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11. LANDSCAPE AND VISUAL IMPACT ASSESSMENT

11.1 Introduction

11.1.1 This Section presents the Landscape and Visual Impact Assessment (LVIA) associated with the construction and operation of the proposed Project in accordance with Clause 3.4.9 and Appendix G of the EIA Study Brief No. ESB-322/2019.

11.1.2 The scope of this LVIA assessment includes the followings:

- Conduct landscape and visual baseline studies that describe the existing conditions;
- Identify and describe landscape and visual impacts of the areas;
- Define the significance and magnitude of these impacts;
- Propose mitigation measures by taking local conditions and experience in consideration and to describe the maintenance and management of these mitigation measures; and
- Indicate the residual impacts after mitigation.

11.2 Environmental Legislation, Standards, Guidelines and Criteria

11.2.1 The following legislation and guidelines are applicable to the landscape and visual impact assessment (LVIA) in Hong Kong:

- Environmental Impact Assessment Ordinance (Cap.499.S.16) and the Technical Memorandum on EIA Process (EIAO TM), particularly Annexes 10, 11 and 18;
- EIAO Guidance Note 8/2010;
- EIA Study Brief No. ESB-322/2019;
- Hong Kong Planning Standards and Guidelines;
- Town Planning Ordinance (Cap 131);
- Forests and Countryside Ordinance (Cap. 96) and its subsidiary legislation the Forestry Regulations;
- Country Parks Ordinance (Cap 208);
- Territorial Development Strategy Review: 1995;
- DEVB TCW No.04/2020 – Tree Preservation; and
- DEVB TCW No. 05/2020 – Registration and Preservation of Old and Valuable Trees (OVT);
- DEVB TCW No. 6/2015 – Maintenance of Vegetation and Hard Landscape Features; and
- ETWB TCW No. 5/2005 – Protection of Natural Streams / Rivers from Adverse Impacts Arising from Construction Works

11.3 Principal Work Elements

11.3.1 The Project comprises of four principal work elements. Details of those are provided in **Section 2.18**. The principal work elements include the followings:

- The improvement of two sections of Ping Yuen River, namely TKL04 (about 1.4km

long) and TKL05 (about 2.1km long), in Ta Kwu Ling;

- The drainage improvement works at Ping Yeung Village, Ta Kwu Ling (about 1050m long in total); and
- The construction of road drainage system at part of Ping Che Road, Ta Kwu Ling (about 1150m long in total).
- Pedestrian and vehicular crossings will be re-provided along the upgraded channel.

11.4 Assessment Methodology

11.4.1 The LVIA follows the criteria and guidelines in Annexes 10, 11 and 18 of the EIAO TM. It also follows the Requirements for LVIA, as stated in Appendix G of the EIA Study Brief No. ESB-322/2019.

Definition of the Study Area

11.4.2 For Landscape Impact Assessment, the Study Area includes all terrestrial and aquatic surface areas that are within 500 m of the Works Area, which is illustrated in **Figure 11.1**.

11.4.3 For Visual Impact Assessment, the Study Area includes terrestrial and aquatic areas within the Primary Visual Envelope of the works, or Zone of Visual Influence (ZVI), which is illustrated in **Figure 11.2**. The ZVI is defined according to the EIA Ordinance Guidance Note 8/2010, item 3.3 (b). It further indicates that natural / man-made features such as ridgeline or building blocks determine the possibility of views to the proposed Project and define the extent of the visual envelope. Identification of the visual envelope has been achieved by site visit and desk-top study of topographic maps and photographs, and GIS analysis, to determine potential visibility of the Project from various locations. GIS analysis uses known data regarding the proposed built structures to model the area that can potentially see the developments. It should be noted that GIS analysis uses topographic data as a baseline, disregarding existing built forms and vegetation which reduce the actual visual envelope.

Landscape Impact Assessment Methodology

11.4.4 The assessment of potential impacts to the existing landscape comprises two distinct sections:

- Baseline survey, in this case comprising a tree survey; and
- Potential landscape impact assessment.

11.4.5 To conduct the landscape baseline study that describes the physical properties of the landscape, surveys are carried out with considerations in both the present and planned future landscape: the first is a desktop survey and the second is a site survey. Landscape elements considered included:

- Local topography;
- Existing roadside planting;
- Woodland extent and type;
- Other vegetation types;
- Built form;
- Patterns of settlement;

- Land use;
 - Scenic spots;
 - Details of local materials, styles, streetscapes;
 - Prominent watercourses; and
 - Cultural and religious identity.
- 11.4.6 Planned developments either within the Study Area or adjacent to it are also considered. The baseline survey formed the basis of the landscape context by describing broadly homogenous units of similar character.
- 11.4.7 Factors affecting the evaluation of the sensitivity of landscape character / resources include:
- 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.
- 11.4.8 The sensitivity of individual landscape character areas (LCAs) and landscape resources (LRs) are rated using high, medium or low depending not only on the quality of elements present but also their sensitivity to change and local or regional importance. The sensitivity of each landscape resource and character area is classified as follows:
- **High:** Important landscape or landscape resource with particularly distinctive positive aspects of character or high rarity value, sensitive to relatively small changes;
 - **Medium:** Landscape or landscape resource with moderately distinctive positive aspects of character or rarity value reasonably tolerant to change; and
 - **Low:** Landscape or landscape resource common across Hong Kong with little distinctive positive character or low rarity value with a high tolerance to change.
- 11.4.9 Factors affecting the evaluation of the magnitude of landscape impacts include:
- Compatibility of the Project with the surrounding landscape;
 - Duration of impacts under construction and operational phases;
 - Scale of the development; and
 - Reversibility of change.
- 11.4.10 The magnitude of change arising from the implementation of the Project is rated as large, medium, small, or negligible. The impact magnitude is classified as follows:
- **Large:** A clearly evident, frequently perceived and continuous change in landscape characteristics affecting an extensive area. The change may be long term and would not be reversible;
 - **Medium:** A noticeable change in landscape character, frequently perceived or continuous and over a wide area; or a clearly evident change over a restricted area that may be infrequently perceived. The change may be medium to long term and may not be reversible;

- **Small:** A subtle change in landscape character over a wide area of a more noticeable change either over a restricted area or infrequently perceived. The change may be short term; and
- **Negligible:** The imperceptible, barely or rarely perceptible change in landscape characteristics. The change may be short term.

11.4.11 Potential landscape impacts of the Project are resulted from:

- Identification of the sources of impact, and their magnitude, that would be generated during construction and operation of the Project; 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.

11.4.12 The significance threshold for impacts to landscape character and resources is rated as major, moderate, minor or negligible. The impact significance is classified as follows:

- **Major:** Negative / positive impact where the proposal would cause a very noticeable deterioration or improvement to existing landscape resources / character;
- **Moderate:** Negative / positive impact where the proposal would cause a noticeable deterioration or improvement to existing landscape resources / character
- **Minor:** Negative / positive impact where the proposal would cause a barely perceptible deterioration or improvement to existing landscape resources / character; and
- **Negligible:** No discernible change to existing landscape resources / character.

11.4.13 The matrix of impact significance is shown in **Table 11.1**.

Table 11.1 Matrix of Impact Significance

| Magnitude of Landscape Impact | Sensitivity of Landscape Resource | | | |
|-------------------------------|-----------------------------------|------------|------------|------------|
| | | Low | Medium | High |
| Negligible | Negligible | Negligible | Negligible | Negligible |
| Small | Negligible | Minor | Moderate | Major |
| Medium | Minor | Moderate | Major | Major |
| Large | Moderate | Major | Major | Major |

Broad Brush Tree Survey Methodology

11.4.14 For the purpose of the tree survey, the guidelines from DEVB TCW No.04/2020 – Tree Preservation are adopted.

11.4.15 All trees in the survey were surveyed individually. The tree survey identified the following attributes of each individual tree:

- Tree number;
- Botanical name;
- Height;
- Crown spread
- Trunk girth (measured 1.3 meter from the ground);

- Trunk diameter at breast height;
- An assessment of form;
- An assessment of health;
- An assessment of amenity value;
- Survival rate after transplantation;
- The Government Department responsible for maintaining the tree (where works to trees are proposed);
- Proposed treatment / recommendation;
- Justification of treatment proposal; and
- Other remarks.

