

7. LANDSCAPE AND VISUAL IMPACT ASSESSMENT

7.1 INTRODUCTION

The aim of this chapter is to identify and analyse the potential impacts of the proposed development on the existing landscape and visual resources of the site and surrounding area. In the following sections, the assessment methodology is set out and the baseline situation and development proposals described. The landscape and visual assessments follow and are arranged in table format for ease of understanding. The appraisal concludes with a description of the proposed mitigation measures and statement of residual impacts.

Assessment has been made for the overall development in Sham Tseng Development (STD) in accordance with requirements of a Schedule 3 Designated Project (DP) under the Environmental Impact Assessment Ordinance (EIAO). Where relevant, individual elements of the overall development that are identified as DPs under Schedule 2 of the EIAO are assessed based on available information at this stage.

- Reclamation;
- Sham Tseng bypass;
- Sewage pumping station; and,
- Underpass below Castle Peak Road.

7.2 GOVERNMENT LEGISLATION AND APPLICABLE STANDARDS

The methodology for undertaking the landscape and visual impact assessment is in accordance with Annex 18 of the Technical Memorandum to the Environmental Impact Assessment Ordinance (EIAO). The main factors influencing the assessment are given below.

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.

The significance thresholds for the landscape and visual impacts are assessed for the construction phase and operational phase both with and without mitigation measures.

In order to illustrate these landscape and visual impacts and to demonstrate the effectiveness of the proposed landscape and visual mitigation measures,

photomontages at selected representative viewpoints have been prepared to illustrate:

- existing conditions;
- unmitigated impacts;
- partially mitigated impacts after implementation of the proposed mitigation measures on day 1 of the operational phase; and,
- residual impact during year 10 of the operational phase.

These residual impacts are then evaluated in accordance with Annex 10 of the Technical Memorandum to the EIAO.

7.3 *LANDSCAPE PLANNING AND DEVELOPMENT REVIEW*

A review of the existing planning studies and documents will be undertaken as part of the assessment to gain an insight into the planned role of the site, its context and to help determine the projects fit into the wider existing and future landscape context.

7.4 *LANDSCAPE IMPACT ASSESSMENT METHODOLOGY*

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.

For the Landscape Impact Assessment (LIA) the assessment area is taken to include all areas within 500m of the gazetted project limit.

A baseline survey of the existing landscape character and quality has been undertaken from site inspections and desktop surveys. Landscape elements considered include:

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

Planned 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 similar character. The individual landscape character areas (LCA) and resources are rated using low, medium

or high depending not only on the quality of elements present but also their sensitivity to change and local or regional importance. The quality of the view is not only related to its visual amenity.

The magnitude of change arising from the implementation of the scheme proposals is rated as negligible, small, intermediate or large.

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 its context.

Factors affecting the magnitude of change for assessing landscape impacts:

- compatibility of the project with the surrounding landscape;
- duration of impacts under construction and operational phases;
- scale of the development; and,
- reversibility of change.

Factors affecting the sensitivity of the landscape to further change for evaluation of landscape impacts:

- quality of landscape characters / resources;
- importance and rarity of special landscape elements;
- ability of the landscape to accommodate change;
- significance of the change in local and regional context, and;
- maturity of the landscape.

The significance threshold for impacts to landscape character and resources is rated as significant, moderate, slight or negligible. The impacts may be beneficial or adverse.

The impact is a product of the magnitude of change, which the proposals will cause, to the existing landscape context and its ability to tolerate the change, i.e. its quality and sensitivity. The significance threshold is derived from the following matrix:

Magnitude of Change caused by Proposals	Large	<i>Moderate Impact</i>	<i>Moderate / Significant Impact</i>	<i>Significant Impact</i>
	Intermediate	<i>Slight / Moderate Impact</i>	<i>Moderate Impact</i>	<i>Moderate / Significant Impact</i>
	Small	<i>Slight Impact</i>	<i>Slight / Moderate Impact</i>	<i>Moderate Impact</i>
	Negligible	<i>Negligible</i>	<i>Negligible</i>	<i>Negligible</i>
		Low	Medium	High
	Sensitivity of Landscape to Change			

7.5

VISUAL IMPACT ASSESSMENT METHODOLOGY

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

- Baseline survey; and,
- Visual impact assessment.

For the Visual Impact Assessment (VIA), the assessment area is taken to include the visual envelope, which includes all areas from which the scheme proposals can be seen. This area forms the view shed formed by natural / manmade features such as existing ridgelines, built development and for example areas of woodland / large trees.

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

- The visual envelope as has been described above and may contain both open and partial views of the proposals. This must also include indirect effects such as offsite construction activities; and,
- The visually sensitive receivers (VSRs) 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, cultural sites, 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 extent of the view or glimpsed views.

However, the assessment of sensitivity has also been based on the quality and extent of the existing view. Therefore a view from a residential property, which would normally be considered the most sensitive view, may be less so if, for example, it is degraded by existing development or partially screened by intervening visual obstacles such as existing vegetation.

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

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.

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 factors affecting the magnitude of change for assessing the visual impacts include the following:

- compatibility of the project with the surrounding landscape forming the view;
- duration of impacts under construction and operational phases;
- scale of the development;
- reversibility of change;
- viewing distance; and,
- potential blockage of the view.

Factors affecting the sensitivity of receivers for evaluation of visual impacts:

- value and quality of existing views;
- availability and amenity of alternative views;
- type and estimated number of receiver population;
- duration or frequency of view; and,
- degree of visibility.

The views available to the identified VSRs are rated according to their sensitivity to change using low, medium or high. Whilst the magnitude of change arising from the implementation of the proposed scheme is rated as negligible, small, intermediate or large. The significance threshold for visual impact is rated in a similar fashion to the landscape impact, i.e. significant, moderate, slight and negligible. The impacts may be beneficial or adverse.

Therefore the impact is a product of the magnitude of change, which the proposals will cause, to the existing landscape context and it's ability to

tolerate the change, i.e. its quality and sensitivity. The significance threshold is derived from the following matrix:

Magnitude of Change caused by Proposals	Large	<i>Moderate Impact</i>	<i>Moderate / Significant Impact</i>	<i>Significant Impact</i>
	Intermediate	<i>Slight / Moderate Impact</i>	<i>Moderate Impact</i>	<i>Moderate / Significant Impact</i>
	Small	<i>Slight Impact</i>	<i>Slight / Moderate Impact</i>	<i>Moderate Impact</i>
	Negligible	<i>Negligible</i>	<i>Negligible</i>	<i>Negligible</i>
		Low	Medium	High
	Sensitivity of View to Change			

The above matrix will apply in the assessment of the majority of situations, however, in certain cases a deviation from this may occur, e.g. the impact may be so major that a significant impact may occur to a view with a low sensitivity to change.

The significance threshold is considered as follows:

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

7.6

MITIGATION MEASURES

The identification of the landscape and visual impacts will highlight those sources of conflict requiring design solutions or modifications 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.

This will result in the formation of landscape mitigation proposals, which will alleviate the previously identified landscape and visual impacts as far as possible.

7.7

RESIDUAL IMPACTS

The residual impacts are those, which remain after the proposed mitigation measures, have been successfully implemented. This is assessed both during the construction period and during the design year, which is often taken to be 10 to 15 years after the proposed scheme has been opened to normal operation. During the design year the soft landscape mitigation measures are deemed to have reached a level of maturity, which allows them to perform their original design objectives.

As has been described above the level of impact is a product of the magnitude of change, which the proposals will cause to the landscape character, landscape resource or visual amenity, and their sensitivity to change. It is a comparison of the future landscape modified by the proposals with the landscape, which would have existed during this period if the proposed scheme had not been constructed. This assessment also considers the ability of the landscape character, landscape resource or visual amenity to tolerate change, i.e. its quality and sensitivity taking into account the beneficial effects of the proposed mitigation. The significance threshold is derived from the matrices described separately above for the landscape and visual impacts.

In accordance with Annex 10 of the EIAO TM an overall assessment is also made of the residual landscape and visual impacts attributable to the proposed scheme. The degree of residual impact is considered as follows:

Beneficial	Acceptable	Acceptable with mitigation	Unacceptable	Undetermined
The project will complement the landscape and visual character of its setting, will follow the relevant planning objectives and will improve overall and visual quality.	There will be no significant effects on the landscape and no significant visual effects caused by the appearance of the project, or no interference with key views.	There some adverse effects, but these can be eliminated, reduced or offset to a large extent by specific measures.	The adverse affects are considered too excessive and would not be reduced to an acceptable level by mitigation.	Significant adverse effects are likely but the extent to which they may occur or may be mitigated cannot be determined from the study. Further detailed study will be required for the specific effects in question.

7.8 *PLANNING AND DEVELOPMENT REVIEW*

7.8.1 *Planning Context*

The proposed reclamation and development is located at Sham Tseng abutting the ex-San Miguel Brewery site (SMB) and Lido Garden. The surrounding area is predominantly residential. The Study Area is covered by the Draft Tsuen Wan West Outline Zoning Plan (OZP) No. S/TWW/11. The SMB, the Union Carbide Chemical Storage Depot (UC), together with the Garden Bakery site are zoned "Comprehensive Development Area" ("CDA"). These areas, with the exception of the bakery, have been recently developed or are being developed for housing. The planning intention for the "CDA" zonings is to phase out the industrial activities by encouraging comprehensive redevelopment of the existing lots for commercial and residential purposes.

There is also a non-statutory plan covering the area; the Tsuen Wan West Outline Development Plan (ODP) No. D/TWW/2. The ODP was endorsed by the then DPC in 1987 and included a proposed reclamation (6.2ha) adjacent to Lido Garden. The majority of this proposed reclamation is zoned for residential and public open space, with some commercial uses and a bus station. The ODP is currently being revised to take into account recent developments in the area.

The Sham Tseng Further Reclamation Layout Plan (LP) No. L/TWW/50/C (1995) is prepared based on the Tsuen Wan West ODP. The plan has not been adopted but it confirms the planning intention for reclamation in the area.

An amendment of the current OZP will be required, primarily due to the extension and formation of additional development land, and will be gazetted under the Town Planning Ordinance for public inspection. This amendment requires submission to the relevant Government Boards/Committees forms part of the scope of the project and is covered in separate reports.

The Metroplan of 1991 has designated the area to the east of the proposed sewage treatment works as a Development Area of High Landscape Value.

7.8.2 *Existing Land Uses*

The Sham Tseng neighbourhood is predominantly residential in character with limited residual industrial activities (e.g. Garden Bakery) and a central commercial area, characterised by roasted goose restaurants and community/government facilities (e.g. market, school, emergency services etc). There are four sites zoned "Open Space" under the OZP, including Angler's Beach, a gazetted beach. There is a pier nearby that provides kaito service between Sham Tseng and Ma Wan. There are two open nullahs located to the east and west of the SMB.

7.8.3 *Committed Developments*

As stated in section 7.8.1 above the residential developments on the CDA sites are completed/currently under construction in line with the OZP. The SMB development includes a primary school and incorporates the decking over of the two nullahs to form landscape and pedestrian connections. The

developments on SMB and UC will reach heights of 200mPD and 176mPD respectively.

The Ting Kau and Sham Tseng Sewage Treatment Works (TKSTSTW) proposed by the Tsuen Wan, Kwai Chung and Tsing Yi Sewage Masterplan Study will serve the Sham Tseng Area, which is currently not served by a public sewer. The TKSTSTW is proposed to be located on the southern part of the newly formed reclamation to the south-east of the Garden Bakery. A planned electricity sub-station will be commissioned in 2003 under the China Light and Power (CLP) Transmission Development Plan. A basketball court with sitting out area and promenade are planned on the "Open Space" sites adjacent to the TKSTSTW.

Highways Department has commissioned the study for the widening of Castle Peak Road (Castle Peak Road Improvement between Area 2 and Ka Loon Tsuen, Tsuen Wan - Design and Construction Consultancy (CPRID&C). Relevant road improvement works have been gazetted and were authorised by the Chief Executive in Council in May and October 2000 respectively.

7.8.4

Conclusion

The proposed development is planned on newly reclaimed land. There will be land/project integration issues relating to the connection of the proposed new bypass under the current study and Castle Peak Road, in light of the road widening proposed by the government. The proposed development on the reclamation will be in general accordance with the typically residential character of the surrounding coastal area, although it will inevitably impact upon views across the Ma Wan Channel.

The proposed development on the reclamation is based on an increased area of reclamation and amendment to the relevant Town Plans would therefore be required. Part of the "O" zone on the formed reclamation, which was previously planned for a waterfront promenade, will become obsolete upon implementation of the Sham Tseng Development. In order to achieve more viable and efficient land use on the proposed reclamation, this portion of the open space will be rezoned. It is proposed that the defunct "O" zone be amended to "G" and "OU" (STW) under the Master Development Plan.

7.9

EXISTING LANDSCAPE CONTEXT

Sham Tseng is located in the South West New Territories. It is situated on the coast, opposite the island, Ma Wan. The settlement is set around a coastal bay and is topographically contained to the north by the steeply rising hillsides that link the shoreline with Tai Lam Country Park. The hillside, together with the Ma Wan Channel and islands to the south, combine to create the landscape setting to the settlement.

Sham Tseng lies off the elevated Tuen Mun Road, between Tsing Lung Tau and Ting Kau Bridge, to the west of Tsuen Wan. It is a modest size settlement comprising a mixture of village housing, on the lower hillsides furthest from the coast, and more recent high-rise developments towards the water-front. The high-rise residential development has, in part, replaced former industrial uses, a process that is ongoing. The Garden Bakery factory is the most significant remaining industrial site. The town centre comprises a number of famous roast goose restaurants, together with commercial and community

facilities, including a primary school. Two open drainage channels bisect the settlement.

The proposed reclamation site is situated between the designated Ting Kau and Sham Tseng STW reclamation site at the east of the bay, an area of existing reclamation, and Tsing Lung Tau to the west. The western part of the bay retains a semi-natural coastline, including a sandy beach area; Angler's Beach. The proposed reclamation/development area is bounded to the north-east by Government land, all of which is on existing reclamation; Lido Garden and two new housing developments, formerly San Miguel Brewery site (SMB) and the Union Carbide chemical storage depot (UC). To the north-west, the boundary is demarcated by Castle Peak Road, which follows the semi-natural coastline to the north of Anglers Beach.

