to 10.7, together with Table 10.1.

Table 10.1 Summary of Existing Landscape and Visual Resources

<i>Landscape Character Unit (LCU)</i>	<i>LCU Description</i>	<i>Quality / Sensitivity</i>
LCU 1	<i>Primary Green Backdrop</i> Secondary woodland on steep slopes provides an interesting green backdrop to flat reclamation and links visually with the green slopes of Mt Davis, Sai Ko Shan (High West) and Mt Kellet behind when viewed from East Lamma Channel. Acts as a buffer and transition zone between reclamation area and adjacent areas.	High
LCU 2	<i>Reclamation with Naturally Colonising Woodland and Scrub</i> Flat in profile with naturally regenerated vegetation. Boundary between LCU1 and LCU2 is the original coastline. Overlooked by properties in Wah Fu, Baguio Villas and Sassoon Road and has an open engineered visual quality.	Low

<i>Landscape Character Unit (LCU)</i>	<i>LCU Description</i>	<i>Quality / Sensitivity</i>
LCU 3	<i>Enclosed Valley and Stream</i> Natural watercourse feeding Waterfall Bay are characterised by rocky streams and small waterfalls lined by natural woodland on steep slopes. Provides visual relief adjacent to Wah Fu Estate and is a physical barrier between Wah Fu and Telegraph Bay.	High
LCU 4	<i>Existing Village</i> Kong Sin Wan Tsuen (Telegraph Bay) Village lies in an enclosed valley with densely wooded slopes. Village orientated north to south with views out over LCU2	High
LCU 5	<i>Waterfall Bay</i> A small bay characterised by high rocky cliffs and waterfall. Accessible from Waterfall Bay Park along Wah Fu Road. Provides a visual feature of the waterfall.	High

10.4.2.2 There is one visual resource not included within the landscape character units. This is the open view of the East Lamma Channel across to Lamma Island itself.

10.4.3 Landscape and Visual Analysis

10.4.3.1 This Section analyses the landscape and visual resources of the Study Area to identify those areas of significance and those of less importance.

10.4.3.2 The Study Area comprises an interesting mix of landscape and visual resources within a setting of major landscape features such as Mt Davis, Mt Kellet and Sai Ko Shan (High West), and includes the Pok Fu Lam Country Park and Lung Fu Shan Country Park. The combination of this setting with the local backdrop of LCU1 accords the Study Area a high level of visual amenity and landscape character and this is reflected in the local OZP zoning of the majority of this area as a Green Belt. The presence of LCU3, LCU4 and LCU5 complements and strengthens the intrinsic landscape value of the Study Area. These LCUs are considered to be landscapes of high local value and are very sensitive to change. LCU2 is considered to be of low local landscape value and not sensitive to change.

10.4.3.3 These sensitive landscapes are overlooked by a number of residential properties which take maximum advantage of the views over the Study Area and East Lamma Channel. The main properties affected are Baguio Villas, Wah Fu Estate, and residences along Sassoon Road and Kong Sin Wan Tsuen. Of these, views from Baguio Villas and Kong Sin Wan Tsuen are considered sensitive to change as they are in proximity to the reclamation and low in elevation, therefore development in front of these locations would be highly disruptive. Views from Sassoon Road residences are much less sensitive, as they are higher in elevation and further away from the reclamation area.

10.4.3.4 The above LCUs form the basis and features of the views and their character for the visually sensitive receivers (VSRs). These VSRs, together with their typical views and an assessment of their quality, are outlined below in Table 10.2.