11.4.16 Notes were made of any rare or protected species found as well as trees of protection interest and special significance by virtue or rarity, protected status, age or other value.

11.4.17 The survey information included tree height, crown spread and trunk girth. The information was then used as basis of the detailed tree survey, including identification of the species, and evaluation of the trees in terms of health, form and amenity value, survival rate after transplant, as well as its proposed treatment (i.e. retain / transplant / fell).

Visual Impact Assessment Methodology

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

- Baseline survey; and
- Visual impact assessment.

11.4.19 For the Visual Impact Assessment (VIA), the assessment area is taken to include the visual envelope or ZVI, which includes all areas from which the Project can be seen (**Figure 11.2**). This area from the view shed formed by natural / man-made features such as existing ridgelines, built development and woodland / large trees.

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

- The visual envelope as has been described above and may contain both open and partial views of the Project; and
- The visually sensitive receivers (VSRs) within the visual envelope whose views will be affected by the Project. The potential receivers are categorized into four groups:
 - a. Residential (R);
 - b. Occupational (O);
 - c. Leisure and Cultural (LC); and
 - d. Transportation (T)

11.4.21 There are 5 factors affecting the sensitivity of receivers (SRs) when evaluating the visual impact, including:

11.4.22 1) Value and quality of existing views. In this case, a view from the 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;

- 11.4.23 2) Availability and amenity alternative views for the sensitivity of receivers (SRs) are also assessed. The location and direction of its view relative to the Project also influences the sensitivity of each group. Typical viewpoints from within each of the visually sensitive groups are identified and their views described;
- 11.4.24 3) The type and estimated number of receiver population is also the factor affecting the evaluation of visual impact;
- 11.4.25 4) The duration of frequency of view from the SRs are also considered under the assessment; and
- 11.4.26 5) The degree of visibility from the SRs is also evaluated.
- 11.4.27 The baseline survey formed the basis of the visual character and quality of the site. Potential visual impacts are resulted from:
- Identification of the sources of visual impacts, and their magnitude, that would be generated during construction and operation of the Project; and
 - Identification of the principal visual impacts primarily in consideration of the degree of change to the baseline conditions.
- 11.4.28 The impact assessment is related to the typical Vantage Points (VP) within the Visual Envelope, as identified previously, and their existing and potential views subsequent to the Project. VPs were also selected to further analyse the visual impact of the Project through the use of photomontages. The VPs were selected to represent worst case scenarios, due to their proximity to or elevated view of the Project Site. The photomontages provide a comparison between existing views, proposals after completion without mitigation measures and with mitigation measures.
- 11.4.29 The views available to the identified VSRs are rated according to their sensitivity to change using high, medium or low. The sensitivity of VSRs is classified as follows:
- **High:** The VSR is highly sensitive to any change in their viewing experience;
 - **Medium:** The VSR is moderately sensitive to any change in their viewing experience; and
 - **Low:** The VSR is only slightly sensitive to any change in their viewing experience.
- 11.4.30 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.
- 11.4.31 The magnitude of change arising from the implementation of the Project is rated as large, medium, small or negligible. The impact magnitude is classified as follows:

- **Large:** A clear evident change in the view at a close distance, affecting a substantial part of the view, continuously visible for a long duration, or obstructing important elements of the view. The change may be medium to long term and would not be reversible;
- **Medium:** A noticeable change in the view at an intermediate distance, resulting in either a distinct new element in a prominent part of the view, or a more wide-ranging, less concentrated change across an expansive area. The change may be medium to long term and may not be reversible.
- **Small:** A subtle change in the view, at long distances, or visible for a short distance, perhaps at an oblique angle, or which blends in to an extent with the existing view. The change may be short term; and
- **Negligible:** A change which is barely or rarely perceptible, at very long distances, or visible for a short duration, perhaps at an oblique angle, or which blends in with the existing view. The change may be short term.

11.4.32 The significance threshold for visual impact is rated in a similar fashion to the landscape impact, i.e. major, moderate, minor and negligible (Section 11.4.12, Table 11.1).

11.4.33 The criteria and matrices used to determine the degree of impact described in the above sections. Both landscape and visual impacts are products of magnitude of change and relative sensitivity of the sensitive receiver. Ultimately, the acceptability of the Project is dependent upon the significance of the residual impacts in accordance with the five (5) criteria set out in Annex 10 of the EIAO – Technical Memorandum (TM), namely ‘beneficial’, ‘acceptable’, ‘acceptable with mitigation measures’, ‘unacceptable’ and ‘undetermined’.

11.5 Planning and Development Control Framework

11.5.1 The following outline zoning plans were reviewed:

- S/NE-TKL/14 Ping Che & Ta Kwu Ling Outline Zoning Plan;
- S/NE-TKLN/2 Ta Kwu Ling North Outline Zoning Plan;
- S/NE-WKS/10 Wo Keng Shan Outline Zoning Plan;
- S/NE-MKT/4 Man Kam To Outline Zoning Plan; and
- S/NE-HLH/11 Hung Lung Hang Outline Zoning Plan.

11.5.2 The extent of the Works Area and the Study Area within the planning control framework is shown in **Table 11.2** and **Figure 11.3**.

Table 11.2 Details of Administrative Planning Zones

| Reference | Details | Works Area within the Zone (ha) | Study Area within the Zone (ha) |
|-----------|--------------------------------------|---------------------------------|---------------------------------|
| AGR | Agriculture | 6.92 | 238.08 |
| G/IC | Government / Institution / Community | 0.08 | 14.64 |
| GB | Green Belt | N/A | 65.76 |
| I(D) | Industrial Group | 0.19 | 11.52 |

| Reference | Details | Works Area within the Zone (ha) | Study Area within the Zone (ha) |
|-----------|--------------------------|---------------------------------|---------------------------------|
| MRDJ | Major Road and Junction | 0.88 | 5.08 |
| O | Open Space | N/A | 9.05 |
| OS | Open Storage | N/A | 0.47 |
| REC | Recreation | 0.52 | 31.05 |
| RICH | River Channel | 0.32 | 5.35 |
| V | Village Type Development | 0.39 | 49.52 |

11.5.3 It is noted that two development options involve construction of pumping station at a site falls within "Recreation" zone on approved Man Kam To OZP. Such pumping station may be regarded as 'Public Utility Installation' use, which is a Column 2 use requiring planning permission from the Town Planning Board.

11.6 Landscape Baseline Condition

11.6.1 The Landscape Impact Assessment Study Area covers the area that is within 500 m of the Works (**Figure 11.1**). The Study Area has abundant agricultural land and significant watercourses, including those channelized and natural watercourses. There are developed areas including rural villages (e.g. Fung Wong Wu, Kan Tau Wai, Tong Fong, Lei Uk, Tai Po Tin and Ha Shan Kai Wat), slightly modern villages (e.g. Ping Che New Village, The Parkland), and scattered industrial areas with open storage and workshops.

11.6.2 The Study Area is predominately wide flat land but has some hills (e.g. Lung Mei Teng), as well as Fung Shui woodland associated with Kan Tau Wai. The Study Area also includes the Taoist temple of Wun Chuen Sin Koon.

11.6.3 Landscape baseline of the Study Area comprises landscape character and landscape resources (LR). Landscape Character Areas (LCAs) and landscape resources are respectively shown in **Figure 11.4** and **Figure 11.5**. Photographic records of LRs and LCAs are respectively provided in **Figure 11.7a-b** and **Figure 11.8**.