7.9.1 *Landscape Resources*

For the purposes of the landscape assessment, the study area is taken to extend 500m from the development boundary. Within this area the landscape resources have been identified, namely significant areas of vegetation, natural coastline and natural hillside. Impacts on these resources have been quantified as a means of assessing the impact on local landscape character and in order to identify appropriate compensatory measures. The landscape resources and impacts on them are listed in *Table 7.12b*. The location of the landscape resources is shown *Figure 7.5a*.

7.9.2 *Landscape Character Units*

Based on the landscape assessment (desk-top and site survey) and the identified landscape resources, the study area has been divided into Landscape Character Units (LCAs). The local landscape character can be broadly classified into three groups; steep hillside; predominantly natural coastal areas; and urban development. A total of eight LCAs were identified as part of the assessment, as listed in *Table 7.12c*. The LCAs are illustrated on *Figure 7.5a* and in photographs on *Figure 7.10c – 7.10f*.

7.10 *PROPOSED DEVELOPMENT*

The proposed development is described in detail in *Section 2* of the EIA report and is illustrated on *Figure 2.2c*. An outline description is included here to facilitate understanding of the predicted landscape impacts.

The proposed reclamation covers an area of 15.2 ha and will be completed in 4 phases (see following paragraph). The proposed development is predominantly high-rise residential (38-56 floors). It includes 3 school sites, located immediately to the south of Lido Garden. Principal areas of public open space include a District Park (with an area of 10,800m²) at the western end, adjacent to the marine basin. The public open space also includes an elevated waterfront promenade (the total area of the waterfront promenade will be 26,900 m², of which 870m length will be elevated), above the proposed bypass alignment; and a central park (7400 m²) at podium level. In addition, it is proposed that the open drainage channels are decked over (length of east nullah 370m; length of west nullah 400m; see Fig 1.1 for location), and these no build zones together with those associated with the water mains pipelines, will become part of the open space framework. The marine basin includes a

stub pier. Provision has been made for a transport terminus underneath a residential podium; a salt-water pumping station (approximately 25m width x 42m length x 7m height); a sewage pumping station (10m width x 10m length x 7m depth) and an area for extension of the TKSTSTW (approximately 15,400m²). The proposed development will also include a noise barrier some 5m high and 100m in length along Castle Peak Road.

The phasing is particularly important to the visual impact assessment in relation to the duration of construction phase impacts and because the different phases of work will affect different sensitive receivers (VSRs and LCAs) to differing degrees. The proposed phasing of the development is set out in *Table 2.7a*. To summarise, the construction period of the development can be divided into two; the reclamation and the infrastructure works. The reclamation is divided into four phases and will take a total of 4 years to complete. Phase 1 comprises the western section, including formation of the marine basin. Phase 2 is the central section to the south of Lido Gardens. Phase 3 is the eastern section, located adjacent to the committed TKSTSTW reclamation and phase 4 is the remaining area, between phases 1 and 2. The first phase of the infrastructure works includes construction of the proposed bypass (the length of the bypass above Phase 1 Reclamation will be approximately 360m), the Underpass below Castle Peak Road (approximately 370m), and the sewage pumping station (DP3) and will take 3 years. The public housing areas and schools will be completed one year later, followed by the private residential development. The new population will move into the area once all the residential block developments are complete.

The areas of reclamation within each phase are as follows:

Phase 1 – 1.6ha

Phase 2 – 4.5ha

Phase 3 – 5.2ha

Phase 4 – 3.9ha

Reclamation (Designated Project 1)

As stated previously, the reclamation is within Sham Tseng Bay and the sea wall extends from the existing reclamation to the east (designated site for the Ting Kau and Sham Tseng STW) and Tsing Lung Tau to the west. It will cover an area of 15.2ha. The proposed sea wall construction is a vertical blockwork seawall on a sloping berm. Construction will involve marine bottom mud dredging, rockfilling from barges and the placement of armour rock by crane lift.

Reclamation filling will commence behind the sea wall. Sand filling to a depth of 2-5m to form a capping layer, will be followed by public filling to reclamation level.

Sham Tseng Bypass (Designated Project 2) & Underpass below Castle Peak Road (Designated Project 4)

The alignment of the proposed bypass follows the southern edge of the reclamation. The western end of the bypass is proposed to connect directly with Castle Peak Road, between Sea Crest Villa Phase 3 and Dragon Villa (Lot 99 in DD387 site). The bypass will be on viaduct, above the western end of the reclamation to accommodate the marine basin. The westbound slip road

will be an underpass; the eastbound slip road will be at the surface. The central section of the bypass is covered. The cover is the means for provision of a waterfront promenade and offers environmental mitigation (noise and visual). At the eastern end, the bypass is elevated above the southern limit of the TKSTSTW site (5-7m headroom clearance). It rises from reclamation level (where covered) to connect with Castle Peak Road, accommodating slip roads to and from Sham Tseng. In summary the alignment, from the western end, is as follows, refer to Figure 7.14h;

- Underpass below Castle Peak Road for 375m;
- At-grade connection to Castle Peak Road for 100m;
- Bypass viaduct over marine basin to at-grade bypass on reclamation for 390m;
- At-grade bypass on reclamation for 510m; and
- Bypass viaduct connection to Castle Peak Road for 400m.

The development will result in noise impacts to existing and future receivers. In order to mitigate this, a series of mitigation measures are required, including noise barriers as follows:

Goldenville

- 5m vertical absorptive barrier along central reserve of Sham Tseng Bypass, 30m long from Chainage (CH): 570 to CH: 600.
- 5m vertical absorptive barrier along the southern side of the eastbound Sham Tseng Bypass, 50m long from CH: 600 to CH:650.

Sea Crest Villa Blocks 8, 9 and 10

- Semi-enclosure along the northern side of the eastbound Sham Tseng Bypass, 130m long from CH: 600 to CH: 725.
- Promenade extension along western end, 380m from CH: 725 to CH: 1100.

DD 387 Lot 99

- 3.5m vertical reflective barrier along the southern side of the westbound Sham Tseng Bypass, 100m long from CH: 700 to CH: 800.

Golden Villa

- 6m vertical reflective barrier along the northern side of Castle Peak Road eastbound, 170m relevant to CH: 2150 to CH: 2325.

The locations of the proposed noise mitigation measures are shown on Figure 7.6a.

Sewage Pumping Station (Designated Project 3)

The location for the sewage pumping station is underground, underneath the open ground between the roundabout and the decked nullah, to the north of Area 4. An underground chamber will be required, together with a small reinforced concrete structure on the surface to accommodate the CLP transformer, control board and other associated facilities. Parking space will be provided.

7.11 SUMMARY OF SIGNIFICANT LANDSCAPE IMPACTS

The predicted landscape impacts on each landscape resource and LCA, prior to mitigation, are described and assessed in *Tables 7.12b and 7.12c*.

7.11.1 *Landscape Resources*

The landscape resources affected by the proposed development are limited due to its location on reclamation and because it abuts existing reclamation for much of its length, the exception being the western section. The only significant adverse impact on a landscape resource is the permanent loss of the remaining portion of Angler's Beach (initial loss at the western portion of the beach due to Castle Peak Road Widening Scheme), for which the opportunities for mitigation are extremely limited. The landscape resources that are affected are listed in *Table 7.12b*.

7.11.2 *Landscape Character*

The existing character of the Study Area is mixed. It includes natural hillside, high-rise residential and village housing areas, industrial areas, and disturbed and natural coastlines. The proposed development will not have a significant impact in terms of the general character context of the study area. However, the changes that it involves, in particular the reclamation of the bay and the significant increase in the proportion of high-rise development in Sham Tseng, will be locally significant. In addition, the proposals will result in an increase in district open space provision.

The proposed landscape mitigation measures and residual landscape impacts are outlined in *Tables 7.12c*.

7.12 SUMMARY OF LANDSCAPE IMPACTS RELATED TO SCHEDULE 2 DESIGNATED PROJECTS

The following paragraphs summarise the landscape impacts, prior to mitigation, of the Schedule 2 DPs, as identified in *Table 7.18a* to 7.18d.

Reclamation (DP1)

The majority of the impacts of the overall scheme are attributable to the reclamation, firstly because it is the preliminary phase of the development, and secondly, because it covers the full extent of the proposals. It is likely to cause a range of adverse impacts on both landscape resources and local landscape character.

With respect to the existing landscape character, the loss of waterfront context for several of the existing LCAs, together with a modification to the existing coastal character will result in impacts ranging from slight to significant adverse. The landscape character of the area will change from an area characterised by mixed coastal areas with manmade, semi-natural and natural areas to one characterised by a regular manmade coastline. The loss of the remaining portion of Angler's Beach (50% of which will be lost due to the Castle Peak Road widening scheme) as a landscape resource and a semi-natural feature is likely to result in significant adverse impacts.

The predicted impacts to the identified landscape resources include the loss of waterfront context, i.e. **natural coastline** (loss of approx.0.2ha which amounts to approximately 30% of the remnant natural coastline within the Study Area), semi-natural coastline (primarily the remaining 50% of Angler's Beach, of which 100% is lost, approximately 0.4ha) and the bay itself, due to the **re-alignment** of the coastline. The landscape resources to the north of Angler's Beach would be severely disrupted due to the proposals for the widening of Castle Peak Road. The reclamation proposals would not exacerbate this situation. However overall the loss of landscape resources is likely to cause significant adverse impacts.

Sham Tseng Bypass (DP2) & Underpass below Castle Peak Road (DP4)

The location of the bypass, along the seaward edge of the new reclamation, limits the resultant impacts on landscape resources particularly where the road connects to Castle Peak Road at the periphery of the new development. The construction of slip roads and the tunnel at the western end will involve slope works resulting in changes to the profile of the existing hillside and the loss of existing vegetation. These impacts will affect the hillside below Sea Crest Villas Phase III to the west of the development (loss of 0.15ha of existing scrub and 0.05ha of secondary woodland, approximately 0.1% of total resources within the area), and to a lesser extent, the hillside below Golden Villa to the east (disturbance to the hillside, approximately 0.05ha, i.e. approximately 2% of the total hillside vegetation within this area). The proposals will require disturbance to the natural topography and the vegetation of the hillside resulting in low to significant adverse impacts. Approximately 0.05ha of these resources will be affected by the construction of the underpass tunnel. However it should be noted that the proposals for Castle Peak Road would lead to the loss of a large part of the existing landscape resources in this area. This would be evident in the loss of the natural hillside due to the construction of the proposed cuttings and retaining walls to the north of Castle Peak Road. Whilst to the south this impact would be evident in the loss of the beach area due to the widening of Castle Peak Road and the construction of the proposed new sea wall and retaining walls.

The proposed noise barriers would be located on the road structure and are an integral part of the road engineering works. As such, they will contribute to the landscape impact of the structure, but will not cause additional quantifiable landscape impacts relative to the DP as a whole. The location and scale of the proposed noise barriers is given in the table below.

Table 7.12a Proposed Noise Barriers

Item	Location	Description of Noise Barrier	Location of Noise Barrier
1	Goldenville	(1) 5 m vertical barrier along the central reserve of Sham Tseng Bypass, in absorptive material	(1) 30 m long starting from CH: 570 to CH: 600
		(2) 5 m vertical barrier along the southern side of eastbound Sham Tseng Bypass, in absorptive material	(2) 50 m long starting from CH: 600 to CH: 650
2	Sea Crest Villa Blocks 8, 9 & 10	(3) Semi-enclosure located along the northern side of eastbound Sham Tseng Bypass of 130 m long with cantilever 3 m from central reserve	(3) 130 m long starting from CH: 600 to CH: 725
		(4) Promenade extension along the western end (also serving planning purposes)	(4) 380 m long starting from CH: 725 to CH: 1100
3	DD 387 Lot 99	(5) 3.5 m vertical barrier along the southern side of the westbound Sham Tseng Bypass, in reflective material	(5) 100 m long starting from CH: 700 to CH: 800
4	Golden Villa	(6) 6 m vertical barrier along the northern side of Castle Peak Road eastbound, in reflective material	(6) 170 m long, relevant to CH: 2150 to CH: 2325
		(7) 5 m vertical barrier along the central reserve of Castle Peak Road, in reflective material	(7) 100 m long starting from CH: 2150 to CH: 2255

These DPs are likely to cause a range of landscape impacts to both the existing landscape character and resources. With respect to the character, the impacts are likely to range from slight to moderate adverse only. They relate to the disturbance of the existing hillside and disturbed coastline areas to the east and west. The works will result in an extension to the manmade elements, i.e. roads and noise barriers, within the character areas. With regard to the noise barriers, the DPs will extend the impacts on the landscape character as they further introduce additional manmade elements, however, these impacts have been considered in the context of the remaining road works, as they are integral part of them.

Similar impacts are likely to be experienced by the landscape resources, i.e. disturbance to the natural hillsides, natural coastline and vegetation (in total 0.3ha of scrub and secondary woodland – refer to Table 7.12b), with the impacts ranging from moderate to significant adverse. The impacts will arise from the permanent road works, including noise barriers. These barriers are an integral part of the works along the viaduct and will not cause additional impact to the existing resources over that caused by the road works.

The proposed covering of the bypass (length of proposed covering will be approximately 875m) and creation of a waterfront promenade on this deck, will reduce landscape impacts related to the separation of public open space from the waterfront. However, the increased height of the resultant vertical barrier (5.8m height pexiglass barrier – please refer to the photomontages illustrated on Figures 7.12c-e;g-i and k-m) will increase the separation between the existing residential areas and the sea, in particular at low levels where there is no podium deck. This will contribute to the change in the character of the settlement in relation to its coastal location. The proposed

noise barrier forms an integral part of the bypass proposals and as such its impacts are assessed as part of the overall impact.