Table 10.2 Summary of Visual Analysis

<i>Sensitive Visual Receiver (SVR)</i>	<i>Existing View</i>	<i>Quality / Sensitivity</i>
Short Distance Views		
SVR1: <i>Baguio Villas</i>	Overlook the existing reclamation site (LCU2) towards the open water of the East Lamma Channel. High-rise residential properties with high sensitivity.	High
SVR2: <i>Kong Sin Wan Tsuen</i>	Many views enclosed by the steep wooded valley sides. However, the village has important open views over the reclamation (LCU2) towards the East Lamma Channel. Village houses with limited open views.	High
SVR2a: <i>Aegean Terrace</i>	Elevated views from the headland to the north over the site and south towards East Lamma Channel and Lamma Island	High
SVR2b: <i>Villa Ellenbud</i>	Elevated views from the headland to the north. Views are primarily west over the channel but those towards the site are partially screened by Aegean Terrace reducing their sensitivity.	Moderate
SVR2c: <i>Crane Court</i>	Elevated views from the headland to the north. Views are primarily south-west over the Lamma Channel but those towards the site are partially screened by Aegean Terrace reducing their sensitivity.	Moderate
Middle Distance Views		
SVR3: <i>Wah Fu Estate</i>	Open views over the southern Waterfall Bay headland with development platform, the reclamation site (LCU2) towards the East Lamma Channel. High-rise residential with high sensitivity.	High
SVR4: <i>Pok Fu Lam Gardens</i>	Western blocks with open views over the wooded hillsides (LCU1) adjacent to Victoria Road, beyond which is the reclamation (LCU2) and the East Lamma Channel. High-rise residential with sensitivity reduced due to distance.	Moderate
SVR5: <i>Vocational Training Centre</i>	A number of open views are possible over the wooded hillsides (LCU1) adjacent to Victoria Road, beyond which is the reclamation (LCU2) and the East Lamma Channel. Medium-rise institutional facility with sensitivity reduced due to distance and non-residential status.	Low
SVR6: <i>Sassoon Road Residences</i>	Open views from the Aegean Terrace area over the reclamation (LCU2) south along the East Lamma Channel to Lamma Island. Reduced sensitivity due to alternative views west, distance and elevation in relation to reclamation.	Moderate
SVR7: <i>Victoria Road</i>	Views, partially screened due to roadside vegetation, down the wooded hillside (LCU1), over the reclamation (LCU2) to the East Lamma Channel. Reduced sensitivity due to transitory nature, distance and partial screening.	Low
SVR8: <i>East Lamma Channel</i>	Remote views with mixed character of high-rise housing estates with a natural wooded hillside setting. Low lying reclamation indistinct from lower levels. Reduced sensitivity due to distance and availability of alternative views.	Low

10.5 Landscape and Visual Impact Analysis

10.5.1 Introduction

10.5.1.1 This section considers the key landscape and visual impacts due to the development of the proposed development scheme. This scheme has been devised from a series of options, to formulate a single preferred option which optimised the urban design with the requirements of the Brief. It has been designed to proactively avoid several of the major potential impacts.

10.5.2 Key Urban Design Issues

10.5.2.1 Key development issues were identified as a basis to guide the urban design for the proposed layout of Telegraph Bay. These issues were identified early within the design process and were intended to minimise several potential impacts. They considered both landscape and visual aspects.

10.5.2.2 The Study Area is in a dramatic location on the coast and set against the scenic backdrop of Pok Fu Lam Country Park. Landscape resources within, and adjacent to, the Study Area are an essential consideration in developing a sensitive and robust landscape concept and minimise landscape and visual impacts. A number of major issues were identified concerning the existing landscape and visual context which have influenced the urban design and landscape framework of the development:

- the presence of the high quality landscape units, namely LCU1, LCU3, LCU4 and LCU5 are a constraint to the extent of the development into the surrounding areas beyond the reclamation. Major encroachment into these areas has been avoided where possible and many of their features have been retained.
- Fung Shui issues at Kong Sin Wan Tsuen also presented a constraint for development. Effective liaison with village representatives will be essential during detail design in order to understand impacts on locally important cultural features. However, the retention of the local areas, where possible has reduced the potential for disturbance to the existing Fung Shui;
- an important feature of Kong Sin Wan Tsuen was to avoid total enclosure of the village by tall buildings. This was a constraint to the adjacent development sites in order to retain a view corridor through the new buildings, maintaining views over the Lamma Channel from the higher areas, and avoiding a visual wall across the end of the valley;
- the residents of Baguio Villa were identified as major VSRs as their location, to the east of the site, could result in screening of their views of East Lamma Channel, a major constraint to the proposal of any buildings in front, particularly as they would not possess alternative sea views. This has been avoided by restricting the heights of the new buildings in front to 12 storeys maximum; and,
- the requirement to provide key linkages with the surrounding areas. Coherent landscape and pedestrian linkages with the surroundings has been achieved during the urban design process and includes consideration of the design and site planning and orientation of the development elements as well as the arrangement and quality of spaces between them. Pedestrian and vehicular movement is designed to exploit connections with public transport as well as the waterfront.

10.5.2.3 The scheme will cause a dramatic change in the existing landscape and visual character of the site from a barren, open, scrubby reclamation into a major residential area. The existing site of primarily open reclamation contrasts distinctly with the high quality surrounding

wooded hillsides with its existing residential development. The development will, overall, be in-keeping with the general character of the area and flat areas along the coastal region of Hong Kong.