Landscape Character Area

11.6.4 Six LCAs have been identified in the Study Area (**Figure 11.4**), including:

- LCA 1 Natural Hillside Landscape;
- LCA 2 Rural Village Landscape;
- LCA 3 Lowland Agricultural Landscape;
- LCA 4 Industrial Landscape;
- LCA 5 Major Water Course Corridor; and
- LCA 6 Cemetery Landscape.

LCA 1 Natural Hillside Landscape

11.6.5 This refers to areas above 40 mPD dominated by woodland and shrubby grassland. The southwestern part, which is near Tai Po Tin and Ha Shan Kai Wat, falls within this LCA. Lung Mei Teng and Nga Yiu Ha, which are at the northeast of the Study Area, are also within this LCA. The landscape amenity, significance and quality of this LCA are high with little tolerance to change and its sensitivity is considered to be **high**.

LCA 2 Rural Village Landscape

- 11.6.6 This LCA refers to small village areas close to one another, their associated fung shui woodland and cultivated land (e.g. at Chow Tin Tsuen, Fung Wong Wu , Lei Uk , Tai Po Tin, Kan Tau Wai and Tong Fong) as well as Ta Kwu Ling with its police station, fire station and a satellite office for ArchSD. To the south and east of the LCA includes more developed villages, still with predominantly low-rise buildings, such as Ping Che New Village, Sing Ping Village, and Ping Yeung Village. Wun Chuen Sin Koon and Ta Kwu Ling Farm are also included in this LCA and it also includes some areas of open storage or industry among the more residential areas. This LCA has varying landscape value and a medium tolerance to change and its sensitivity is **medium**.

LCA 3 Lowland Agricultural Landscape

- 11.6.7 This is predominantly low-lying farmland (active and inactive) with several, small naturally vegetated areas (not higher than 40 mPD) and some scattered human settlement with low rise-buildings. The area has an agricultural history and there are some watercourses that contribute to the irrigation demands as part of this landscape. The area contains a low level of built environment including some village houses scattered throughout the area, e.g. at Ha Shan Kai Wat. The area has high landscape value considering its regional significance in terms of its agricultural nature. Despite being populated, some of this LCA is also protected to a degree by the nature if it being within the Frontier Closed Border area and inaccessible to the general public. This LCA's sensitivity is **medium**.

LCA 4 Industrial Landscape

- 11.6.8 There are three main areas of this LCA in the Study Area. One to the south includes a lot of open storage and workshop areas around Ping Che New Village, one is on the western part of the Study Area, with many areas fenced off with high walls and buildings, and the last one is at the central part of the Study Area (south to Ping Yeung Village), with open storage and workshop areas. This is a highly modified landscape and it is tolerant to change, with its sensitivity considered **low**.

LCA 5 Major Water Course Corridor

- 11.6.9 This LCA encompasses Ping Yuen River and the watercourses which have been modified. There are narrow water channels along the riverbed of the Ping Yuen River and abundant vegetation between the channels in dry season. The watercourses are sparsely vegetated along their banks and have high amenity values in terms of flood control. They are reasonably tolerant to change and the sensitivity of this LCA is **medium**.

LCA 6 Cemetery Landscape

- 11.6.10 This LCA refers to a designated cemetery and a few low-lying hills with grassland and shrubland that contain a significant number of graves scattered throughout. The landscape serves social interest but has varied landscape quality given the propensity for hill fires started during traditional festivals. Therefore, the sensitivity is considered to be **medium**.
- 11.6.11 The six LCAs' sensitivity and their ability to accommodate change are summarised in **Table 11.3**.

Table 11.3 Sensitivity of Landscape Character Areas

| Ref. | Works Area within the LCA (ha) | Study Area within the LCA (ha) | Quality and Maturity (High / Medium / Low) | Rarity (High / Medium / Low) | Importance (Local / District / Regional) | Sensitivity to Change | Ability to Accommodate Change |
|--------------------------------------|--------------------------------|--------------------------------|--------------------------------------------|------------------------------|------------------------------------------|-----------------------|-------------------------------|
| LCA 1 Natural Hillside Landscape | N/A | 28.61 | High | Medium | District | High | Low |
| LCA 2 Rural Village Landscape | 1.87 | 105.11 | Medium | Low | Local | Medium | Medium |
| LCA 3 Lowland Agricultural Landscape | 5.78 | 229.09 | High | Medium | Regional | Medium | Medium |
| LCA 4 Industrial Landscape | 1.26 | 44.62 | Low | Low | Local | Low | High |
| LCA 5 Major Water Course Corridor | 0.39 | 10.22 | High | Medium | District | Medium | Medium |
| LCA 6 Cemetery Landscape | N/A | 12.85 | Medium | Low | Local | Medium | Medium |

Landscape Resources

11.6.12 Eleven landscape resources are identified within the Study Area (**Figure 11.5**).

LR 1 – Channelized Water Course

11.6.13 This LR refers to several watercourses which have been modified significantly within the Study Area, both large, wide channelization, as well as smaller, modified channels. This LR includes the two main branches of Ping Yuen River in the north of the Study Area, which are wide with grasscrete lining hosting season vegetation and dry season channels at the base. The embankments are both stone brick with little vegetation. It also includes narrower sections north to Tai Po Tin Tseun, and south to Ta Kwu Ling Farm. These watercourses are linked to unmodified watercourses for continuity of watercourse resources. It is considered to have **medium** sensitivity.

LR 2 – Water Course

11.6.14 This LR refers to the sections of Ping Yuen River of where it is modified in various meandering tributaries. These are vegetated with a natural form. This LR is considered to have **high** sensitivity.

LR 3 – Water Pond

11.6.15 This LR refers to water ponds used for irrigation, abandoned ponds, as well as the ponds within the landscaped area of Wun Chuen Sin Koon. The ponds within Wun Chuen Sin Koon are considered to have **high** sensitivity, while the other ponds are considered to have **medium** sensitivity.

LR 4 – Woodland

11.6.16 This LR refers to trees growing on the areas near to village areas, foothills, Lung Mei Teng, and Nga Yiu Ha. The canopy of these woodland stands was dominated by *Aporosa dioica*, *Cinnamomum camphora*, *Daphniphyllum calycinum*, *Dimocarpus longan*, *Ficus hispida*, *Litsea glutinosa*, *Microcos nervosa*, *Macaranga tanarius* var. *tomentosa*, *Machilus chekiangensis*, *Schefflera heptaphylla* and *Sterculia lanceolata*. The understorey was regenerated with native tree species and native shrub species *Litsea rotundifolia* var. *oblongifolia* and *Psychotria asiatica*, and climber species *Cansjera rheedii*, *Dalbergia benthamii*, *Desmos chinensis*, *Strophanthus divaricatus* and *Zanthoxylum nitidum*. This LR is considered to have **medium** sensitivity.

LR 5 – Fung Shui Woodland

11.6.17 This LR refers to the Fung Shui woodland recognized by AFCD behind Kan Tau Wai. The canopy is very sparse and interspersed with light gaps. Some saplings of native tree species (e.g. *Aporosa dioica*) and fruit tree species (e.g. *Carica papaya* and *Dimocarpus longan*). *Agave americana*, an ornamental plant species, was also grown at the edge of the Fung Shui Wood, reflecting the disturbed nature of Kan Tau Wai Fung Shui Wood. This LR is considered to have **high** sensitivity.

LR 6 – Scrubland / Grassland Mosaic

11.6.18 This LR refers to the northern part of Study Area close to Lei Uk and Tong Fong; as well as the northeastern part of Study Area close to Lung Mei Teng and Nga Yiu Ha, where abandoned land has become overgrown with tall grasses. This LR is considered to have **medium** sensitivity.

LR 7 – Agricultural Land

11.6.19 This LR refers to agricultural land that is vital to the rural character of the area. Some of the farmland is abandoned, mostly colonized by wild grasses. This LR is considered to have **medium** sensitivity.