The proposed covering of the bypass will take the form of an innovative raised promenade design. The engineering design will provide suitable support to enable the planting of trees to visually soften the hard lines of the building blocks further back from the shore, and to provide shade for pedestrians. Shade will also be provided by sail structures. The promenade will be a key focal open space and will capitalise on the open views across the channel to the south. It will provide viewpoints, seating areas and shade structures within a strong planting framework. Connections to other open spaces and private residential podium will be via escalators, staircases, ramps and elevators.

Sewage Pumping Station (DP3)

The Sewage Pumping Station (SPS) is located beneath the cul-de-sac access road, immediately to the north of the central podium level DOS. The proposed sewage pumping station consists of an underground sewage pump chamber located adjacent to the roundabout north of Area 4. An underground chamber will be required, together with a small reinforced concrete structure on the surface to accommodate the CLP transformer, control board and other associated facilities. Parking space will be provided. It will have a negligible impact on existing landscape resources as it is located primarily underground, and is set within the new high-rise development. As it is associated with other buildings, and not sited by itself, the sewage pumping station will have negligible impact upon the future landscape character of the reclamation area.

Table 7.12b: Existing Landscape Resources and Predicted Impacts

The table below presents the unmitigated and mitigated (residual) impacts arising from the scheme proposals during the construction and operational phases of the project. The mitigated residual impacts are assessed during the design year which for the purposes of this study is taken as being between 10 and 15 years after the schemes opening when the proposed mitigation planting is deemed to have reached a level of maturity, which is sufficient for it to perform the design objectives. It should be noted that no protected or rare species were identified at this stage, however it is recommended that a detailed vegetation survey of scrub and woodland, including a detailed tree survey in accordance with WBTC 24/94, Tree Preservation, be undertaken within the areas identified as being affected by proposals.

Landscape Resource	Sens.	Mag of Change (Con/Oper Phase)	Impact on Landscape Character resulting from the loss of the Existing Landscape Resources.	Significance Threshold (Unmitigated)		Mitigation Measures (Responsible)	Significance Threshold (Mitigated)	
				Con	Oper		Con	Oper
<p>NC: Natural Coastline Forming part of LCA 1.</p> <p>This is restricted to the east and west of the study area and comprises a natural rocky tidal zone below the steep natural hillsides. As they are largely undisturbed they are considered of high quality, however the proposals for the widening of Castle Peak Road will lead to the loss of part of this existing resource.</p>	High	Large/ Large	<p>Loss of approximately 0.2ha of the natural coastline due to the east end of the bypass. This amounts to approximately 30% of the remnant natural coastline within the Study Area following the widening of Castle Peak Road.</p> <p>Schedule 2 DP contributing to impact: DP2</p>	Significant adverse	Significant adverse	<p>Minimisation of slope works and reprofiling to tie in with existing gradient.</p> <p>Tree survey and felling in accordance with WBTC 24/94.</p> <p>Replacement tree planting to restore vegetation cover and screen (minimum 0.05ha)</p>	Significant adverse	Significant adverse
<p>AB: Angler's Beach Forming part of LCA 3.</p> <p>430m in length. Located centrally along the coastline, this is a modified coastal area with a sandy beach. Its importance as an accessible landscape resource and semi natural character result in it being of high quality. However, 50% of the width of the existing beach will be lost</p>	High	Large/ Large	<p>Total (100%) loss of remaining beach area, approximately 0.4 Ha, and adjacent areas of semi-natural coastline, resulting from Phase 1 reclamation.</p> <p>Schedule 2 DP contributing to impact: DP1.</p>	Significant adverse	Significant adverse	<p>No direct landscape mitigation proposed for this resource. Retention of vegetation, especially trees, where possible. Submission of Tree Felling Application in accordance with WBTC 24/94 to relevant government departments, including compensatory planting</p>	Significant adverse	Significant adverse

Landscape Resource	Sens.	Mag of Change (Con/ Oper Phase)	Impact on Landscape Character resulting from the loss of the Existing Landscape Resources.	Significance Threshold (Unmitigated)		Mitigation Measures (Responsible)	Significance Threshold (Mitigated)	
				Con	Oper		Con	Oper
prior to this project due to the Castle Peak Road Widening Scheme.								
<p>TB: Tree Belt Forming part of LCA 3.</p> <p>Tree belt to rear of Angler's Beach. A group of trees (approximately 0.6Ha) to the rear of the beach. This resource will be lost prior to this project during the Castle Peak Road Widening Scheme</p>	Medium	Negligible/ Negligible	<p>100% Loss due to Castle Peak Road Widening Scheme</p> <p>No Schedule 2 DP contributing to impact.</p>	Negligible impact	Negligible impact	No direct landscape mitigation proposed for this resource as clearance will occur as part of another project.	Negligible impact	Negligible impact
<p>NH 1 - Natural hillside Forming part of LCA 1.</p> <p>Scrub and small areas of secondary woodland. This is an area of primarily natural hillside including steep topography rising from the coastal areas northwards. Vegetation is dominated by scrub but includes small areas of woodland, primarily in the small sheltered ravines. The undisturbed nature of this area result in it being of high quality.</p>	High	Low/ Low	<p>Minor alteration of slope profile, approx. 0.05ha, on lower hillside below Golden Villa due to slip road construction connection Castle Peak Road and the proposed bypass (east of development). This amounts to approximately 2% of the hillside vegetation in this area.</p> <p>Schedule 2 DP contributing to impact: DP2.</p>	Slight adverse	Slight adverse	<p>Minimisation of slope works and reprofiling to tie in with existing gradient.</p> <p>Tree survey and felling in accordance with WBTC 24/94.</p> <p>Replacement tree planting to restore vegetation cover and screen,(minimum 0.05ha)</p>	Slight adverse	Slight adverse
<p>NH2 - Natural hillside Forming part of LCA 1.</p> <p>Scrub and small areas of secondary woodland. As with NH1 this is an area of primarily natural hillside including steep topography rising from the coastal areas northwards. Vegetation is dominated by scrub but includes small areas of</p>	High	Intermediate / Intermediate to small	<p>Loss of existing vegetation on slope to north of Dragon Villa due to construction of underpass tunnel. Approximately 0.05ha affected. This amounts to approximately 0.01% of the hillside vegetation in this area.</p> <p>Schedule 2 DP contributing to impact: DP2.</p>	Moderate adverse	Moderate adverse	<p>Minimisation of slope works and reprofiling to tie in with existing gradient.</p> <p>Tree survey and felling in accordance with WBTC 24/94.</p> <p>Replacement tree planting to restore vegetation cover and screen (minimum 0.05ha)</p>	Moderate adverse	Slight adverse

Landscape Resource	Sens.	Mag of Change (Con/Oper Phase)	Impact on Landscape Character resulting from the loss of the Existing Landscape Resources.	Significance Threshold (Unmitigated)		Mitigation Measures (Responsible)	Significance Threshold (Mitigated)	
				Con	Oper		Con	Oper
woodland, primarily in the small sheltered ravines. The undisturbed nature of this area result in it being of high quality.								
<p>NH3 - Natural hillside Forming part of LCA 5.</p> <p>Scrub and small areas of secondary woodland. As with NH1 this is an area of primarily natural hillside including steep topography rising from the coastal areas northwards. Vegetation is dominated by scrub but includes small areas of woodland, primarily in the small sheltered ravines. The undisturbed nature of this area result in it being of high quality.</p>	High	Large / Large to intermediate	<p>Loss of existing vegetation and alteration of slope profile between Sea Crest Villa Phase 3 and Dragon Villas (west of development). This amounts to approximately 25% of the hillside vegetation in this area. Approximately 0.1Ha will be affected by DP2 and 0.1 Ha by DP4.</p> <p>Schedule 2 DP contributing to impact: DP2 and DP4.</p>	Significant adverse	Significant adverse	<p>Minimisation of slope works and reprofiling to tie in with existing gradient.</p> <p>Tree survey and felling in accordance with WBTC 24/94.</p> <p>Replacement tree planting to restore vegetation cover and screen (minimum 0.2ha)</p>	Significant adverse	Moderate adverse

Key: Sensitivity of Resource (Sens): Low, Medium or High
Magnitude of Change (Mag): Negligible, Small, Intermediate or Large
Significance Threshold: Negligible, Slight, Moderate and Significant (adverse or beneficial)
Impacts: Refer to matrix and table in the introductory section of the LVIA
Con - Construction Phase
Oper - Operational

*Schedule 2 Designated Projects: DP1 Reclamation
DP2 Sham Tseng Bypass
DP3 Sewage Pumping Station
DP4 Underpass below Castle Peak Road

Table 7.12c: Existing Landscape Character and Landscape Impacts

The following table presents the predicted unmitigated and mitigated (residual) impacts for the proposed scheme during the construction and operational phases of the project. The mitigated residual impacts are assessed during the design year which for the purposes of this study is taken as being between 10 and 15 years after the schemes opening when the proposed mitigation planting is deemed to have reached a level of maturity, which is sufficient for it to perform the design objectives. It should be noted that the proposed noise barriers form part of the overall assessment of landscape impacts.

Landscape Character Area (LCA)	Sens	Mag of Change (Con/Oper phase)	Main Impacts on Landscape Character Area	Impact Significance Threshold (Unmitigated)		Mitigation Measures	Impact Significance Threshold (Mitigated)	
				Con	Oper		Con	Oper
<p>LCA 1 - Primarily Natural Hillside Secondary woodland on steep slopes providing a green backdrop to the Sham Tseng area and to the proposed reclamation study area with links with the greenery of Tai Lam Country Park (when viewed from Ma Wan Channel or Tsing Yi View point). Public footpaths from Sham Tseng run through this LCA to provide access to the Country Park. These are primarily undisturbed areas of natural topography and primarily scrubland, with some woodland present in ravines. They are considered to be of high quality.</p>	Medium	Intermediate / Intermediate	<p>Loss of vegetation and changes to slope profile (approximately 0.5ha, 0.1% of total resource) resulting from construction of slip-roads and associated noise barriers connecting the new bypass with Castle Peak Road. Although locally significant, the impact is considered to be moderate in the context of the wider LCA.</p> <p>Introduction of additional high rise development (Phases 5 and 6) will increase separation between hillside and Ma Wan Channel</p> <p>Reduction in the amenity value of the hills from within the settlement due to impacts on views and green linkages</p> <p>Schedule 2 DP contributing to impact: DP2 and DP4</p>	Moderate adverse	Moderate adverse	<p>Retention of some view corridors and limitation of building heights to below the existing ridgeline of the hills</p> <p>Minimisation of slope cutting.</p> <p>Design of transparent noise barriers.</p> <p>Tree survey and felling in accordance with WBTC 24/94.</p> <p>Replacement tree planting to restore vegetation cover and screen noise barrier (approximately 0.5ha).</p>	Moderate adverse	Moderate adverse
<p>LCA 2: Disturbed Coastline A significant proportion of the original Sham Tseng Bay has already been reclaimed for industrial uses including the Garden Bakery, together with the former San Miguel and Union Carbide sites that are now being</p>	Low	Intermediate / Intermediate	<p>The LCA will become sandwiched between the existing and proposed reclamation areas and so becomes part of the land area (Phases 2 and 3). However, the character type will, in effect, be improved and substituted by the new edge of reclamation.</p> <p>Schedule 2 DP contributing to impact: DP1</p>	Moderate adverse	Slight adverse	<p>Reprovision of publicly accessible waterfront including open space and planting on elevated promenade and on edge of marine basin in Western Coastal Park.</p>	Moderate adverse	Slight adverse

Landscape Character Area (LCA)	Sens	Mag of Change (Con/Oper phase)	Main Impacts on Landscape Character Area	Impact Significance Threshold (Unmitigated)		Mitigation Measures	Impact Significance Threshold (Mitigated)	
				Con	Oper		Con	Oper
developed for housing. As a result, the coastline of much of the bay comprises a vertical sea wall at the edge of reclamation. The disturbed character of the coastline results in being low quality.			and DP2.			Provision of the proposed Leisure Centre in Area 6.		
<p>LCA 3: Angler's Beach</p> <p>This is currently a modified natural coastal area to create a sandy beach and is a key recreation resource for Sham Tseng. However, the beach will suffer 50% loss due to the Castle Peak Road Widening Scheme Tree and shrub planting on the slope to the north currently provides a vegetated landscape buffer, separating it from Castle Peak Road. However, this will suffer 100% loss due to the Castle Peak Road Widening Scheme. A small Kaito pier extends from the beach and provides Kaito service and a place for people to fish. This provides a key resources and public spaces with a waterfront location and is considered to be of high quality.</p>	High	Large / Large	<p>Permanent loss of remaining 50% width (approximately 0.4ha) of sand beach (Phase 1)</p> <p>Loss of kaito pier.</p> <p>Vegetated slope between beach and Castle Peak Road lost due to Castle Peak Road Widening Scheme.</p> <p>Schedule 2 DP contributing to impact: DP1.</p>	Significant adverse	Significant adverse	<p>No direct landscape mitigation proposed for the disturbance to this LCA. Provision of publicly accessible waterfront open space on elevated promenade and in Western Coastal Park.</p> <p>Reprovision of kaito pier in marine basin</p>	Significant adverse	Significant adverse