10.5.3 Landscape Impact Assessment

10.5.3.1 The reclamation is of low landscape quality contrasting with a surrounding area of high quality. This factor was incorporated into the design of the master layout and has, therefore, avoid much of the potential impact which could arise from such a development. The development is primarily contained within the reclamation and southern headland. The feeder road which surrounds the site on the landward side causes direct impact to the hillside through conflict with the local topography and loss of woodland.

10.5.3.2 Within the site there will be a change from an open expanse of unused rough land to a modern medium- and high-rise estate, infrastructure with noise barriers, open space and recreational facilities. This is a change which will create a new landscape character compared to the one existing, however, it will fulfil its intended use. The fluid form of the eastern side of the development will provide a soft edge adjacent to the hillside.

10.5.3.3 Table 10.4 summarises the impacts to the existing landscape context.

Table 10.4 Summary of Landscape Impacts

<i>Landscape Character Unit (LCU)</i>	<i>Quality / Sensitivity</i>	<i>Source of Impact</i>	<i>Degree of Impact</i>
LCU 1	High	Loss of woodland and major earthworks to area in southern headland due to feeder road	Significant Adverse
LCU 2	Low	Impact of change of character from unused barren reclamation site to residential area	Significant
LCU 3	High	Substantial loss of woodland and extensive earthworks to local topography due to southern access road	Significant Adverse
LCU 4	High	None	None
LCU 5	High	None	None

10.5.3.4 Thus, the scheme will cause significant localised landscape impacts. The source of the main impact is the feeder road which, although it causes significant impacts to the surrounding wooded hillside, will be localised. The construction of Route 7 within this vicinity will cause effects that are far more significant but fall outside the scope of this study.

10.5.4 Visual Impact Assessment

10.5.4.1 The main impacts will be visual rather than landscape due to the high number and sensitivity of the surrounding residential VSRs. The primary source of the impacts will be the screening of views westwards over the East Lamma Channel from Baguio Villa and Kong Sin Wan Tsuen, together with obstruction of views from Aegean Terrace and Wah Fu. As described earlier, the development has a series of features intrinsically designed into it in order to avoid the unacceptable visual impact of totally screening all views from the existing residential apartments. This has been achieved by measures such as the restriction of locating only 12 storey buildings in front of Baguio Villas. Additionally, all of the major

view corridors have been retained, such as that from Kong San Wan Tsuen. However, on a development of this scope, scale and location, some visual impacts are inevitable. A summary of these visual impacts is given in Table 10.5.

Table 10.5 Summary of Visual Impacts

<i>Sensitive Visual Receiver (SVR)</i>	<i>Quality / Sensitivity</i>	<i>Impact</i>	<i>Degree of Impact</i>
Short Distance Views			
SVR1: <i>Baguio Villas</i>	High	Screening of views at lower levels. Change of character of views from open reclamation to residential. Upper level views remain open	High
SVR2: <i>Kong Sin Wan Tsuen</i>	High	Narrowing of visual corridor towards East Lamma Channel and introduction of new buildings as major elements in views	High
SVR2a: <i>Aegean Terrace</i>	High	Introduction of new buildings as major elements in views	High
SVR3c: <i>Ellenbud Court</i>	Moderate	Introduction of new buildings in parts of existing views	Medium
SVR3d: <i>Crane Court</i>	Moderate	Introduction of buildings in parts of existing views	Medium
Middle Distance Views			
SVR3: <i>Wah Fu Estate</i>	High	East facing blocks will have views screened by buildings on the southern headland	High
SVR4: <i>Pok Fu Lam Gardens</i>	Moderate	Being elevated and remote from the site their views will only be partially screened in one direction only. Alternative directions of view are possible	Low
SVR5: <i>Vocational Training Centre</i>	Low	The elevated location allows open views to be maintained, although downwards they will be overlooking the site	Low
SVR6: <i>Sassoon Road</i>	Moderate	Several of the southern views will partially screened. Alternative views exist to the east.	Medium
SVR7: <i>Victoria Road</i>	Low	Existing views are partially screened. This together its elevation, and transitory nature reduce impacts	Low
SVR8: <i>East Lamma Channel</i>	Low	Existing views are remote and characterised by the mix of residential with woodland setting. Alternative views exist	Low

10.5.4.2 The visual impact assessment demonstrates that the major impacts caused are incurred by the short distance viewers concentrated to the north-east of the site.