LR 8 – Rural Development Area

11.6.20 This LR includes the more isolated villages of Chow Tin Tsuen, Fung Wong Wu, Lei Uk, Tai Po Tin, Kan Tau Wai, Shui Hau and Tong Fong. It also includes more developed, denser villages still with predominantly low rise buildings, such as Ping Che New Village, Sing Ping Village, Ping Yeung Village, The Parkland, and their associated features such as playgrounds, football courts, and office buildings (e.g. Ta Kwu Ling Rural Centre Government Offices). In addition, it includes Wun Chuen Sin Koon, the Taoist Temple. This LR is mainly modified but has some softscape treatment including some trees and private amenity planting. This LR is considered to have **medium** sensitivity.

LR 9 – Industrial / Open Storage

11.6.21 This LR refers to industrial workshops and buildings, and open spaces within the Study Area. Often individual sites are surrounded by high walls, blocking views into the Works Area from the ground level. This LR is completely man made with little vegetation. This LR is considered to have **low** sensitivity.

LR 10 – Key Transportation Corridor

11.6.22 This LR refers to a small part of Lin Ma Hang Road, a large length of Ping Che Road, and a part of Heung Yuen Wai Highway. Much of the abovementioned has extensive roadside planting. This LR is considered to have **medium** sensitivity.

LR 11 – Cultural Feature

11.6.23 This LR refers to burial grounds where graves are located in close proximity and often hard paved surfaces between graves to allow ease of access to the graves. This LR is considered to have **medium** sensitivity.

11.6.24 **Table 11.4** summarizes the ten landscape resources' sensitivity.

Table 11.4 Sensitivity of Landscape Resources

| Landscape Resources | Works Area within the LR (ha) | Quality and Maturity (High / Medium / Low) | Rarity (High / Medium / Low) | Importance (Local / District / Regional) | Sensitivity to Change | Ability to Accommodate Change |
|-------------------------------------|--------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------|----------------------------------------------------------------|---------------------------------------------------------------|
| LR 1 – Channelized Water Course | 0.34 | Medium | Low | Local | Medium | Medium |
| LR 2 – Water Course | 3.13 | Medium | Medium | District | High | Low |
| LR 3 – Water Pond | 0.00 | High (Ponds within Wun Chuen Sin Koon) Medium (Other ponds) | High (Ponds within Wun Chuen Sin Koon) Low (Other ponds) | Local | High (Ponds within Wun Chuen Sin Koon) Medium (Other ponds) | Low (Ponds within Wun Chuen Sin Koon) Medium (Other ponds) |
| LR 4 – Woodland | 0.60 | High | Medium | Local | Medium | Medium |
| LR 5 – Fung Shui Woodland | 0.00 | High | High | Local | High | Low |
| LR 6 – Scrubland / Grassland Mosaic | 0.44 | Medium | Low | Local | Medium | Medium |
| LR 7 – Agricultural Land | 2.38 | Medium | Medium | Local | Medium | Medium |
| LR 8 – Rural Development Area | 0.70 | Medium | Medium | Local | Medium | Medium |
| LR 9 – Industrial / Open Storage | 0.69 | Low | Low | Local | Low | High |
| LR 10 – Key Transportation Corridor | 1.02 | Medium | Low | District | Medium | Medium |
| LR 11 – Cultural Feature | 0.00 | Medium | Medium | Local | Medium | Medium |

11.7 Tree Survey Baseline Condition

- 11.7.1 A total of 1,057 nos. of existing trees were identified within the proposed river alignment. They are subject to retain (239 nos.), fell (632 nos.), transplant (171 nos.) and to be felled and dead (15 nos.). Compensatory planting of 632 heavy standard trees are proposed for the tree to be felled with a trunk diameter above or equal 95 mm within the Works Area.
- 11.7.2 There are no old and valuable trees (OVTs) included in the 'Register of Old and Valuable Trees' under DEVB TCW No. 5/2020 within the proposed river alignment. However, there are 14 nos. of potential OVTs within the proposed river alignment (of which 5 will be retained and the rest will be felled). The height of the affected trees ranged from 8m to 18m while the DBH ranged from 924mm to 1,487mm. They are located in LR 2, LR 6, LR 7 and LR 10 and their locations are illustrated in **Figure 11.6**. The scope of this Project is enhancing the drainage capacity in Ta Kwu Ling area by upgrading the existing upstream branch of Ping Yuen River, namely TKL04 & TKL05, by channel widening and deepening. Alternative alignment has been considered in the Project in order to minimize the impacts on trees (including potential OVTs) and the evaluation is presented in Section 2.10 and Figure 2.1 of this EIA. The current proposed alignment (Option A) is considered felling less number of trees and affecting less number of private lots while providing sufficient drainage capacity as per the current design standard. There are 14 nos. of potential OVTs within the proposed study area, with adopting the proposed alignment, 5 nos. of potential OVTs will be retained. Further, the potential OVTs proposed to be felled are located in the middle of the proposed works alignment (riverbanks of the existing TKL04 & TKL05). If the works alignment is required to alter in order to preserve the potential OVTs, significant adverse hydraulic impact is anticipated where the flood protection standard will be affected. Also, a greater number of private lots will need to be resumed in order to divert the alignment away from the existing TKL04 & TKL05. Hence, altering the proposed alignment are considered not ideal for engineering consideration and cost-effectiveness. Moreover, as most of the potential OVTs are located at the steep riverbanks of the existing TKL04 & TKL05, and tangled with the adjacent manmade structures or trees. Forming an intact and clear root ball for transplantation is not feasible. On the other hand, the potential OVTs are located away from the vehicular accesses and generally bounded by private lots, there is insufficient space within the works limit for setting up heavy machinery to facilitate the transplantation works. With the considerations and site constraints stated above, the potential OVTs are proposed to be felled. Tree assessment schedule, photos of the potential OVTs which are proposed to be felled and land lot plans adjacent to the OVTs are presented in **Appendix 11.1**.
- 11.7.3 A total of 167 nos. of *Aquilaria sinensis* (土沉香) are identified within the proposed river alignment and they are located in LR2 and LR7. The height of the affected trees ranged from 2m to 10m while the DBH ranged from 95mm to 223mm. They are classified as a significant tree or with special conservation status as per Protection of Endangered Species of Animals and Plants Ordinance (Cap 586). Approximately 1 of them will be retained and 166 will be transplanted. It is observed that the group of affected *Aquilaria sinensis* are located near the verge of watercourse TKL04. Thus, it is inevitable to encroach the planting area of *Aquilaria sinensis* group in order to optimize the land resumption and hydraulic needs under this project. To minimize the impact on *Aquilaria sinensis*, transplantation is proposed. It will be felled due to tree decay. **Figure 11.6** illustrate the location of the trees of particular interest. **Table 11.5** summarize the proposed treatment of affected trees in each LRs.

Table 11.5 Summary table of affected trees in Landscape Resources

| Landscape Resources | No. of Trees to be Retained | No. of Trees to be Transplanted | No. of Trees to Be felled |
|-------------------------------------|-----------------------------|---------------------------------|---------------------------|
| LR 1 – Channelized Water Course | 1 (0.09%) | 0(0%) | 0(0%) |
| LR 2 – Water Course | 35 (3.31%) | 139 (13.15%) | 235 (22.23%) |
| LR 3 – Water Pond | 0 (0%) | 0(0%) | 0(0%) |
| LR 4 – Woodland | 49(4.64%) | 0(0%) | 94 (8.89%) |
| LR 5 – Fung Shui Woodland | 0 (0%) | 0(0%) | 0(0%) |
| LR 6 – Scrubland / Grassland Mosaic | 16 (1.51%) | 1 (0.09%) | 38 (3.60%) |
| LR 7 – Agricultural Land | 56 (5.30%) | 31 (2.92%) | 187 (17.69%) |
| LR 8 – Rural Development Area | 16 (1.51%) | 0(0%) | 4(0.38%) |
| LR 9 – Industrial / Open Storage | 11 (1.04%) | 0(0%) | 56 (5.30%) |
| LR 10 – Key Transportation Corridor | 55 (5.20%) | 0(0%) | 18 (1.70%) |
| LR 11 – Cultural Feature | 0(0%) | 0(0%) | 0(0%) |
| Sum | 239 | 171 | 632 |

Note: Number inside the () represents the percentage of the estimated number of affected trees to the estimated total number of identified trees within the proposed river alignment.