Landscape Character Area (LCA)	Sens	Mag of Change (Con/Oper phase)	Main Impacts on Landscape Character Area	Impact Significance Threshold (Unmitigated)		Mitigation Measures	Impact Significance Threshold (Mitigated)	
				Con	Oper		Con	Oper
<p>LCA 4: Gemini Beach Headland Small beaches backed by secondary woodland and a low natural ridgeline provide a local landmark to the east of the study area. The headland bounds the study area to the east of the STW site. The undisturbed character results in a high quality to this area.</p>	High	Intermediate / Intermediate	<p>Indirect impact as the headland character will be reduced due to reclamation (Phase 1) in the adjacent bay and introduction of high-rise residential development (Phases 5 and 6) in close proximity to the beach. The towers will be higher than the intervening headland.</p> <p>Schedule 2 DP contributing to impact: DP1 and DP2</p>	Moderate adverse	Moderate adverse	<p>Retention and protection of headland during works</p> <p>Provision of publicly accessible district open space adjacent to the headland</p>	Moderate adverse	Slight adverse
<p>LCA 5: Dragon Beach Headland A series of small beaches which have secondary woodland and a low ridgeline to the north. This area provides a local landmark and bounding the west reclamation limit. This is a primarily undisturbed area and is thus considered to be of high quality.</p>	High	Intermediate / Intermediate	<p>The headland and beaches will lose their separation from the settlement as they will abut the edge of the new reclamation (Phase 1)</p> <p>Permanent loss of the bay setting</p> <p>Junction between bypass and Castle Peak Road will affect slope profile and existing vegetation. This amounts to approximately 25% of the hillside vegetation in this area. Approximately 0.1Ha will be affected by DP2 and 0.1 Ha by DP4.</p> <p>Schedule 2 DP contributing to impact: DP1, DP2 and DP4.</p>	Moderate adverse	Moderate adverse	<p>Retention and protection of headland during works</p> <p>Provision of publicly accessible district open space adjacent to the headland</p>	Moderate adverse	Slight adverse
<p>LCA 6: Village Area The village comprises mainly low-rise residential development. Houses are low-rise villages typical of the New Territories, i.e. simple block form with tile finish. Some isolated tree planting is present. The Village is orientated to south with interrupted views toward Ma Wan Channel. The village has no public open space or recreation facilities. The closest</p>	Medium	Small / Small	<p>No direct impacts to LCA village area</p> <p>Greater separation between village areas and coast due to reclamation (Phase 1) and intervening high-rise development (Phases 5 and 6) will impact upon the setting and landscape amenity.</p> <p>Indirect impact due to loss of landscape amenity at DOS Angler's Beach.</p> <p>Schedule 2 DP contributing to impact: DP1.</p>	Slight adverse	Slight adverse	<p>Retention of the marine basin on the village side of the bypass will help to retain sense of the coastal setting to the village areas.</p> <p>DOS provision within the new development will improve local landscape amenity</p>	Slight adverse	Slight adverse

Landscape Character Area (LCA)	Sens	Mag of Change (Con/Oper phase)	Main Impacts on Landscape Character Area	Impact Significance Threshold (Unmitigated)		Mitigation Measures	Impact Significance Threshold (Mitigated)	
				Con	Oper		Con	Oper
DOS is Angler's Beach. The disturbed character of the village area results in it being of medium quality.								
LCA 7: High-rise Residential A large section of the study area comprises high-rise residential development. This forms a broken ribbon of development that overlooks the reclamation site and over towards the Ma Wan Channel. Local open space is present within each of the developments. Included within this LCA are the high-rise developments proposed at the San Miguel site (SMB) (which is ongoing) and Union Carbide site (UC). The overall quality of the development is considered of medium quality resulting from the level of disturbance, together with much of the development being on reclamation contrasting with the presence of open space areas.	Medium	Intermediate / Intermediate	Loss of vegetation and changes to slope profile below Sea Crest Villa Phase 3 resulting from construction of slip-roads (and associated noise enclosure) connecting the new bypass with Castle Peak Road. Although locally significant, the impact is considered to be moderate in the context of the wider LCA. (Approximately 0.05ha affected. This amounts to approximately 0.01% of the hillside vegetation in this area.) Loss of waterfront location to a number of developments (All phases) Schedule 2 DP contributing to impact: DP1, DP2 and DP3.	Moderate adverse	Moderate adverse	Provision of publicly accessible open space and linkages through to the waterfront Retention of some view corridors through the new development	Moderate adverse	Slight adverse
LCA 8: Industrial (and residential) A small part of the existing reclamation area comprises the Garden Bakery, Union Carbide and proposed STW sites, located to the eastern part of the bay. The high level of disturbance results in a low quality.	Low	Intermediate / Intermediate	Loss of waterfront location (Phases 3, 5 and 6) Schedule 2 DP contributing to impact: DP1 and DP2.	Slight adverse	Slight adverse	Provision of publicly accessible open space and linkages through to the waterfront	Slight adverse	Slight adverse

Key: Landscape Sensitivity (Sens): Low, Medium or High
Magnitude of Change (Mag): Negligible, Small, Intermediate and Large
Significance Threshold: Negligible, Slight, Moderate and Significant (adverse or beneficial)

Residual Impacts: Refer to matrix and table in methodology section
Con - Construction Phase
Oper - Operational

*Schedule 2 Designated Projects: DP1 Reclamation
DP2 Sham Tseng Bypass
DP3 Sewage Pumping Station
DP4 Underpass below Castle Peak Road

The visual amenity is closely related to landscape character and hence to the LCAs. The study area for the visual impact assessment (i.e. the area within the visual envelope) is characterised on the whole by a medium to high visual amenity value due to its coastal location at the foot of steep, wooded hillsides and the remnant village character. There are areas of low visual amenity, including the Garden Bakery factory and areas adjacent to the artificial sea wall.

The visual envelope is defined as the view shed within which the scheme proposals can be seen and includes areas, which have full or partial views of the proposals. Mapping the visual envelope informs the more detailed assessment by highlighting the area within which the visually sensitive receivers (VSRs) need to be identified. The visual envelope is contained to the north by the foot slopes of Tsing Fai Tong (approximately 139mPD) and the existing high-rise development adjacent to Castle Peak Road. The low ridges of the headlands to the east (south of Golden Villa, rising from sea level to approximately 120mPD) and west (Tsing Lung Tau rising from sea level to approximately 111mPD) of the township contain views from along the coast. The visual envelope is wider from the water, extending approximately 1.1km to Ting Kau Bridge. To the south, the visual envelope extends approximately 2.0km to the island Ma Wan and the Tsing Ma Bridge on the Lantau Link road. The extent of the visual envelope is illustrated on *Figure 7.7a*.

The key VSRs in relation to this impact assessment, will be residents of existing high-rise residential towers immediately adjacent to the proposed development site and the low rise housing in Sham Tseng Village. The character and extent of existing views experienced by the VSRs vary depending on their location relative to the development. Those with a coastal location currently, such as Sea Crest Villas and Lido Garden, enjoy open, unrestricted views south over the Ma Wan Channel to Ma Wan; high level of visual amenity and high sensitivity to change. Several other of the VSRs have partially screened views across the water, for example Sham Tseng Villages and Rhine Terrace, which reduces their sensitivity relative to those with open views. Views arising from the local roads, together with those from the bridges to Lantau, are considered to be of low sensitivity due to the generally high speed of travelling vehicles, the transience of the view and the alternative views available.

The existing VSRs are listed and their typical views described in *Table 7.13a*. The locations of VSRs are shown on *Figures 7.7b* and *7.7c* and photographs illustrating typical views are included in *Figures 7.7d* to *7.7k* and *7.10c* to *7.10f*. The hiking trails in the Study Area were considered to be unaffected by the proposals, as views towards the development from the trails are screened by the existing vegetation, landform and built development. For this reason, they are not included as a VSR.

Table 7.13a: Existing Visual Amenity and Visual Impacts

The following table presents the predicted unmitigated and mitigated (residual) impacts for the proposed scheme during the construction and operational phases of the project. The mitigated residual impacts are assessed during the design year which for the purposes of this study is taken as being between 10 and 15 years after the schemes opening when the proposed mitigation planting is deemed to have reached a level of maturity, which is sufficient for it to perform the design objectives. The screen planting proposed as mitigation for the predicted landscape and visual impacts will be undertaken within the project boundary. Temporary mitigation measures for all VSRs shall include hoarding, tree survey, tree preservation, and transplanting (refer to Figure 7.12y1 to 7.12y4, and 7.12z). It should be noted that the proposed noise barriers have been included in the overall assessment of visual impacts. The design of all noise barriers and semi-enclosures shall be submitted to ACABAS for approval during detailed design stage. The degree of preservation of views is demonstrated by the photomontages in Figures 7.7d to 7.7k and 7.10c to 7.10f

Visually Sensitive Receiver / Type / Viewing Distance	Existing View	Sens	Mag of Change (Con / Oper phase)	Primary Source of Impact	Impact Significance Threshold (Unmitigated)		Mitigation Measures	Impact Significance Threshold (Mitigated)	
					Con	Oper		Con	Oper
VSR1 Lido Garden Residential / 110m 50% of existing view affected.	Open view to south across Ma Wan Channel and south-west along Angler's Beach to Dragon headland and beyond. View to south-east and east is partially blocked by new high-rise residential development on former industrial sites. (With reference to Figure 7.7d and 7.10d)	High	Large / Large	Open view across water reduced to narrow view corridors, particularly due to the single aspect buildings to the north of site 2, between buildings due to introduction of high-rise development (Phases 5 and 6) Introduction of built features into formerly open view, including school buildings, high-rise towers (including single aspect buildings with blank walls) (Phases 5 and 6) Construction stage impacts due to Phases 2 and 4 reclamation and infrastructure in 5 and 6. Schedule 2 DP contributing to impact: DP1 and DP2.	Significant adverse	Significant adverse	Retention of some view corridors, as wide as possible, between high-rise buildings between sites 2 and 4 and between sites 4 and 5 Location of schools designed to provide separation between existing and proposed high-rise developments No mitigation possible to screen views of reclamation. Ensure capping material to public fill is applied at earliest opportunity to minimise duration of visibility of fill.	Significant adverse	Significant adverse

Visually Sensitive Receiver / Type / Viewing Distance	Existing View	Sens	Mag of Change (Con / Oper phase)	Primary Source of Impact	Impact Significance Threshold (Unmitigated)		Mitigation Measures	Impact Significance Threshold (Mitigated)	
					Con	Oper		Con	Oper
VSR2 San Miguel Brewery CDA Residential / 50-200m 50% of existing view affected.	Unobstructed and open views south over Ma Wan Channel towards Ma Wan.	High	Large / Large	Open view across water reduced to view corridors between buildings due to introduction of high-rise development (Phases 5 and 6) Introduction of built features into formerly open view, including school buildings, high-rise towers and noise barriers (Phases 5 and 6) Construction stage impacts due to reclamation (Phases 2 and 3) and construction of bypass. Schedule 2 DP contributing to impact: DP1 and DP2.	Significant adverse	Significant adverse	Careful positioning of public open space and low rise buildings (schools) for retention of some view corridors between sites 2and 4 and between sites 4 and 5 such that as many sea views as possible are retained No mitigation possible to screen views of reclamation. Ensure capping material to public fill is applied at earliest opportunity to minimise duration of visibility of fill. The design of noise attenuation structures to minimise visual impact and integrate as far as possible into the future landscape context.	Significant adverse	Significant adverse
VSR3 Union Carbide Chemical Storage Depot sites CDA Residential / 70m 50% of existing view affected.	Unobstructed and open views south over Ma Wan Channel towards Ma Wan and south-east across recent reclamation (STW) towards Gemini headland.	High	Intermediate / Intermediate	Open view across water limited by proposed high-rise towers to south-west (Phases 5 and 6). Proposed open space adjacent to STW will retain views to south. Introduction of built features into formerly open view, including high-rise towers (Phases 5 and 6) Construction stage impact due to reclamation (Phase 3) and Sham Tseng Bypass works (Phases 5 and 6) Schedule 2 DP contributing to impact: DP1, DP2 and DP3.	Moderate adverse	Moderate adverse	Consideration of location of buildings on site 5 to avoid excessive intrusion into visual context of VSR No mitigation possible to screen views of reclamation. Ensure capping material to public fill is applied at earliest opportunity to minimise duration of visibility of fill.	Moderate adverse	Moderate adverse

Visually Sensitive Receiver / Type / Viewing Distance	Existing View	Sens	Mag of Change (Con / Oper phase)	Primary Source of Impact	Impact Significance Threshold (Unmitigated)		Mitigation Measures	Impact Significance Threshold (Mitigated)	
					Con	Oper		Con	Oper
VSR4 Rhine Garden Residential / 350m 50% of existing view affected.	Views to south and south-east almost fully contained by new high-rise residential development on former industrial areas. Views to south-west contained by Lido Garden. (With reference to Figure 7.7f and 7.10f)	Low	Negligible/ Negligible	Views are obstructed by the high-rise development at San Miguel CDA and Union Carbide CDA so there are negligible views of the proposed development	Negligible Impact	Negligible Impact	No mitigation required	Negligible Impact	Negligible Impact
VSR5 Sea Crest Villa Phase I Residential / 100m 40% of existing view affected.	Unobstructed views south over Angler's Beach and across the Ma Wan Channel. Sea views to east partially contained by new residential development on former industrial areas. STW reclamation partially visible. (With reference to Figure 7.7e)	High	Large / Large	Open view across water reduced to narrow view corridors between buildings due to introduction of high-rise development and in particular due to the single aspect buildings of Site 2. Introduction of built features into formerly open view, including school buildings, high-rise towers (including the blank walls of the single aspect buildings) and noise mitigation road enclosure Construction phase impacts related to reclamation (Phases 1 and 4) and infrastructure works (Phases 5 and 6) Schedule 2 DP contributing to impact: DP1 and DP2.	Significant adverse	Significant adverse	Retention of some view corridor across site 1 (Western Coastal Park) and between site 2 and 4 No mitigation possible to screen views of reclamation. Ensure capping material to public fill is applied at earliest opportunity to minimise duration of visibility of fill.	Significant adverse	Significant adverse