10.5.5 Visual Impacts on Sites of Cultural Heritage

10.5.5.1 A Wartime Pillbox, No. 4, is located at the north-eastern edge of the Telegraph Bay Reclamation, adjacent to Kong Sin Wan Village. The boundary of the adjacent housing development site No. 1 has been adjusted locally to ensure that the Pillbox remains outside the housing development and, therefore, it will not be directly affected by the scheme. The Pillbox will remain clearly visible from Kong Sin Wan Village and the overlooking higher ground with the backdrop of the adjacent slopes remaining undisturbed.

10.5.5.2 To the south of the Telegraph Bay Development site lies the Aberdeen Waterfall and a nearby Wartime Pillbox with an adjacent bunker. Either the Waterfall or the bunker may be disturbed by the proposed Telegraph Bay Development, with the proposed Southern Access Road passing some considerable distance away from them both. Views and access to these two facilities may not be impeded by the Telegraph Bay Development, although clearly when viewed from the south, the Telegraph Bay Development may be seen in the backdrop.

10.5.6 Visual Impacts on the Proposed Waterfall Park

10.5.6.1 Currently the area to the south of the Study Area, including Waterfall Bay is zoned as DO. There are no committed proposals or programmes for the development of this DO area and a detailed assessment is not possible. However, any such development occurring prior to the Telegraph Bay Development will be a major VSR group and suffer significant visual impacts from the introduction of high-rise buildings and the southern access road on the headland contrasting with the wooded natural hillside below.

10.5.6.2 When the opportunity arises to develop this DO site, consideration should be given to provide mitigation measures or appropriate plant / replanting schemes to minimise the negative visual effects of the Telegraph Bay Development and the southern access.

10.5.7 Noise Barriers

10.5.7.1 A series of noise barriers are proposed along Route 7, Road D2 and the southern link to Victoria Road as part of this Study. These are outlined in detail within Section 5 Noise Impact Assessment. The recommended barriers are extensive and include sections along the entire length of Route 7, together with sections along the internal access roads adjacent to the schools on site 2 and the link road next to site 5.

10.5.7.2 The size and extent of the barriers in the context of the Telegraph Bay Development and Route 7 will comparatively not cause any additional significant increase in the visual impact already caused by the entire development. The existing VSRs in the surrounding areas will suffer impact due to the development as a whole, rather than due to just the noise barriers, which will be primarily obscured by the new buildings and are comparatively small. However, the barriers will be major features of the local townscape along the roadside when viewed from both Route 7 and from the lower levels of the Telegraph Bay development.

10.5.7.3 The barriers should, therefore, be designed as an integral element of the new townscape of the development. They are described in Section 10.6.2 Master Landscape Plan.

10.5.8 Sewage Treatment Works

10.5.8.1 The sewage treatment works is proposed as a single storey concrete building enclosing the treatment facilities. The low level of the building, and the fact that the activities are covered, results in no significant additional impacts to existing VSRs on the surrounding hillsides. However, the exterior finish and form of the building, together with a suitable boundary treatment will avoid it being a detrimental feature within the development.

10.6 Impact Mitigation and Master Landscape Plan

10.6.1 Mitigation

10.6.1.1 The impact analysis has identified the impacts created by the proposed development. Impacts, particularly visual ones, have been designed out of the scheme where possible within the context of the planning requirements, populations, GFA and the development brief. However, for any such development of this scale, impacts are inevitable; these are described in the impact analysis.

10.6.1.2 There are four factors which are fundamental to the type of mitigation proposed. These are:

- the high-rise nature of the proposed development proposed limits the opportunity for direct mitigation measures, such as screen tree planting, particularly as many of the those visually affected are elevated;
- the proposed development has been designed incorporating a number of impact minimisation measures, such as the retention of view corridors, retention of surrounding high quality landscape character, where possible, etc.;
- the development will change the existing landscape and visual context of the area, creating a totally new character for the area, from one of reclamation to a medium and high-rise residential centre;
- the development layout has been considered to provide a basis for a quality urban design through the block arrangements creating an interesting spatial arrangement and hierarchy of space. Spatial links have been provided along the boundary to avoid excessive demarcation between the development and surrounding areas.