11.7.4 Before commencement of the works at the proposed drainage improvement works, an update tree survey including topographic survey will be conducted. A Tree Preservation and Removal Proposal (TPRP), which will include the update tree survey findings and compensatory planting details will be submitted in accordance with *DEVB TC(W) No. 04/2020*. It should be noted that the location and the number of trees for the compensatory planting will be detailed and finalised in the TPRP, which is subject to the approval of relevant authorities.

11.8 Visual Baseline Condition

11.8.1 The visual envelope, which is the area from which any part of the proposed Project would be able to be seen, is shown in **Figure 11.2**. The general baseline visual character of the area where the Project is to be undertaken is characterised predominantly low-lying land with some small vegetated hills. Distant to the Works Area are a number of hills that form a distant back drop. These include the Tusng Shan range to the south and south west and Cheung Shan and Wo Ken Shan to the east and south east. To the north east the landfill site is visible. Some vegetated hills are also visible to the north in Shenzhen, PR China, but the distinctive feature of the view in this direction is the number of high rise buildings and developments in contrast to the low-rise character of developments in HK SAR. The overall visual character is a combination of various natural and man-made elements.

11.8.2 The nature of the Project means that the permanent above ground structures are limited to the footbridges and vehicular crossings.

11.8.3 Other Project components along Ping Yuen Road and Ping Che Road, i.e. drainage pipe and U-channel / rectangular channel are all low lying structures located below surrounding ground level and generally inconspicuous.

11.8.4 VSRs, people who will potentially view the construction and / or the operation of the Project, have been identified (**Figure 11.2**). Photographic records of the VSRs are shown in **Figure 11.9a-d**. As mentioned in Section 11.4.20, the potential VSRs are categorized into four groups:

- Residential (R);
- Occupational (O);
- Leisure and Cultural (LC); and
- Transportation (T).

Visually Sensitive Receivers(VSRs)

11.8.5 Due to the vegetation in much of the area around the Project Site and the absence of frequent human presence on much of the higher ground in the vicinity of the Project, VSRs were mainly selected close to the Project Site. This also represented the worst case scenario for visual impacts.

11.8.6 Upon investigation, view towards the Project Site by residents in Kan Tau Wai were shielded by the Ping Che road and associated trees to the west and other natural vegetation. Residents of Ping Che New Village were also considered not to be able to see the Project Site due to vegetation blocking their line of sight, particularly tall trees growing along Ping Che Road. All these sites were therefore considered to fall outside the Zone of Visual Influence.

11.8.7 20 VSRs were selected within the Zone of Visual Influence to represent people in this area. All VSRs are mapped in **Figure 11.2** to show the representative areas where these VSRs are located. 7 VPs were also selected as being the best locations from which to illustrate the impact of the project on the area through the use of photomontages, as described in Section 11.11. The sensitivities of each of these VSR groups are described below and summarised in **Table 11.6**.

Residential Visually Sensitive Receivers

R-01 Residents of Fung Wong Wu Village

11.8.8 This VSR refers to some residents of Fung Wong Wu. It is a small village with only a few low rise houses facing the Project. These very few viewers have alternative views and will only have a glimpse view of the Works Area as their view is partially blocked by the surrounding vegetation. Since the residents of Fung Wong Wu Village live in low rise residential buildings and their view is relatively horizontal to the Project area, it is considered to have **medium** sensitivity. VP 2 is selected to represent the view of this VSR (**Figure 11.11**).

R-02 Residents of Tong Fong Village

11.8.9 This VSR refers to some residents of Tong Fong, which is a small village close to Ping Che Road. The village has some roadside planting between it and the Works Area. Only a few houses face the Works Area and these few viewers have alternative views and will only have a glimpse view of the Works Area. Since the residents of Tong Fong Village live in low rise residential buildings and their view is relatively horizontal to the Project area, this VSR is considered to have **medium** sensitivity. VP 2 is selected to represent the view of this VSR (**Figure 11.11**).

R-03 Residents of Lei Uk Village

11.8.10 This VSR includes some residents of Lei Uk. There is a thin strip of low scrubland / grassland between the village and the Works Area. There are a few houses to the east of the village that have open and full views towards the Works Area, especially at elevated view. Their view is predominately natural. These houses have alternative views from other windows not facing the Works Area. This VSR is considered to have **high** sensitivity. VP 3 is selected to represent the view of this VSR (**Figure 11.12**).

R-04 Residents of Sing Ping Village

11.8.11 Sing Ping is a small village with roadside planting between it and the Works Area. Only a few houses are tall enough to see out the surrounding vegetation and the planting along Ping Che Road, to possibly to see the Works Area. Very few residents will have glimpse views and they are considered to have **medium** sensitivity. VP 6 is selected to represent the view of this VSR (**Figure 11.15**).

R-05 Residents of Village Area between Tai Po Tin and Ping Che

11.8.12 Residents to the east of Tai Po Tin and south of Ping Che Road will border the Works Area. Only a few houses are tall enough to see out the surrounding vegetation and the planting along Ping Che Road, to possibly to see the Works Area. To the west of this VSR is an industry. Very few residents will have glimpse views and they are considered to have **medium** sensitivity. VP 4 is selected to represent the view of this VSR (**Figure 11.13**).

R-06 Residents of Tai Po Tin Village

11.8.13 This VSR includes some residents of Tai Po Tin. There are a number of houses on the eastern side of the village that have open and full views towards the Works Area. The quality of this VSR's view is medium since these viewers also face an existing industry that is opposite to them. These houses have alternative views from other windows not facing the Works Area. This VSR is considered to have **medium** sensitivity. VP 4 is selected to represent the view of this VSR (**Figure 11.13**).

R-07 Residents of Ping Che Yuen Ha Village

11.8.14 This VSR includes a few residents at Ping Che Yuen Ha living in 2 – 3 storey houses to the south of the Works Area. There are very few of them and their view is partially blocked by natural vegetation, so their views are glimpse and they are considered to have **medium** sensitivity. VP 7 is selected to represent the view of this VSR due to similar features of improvement works (**Figure 11.16**).

R-08 Residents of Ha Shan Kai Wat Village

11.8.15 This VSR includes some residents of Ha Shan Kai Wat, which is surrounded by agricultural land and has mainly natural and high-quality existing views. Ha Shan Kai Wat is a small village that is quite far from the Works Area. Only residents at higher levels of 2 – 3 storey houses will have a view of the Works Area. This view will be glimpse only due to natural vegetation between the village and the Works Area largely obscuring the view. This VSR is considered to have **medium** sensitivity. VP 5 is selected to represent the view of this VSR (**Figure 11.14**).

R-09 Residents of Ping Che Kat Tin Village

11.8.16 This VSR includes the few residents of Ping Che Kat Tin whose houses are tall enough to see out the surrounding vegetation and the planting along Ping Che Road, to possibly to see the Works Area. Very few residents will have glimpse views and they are considered to have **medium** sensitivity. VP 7 is selected to represent the view of this VSR due to similar features

of improvement works (**Figure 11.16**).

R-10 Residents of Ping Yeung

- 11.8.17 Ping Yeung is bordering the Works Area along Ping Yuen Road. There are some houses to the west of the village that have open and full views towards the Works Area, especially at elevated view. Their view is predominately other residential (i.e. Parkland) area and natural scenery. This VSR is considered to have **high** sensitivity. VP 7 is selected to represent the view of this VSR due to similar features of improvement works (**Figure 11.16**).