Visually Sensitive Receiver / Type / Viewing Distance	Existing View	Sens	Mag of Change (Con / Oper phase)	Primary Source of Impact	Impact Significance Threshold (Unmitigated)		Mitigation Measures	Impact Significance Threshold (Mitigated)	
					Con	Oper		Con	Oper
VSR6 Sea Crest Villa Phase II 150m / Residential 100% (single aspect buildings)	Unobstructed views south over Angler's Beach and across the Ma Wan Channel. Sea views to east partially contained by new residential development on former industrial areas. STW reclamation visible.	High	Large / Large	Open view across water limited by proposed high-rise towers to south-east and decked bypass to south. Proposed open space and marine basin will contribute to the retention of open views across the water to the south and to Dragon Headland to the south-west. Introduction of built features into formerly open view, including high-rise towers and covered road (Phases 5 and 6) Construction phase impacts relating to reclamation (Phases 1 and 4) and infrastructure works. Schedule 2 DP contributing to impact: DP1, DP2 and DP4.	Significant adverse	Significant adverse	Retention of some view corridors across site 1 (Western Coastal Park) No mitigation possible to screen views of reclamation. Ensure capping material to public fill is applied at earliest opportunity to minimise duration of visibility of fill.	Significant adverse	Significant adverse
VSR7 Sea Crest Villa Phase III 280m / Residential 50% of existing view affected.	Unobstructed views south across the Ma Wan Channel. Sea views to east partially contained by new residential development on former industrial areas. STW reclamation visible. (With reference to Figure 7.10c)	High	Intermediate / Intermediate	Open view across water limited by proposed high-rise towers to south-east and decked bypass to south. Proposed open space and marine basin will contribute to the retention of open views across the water to the south. Views to the south-west across Dragon Headland will be unaffected. Introduction of built features into formerly open view, including high-rise towers and covered road Construction phase impacts relating to reclamation (Phases 1 and 4) and infrastructure works. Construction/introduction of slip-roads and noise mitigation (enclosure) at junction between bypass and Castle Peak Road immediately below the estate. The road construction will also	Moderate adverse	Moderate adverse	Retention of some view corridors across site 1 (Western Coastal Park Road enclosures designed to be visually recessive; soften appearance using tree planting alongside the structure. No mitigation possible to screen views of reclamation. Ensure capping material to public fill is applied at earliest opportunity to minimise duration of visibility of fill.	Moderate adverse	Moderate adverse

Visually Sensitive Receiver / Type / Viewing Distance	Existing View	Sens	Mag of Change (Con / Oper phase)	Primary Source of Impact	Impact Significance Threshold (Unmitigated)		Mitigation Measures	Impact Significance Threshold (Mitigated)	
					Con	Oper		Con	Oper
				result in loss of vegetation and changes to slope profile. Schedule 2 DP contributing to impact: DP1, DP2 and DP4.					
VSR8 Rhine Terrace 280m / Residential 25% of existing view affected.	Sea views west are blocked by new development on former industrial areas. Open views across Castle Peak Road, STW reclamation and Ma Wan Channel to south. (With reference to Figure 7.7i)	High	Small to negligible / Small to negligible	Introduction of additional built features into view to south-west, including high-rise towers behind the existing ones and noise barriers. Views to the south-east will be unaffected by the proposals. Construction phase impacts resulting from reclamation in Phases 2 and 3 and infrastructure works. Schedule 2 DP contributing to impact: DP1.	Slight adverse to negligible impact	Slight adverse to negligible impact	Retention of extremely limited view corridors over sites 6 and 7	Slight adverse to negligible impact	Slight adverse to negligible impact
VSR9 Ma Wan RDA 1000m+ / Resident 50% of existing view affected.	Proposed residential towers with will have unobstructed views north over Ma Wan Channel to the mixed coastline at Sham Tseng and in neighbouring areas (With reference to Figure 7.7g)	High	Intermediate / Intermediate	Extension of high-rise development in the Sham Tsuen area (Phases 5 and 6) The additional buildings will consolidate the existing obstruction of views to the green hillside beyond the township. Loss of remnant natural appearance and shape to bay and replacement with continuous sea wall and bypass. Possibility that slope works associated with the Castle Peak Road-Sham Tseng bypass connections may be glimpsed. Construction phase impacts in all phases. Schedule 2 DP contributing to impact: DP1 and DP2.	Moderate adverse	Moderate adverse	Retention of some view corridors across site over site 1, between site 2 and 4, between site 4 and 5 and over site 6 and 7. Retention of views of ridgeline behind development	Moderate adverse	Moderate adverse

Visually Sensitive Receiver / Type / Viewing Distance	Existing View	Sens	Mag of Change (Con / Oper phase)	Primary Source of Impact	Impact Significance Threshold (Unmitigated)		Mitigation Measures	Impact Significance Threshold (Mitigated)	
					Con	Oper		Con	Oper
VSR10 Anglers' Beach Open Space / User / Adjacent N/A	Unobstructed views south, however, the beach will be removed due to construction and therefore will not be included further in this assessment.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
VSR11 Sham Tseng Tsuen 120m / Village 10% of existing view affected.	Sea views over Ma Wan Channel are largely obstructed by Lido Garden and Castle Peak Road to the south.	Medium	Small / Small	Introduction of additional built features into view to south-east, including additional high-rise towers (including the single aspect buildings) behind Lido Gardens, and noise barriers alongside Castle Peak Road. Views to the south-west will be unaffected by the proposals. Construction stage impacts (all phases) Schedule 2 DP contributing to impact: DP1 and DP2.	Slight adverse	Slight adverse	Retention of some view corridors over site 1, between sites 2 and 4, and between sites 4 and 5. No mitigation possible to screen views of reclamation. Ensure capping material to public fill is applied at earliest opportunity to minimise duration of visibility of fill.	Slight adverse	Slight adverse
VSR12 Sham Tseng Kau Tsuen 230m / Village 10% of existing view affected.	Sea views over Ma Wan Channel are largely obstructed by Tuen Mun Road and Lido Garden to the south. (With reference to Figure 7.7j)	Medium	Small / Small	Introduction of additional built features into view to south and south-east, namely additional high-rise towers behind Lido Gardens. Views to the south-west will be unaffected by the proposals. Glimpses/partial views of reclamation during construction phase, together with bypass. Schedule 2 DP contributing to impact: DP1 and DP2.	Slight adverse	Slight adverse	Retention of some view corridors over site 1 and between sites 2 and 4. No mitigation possible to screen views of reclamation. Ensure capping material to public fill is applied at earliest opportunity to minimise duration of visibility of fill.	Slight adverse	Slight adverse

Visually Sensitive Receiver / Type / Viewing Distance	Existing View	Sens	Mag of Change (Con / Oper phase)	Primary Source of Impact	Impact Significance Threshold (Unmitigated)		Mitigation Measures	Impact Significance Threshold (Mitigated)	
					Con	Oper		Con	Oper
VSR13 Sham Tseng Sun Tsuen 300m / Village 10% of existing view affected.	Sea views over Ma Wan Channel are largely obstructed by Tuen Mun Road, Rhine Garden and the new residential developments to the south. (With reference to Figure 7.7k)	Medium	Small / Small	Introduction of additional built features into view to south-east, including additional high-rise towers behind Lido Gardens, Rhine Garden and new residential estates, together with noise barriers alongside roads. Glimpses/partial views of reclamation during construction phase, together with bypass. Schedule 2 DP contributing to impact: DP1 and DP2.	Slight adverse	Slight adverse	Retention of some view corridors between sites 4 and 5. No mitigation possible to screen views of reclamation. Ensure capping material to public fill is applied at earliest opportunity to minimise duration of visibility of fill.	Slight adverse	Slight adverse
VSR14 Pai Min Kok Village 250m / Village 10% of existing view affected.	Sea views southward over Ma Wan Channel are largely obstructed by Sea Crest Villas (Phases 2 and 3).	Medium	Small / Small	Views to south across the western end of the proposed development are partially blocked by Sea Crest Villa Phase 3. The foreground water to the south-east will be replaced with the proposed park, marine basin and bypass on viaduct. Introduction of additional high-rise development in view to east will further obstruct views to Gemini headland. Schedule 2 DP contributing to impact: DP1 and DP2.	Slight adverse	Slight adverse	Retention of some view corridors over site 1 (Western Coastal Park) None possible to screen views of reclamation. Ensure capping material to public fill is applied at earliest opportunity to minimise duration of visibility of fill.	Slight adverse	Slight adverse

Visually Sensitive Receiver / Type / Viewing Distance	Existing View	Sens	Mag of Change (Con / Oper phase)	Primary Source of Impact	Impact Significance Threshold (Unmitigated)		Mitigation Measures	Impact Significance Threshold (Mitigated)	
					Con	Oper		Con	Oper
VSR15 Garden Bakery 20-120m / Industrial N/A	Unobstructed and open views south over Ma Wan Channel towards Ma Wan.	Medium	Intermediate / Intermediate	Partial views across water further reduced due to introduction of additional high-rise development Slope works associated with slip road construction to connect the bypass with Castle Peak Road to east and west of the development will result in vegetation loss and alteration to slope profile, resulting in changes to visual amenity. New views across new park and high-rise development resulting in a change in visual amenity. Addition of noise barriers/semi and full enclosures along sections of road will alter visual amenity. Construction stage impacts due to reclamation (Phases 1-4) and connections to new bypass. Schedule 2 DP contributing to impact: DP1, DP2 and DP4.	Moderate adverse	Moderate adverse	Minimisation of height of Leisure Centre to retain views of water (NB Leisure Centre screens views of STW extension)	Moderate adverse	Moderate adverse
VSR16 Castle Peak Road 30m - 120m+ / Vehicle Travellers N/A	Unobstructed and open views south over Ma Wan Channel towards Ma Wan.	Medium	Intermediate / Intermediate	Partial views across water further reduced due to introduction of additional high-rise development to south Construction stage impacts due to reclamation- views will be restricted to glimpses/partial views. Schedule 2 DP contributing to impact: DP1.	Moderate adverse	Moderate adverse	Retention of some view corridors across site1, between sites 2 and 3, between sites 4 and 5 and over sites 6 and 7. Road semi-enclosure and barrier designed to be visually recessive. Use of temporary hoarding to screen low level views of reclamation works.	Moderate adverse	Moderate adverse

Visually Sensitive Receiver / Type / Viewing Distance	Existing View	Sens	Mag of Change (Con / Oper phase)	Primary Source of Impact	Impact Significance Threshold (Unmitigated)		Mitigation Measures	Impact Significance Threshold (Mitigated)	
					Con	Oper		Con	Oper
VSR17 Tuen Mun Road 120m+ / Vehicle Traveller N/A	Extent of southward views varies from open to screened. High speed and nature of VSRs reduces sensitivity.	Low	Intermediate / Intermediate	Partial views across water further reduced due to introduction of additional high-rise development to south Construction stage impacts due to reclamation- views will be restricted to glimpses/partial views. Schedule 2 DP contributing to impact: DP1.	Slight adverse	Slight adverse	Retention of some view corridors across site1, between sites 2 and 3, between sites 4 and 5 and over sites 6 and 7.	Slight adverse	Slight adverse
VSR18 Tsing Ma Bridge 1500m+ / Vehicle Traveller N/A	Distant views generally north toward the mixed coastline of Sham Tseng and neighbouring areas. Sensitivity reduced by distance. (With reference to Figure 7.7h)	Low	Small / Small to negligible	Extension of high-rise development in the Sham Tsuen area The additional buildings will consolidate the existing obstruction of views to the green hillside beyond the township. Loss of remnant natural appearance and shape to bay and replacement with continuous sea wall and bypass. Distant views of construction stage works - reclamation and bypass. Schedule 2 DP contributing to impact: DP1 and DP2.	Slight adverse	Slight adverse	Retention of ridgeline to the north Retention of view corridors across site1, between sites 2 and 3, between sites 4 and 5 and over sites 6 and 7. Alternative views available to the east and west	Negligible Impact	Negligible Impact

Visually Sensitive Receiver / Type / Viewing Distance	Existing View	Sens	Mag of Change (Con / Oper phase)	Primary Source of Impact	Impact Significance Threshold (Unmitigated)		Mitigation Measures	Impact Significance Threshold (Mitigated)	
					Con	Oper		Con	Oper
VSR19 Ting Kau Bridge 1500m+ / Vehicle Traveller N/A	Distant obliquely angled views generally north toward the mixed coastline of Sham Tseng and neighbouring areas. Sensitivity reduced by distance.	Low	Small / Small to negligible	Extension of high-rise development in the Sham Tsuen area (Phases 5 and 6) The additional buildings will consolidate the existing obstruction of views to the green hillside beyond the township. Loss of remnant natural appearance and shape to bay and replacement with continuous sea wall and bypass. Distant views of construction stage works - reclamation and bypass. Schedule 2 DP contributing to impact: DP1 and DP2.	Slight adverse	Slight adverse	Retention of ridgeline to the north Retention of view corridors across site1 and over sites 6 and 7. Alternative views available to the east and west	Negligible Impact	Negligible Impact
VSR20 Tsing Yi Observation Point 1500m+ / Vehicle Traveller N/A	Distant obliquely angled views generally north toward the mixed coastline of Sham Tseng and neighbouring areas. Sensitivity reduced by distance.	Low	Small / Small to negligible	Extension of high-rise development in the Sham Tsuen area (Phases 5 and 6) The additional buildings will consolidate the existing obstruction of views to the green hillside beyond the township. Loss of remnant natural appearance and shape to bay and replacement with continuous sea wall and bypass (Phases 1-5). Distant views of construction stage works - reclamation and bypass. Schedule 2 DP contributing to impact: DP1 and DP2.	Slight adverse	Slight adverse	Retention of ridgeline to the north Retention of view corridors across site1 and over sites 6 and 7. Alternative views available to the east and west	Negligible Impact	Negligible Impact
VSR21 Golden Villa 100m / Resident 50% of existing view affected.	Principal views are south across the Ma Wan Channel.	High to medium	Small / Small	Road proposals will add to the existing visual intrusion caused by Castle Peak Road, but will be only partially visible. Schedule 2 DP contributing to impact: DP1 and DP2.	Slight adverse	Slight adverse	Tree planting alongside the road	Slight adverse	Slight adverse

Visually Sensitive Receiver / Type / Viewing Distance	Existing View	Sens	Mag of Change (Con / Oper phase)	Primary Source of Impact	Impact Significance Threshold (Unmitigated)		Mitigation Measures	Impact Significance Threshold (Mitigated)	
					Con	Oper		Con	Oper
VSR22 Dragon Villa 100m/ Resident 50% of existing view affected.	Principal views are south across the Ma Wan Channel.	High	Intermediate / Intermediate	Road proposals to the north of the VSR would not affect the principal views. Visibility of the road proposals would be in the context of existing views of Castle Peak Road, however, proximity is likely to cause significant impact to eastern building. Schedule 2 DP contributing to impact: DP1 and DP2.	Moderate adverse	Moderate adverse	Road enclosure designed to be visually recessive; soften appearance using tree planting alongside the structure.	Moderate adverse	Moderate adverse
PVSR1** Proposed Residential high-rise development 150m / Resident Unknown	Unobstructed views south over Angler's Beach and across the Ma Wan Channel. Sea views to east partially contained by new residential development on former industrial areas. STW reclamation visible.	High	Large / Large	Future view across water will be severely restricted by the proposed high-rise towers to south-east and decked bypass to south. Proposed open space and marine basin will contribute to the retention of open views across the water to the south and to Dragon Headland to the south-west. Introduction of built features into formerly open view, including high-rise towers and covered road (Phases 5 and 6) Construction phase impacts will depend on the relative phasing of the two developments. Schedule 2 DP contributing to impact: DP1, DP2 and DP4.	Significant adverse	Significant adverse	Retention of some view corridor across site 1 (Western Coastal Park) No mitigation possible to screen views of reclamation. Ensure capping material to public fill is applied at earliest opportunity to minimise duration of visibility of fill.	Significant adverse	Significant adverse

Key: Sensitivity of View (Sens): Low, Medium or High
Magnitude of Change: Negligible, Small, Intermediate or Large
Significance Threshold: Negligible, Slight, Moderate or Significant (adverse or beneficial)
Impacts: Con: Construction phase impacts
Oper: Operational phase impacts

The viewing distance is measured from the façade of the building or location that forms the Visually Sensitive Receiver to nearest visible part of the proposed scheme.