10.6.1.3 The direct mitigation measures, particularly concerning the visual impacts, are, therefore, limited. The nature and scale of the proposed development will change the existing character of the site from naturally revegetating reclamation to a modern high-rise residential area. The style and quality of this new landscape character is, therefore, critical. A Master Landscape Plan has been formulated to complement the urban design layout and establish a new landscape character and quality. In this respect, it aims to exploit the hierarchy, and visual and spatial linkages with the surrounding environment. The approach to achieve this objective is outlined below.

10.6.1.4 As indicated above several mitigation measures have been incorporated proactively in order to avoid a number of potential impacts and that the mitigation measures will in general concentrate on the creation of the new landscape. Thus, the direct mitigation is generally limited to such measures as tree preservation in accordance with WBTC 24/94. The operational impacts will be alleviated by the creation of the new residential character of the site. Table 12.1 summarises these mitigation measures.

10.6.2 Master Landscape Plan

10.6.2.1 The Master Layout Plan incorporates a number of important urban design issues in order to proactively avoid major landscape and visual impacts, where possible. These have been described in Section 10.5.2.2, and can be summarised as follows:

- major encroachment into the surrounding high quality landscape units, namely LCU1, LCU3, LCU4 and LCU5 areas has been avoided where possible and many of their features have been retained;
- prevention major disturbance to the local areas adjacent to Kong Sin Wan Tsuen to avoid Fung Shui issues, where possible;

- retention of a view corridor for the residents of Kong Sin Wan Tsuen was to avoid total enclosure of the village by tall buildings;
- restriction of building heights to 12 storeys maximum in front of Baguio Villa; and,
- creation of coherent key linkages with the surrounding areas.

10.6.2.2 The adoption of these urban design issues or principles have avoided many of the potential visual impacts to create a layout which responds to both the development brief and the surrounding sensitive receivers. It also forms the basis for the Master Landscape Plan (refer to Figure 10.8) which aims to provide a quality setting for the development and future residents, catering for their recreational, amenity and access needs, as well as providing green corridors and structure landscape along roads.

10.6.2.3 The landscape design responds to this layout and creates a series of free form spaces, between the buildings, re-inforced and defined by tree and shrub planting. The Master Landscape Plan comprises a series of elements that respond to the future requirements of the users, namely;

Local and District Open Space

10.6.2.4 Local and district open space will be in accordance with the requirements of HKPSG. The local open space will be incorporated into each new development site in proportion to its target population. The open space will comprise:

- active recreation facilities, comprising both indoor and outdoor facilities in accordance with HKPSG;
- feature landscape, area of high quality landscape design and finish, with a mix of hard and soft landscape, intended to create a unifying theme throughout the development. They will include plazas, entrance landscapes, seating areas, shade structures, etc.;
- play areas / gardens, more passive open spaces adjacent to the buildings intended to cater for children's play space, local sitting out areas, shade structures, etc.; and,
- promenade, this open space will be along the waterfront to the east of Route 7. This open space will have a high proportion of hard landscape and ornamental planting and provide seating areas, shade structures, viewpoints, etc. It will be integrated with the pedestrian and cycling network.

10.6.2.5 The open spaces coincide with the visual corridors and are also intended to be focal points for the active and passive recreational facilities. The sites, and thus the open spaces, are connected by green pedestrian links and also with key nodes to the Route 7 promenade. A look-out point is also proposed to capitalise on the views east over the Lamma Channel.

Screen and Buffer Planting

10.6.2.6 To partially mitigate several of the impacts of Route 7, a 15 metre wide landscape buffer strip is proposed between the road and the residential developments. This will comprise dense tree and shrub planting and will act as an effective buffer to the road. It will be connected to the pedestrian network, with public footpaths and seating being provided.

Roadside Landscape Design

10.6.2.7 Tree and shrub planting is proposed in the amenity strips along both sides of all roads. This will create well defined green corridors, softening the their visual harshness. The use of large shade trees will provide a comfortable walking and cycling environment. These green corridors will also form a landscape structure to the development.

Pedestrian Access

- 10.6.2.8 Pedestrian links through the development are critical to provide free and easy access to all buildings, facilities and open spaces throughout the development. They are also important to integrate the development with the surrounding areas. The pedestrian access will primarily follow the road network and will link the surrounding areas, e.g. Victoria Road, with the development and the waterfront promenade. Indicative locations are shown for connections across Route 7 to the waterfront. The pedestrian access arrangements will be subject to detail design.