Occupational Visually Sensitive Receivers

O-01 Caritas Nursery School

- 11.8.18 This VSR refers to the students and staff going to the nursery school. Being blocked by natural vegetation, the VSR will mainly not see the Works Area. Some on the top floor might get occasional glimpse views of the Works Area, and they have alternative views. Therefore, this VSR is considered to have **medium** sensitivity. VP 6 is selected to represent the view of this VSR (**Figure 11.15**).

O-02 Ta Kwu Ling District Rural Committee

- 11.8.19 This VSR refers to the staff working at the Rural Committee office. Although the office borders the Works Area and has a full view of the Project, people at their workplace would mainly focus on their work. Therefore, this VSR is considered to have **medium** sensitivity. VP 7 is selected to represent the view of this VSR due to similar features of improvement works (**Figure 11.16**).

O-03 Workers at Industry

- 11.8.20 The industry that borders the Works Area are mainly surrounded by high walls, meaning most of the existing view is blocked. In addition, people at their workplace would mainly focus on their work, therefore this VSR is considered to have **medium** sensitivity. VP 4 is selected to represent the view of this VSR (**Figure 11.13**).

O-04 Ta Kwu Ling Farm

- 11.8.21 This VSR refers to the staff working at Ta Kwu Ling Farm. Although the farm is bordering the Works Area, there is some roadside planting along Ping Che Road which blocks the Project. In addition, people at their workplace would mainly focus on their work, therefore this VSR is considered to have **medium** sensitivity. VP 7 is selected to represent the view of this VSR due to similar features of improvement works (**Figure 11.16**).

O-05 Ping Che Government Office

- 11.8.22 This VSR refers to the people working at Ping Che Government Office. Although the office borders the Works Area and has a full view of the Project, people at their workplace would mainly focus on their work. Therefore, this VSR is considered to have **medium** sensitivity. VP 7 is selected to represent the view of this VSR due to similar features of improvement works (**Figure 11.16**).

Leisure and Cultural Visually Sensitive Receivers

LC-01 Ta Kwu Ling Playground

- 11.8.23 This VSR refers to the people using Ta Kwu Ling Playground. The playground borders the Works Area and has a full view of the Project. However, since the frequency of view is occasional, this VSR is considered to have **low** sensitivity. VP 7 is selected to represent the

view of this VSR due to similar features of improvement works (**Figure 11.16**).

LC-02 Wun Chuen Sin Koon

- 11.8.24 This VSR refers to the people working / visiting Wun Chuen Sin Koon. Its entrance borders the Works Area, which has a full view of the Project. Meanwhile, softscape treatment including some trees and private amenity planting can be found in this VSR. Buildings within Wun Chuen Sin Koon will only have glimpse view of the Works Area due to the vegetation. Wun Chuen Sin Koon is a highly landscaped Taoist temple popular with tourists. Despite of this, the frequency of view is occasional, typically limited to holidays. This VSR is considered to have **low** sensitivity. VP 7 is selected to represent the view of this VSR due to similar features of improvement works (**Figure 11.16**).

LC-03 Strawberry Farm

- 11.8.25 This VSR refers to the visitors practicing recreational farming. The plantation within the farm might block the Works Area, and the visitors might only have glimpse view. As the frequency of view for visitors are occasional and with alternative views, this VSR is considered to have **medium** sensitivity. VP 6 is selected to represent the view of this VSR (**Figure 11.15**).

LC-04 Ping Che Children's Playground

- 11.8.26 This VSR refers to the people using Ping Che children's playground. Although the playground borders the Works Area and has a full view of the Project, the frequency of view is occasional. Therefore, this VSR is considered to have **low** sensitivity. VP 7 is selected to represent the view of this VSR due to similar features of improvement works (**Figure 11.16**).

Transportation Visually Sensitive Receivers

T-01 Travelers along Ping Che Road

- 11.8.27 This VSR includes people travelling on Ping Che Road. For much of the road, the view to the Works Area is blocked by roadside vegetation and developments. Most of this VSR is vehicular and it is a reasonably busy road with many users. Travelling VSRs are less sensitive in general since views are transient and occasional. The surrounding vegetation will mean these views are partially obscured. This VSR is considered to have **low** sensitivity. VP 7 is selected to represent the view of this VSR due to similar features of improvement works (**Figure 11.16**).
- 11.8.28 A summary of the VSRs along with an analysis of the number of viewers, quality of the existing view, distance from the impact source, alternative views, degree of visibility, frequency of view and sensitivity to change is provided in **Table 11.6**.

Table 11.6 Details of Visually Sensitive Receivers

| Ref. | Representative VP | No. of Individuals (Few / Typical / Many) | Quality of Existing View (Good / Fair / Poor) | Distance with the Works Area (m) | Alternative Views | Degree of Visibility (Glimpse / Full) | Frequency of View (Frequent / Occasional) | Compatibility of the Project with the Surrounding Landscape (Good / Fair / Poor) | Sensitive to Change (High / Medium / Low) |
|-----------------------------------------------------------|-------------------|-------------------------------------------|-----------------------------------------------|----------------------------------|-------------------|---------------------------------------|-------------------------------------------|----------------------------------------------------------------------------------|-------------------------------------------|
| Residential VSRs | | | | | | | | | |
| R-01 Residents of Fung Wong Wu | VP2 | Few | Good | 157 | Yes | Glimpse | Frequent | Fair | Medium |
| R-02 Residents of Tong Fong | VP2 | Few | Good | 135 | Yes | Glimpse | Frequent | Fair | Medium |
| R-03 Residents of Lei Uk | VP3 | Few | Good | 83 | Yes | Full | Frequent | Fair | High |
| R-04 Residents of Sing Ping Village | VP6 | Few | Good | Within Works Area | Yes | Glimpse | Frequent | Fair | Medium |
| R-05 Residents of Village between Tai Po Tin and Ping Che | VP4 | Few | Fair | 67 | Yes | Glimpse | Frequent | Fair | Medium |
| R-06 Residents of Tai Po Tin | VP4 | Few | Good | 104 | Yes | Full | Frequent | Fair | Medium |
| R-07 Residents of Ping Che Yuen Ha Village | VP7 | Few | Good | 123 | Yes | Glimpse | Frequent | Fair | Medium |
| R-08 Residents of Ha Shan Kai Wat | VP5 | Few | Good | 436 | Yes | Glimpse | Frequent | Fair | Medium |

| Ref. | Representative VP | No. of Individuals (Few / Typical / Many) | Quality of Existing View (Good / Fair / Poor) | Distance with the Works Area (m) | Alternative Views | Degree of Visibility (Glimpse / Full) | Frequency of View (Frequent / Occasional) | Compatibility of the Project with the Surrounding Landscape (Good / Fair / Poor) | Sensitive to Change (High / Medium / Low) |
|--------------------------------------------|-------------------|-------------------------------------------|-----------------------------------------------|----------------------------------|-------------------|-----------------------------------------------|-------------------------------------------|----------------------------------------------------------------------------------|-------------------------------------------|
| R-09 Residents of Ping Che Kat Tin Village | VP7 | Few | Good | 199 | Yes | Glimpse | Frequent | Fair | Medium |
| R-10 Residents of Ping Yeung | VP7 | Few | Good | 68 | Yes | Full (houses to the west of the village) | Frequent | Fair | High |
| Occupational VSRs | | | | | | | | | |
| O-01 Caritas Nursery School | VP6 | Few | Good | 31 | Yes | Glimpse | Frequent | Fair | Medium |
| O-02 Ta Kwu Ling District Rural Committee | VP7 | Few | Good | 15 | Yes | Full | Frequent | Fair | Medium |
| O-03 Workers at Industry | VP4 | Few | Fair | 23 | Yes | Glimpse | Frequent | Fair | Medium |
| O-04 Ta Kwu Ling Farm | VP7 | Few | Good | 39 | Yes | Glimpse | Frequent | Fair | Medium |
| O-05 Ping Che Government Office | VP7 | Few | Good | 100 | Yes | Full | Frequent | Fair | Medium |
| Leisure and Cultural VSRs | | | | | | | | | |
| LC-01 Ta Kwu Ling Playground | VP7 | Typical | Good | 188 | Yes | Full | Occasional | Fair | Low |
| LC-02 Wun Chuen Sin Koon | VP7 | Typical | Good | 42 | Yes | Full (entrance) Glimpse (buildings within Wun | Occasional | Fair | Low |