* Based on approximating the number of primary views from apartments to the development, which will be affected, compared to the total number of apartments.

*Schedule 2 Designated Projects: DP1 Reclamation, DP2 Sham Tseng Bypass, DP3 Sewage Pumping Station and DP4 Underpass below Castle Peak Road

** A number of potential Planned Visually Sensitive Receivers (PVSRs) have been identified however of these PVSR 1 will be closest in proximity and the only residential development. The views from other planned (non-residential) developments within the study area will be similar to that of existing identified VSRs.

The significant adverse impacts identified will affect those VSRs directly to the north of the proposed development, due to the loss of their open sea-views southward over the Ma Wan Channel. The VSRs include VSRs 1, 2, 3, 5 and 6: Lido Garden, ex- San Miguel Brewery CDA, ex-Union Carbide Storage Depot CDA, and Sea Crest Villa Phases I and II. Visual impacts during both the construction and operation stages of the scheme will be significant adverse.

The remaining VSRs adjacent to the site (i.e. VSRs 4 to 8, 11 to 17 and 21 to 22) will be subject to visual impacts ranging from negligible to moderate adverse. These impacts tend to result from a reduction in the width of their view corridor or an extension of the built development within the area. Many of the impacts to these VSRs are low or moderate as their primary views are not directly over the site, but to the east and west of it. The impact of the development on VSRs to the rear is reduced by the on-going high-rise construction on the intervening CDA sites. For example, although Rhine Garden currently has open views over Ma Wan, these will be screened by the San Miguel CDA site and the proposed scheme will have little additional impact on the visual amenity.

The additional built development and new uniform edge to the reclamation line across the Sham Tseng bay will have a minor impact on views from the south.

The residual visual impacts on each of the VSRs subsequent to mitigation are described and evaluated in *Table 7.13a*.

The following paragraphs summarise the visual impacts, prior to mitigation, of the Schedule 2 DPs, as identified in *Table 7.13a*.

Reclamation (DP1)

Construction Stage

During the construction phase of the project the overall visual impacts of the reclamation will be significant adverse, this is largely due to the scale of the development area, the elevated nature of the existing views and the lack of viable mitigation to screen visual impacts. Seawall construction will be undertaken first, followed by progressive filling behind the seawall in four phases. The use of public fill may result in the collection of litter, prior to capping, at site entrances for example. The severity of the predicted impacts for each of the identified VSRs will largely depend on the phase of the reclamation. The more significant adverse visual impacts will affect the following VSRs, due to their proximity, but it should be noted that other VSRs would also experience impacts on their visual amenity (refer to *Table 7.13a*). Phase 1 at the western end of the site will be closest to VSRs 6, 7 and 14. Phase 2 is contiguous with the existing VSRs 1 and 2, whilst Phase 3 at the eastern end of the site is contiguous with VSRs 2 and 3. Phase 4 is adjacent to VSRs 1 and 16, and close to VSR 5. Works in the four phases would be undertaken concurrently, such that the duration of construction stage impacts relating to the reclamation will be four years.

Operational Phase

In addition to the construction phase impacts, the reclamation would cause limited operational phase impacts, particularly prior to the completion of the infrastructure works. Upon completion of each of the construction phases for the reclamation, the operation stage impacts will continue to cause slight adverse impacts on those VSRs in closest proximity to the completed phase. These operational phase impacts are largely due to the changed proximity of the coast and the change in the landscape character of the coastline. VSRs affected after the completion of Phase 1 will be VSRs 6,7 &14, those affected after the completion of Phase 2 will be VSRs 1 and 2, after Phase 3 will be VSRs 2 and 3 and completion of Phase 4 will affect VSRs 1 and 16. Once construction of the buildings and associated infrastructure is complete, these will become the visible elements of the scheme and the reclamation itself will not cause direct visual impacts. However until the associated infrastructure is complete, the duration of operational phase impacts relating to the reclamation will be approximately 7 years in duration for VSRs 6, 7 and 14, 6 years for VSRs 1 and 2, and 5 years for VSR 3 and 4 years for VSR 16.

Sham Tseng Bypass (DP2) & Underpass below Castle Peak Road (DP4)

Construction Stage

The bypass is located along the southern edge of the proposed development. It is therefore open to view from the south, but views from the north are likely to be at least partially screened by intervening development, and the majority of VSRs are some distance away. There will be relatively open views along its length from the headlands and road connections to east and west. The closest VSRs are Castle Peak Road (VSR16), Sea Crest Villa Phase 3 (VSR6) and Dragon Villa (VSR 22) to the west, and the SMB site (VSR2) and Golden Villa (VSR 21) to the east.

Construction of the bypass is due to take three years, during which time construction of the high-rise buildings to the north will be ongoing. It is likely that there will be open views towards the new road, from VSRs to the north, for a short time before they are blocked by the newly constructed high-rise buildings, with the exception of the view from VSRs 6, 21 and 22 that will remain open. In the context of the construction work dominating the foreground of their views, the visual impact of the bypass on VSRs to the north will be slight-moderate adverse. VSRs 6, 21 and 22 are adjacent to the proposed connections between the bypass and Castle Peak Road. Construction of the slip roads, together with noise mitigation measures will require slope profiling resulting in vegetation loss. The visual impact on these VSRs will be more severe, although it will not affect the majority of the principal views, and therefore is assessed as moderate adverse.

The VSRs to the south have only distant views to the proposed bypass and it will appear a part of the wider development; it is likely to be less visually obtrusive than the high-rise construction adjacent to it. The visual impact on VSRs 18, 19 and 20, if perceptible, will be slight adverse. VSR 9, however, will have open views from across the Ma Wan Channel and suffer moderate adverse impacts.

Operation Stage

The central section of the bypass will be covered, but it will be open to either side. The open sections of the elevated road will affect existing VSRs by creating a visual barrier that interferes with views of the sea. In addition, the connections to Castle Peak Road to east and west will involve additional/wider carriageways (slip roads) and slope works. At the Western Connection, the northern slip road will be 160m in length, with the southern slip road 560m in length, including 370m of underpass. The area of slope works will be 0.5ha. At the Eastern Connection, the northern slip road will be 220m in length, with the southern slip road 260m in length. The area of slope works will be 0.5ha. This will have a moderate adverse impact on views from Castle Peak Road (VSR16), and VSRs 7, 21 and 22 and slight adverse impacts on VSRs 6 and 14. The visual effects of the bypass on the remaining VSRs would be low.

The deck on the covered section of the bypass will be designed for use as a promenade, forming part of the public open space system. The landscaped promenade will make a positive contribution to the local visual amenity within the scheme and will remove the potential negative visual impact of the road on the new tower blocks, particularly in elevated views and at podium level. However, in views from ground level, the bypass structure will block views south across the Ma Wan Channel reducing local visual amenity. In views from the south, the bypass will create a hard and regular edge to the apparent shoreline of the new development, but it will not cause significant impacts on visual amenity due to the existing coastline currently being characterised by existing engineered structures such as sea walls.

Sewage pumping station (DP3)

The proposed sewage pumping station is located to the west of the drainage channel at the south-west corner of the SMB site. It is a relatively small scale development and will not cause significant adverse visual impacts during either construction or operation, in the context of the wider development. The proposed sewage pumping station consists of an underground sewage pump chamber located adjacent to the roundabout north of Planning Area 4. It is estimated that a 10m width x 10m length x 7m depth underground chamber is required to house the pumps, coarse screening facilities, check valves, deodorisation equipment and other necessary equipment. Above ground, a pillar box is required to accommodate the MCC Control panel. It will have a negligible impact on existing landscape resources as it is set within the new development. As it is associated with other buildings, and not sited by itself, the sewage pumping station will not make a noticeable impact upon surrounding LCAs.

7.16

MITIGATION OF LANDSCAPE AND VISUAL IMPACTS

The emphasis of the approach to the mitigation of identified landscape and visual impacts is through the design of a functionally integrated urban and landscape Masterplan. The intention is to minimise the potential landscape and visual effects of the overall development, and elements within it, at the outset, by designing a scheme that meets the needs of the local population, providing a high quality development that ties in with the surrounding environment. The Master Layout Plan, including site reference numbers, is illustrated on *Figure 2.2c* and the concepts are illustrated in *Figure 7.14a*. The resulting Landscape

Masterplan is described in the following paragraphs (refer to Figures 7.14b and 7.14g). The components of the scheme that mitigate or alleviate identified impacts are then discussed further, together with specific landscape mitigation measures

7.16.1 *Landscape Masterplan*

Landscape Principles

The landscape principles that provide the structure for the development of the masterplan are as follows:

- Encourage waterfront activities and utilise the seafront setting;
- Maximise views of local hillside and open water areas;
- Integrate new development with surrounding areas;
- Create a new legible urban and open space form;
- Minimise severance or barriers to pedestrian movement;
- Provide opportunities for outdoor active and passive recreational facilities within the open space, catering both for future residents of the development and the existing neighbouring areas;
- Open space provision to be integral with the overall scheme to provide a high quality living environment;
- Integration of proposed and existing/planned open space provision;
- To ensure that the proposed open space is provided, as a minimum, in accordance with the Hong Kong Planning Standards and Guidelines (HKPSG).

Open Space Framework

The framework consists of an inter-related system of public open space and amenity areas. It aims to protect key views from adjacent development and to maximise visual and physical connections with the surrounding landscape and to create a comprehensive open space system. The reduction of impacts on existing sea views is a primary consideration of the proposed scheme, particularly in relation to adjacent residential estates. This has been achieved through careful siting of public open space and the appropriate configuration of the proposed towers within each plot, to ensure the retention of some view corridors through the proposed development, principally to the sea.

There are four areas of District Open Space (DOS) proposed, totalling 1.47ha in area. The locations of these areas are shown on Figure 7.14g, Master Landscape Plan and include the following:

- Waterfront Landscaped Promenade (630m in length);
- Area 4, public open space on podium (approximate area 0.8ha);
- Area 6, district open space located in Area 6; and,
- Area 1, Western Coastal Park (approximate area 1.8ha).

The DO will be designed in accordance with HKPSG and will comprise a series of active and passive facilities. The DO provision will be sufficient for the future population requirements (please refer to the Planning Final Report of the Planning and Engineering Feasibility Study for Sham Tseng Development). Active facilities could include basketball courts, 7-a-side soccer pitch, jogging track, tennis courts, etc.

Local Open Space (LOS) is provided within each of the residential development sites to provide the active and recreational facilities for the local residents. The provisions will be in accordance with HKPSG and will provide ball courts, seating areas, shade structures, and children's play space within a framework of tree and shrub planting. The proposed Local Open Space provision will take into account the future population of the proposed development.

Figure 7.12n shows the view from amenity area at the open space above west nullah deck.

Western Coastal Park

Western Coastal Park (10,800 m²) is the DOS located at the western end of the development (planning area 1). The park is associated with the proposed marine basin that projects under the bypass. The marine basin will be a feature in the park and will help to define its character. The ferry pier may attract small-scale developments such as kiosks or tea houses. The park represents a major opportunity to create a large-scale open space for Sham Tseng. The aim is to provide a variety of active and passive recreational facilities, in accordance with HKPSG, to include a football pitch, seating areas, children's play space and shade structures, structured by tree and shrub planting. The park will be connected with the DOS at planning area 5 (3,900 m²) to the east via a direct pedestrian link along the elevated waterfront promenade. Figure 7.12o shows the view from Western Coastal Park.

Salt Water Pumping Station

A salt water pumping station will be constructed immediately to the east of the Western Coastal Park (refer to Figure 7.12i). Careful consideration should be given to the form of the structure and the use of finishes. The use of a suitable design colour scheme including the use of for example earth tones will also serve to reduce its visual prominence. In addition the use of planting around the internal periphery of the proposed scheme will soften the built form of the structure particularly as the pumping station will be a low-rise structure.

Waterfront Promenade

The bypass is to be decked over to create a waterfront promenade for the public. This is intended to limit the separation caused by the road between the residential area and the sea. In addition, covering the road will screen it in views from the neighbouring residential tower blocks and help to improve the general visual amenity of the scheme. The promenade will be a key component of the open space framework and act as a pedestrian link along the entire length of the new development, linking with the marine basin. It will capitalise on the open views across the Ma Wan Channel to the south. Seating and viewing areas, together with ample shade structures and planters, will be incorporated, with interesting hard landscape detailing to complement the location.

Connections to associated open spaces will be via escalators, staircases, ramps and elevators as necessary. The promenade will be continuous with the central park that is at podium level.

Public Open Space on Podium

Area 4, in the centre of the development, comprises a CDA with podium. The intention is that a proportion of the podium will be used as public open space. It will be directly connected to the promenade across a common boundary. Active and passive recreational facilities would be provided to serve the local residential population, such as children's play space, seating areas, shade structures and tree and shrub planting.