Cycle Tracks

- 10.6.2.9 An internal cycle track is proposed through the development and along the promenade. This will be subject to detail design.

Amenity Landscape

- 10.6.2.10 Amenity landscape is incidental green areas which have no potential for recreational use. These will provide visual relief and contribute towards a better environment. Amenity areas will include inaccessible roadside areas and slopes. The amenity landscape will form an integral part of the landscape framework on this site and contribute to the upgrading of the landscape within the development. Shade trees should be planted along the roads for shade and to create a green corridor through the development.

Noise Barriers

- 10.6.2.11 Several sections of differing types of noise barrier are recommended along the roadsides throughout the development. The presence of so many differing types of barrier, together with a semi-enclosure, gives rise to a potential for visual clutter and screening seaviews within the townscape and streetscape of the proposed development. The structures could become dominant visual features and, if not designed properly, detract from the new development.
- 10.6.2.12 To counter this, the consultant structural engineers and landscape architects have evolved simple design principles, which influence the appearance and finishes of the proposed structures. The primary purpose of the design theme is to guide the use of form, materials, colour and texture to ensure that the noise barriers appear coherent, unified, uncluttered and an unobtrusive element within the development. Owing to the number of different structures, conditions and maintenance responsibilities, there is a danger that without a design theme, the Telegraph Bay Development would otherwise appear incongruent and visually cluttered.
- 10.6.2.13 The design theme took into consideration the following key issues:
- aesthetics;
 - visibility;
 - constructability;
 - cost; and
 - durability and maintenance.

Aesthetics

- 10.6.2.14 The location of the barriers within, and adjacent to, residential development means that they will be highly visible to many people. The guiding principle of the design theme, therefore, is to ensure that all the structures are as visually recessive and unobtrusive as possible. Additionally, the design theme should respond to the new landscape character of the area, i.e. a new high-rise residential area.
- 10.6.2.15 A substantial portion of the proposed noise barriers will be located on top of structures, e.g., on the possible retaining walls/hollow abutment of Road D2; and on the southern span of Bridge No.1 near the northern corner of Site 5. At other locations along Road D1, the noise barriers are mainly proposed at the toe of slope cuttings.
- 10.6.2.16 Both at-grade footings and pile foundations for the barriers are possible. The former is more suitable for short barriers, while piled support may be more appropriate for barriers as high as 5.5m in order to avoid excessively large base foundations.
- 10.6.2.17 Structural steel is the option for noise barrier and enclosures supports. This would provide the physical support and will be a simple regulating element for all barriers. A combination of materials, including transparent perspex panels, acoustic panels and concrete, will be used in the construction of the noise barriers and enclosures. The concrete is an engineering requirement for a parapet or vehicle deflect barrier forming the base of the barriers above. Structural steel and concrete will be a viable option as a vertical element for visual interest. The pedestrian side should be of a more aesthetically pleasing finish, such as textured or faced.
- 10.6.2.18 The semi-enclosure will be designed in the same theme as the barriers, with the same posts and panels. In order to create visual interest, the design of the roof structure would be formed from perspex panels and roll-formed steel which would be painted. The roof would be lightweight rib-metal section on a metal frame to create a visually unobtrusive structure.
- 10.6.2.19 The colours of these materials should be chosen to maintain the design theme, unify the structural elements along the road and so creating a family of elements, such as blue / grey / purple medium tones to be recessive against the sea backdrop.

Visibility

- 10.6.2.20 The noise barriers will potentially be obtrusive; screening some of the potentially open views, causing them to be enclosed. To prevent this occurring, all reflective barriers are proposed to be transparent, colourless perspex. This will avoid visual enclosure of views, particularly those experienced by road users and pedestrians along Road D2, the southern access road and along Route 7. When viewed from the adjacent high-rise blocks, the clear noise barriers will appear as a light, unobtrusive structure.

Constructability

- 10.6.2.21 All of the barriers proposed to be constructed from widely available proprietary materials. The detail design is simple providing an easily constructed barrier. Barriers of this type have been erected in numerous other locations in Hong Kong. They shall be designed as an integral part of any road or engineering structures, also integrated with the drainage and lighting provision.

Cost

- 10.6.2.22 The simplicity of the detail design, large scale use of only a small number of materials and the implementation of recognised building methods will minimise the costs while creating a viable and effective end product.