| Ref. | Representative VP | No. of Individuals (Few / Typical / Many) | Quality of Existing View (Good / Fair / Poor) | Distance with the Works Area (m) | Alternative Views | Degree of Visibility (Glimpse / Full) | Frequency of View (Frequent / Occasional) | Compatibility of the Project with the Surrounding Landscape (Good / Fair / Poor) | Sensitive to Change (High / Medium / Low) |
|--------------------------------------|--------------------------|--------------------------------------------------|------------------------------------------------------|-----------------------------------------|--------------------------|----------------------------------------------|--------------------------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------|
| | | | | | | Chuen Sin Koon) | | | |
| LC-03 Strawberry Farm | VP6 | Few | Good | 58 | Yes | Glimpse | Occasional | Fair | Medium |
| LC-04 Ping Che Children's Playground | VP7 | Typical | Good | 62 | Yes | Full | Occasional | Fair | Low |
| Transportation VSRs | | | | | | | | | |
| T-01 Travelers along Ping Che Road | VP7 | Many | Good | Within Works Area | Yes | Glimpse | Occasional | Fair | Low |

11.9 Potential Landscape and Visual Impacts

11.9.1 The Project will have various landscape and visual impacts during construction and operation. The proposed channel will create varying levels of impact on the LCAs, LRs and VSRs at different stages of its lifetime as outlined below. Cumulative impacts with other concurrent projects in the area are discussed in **Section 11.13**.

Construction Phase

11.9.2 As described in **Section 2**, the Project mainly involves the construction of the embankments along both sides of the rivers, drainage improvement works, construction of road drainage system, as well as re-provisioning pedestrian and vehicular bridges. During the construction phase of the Project, potential impacts could therefore result from the following:

- Site clearance and tree removal (felling and transplantation);
- Flow diversion;
- Site formation works including excavation cutting, concreting and back filling for the river widening, deepening and re-alignment;
- Modification of the river embankment and floor, and cutting off existing meander;
- Erection of formwork and steel fixing and construction of the proposed channel itself including embankment formation such as filling gabion baskets with rocks in situ;
- Construction of box culverts, proposed new roads and ramps require for channel access and maintenance;
- Demolition and re-provision of certain existing pedestrian and vehicular accesses / crossings and provision of temporary access / crossings by in-situ construction method;
- Landscaping works;
- Presence and operation of construction vehicles and machinery;
- Stockpiling areas; and
- Contractor's temporary work areas, including parking areas.

Operation Phase

11.9.3 During the operation phase of the Project, potential impacts will result from the following:

- Operation of channelized Ping Yuen River;
- Operation of vehicular and pedestrian crossings; and
- Landscaping works.

11.10 Landscape Impact Assessment

11.10.1 The magnitude of change on each LCA and LR during construction and operation is detailed below and summarised in **Table 11.7**.

Landscape Character Area

LCA 1 Natural Hillside Landscape

11.10.2 None of this LCA is affected by the Project and the magnitude of change during construction and operation is therefore **negligible**.

LCA 2 Rural Village Landscape

- 11.10.3 A small area of this LCA is affected by the Project (under 2 ha) and given this LCA contains some smaller modified water channels already and is partially modified at its villages etc, the compatibility of the Project is fair. The impact during construction will be similar to that during operation and both are considered to be **small**.

LCA 3 Lowland Agricultural Landscape

- 11.10.4 Over 5 ha of this LCA is affected by the Project. This LCA is predominantly agricultural and it does have water channels, both small modified ones and natural that integral to the landscape. Although the proposed channel is wider and more modified than the water courses in this LCA, the Project is fairly compatible with it. However, since trees within the LCA will be felled as well as other vegetation lost, this will adversely affect the green, lush nature of the LCA and the magnitude of change during construction is considered to be **medium**. During operation, the magnitude of change will be similar and is therefore still **medium**.

LCA 4 Industrial Landscape

- 11.10.5 Under 2 ha of this LCA is affected by the Project. It does cut through this LCA in the middle of the Works area but given the fair compatibility of the Project with the LCA, the magnitude of change is considered to be **small** at both construction and operation.

LCA 5 Major Water Course Corridor

- 11.10.6 Only a small part of this LCA falls within the Project's Works Area and being a channelisation Project, the two are highly compatible. Therefore during construction, the magnitude of change is considered to be **small** while at operation the Project will link other already channelised sections of water courses and the magnitude of change is considered to be **negligible**.

LCA 6 Cemetery Landscape

- 11.10.7 None of this LCA is affected by the Project and the magnitude of change during construction and operation is therefore **negligible**.

Landscape Resources

LR 1 – Channelized Water Course

- 11.10.8 During construction the Project will cause a small impact on LR1 (0.34 ha) where the proposed works will intersect with the current channelized water channel in the north of the Project. Although this LR is within the works area, it will be minimally modified during construction and the magnitude of change is considered **small**.
- 11.10.9 During operation, this LR will hardly have been modified and the Project is compatible with it, so the magnitude of change on this LR is considered **negligible**.

LR 2 – Water Course

- 11.10.10 The aim of the Project is to channelise a section of the Ping Yuen River that is currently, to a large degree (3.13 ha), natural and represented by LR2. A number of trees that grow in this LR will also be affected (very approximately 374, of which 139 will be transplanted and the rest will be felled). The height of the affected trees ranged from 2m to 13m while the DBH ranged from 16mm to 1,487mm. Although the channel is important for the provision of water for agricultural use, it has a low compatibility with this LR and it is noted that a 138 nos. of *Aquilaria sinensis* have been identified within this LR. Therefore, during construction,

this LR will be highly modified and the magnitude of change is considered **large**.

11.10.11 During operation this LR will have become a modified channel and lost its predominantly natural state but the Project is fairly compatible since the essential function of the watercourse remains and the magnitude of change on this LR are considered **medium** during operation.

LR 3 – Water Pond

11.10.12 None of this LR is affected by the Project and the magnitude of change during construction and operation is therefore **negligible**.

LR 4 – Woodland

11.10.13. The Project affects a very small area of this LR (0.60 ha) but there are a high number of trees, which are mainly mature tree, that will be affected (very approximately 94). During construction, trees within this LR will mainly be felled and therefore the magnitude of change is considered **medium**.

11.10.14 During operation, the trees will still have been removed and the magnitude of change remains **medium**.

LR 5 – Fung Shui Woodland

11.10.15. None of this LR is affected by the Project and the magnitude of change during construction and operation is therefore **negligible**.

LR 6 – Scrubland / Grassland Mosaic

11.10.16. The Project affects a small area of this LR in the north of the Works Area (0.44 ha) but a number of trees will be affected (very approximately 39, of which one will be transplanted and the rest felled). The height of the affected trees ranged 3m to 14m while the DBH ranged from 102mm to 1,067mm. During construction, trees will be felled and therefore the magnitude of change is considered **small**.

11.10.17 During operation, the trees will still have been removed and the magnitude of change remains **small**.

LR 7 – Agricultural Land

11.10.18 The Project affects a moderate sized area of this LR (2.38 ha), along the length of the Works Area. A number of trees that grow in this LR will also be affected (very approximately 218, of which 31 nos. will be transplanted and the rest felled). The height of the affected trees ranged from 2m to 14m while the DBH ranged from 96mm to 994mm. Although the channel is important for the provision of water for agricultural use, it has a low compatibility with this LR and it is noted that a 29 nos. of *Aquilaria sinensis* have been identified within this LR, the overall magnitude of change is considered **medium**.

11.10.19 During operation, prior to the implementation of mitigations, the vegetation in this LR will still have been changed, and the magnitude of change remains **medium**.