This open space has an important role as the central park for the whole development and is, therefore, likely to become a focal point for activity. It will provide a depth of open space, widening a section of the promenade and helping to relieve its linearity.

Recreation Facilities

Recreation facilities will be provided as part of the facilities of the individual residential developments. The LOS within the residential sites will be primarily developed for passive recreation and children's playgrounds, as required by the HKPSG Chapter 4. The proposals include, as part of the pedestrian network, a walking and cycle trail linking all the open spaces within the development. A Leisure Centre is proposed on Area 6, to the north of the land reserved for the TKSTSTW Expansion.

Drainage Channels

Two open drainage channels currently drain into the sea in the area proposed for reclamation. The two channels will therefore be extended across the site. To avoid unnecessary division of the site and interference or obstruction to the desired unity of housing, open spaces and pedestrian circulation, it is proposed that the nullahs will be decked. Covering the channels will remove a potential detractor, resulting in an improved landscape and visual amenity. The landscape will serve an amenity purpose, and shall comprise of hard landscape in association with shrub planting and small trees. The design of the covered drainage channels shall be further examined at detailed design stage.

Amenity Landscape

'Amenity areas' (approximately 0.7ha) are those incidental spaces between built development which have no potential for recreational use. These areas have potential for hard and soft landscape treatment to provide visual relief and contribute towards improving the overall environment. Amenity areas will include landscaped areas along the access roads and slopes. The amenity landscape will form an integral part of the landscape framework throughout the site and contribute to an enhancement of the landscape resource within the Study Area. The proposed trees along side the road are an example of this in that they provide both shade and to create a green corridor through the development.

Construction Phase Mitigation

A range of temporary landscape mitigation measures are recommended during the construction phase of the development and these are described below.

Vegetation clearance will be restricted to those areas requiring engineering construction in order to maximise retention of existing vegetation, particularly trees and tree groups. A tree survey and felling application will be undertaken in accordance with WBTC 24/94 Tree Preservation. A tentative tree location survey is presented as Figure 7.12y1-4 (the exact location will be determined in the detailed design and construction stages).

Trees identified for retention within the project limit would be protected during the works with the protection measures written into the contract documents. In particular, this will apply to the areas adjacent to the slope disturbance at the eastern end of the bypass south of Golden Villa and at the western end of the bypass adjacent to Sea Crest Villa Phase III. These protection measures would include:

- The use of sturdy 1.8m protective fencing to be located at the edge of the tree canopy and not around the trunk;
- Prohibition of the storage of materials, the movement of construction vehicles, refuelling and the washing of equipment including concrete mixers beneath the tree canopy; and,
- The tree transplanting and planting works would be implemented by approved landscape contractors and inspected and approved on site by a qualified landscape architect. A tree protection/transplanting specification would be included within the contract documents.

The earthworks required at either end of the bypass may result in the disturbance of topsoil. The topsoil, if of suitable quality, should be stockpiled, a maximum of 2m high in order to prevent anaerobic conditions forming, for use in planting areas associated with the road development. Duration of soil storage should not exceed 12 months and the stockpile should be temporarily grass seeded or turned over on a regular basis to avoid degradation of the organic material.

Temporary hoarding should be erected to screen elements of construction work in areas where these measures will be effective i.e. in screening low level views from roads, pedestrian routes and from the lower storeys of residential buildings adjoining the site. These include the screening of views of the bypass/underpass construction. However as many of the existing VSRs currently enjoy elevated views these measures will not be effective in most situations. Tentative location of hoarding installation is presented on Figure 7.12z (exact location will be determined in the detailed design and construction stages).

There are no off-site mitigation measures proposed at construction stage.

Operational Phase Mitigation

View corridors

The scale of the proposed development, together with the coastal location, limit opportunities for standard landscape mitigation measures (such as screen planting for example), to alleviate the identified landscape and visual impacts. However, as mentioned under the masterplan description, a number of the potential visual impacts have been designed out during the earlier stages of the study; in particular, through the realisation and incorporation of key view corridors as follows:

- from Sea Crest Villa Phase 3 south and east over Area 1 DOS (Western Coastal Park);
- from Sea Crest Villa Phase 2 south over Area 1 DOS;
- from Sea Crest Villa Phase 1 to the south-west over Area 1 DOS;
- from Lido Garden to the south-west between Areas 2 and 4;
- from Lido Garden to the south-east between Areas 4 and 5;
- from San Miguel CDA development to the south-west between Areas 4 and 5; and,
- from San Miguel CDA development to south-east over Areas 6 and 7.

The view corridors serve, where possible, to maintain views south over Ma Wan Channel from the existing residential estates. The spaces that are created between the buildings maintain some visual permeability through the development and reduce the potential walling effect from some views by breaking up the massing of the buildings. This is equally important in views from the south; the harbour users and Ma Wan island. The view corridors will, in some cases, allow views through to the hillside behind Sham Tseng, however, this is dependant on the angle of view. From acute angles the development will be perceived as having a walling effect. The degree of preservation of existing views is demonstrated by the photomontages presented as figures 7.7d to 7.7k and 7.10c to 7.10f. The heights of the proposed buildings have been designed such that visibility to the top of the ridgeline is maintained where it has not already been compromised by earlier high-rise development.

Compensatory measures

The development will be constructed on new reclamation in the Sham Tseng Bay and consequently few direct impacts on landscape resources have been identified. The most significant adverse impact is the loss of the remainder of Angler's Beach (430m length, 0.4ha area) and the 0.2ha area of natural hillside to the west of the site (area NH3 of Landscape Resources, see Figure 7.5a).

Angler's Beach

The landscape and visual impact caused by the loss of the remainder of Angler's Beach (initial loss at the western portion of the beach due to Castle Peak Road Widening Scheme) cannot be mitigated, i.e. a beach cannot be replaced in the same location as that lost.

Although not considered as either landscape or visual mitigation, alternative recreational provisions will be provided in three ways. Firstly a currently inaccessible beach, around the headland to the west of the site, will be made accessible by footpath connecting to Area 1 Western Coastal Park. Secondly, the proposed DOS, Western Coastal Park, will provide a replacement public open space with a waterfront to the marine basin. The promenade will be an alternative waterfront 'park'. The proposed compensatory planting is outlined in the following section. Thirdly the construction of the Leisure Centre with swimming pool facilities will provide additional alternative sports facilities for the local population.

Additionally a small area of natural coastline will be permanently lost. The extent of this disturbance should be minimised and a naturalistic coastline be created below the bypass using existing boulders.

Vegetation

Trees within the Study Area will be severely affected by the Castle Peak Road Widening Scheme, involving in particular the 100% loss of the tree belt to the rear of Anglers Beach. However, within this project, the remnant existing vegetation will be retained where possible. A tree survey will be undertaken in accordance with WBTC no. 24/94, Tree Preservation to identify all trees affected by the proposed alignment. Recommendations will be given to retain/transplant trees, as appropriate, based on species and maturity. Efforts should be made to retain groups of trees or woodland wherever possible. Where roadside planting is proposed, a planting strip will be provided, in addition to that set aside for utilities. Existing topsoil, if disturbed and worthy of retention, should be stockpiled up to 2m high to prevent anaerobic conditions forming, and for a period not exceeding 12 months, and temporarily vegetated with hydroseeded grass during construction. After completion of the construction works it should be reused or considered for use in other projects. A minimum 1.2m depth of topsoil should be provided on all areas proposed for tree planting.

Tree and shrub planting will be used to improve the visual amenity of the proposals; to replace areas of trees and shrubs or natural scrub lost due to construction; to screen and soften the appearance of engineering structures where possible; and to provide a landscape buffer alongside Castle Peak Road. It is unlikely that the area available for new planting will be large enough to facilitate woodland planting, however, tree species will be selected to reflect those occurring locally in order to enhance the ecological potential of the area. (For typical sections of landscape buffer planting alongside Castle Peak Road see Figures 7.12v to 7.12x)

The planting of the disturbed areas of the 'natural hillside' to the south of Golden Villa, associated with the road junction between Castle Peak Road and Sham Tseng Bypass (0.05ha), will aim to create a fast vegetative cover for quick visual effect and to aid slope stabilisation. The plant mix will be designed to allow for native species to become dominant in the long term.

It should be noted in this context, that extensive tree and shrub planting will be carried out throughout the new development, in public open spaces (DOS 1.47ha and LOS 1.4ha minimum). These areas will be designed in accordance with the HKPSG. New tree and shrub planting will therefore more than compensate for the areas of existing vegetation lost due to construction works. In order to compensate for the loss of the existing mature vegetation, primarily on the slopes at the western end of the bypass a minimum of three trees for each one lost should be planted, this also equates to a minimum area of 2.7ha. This area is the minimum area of planting to compensate for that disturbed by the construction works as identified in this assessment. Further with consideration for the amount of DO within the development the actual amount of planting is likely to be considerably higher than this. At this stage it is recommended that the following be carried out with respect to the planting:

- District Open Space and Local Open Space to have a minimum planting area of 1ha for each. The soft landscape in these areas should comprise of ornamental species of tree and shrub species. Plants should also be selected to provide both seasonal interest and colour highlights through their form and flowers. Where possible a the ornamental species which will form the basis of the planting design in these areas should include some native species.
- Amenity and roadside areas, to have a minimum tree and shrub planting area of 0.7ha. The plants in these areas should where possible have a dense form and be evergreen in order to maximise the ability of the planting to screen views of the carriageway and highway structure. The main emphasis of the species selection for these areas should be for native species, however, consideration should also be given to creating interest from colour and form of foliage and flowers.

The above recommendations propose minimum areas for planting in direct compensation for the areas of existing vegetation lost. Any planting requirements under HKPSG must also be incorporated into the final design for the open spaces. It should also be noted that all of the proposed screen planting will be implemented within the project boundary and there will be no off site planting.

Slopes

There will be minor slope works and a limited loss of scrub and secondary woodland on the slope to the south of Golden Villa. This is due to the construction of the junction between Castle Peak Road and Sham Tseng Bypass and the associated noise barriers. Slope works are also likely to be required as part of the formation of the pedestrian path linking Western Coastal Path and Promenade Beach. Consideration will be given to WBTC No. 25/93, Control of Visual Impact of Slopes. The landscape objectives that will be applied to the slope treatment are as follows:

- Regarding to create new slope profile that ties in with existing slope gradients to retain a natural appearance;
- Establishment of planting so that the slope blends as effectively as possible with the existing local vegetation pattern;
- Compensatory planting for trees/vegetation cleared due to construction works;

Engineering Structures

Careful consideration will be given to the design of the engineering structures such as subways, footbridges and noise attenuation structures along Castle Peak Road and the bridge/viaduct structure for the elevated bypass. The designs will be submitted to ACABAS for comment and recommendations concerning their aesthetic appearance. The following principles will guide their design:

- The structures will aim to touch the ground as lightly as possible in order to minimise disturbance to the existing landscape. This may be achieved for example by designing slender, rounded columns spaced as far as possible apart;
- Landform and vegetation in areas disturbed by construction works will be reinstated to blend with the existing landscape pattern;
- Fair faced concrete will not be used for parapets to minimise glare from the structure and to avoid staining;
- Drainage will be concealed within the structure
- Design of road bridge over Marine Basin to create a visual feature (similarly footbridges etc linking to the elevated promenade).

Noise Barriers

There are three locations requiring noise mitigation measures, which will have knock-on landscape and visual impacts. Therefore, as part of the landscape and visual mitigation measures, their design is reviewed in order to minimise resultant landscape and visual impacts. The proposed noise mitigation is as follows:

- Western end of elevated bypass: extension of promenade deck combined with noise barrier to the north and south side (Figure 7.12b – 7.12i);
- Castle Peak Road in front of Sea Crest Villas (Phase 3) Block 9 and 10: semi – enclosure on the eastbound carriageway, together with a 3m cantilever on the westbound carriageway (Figure 7.12j – 7.12m);
- Castle Peak Road outside Golden Villa: 6m noise barriers incorporated in road structure below Golden Villa;

All noise barriers and semi-enclosures will be based on one design theme to create a single family of structures, which will also be integrated with the engineering structures, in order to reduce visual clutter along the road. The design of the barriers will incorporate clear barriers, together with support posts coloured in tones to reflect the local visual environment. Where practicable, planting will be associated with the barriers in order to soften their appearance. The design of all noise barriers will be submitted to ACABAS for comment and recommendations pertaining to the aesthetic qualities of the proposed structures during the detail design stages of the project. These recommendations will be incorporated in the final design of the proposed noise attenuation structures.

Green Building Approach

The use of green architectural features will be considered in the detailed design of the single aspect blocks. This will be in accordance with Joint Practice Note 1, *Green and Innovative Buildings* (Buildings Department, Lands Department, Planning Department).

7.17 *EVALUATION OF RESIDUAL IMPACTS*

The design of the masterplan, together with the proposed landscape mitigation measures will minimise the predicted adverse impacts of the proposed development, in terms of landscape and visual amenity. However, although the impacts will be reduced, it is not possible to fully alleviate them in a development of this type and scale. The loss of the remainder of Angler's Beach remains a significant adverse impact, despite the alternative public open space offered by the scheme (i.e. the waterfront promenade above the Sham Tseng bypass, the coastal park in Area 1, the small park in Area 6 and the podium open space in Area 4 - refer to Figure 7.14b). Similarly, despite the retention of some sea-views along open corridors between the proposed high-rise towers, the impacts on the visual amenity of Lido Garden and the new housing area on the SMB site remain significantly adverse.

The impacts, mitigation measures and residual impacts are described more fully in *Tables 7.12b, 7.12c and 7.13a (refer to Figure 7.14c)*.

7.18 *RESIDUAL IMPACTS OF SCHEDULE 2 DESIGNATED PROJECTS*

The mitigation measures required for each of the Schedule 2 Designated Projects and an outline of the residual landscape and visual impacts that are attributable to them are given in *Table 7.18a to 7.18c (Figures 7.14i to k refers)*.