Durability and Maintenance

- 10.6.2.23 Similar barriers are in typical use elsewhere in Hong Kong and have displayed their intrinsic durability. Additionally, the use of materials by reputable suppliers / manufacturers with substantial warranties, ensure their quality and durability.
- 10.6.2.24 The use of proprietary materials, which have also been used on a large scale elsewhere in Hong Kong, minimises costs of replacement, repair or alteration of the barriers.
- 10.6.2.25 Maintenance of vertical barriers and any cantilever parts should be fairly straightforward, with the necessary assistance of elevated platform and any necessary temporary closure of carriageway lane at night-time.
- 10.6.2.26 The maintenance of the semi-enclosure roof will need provision on the roof structure, to allow maintenance to access the roof in a safe manner. Provisions such as upstand ribs at top of the roof will facilitate the placement of ladder and other walking platforms on the roof.

Typical Sections

- 10.6.2.27 Typical sections and elevations for the barriers are shown on Figure Nos. 10.11 to 10.21. For the plain Vertical Barriers, the design will be identical, except for their height, and so the typical design has only been shown for one.

Woodland Planting

- 106.2.28 Section 9 Ecological Impact Assessment has identified a mitigation measure to, at least partially, compensate the loss of woodland at the base of the slopes adjacent to the site and from the construction of the southern access. This woodland, comprising a mix of species outlined in Appendix 9.6, is proposed for all new slopes area adjacent to the proposed roads, together with additional areas on the hillside backdrop slopes.

Implementation, Management and Maintenance

- 10.6.2.29 Table 10.6 outlines the proposed implementation, maintenance and management responsibilities for each landscape area of the Master Landscape Plan. This is based on "Works Branch Technical Circular Technical Circular No. 18/94 Management and Maintenance of both Natural Vegetation and Landscape Works".

Table 10.6 Implementation, Management and Maintenance of the Landscape Works and Noise Barriers

Landscape Item	Implementation Department	Management Department	Maintenance Department
Roadside hardworks	TDD	HyD / USD	HyD / USD / ASD
Roadside planting	TDD	USD	USD
Site 1 LOS (all podium)	Private developer	Private developer	Private developer
Site 2 LOS (all podium)	Private developer	Private developer	Private developer
Site 3 LOS (ground level)*	Private developer	Private developer	Private developer
Site 3 Publicly accessible planted buffer along Route 7**	Private developer	Private developer	Private developer
Site 3 LOS	Private developer	Private developer	Private developer
Site 4 LOS	Private developer	Private developer	Private developer
Site 5 LOS	Private developer	Private developer	Private developer
DOS between Sites 1 and 2	TDD / USD	USD	ASD / USD
DOS east of access road	TDD / USD	USD	ASD / USD
Amenity Areas	TDD	USD	ASD / USD
Noise Barriers (not including podium barriers)	HyD / TDD	HyD	HyD
Podium level noise barriers	Private developer	Private developer	Private developer

*It is assumed that the LOS within Site 3 would be segregated from general public space and would, therefore, be maintained and managed by the developer.

**In the long term, with the construction of Route 7, this area may be reclaimed from the developer and rezoned as Open Space. In this instance it is anticipated that USD/ASD would take management and maintenance responsibilities.

10.6.2.30 The implementation of landscape works is also included in Table 13.6 Landscape and Visual - Schedule of Recommended Mitigation Measures for completeness with the mitigation measures for all other disciplines.

10.7 Summary

10.7.1 The incorporation of the opportunities and constraints, identified in the landscape and visual resource analysis, during the design process has avoided many of the potential impacts of the development and resulted in a single preferred option being formulated. This preferred option has a number of impact minimisation features integrally designed to avoid excessive conflict on the surrounding sensitive receivers.

10.7.2 A scheme of this type and scale will inevitably result in significant landscape and visual impact, as have been identified by the assessments. The primary ones are the loss of local woodland at the base of the existing surrounding hill and the visual impacts to the residents in close proximity to the site. However, the type and scale of the development, together with the elevated location and height of the surrounding VSRs, result in opportunities for direct mitigation, such as screen planting, to alleviate the impacts being limited.

10.7.3 The development will change the existing landscape and visual character of the area, from an area of open reclamation, which is naturally revegetating, to a modern high-rise residential area. The Landscape Master Plan, although it cannot provide direct mitigation

such as screen planting, for all those affected visually aims to complement the urban layout and arrangement of the blocks and help create a new urban and landscape character to the area.

Figures

Figures in this section are not available at this web site

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