Table 7.18a: Mitigation Measures for Reclamation

Impact (wholly or partially attributable to DP)	Sensitive Receivers affected (Landscape resources / LCAs / VSRs)	Mitigation Measures	Residual Impact (after Implementation of Mitigation Measures)	
			Cons	Oper
<i>Loss of remaining 430m length of Angler's Beach and associated semi-natural coastline</i>	NC / LCA3	None possible None possible	<i>Significant adverse</i>	<i>Significant adverse</i>
(Loss of visual amenity associated with views of the beach)	VSR1 / VSR2			
<i>Loss of tree belt due to Castle Peak Road Widening Scheme (0.5ha)</i>	TB / LCA3	N/A	N/A	N/A
<i>Loss of coastal location</i>	LCA2 / LCA 7 / LCA8	Provision of public open space and linkages through to the waterfront. Retention of view corridors through the development.	<i>Moderate/Slight adverse</i>	<i>Slight adverse</i>
<i>Change to character setting due to extension of manmade waterfront</i>	LCA4 / LCA5 LCA 6	None possible Retention of marine basin on the village side of the bypass to retain coastal landscape character as far as possible.	<i>Moderate to slight adverse</i>	<i>Slight adverse</i>
<i>Visual intrusion of construction stage reclamation</i>	VSR1 / VSR2 / VSR3 / VSR4 / VSR5 / VSR6 / VSR7 / VSR8 / VSR9 / VSR11 / VSR12 / VSR13 / VSR14 / VSR15 / PCSR1	None possible for majority as the VSRs are medium-high rise buildings. Temporary hoarding should be used to screen low-level views. Apply hydroseeding to areas within site, which will be left vacant for more than one year. The top dressing of 'selected fill' should be applied at the earliest opportunity to minimise the duration of visual impact cause by exposed public fill material	<i>Significant adverse</i>	N/A

Table 7.18b: Mitigation Measures for Sham Tseng Bypass

Impact (wholly or partially attributable to DP)	Sensitive Receivers affected (Landscape resources / LCAs / VSRs)	Mitigation Measures	Residual Impact (after Implementation of Mitigation Measures)	
			Cons	Oper
<i>Loss of vegetation and slope re-profiling (0.3ha)</i>	NH1 / NH2 / NH3 / LCA1/ LCA7	Minimisation of slope works and reprofiling to tie in with existing gradient. Tree survey and felling in accordance with WBTC 24/94. Replacement tree and shrub planting to restore vegetation cover (Minimum of 0.3ha)	<i>Significant adverse</i>	<i>Moderate to slight adverse</i>
<i>Visual impact caused by noise mitigation measures at connection with Castle Peak Road: full/semi-enclosure and barriers</i>	VSR7 / VSR21 / VSR22	Road enclosure/barrier designed to be visually recessive (transparent panels etc). Soften appearance using tree planting alongside structure.	<i>Moderate adverse</i>	<i>Moderate to slight adverse</i>
<i>Visual impact caused by construction stage works and operational road</i>	VSR1 / VSR2 / VSR3 / VSR4 / VSR5 / VSR6 / VSR7 / VSR8 / VSR9 / VSR11 / VSR12 / VSR13 / VSR14 / VSR15/ PVSRI	Construction stage: None possible for majority as the VSRs are medium-high rise buildings. Temporary hoarding may be used to screen low-level views. Central section of bypass will be covered with a deck designed as a waterfront promenade accessible to the public, effectively screening the road. Western end, the bypass will be on a bridge across the marine basin	<i>Significant / Moderate adverse</i>	<i>Moderate / Slight adverse</i>

Table 7.18c: Mitigation Measures for Schedule 2 Designated Projects: DP3 Sewage Pumping Station

Impact (wholly or partially attributable to DP)	Sensitive Receivers affected (Landscape resources / LCAs / VSRs)	Mitigation Measures	Residual Impact (after Implementation of Mitigation Measures)	
			Con	Oper
Extension of built form adjacent to high-rise areas	LCA7	Architectural finishes and design/position integrated with adjacent buildings to reduce visual clutter.	Slight adverse	Slight adverse
Introduction of SPS in front of VSRs	VSR2 and future open space areas	Screen planting at the boundary of plant	Slight adverse	Slight adverse

Table 7.18d: Mitigation Measures for Underpass below Castle Peak Road

Impact (wholly or partially attributable to DP)	Sensitive Receivers affected (Landscape resources / LCAs / VSRs)	Mitigation Measures	Residual Impact (after Implementation of Mitigation Measures)	
			Con	Oper
<i>Loss of vegetation and slope re-profiling (,0.1ha) (note – most disturbance is caused by the Bypass)</i>	NH1 / NH2 / NH3 / LCA1/ LCA7	Minimisation of slope works and reprofiling to tie in with existing gradient. Tree survey and felling in accordance with WBTC 24/94. Replacement tree and shrub planting to restore vegetation cover (Minimum of 0.1ha)	<i>Slight adverse</i>	<i>Slight adverse to Negligible</i>
<i>Visual impact caused by construction stage works and operational road</i>	VSR5 / VSR6 / VSR7 / VSR14 / VSR22/ PVSRI	Construction stage: None possible for majority as the VSRs are medium or high rise buildings. Temporary hoarding may be used to screen low-level views. On completion underpass will primarily be a depressed and covered road so impacts reducing impacts in long term, although consideration should be given to underpass portal	<i>Significant / Moderate adverse</i>	<i>Slight adverse</i>

The development will be constructed on reclamation and as has been described above will generally avoid landscape impacts. From a landscape and visual perspective the EM & A requirements will be to ensure the minimisation of impacts to the existing tree vegetation along the northern edge of Angler's Beach. This will be achieved by undertaking a full detailed tree survey and felling application in accordance with WBTC No. 24/94, Tree Preservation. This will be submitted to DLO and approved by the relevant government departments. Trees will be identified and recommendations given for their action. Any trees of significance will be recommended for retention and should this not be possible, recommended for transplanting.

7.20

IMPLEMENTATION, MANAGEMENT AND MAINTENANCE OF LANDSCAPE WORKS

Table 7.20a outlines the implementation, management and maintenance responsibilities for the landscape works and items associated with this project.

Table 7.20a Implementation, Management and Maintenance of the Landscape Works for Overall Schedule 3 DP (i.e. the entire development)

Landscape Item	Funding Agent	Proposed Implementation	Management Department	Maintenance Department
Area 1 DO	CED*	LCSD / ArchSD	LCSD	LCSD / ArchSD
Area 2 LO	HD / Private Developer	HD / Private Developer	HD / Private Developer	HD / Private Developer
Area 4 Private Development LO on CDA	Private Developer	Private Developer	Private Developer	Private Developer
Area 4 Podium open space for public use	Private Developer	Private Developer	Private Developer	Private Developer
Area 5 Private Development LO on CDA	Private Developer	Private Developer	Private Developer	Private Developer
Area 6 DO	CED*	LCSD / ArchSD	LCSD	LCSD / ArchSD
Promenade above Bypass DO (not including engineering structure)	CED	LCSD / ArchSD	LCSD	LCSD / ArchSD
Roadside planting	CED	CED	HyD	LCSD
Amenity Areas	CED	CED	LCSD	LCSD / ArchSD

* CED will undertake to identify a funding agent during the implementation stage

Table 7.20b Implementation, Management and Maintenance of the Landscape Works for DP 1 - Reclamation

Landscape Item	Funding Agent	Proposed Implementation	Management Department	Maintenance Department
Footpath to alternative beach (alternative recreation provision - not mitigation measure)	CED	CED	LCSD	ArchSD
Alternative Beach (alternative recreation provision - not mitigation measure)	CED	CED	LCSD	LCSD
Leisure Centre (alternative recreation provision - not mitigation measure)	LCSD	ArchSD	LCSD	LCSD
Roadside planting	CED	CED	HyD	LCSD

Table 7.20c Implementation, Management and Maintenance of the Landscape Works for DP 2 - Sham Tseng Bypass

Landscape Item	Funding Agent	Proposed Implementation	Management Department	Maintenance Department
Noise barriers / enclosures	CED	CED	HyD	HyD
Roadside planting	CED	CED	HyD	LCSD

Table 7.20d Implementation, Management and Maintenance of the Landscape Works for Overall DP 3 - Sewage Pumping Station

Landscape Item	Funding Agent	Proposed Implementation	Management Department	Maintenance Department
Finishes to buildings	CED	CED	DSD	DSD
Onsite Screen planting	CED	CED	DSD	DSD

Table 7.20e Implementation, Management and Maintenance of the Landscape Works for DP 4 - Underpass below Castle Peak Road

Landscape Item	Funding Agent	Proposed Implementation	Management Department	Maintenance Department
Noise barriers/enclosures	CED	CED	HyD	HyD
Roadside planting	CED	CED	HyD	LCSD

Views from the public on the visual impact of the proposed developments have been received. Their views were essentially on issues of building heights, building locations and the impact upon sea views, and these fundamental issues were carefully considered in drawing up the Master Development Plan (MDP).

As revealed from the findings of the Study, a certain level of development intensity on the proposed residential sites is necessary in order to optimise housing production. As regards the location of this housing development, it should be noted that, with reference to the MDP, Planning Area No.1 is relatively small and adjacent to the existing Castle Peak Road thus any residential developments thereon would be subject to unacceptable noise impact. Similarly, Planning Area No.6 is close to a committed sewage treatment works, thus residential developments thereon would be subject to unacceptable odour impact. Also, residential developments on Planning Area No.3 are considered unsuitable as they would be too close to an existing development. With these foregoing constraints, Planning Area Nos. 2, 4 and 5 were chosen for residential developments.

As regards the configuration of the developments, various options were considered. Namely, a) more blocks of low-rise type; b) fewer high-rise blocks concentrated on one side or the other of the planning areas; or c) fewer high-rise blocks spread across the areas with view corridors between them.

In conclusion, it was considered that Option a) would result in a “wall-effect” along the seafront and would block the views of a large percentage of the existing and committed developments, particularly those residents living in the lower to medium floors. Therefore, such an arrangement was considered unacceptable. Option b) would result in almost total blockage of views of major existing and committed developments. Again this was considered unacceptable as views enjoyed by these developments should not be wholly compromised. Therefore Option c) was adopted as it would provide view corridors for the major existing and committed developments.

Also, it is proposed to plan the tallest buildings at the centre of the reclamation with gradual lowering on both sides. This varied building height can achieve an interesting aspect when viewed from Ma Wan Channel.

On balance, given the various site constraints, the proposed urban form of the MDP is considered to be acceptable.

7.22

SUMMARY

7.22.1

Schedule 3 DP

The proposed development will cause a significant change in the existing landscape character of Sham Tseng by redefining the coastal edge and extending the manmade coastal zone. It will modify the existing character extending the urban area comprising medium and high-rise residential areas on reclamation into the bay. Although the development will extend the existing landscape character of high-rise residential development further into the bay area, it will also serve to concentrate new high-rise development in one

location thereby preserving the remnant coastal character in other areas. However, the scale of the development, compared to the relatively limited high-rise developments that currently exist in the township, will alter the prevailing character of Sham Tseng by making the high-rise development character more dominant within the Study Area. Importantly, the development addresses the shortfall of open space in the Sham Tseng area and will provide greater recreation opportunities and public open space for Sham Tseng residents.

It is noted, however, that several localised residual impacts cannot be directly mitigated in the long term. These are as follows:

- Visual impact to Lido Garden, SMB CDA, and Sea Crest Villa Phase I and II, primarily due to the proximity of identified VSRs and a narrowing of their sea view. The urban design has ensured that the currently proposed layout provides, as far as possible, view corridors to minimise these impacts (refer to Figure 7.14a), however residual impacts for both VSRs are rated as significant adverse.
- Landscape impact due to the loss of the natural coastline (approximately 430m length of sand beach and kaito pier) through the reclamation process. As this is a permanent effect, the residual landscape impact is likely to be significant adverse. However this should be considered in the context of the project creating a new urban character in terms of the permanent modification of the bay due to the extension of the man-made coastline and high rise developments. Improved access to an alternative beach will be provided, in addition to the creation of a new public open space at the waterfront and a Leisure Centre providing alternative recreational facilities.

7.22.2

Schedule 2 DPs

Reclamation

The reclamation will lead to a number of significant adverse landscape and visual impacts, albeit locally, including the loss of the remainder of Angler's Beach and widespread construction phase visual impacts, as detailed in Table 7.13a. The proposed mitigation measures, including the hydroseeding of the reclaimed area will alleviate some of the predicted impacts to a slight adverse level. These impacts include the loss of coastal location and the change to the character setting due to the extension of the manmade waterfront. However significant adverse residual adverse impacts will remain primarily due to the scale of the proposed development, its proximity to identified VSRs, and the loss of the remainder of Anglers Beach natural coastline.

It should be noted that although the impacts of the proposed reclamation have been assessed on a separate basis, the overall impacts arise from the scheme proposals as a whole, which are interdependent.

Sham Tseng Bypass & Underpass below Castle Peak Road

The cover over the central section of the bypass (875m in length) alleviates, at source, the most significant visual impact that would otherwise have affected the future VSRs within the development. This will create a public waterfront limiting the separation caused by the road between the residential area and the sea. It will also screen the carriageway and vehicular traffic in views from the neighbouring residential tower blocks and to improve the general visual amenity of the scheme. The promenade will be a key component of the open space framework and act as a pedestrian link along the entire length of the new development, linking with the marine basin. It will capitalise on the open views across the Ma Wan Channel to the south.

In the context of the wider development, and as it will be built before the new residents move in, the construction phase impacts are considered to be to be moderate adverse in the worst case. The slope works and vegetation losses (0.4ha in total area) at the east and west Castle Peak Road connections are considered to cause a moderate adverse impact, taking account of compensatory planting (minimum of 2.7ha). The proposed mitigation includes minimisation of works, a full tree felling application in accordance with WBTC 24/94, compensatory planting at a minimum in terms of a like for like replacement of disturbed landscape resources. Aesthetic design consideration should also be given to all highway structures including the viaducts and noise barriers, both of which should be submitted to ACABAS for their recommendations.

Sewage Pumping Station

The station building is likely to cause slight adverse residual landscape and visual impacts in the long term in both the construction and operational stages as it will be generally low rise, with much of the structure underground. The scheme will be constructed on reclamation, with potential for boundary screen planting and aesthetic design consideration given the building form and finishes.