LR 8 – Rural Development Area

11.10.20 The Project affects a very small area of this LR (0.70 ha). A small number of trees will be affected. Only 4 trees will be felled (The height of the affected trees ranged from 6m to 8m while the DBH ranged from 220 mm to 495 mm). Given very small area affected and the fair compatibility of the Project with this LR, the magnitude of change during construction is considered to be **small**.

11.10.21 During operation, the magnitude of change will remain **small**.

LR 9 – Industrial / Open Storage

11.10.22 The Project affects approximately 0.69 ha of this LR, mainly in the northern part of TKL 05 Works Area. A number of trees in this LR will be affected (very approximately 56 with height ranged from 3m to 14m and DBH ranged from 96mm to 790mm). During construction these trees will mainly be felled and therefore the magnitude of change is considered **small**.

11.10.23 During operation, the trees will still have been removed and the magnitude of change remains **small**.

LR 10 – Key Transportation Corridor

11.10.24 A small area of this LR (1.02 ha) falls within the Works Area and during construction may be very slightly affected. 18 roadside trees are adversely affected (The height of the affected trees ranged from 3m to 13m and while the DBH ranged from 124mm to 401mm). During construction phase, the magnitude of change is considered **small**. During operation phase, as this LR will hardly have been modified and the Project is compatible with it. The magnitude of change is considered **negligible**.

LR 11 – Cultural Feature

11.10.25 None of this LR is affected by the Project and the magnitude of change during construction and operation is therefore **negligible**.

Significance of Landscape Impacts

11.10.26 Using the LR/LCA sensitivities described in **Section 11.6** and the magnitude of changes described in **Section 11.10.1 – 11.10.24**, the significance of the landscape impacts have been calculated according to the matrix in **Table 11.2** and are presented in **Table 11.8** below.

11.10.27 The impacts before mitigation summarised in **Table 11.8** will be mitigated using measures outlined in **Section 11.12**. **Table 11.11** details which mitigation measures would be appropriate for the impacts on each LR and LCA and presents an assessment of the residual impacts upon mitigation at Day 1 of operation and at Year 10 of operation when soft landscaping measures will have had time to reach their full mitigating potential.

11.10.28 Focusing on the moderate / major significant impacts prior to mitigation, one has been identified on an LCA (LCA 3 – Lowland Agricultural Landscape), and three have been identified on LRs (LR 2 – Water Course, LR 4 – Woodland, and LR 7 – Agricultural Land).

11.10.29 The impact on LCA 3 – Lowland Agricultural Landscape is considered **moderate** prior to mitigation, again partly due to the potentially large impact on trees but also due to the changes to the water channels running through it. Implementing key measures to mitigate impacts on trees and the water channel as described above, the significance of impact is considered to reduce to **minor** at construction and operation Day 1 and Year 10.

11.10.30 LR 2 – Water Course represents the section of the Ping Yuen River, which is natural to a large degree and highly sensitive to change. The large changes at construction caused by channelising, and intermediate changes at operation when the essential function of the water course remains the same, but the channel is man-made, are identified as **major** impacts prior to mitigation. By implementing a number of mitigation measures such as adoption of natural bedding substrate (MM7), use of gabion mattress at river bed (MM8) and enhancement of retained meander (MM11), the significance of these impacts is reduced. In particular implementing MM7 and MM8 means ensuring the riverbed is non-concreted as far as

practical and gabion mattress which will be filled up with pre-seeded soil to enhance growth of native vegetation. This will enhance the visual and landscape value of the river. Therefore, overall impacts upon implementation of mitigation measures (i.e. residual impacts), are considered **moderate** at construction and operation Day 1 and **minor** by operation Year 10 when the natural vegetation will have had time to confer its full mitigation effect.

- 11.10.31 The trees potentially affected in LR4 – Woodland are the main reason that impacts on this LR at construction and operation are regarded as **moderate**, despite only a small area being affected. By implementing a number of mitigation measures focusing on these trees, such as the protection and preservation of trees (MM3), transplanting trees as necessary (MM4) and compensating for trees that are unavoidably removed (MM5) the significance of impacts on this LR are considered to reduce to **minor** at construction and operation Day 1. The areas of LR 4 affected are peripheral to larger areas of LR4 and/or overall, very small. It is considered that areas provided for compensatory planting will provide similar small clusters of trees along the newly channelized river. Therefore, at operation Year 10 when the compensatory trees will have had time to mature and confer their full mitigation effect the impact on this LR is considered to be reduced to **negligible**.
- 11.10.32 Impacts on LR 7 – Agricultural Land are also regarded as **moderate** prior to mitigation, partly due to the potential impact on relatively large numbers of trees growing within this LR. During the construction phase, despite the implementation of the same mitigation measures as LR4 to protect, transplant and compensate for tree, a number of trees within LR7 are proposed to be felled, which include potential OVTs. Hence, the significance is considered to remain **moderate** at construction. Upon the mitigation, the significance is considered to reduce to **minor** at Day 1 of operation. These measures will not directly compensate any loss of active agricultural land and due to a larger area being affected and the land use conversion, the impact will remain **minor** at operation Year 10. It should be noted that the AFCD run a rehabilitation programme to assist farmers with renting land for farming, details of which can be found at https://www.afcd.gov.hk/english/agriculture/agr_useful/agr_alrs/agr_alrs.html.
- 11.10.33 Residual impacts of LR and LCAs at Day 1 of operation are presented in **Figure 11.18** and **Figure 11.21**. Residual impacts after 10 years on the remaining LRs and LCAs, are considered minor to negligible, as shown in **Table 11.12** and presented in **Figure 11.19** and **Figure 11.22**.

Table 11.7 Summary of Magnitude of Change on LCAs and LRs

| Landscape Character Areas / Landscape Resources | Sensitivity to Change | Affected by Works Area (ha) | Compatibility of Project (Good / Fair / Low) | Duration of Impacts (Construction/ Operation) | Reversibility of Change (Construction/ Operation) | Magnitude of Change | |
|-------------------------------------------------|-----------------------|-----------------------------|----------------------------------------------|-----------------------------------------------|---------------------------------------------------|---------------------|------------|
| | | | | | | Construction | Operation |
| Landscape Character Area | | | | | | | |
| LCA 1 Natural Hillside Landscape | High | n/a | n/a | n/a | n/a | Negligible | Negligible |
| LCA 2 Rural Village Landscape | Medium | 1.87 | Fair | Temporary / Permanent | Reversible / Irreversible | Small | Small |
| LCA 3 Lowland Agricultural Landscape | Medium | 5.78 | Fair | Temporary / Permanent | Reversible / Irreversible | Medium | Medium |
| LCA 4 Industrial Landscape | Low | 1.26 | Fair | Temporary / Permanent | Reversible / Irreversible | Small | Small |
| LCA 5 Major Water Course Corridor | Medium | 0.39 | Good | Temporary / Permanent | Reversible / Irreversible | Small | Negligible |
| LCA 6 Cemetery Landscape | Medium | n/ a | n/a | n/a | n/a | Negligible | Negligible |
| Landscape Resources | | | | | | | |
| LR 1 Channelized Water Course | Medium | 0.34 | Good | Temporary / Permanent | Reversible / Irreversible | Small | Negligible |
| LR 2 Water Course | High | 3.13 | Fair | Temporary / Permanent | Reversible / Irreversible | Large | Medium |
| LR 3 Water Pond | High / Medium | 0.00 | n/a | n/a | n/a | Negligible | Negligible |
| LR 4 Woodland | Medium | 0.60 | Low | Temporary / Permanent | Reversible / Irreversible | Medium | Medium |
| LR 5 Fung Shui Woodland | High | 0.00 | n/a | n/a | n/a | Negligible | Negligible |
| LR 6 Scrubland / Grassland Mosaic | Medium | 0.44 | Low | Temporary / Permanent | Reversible / Irreversible | Small | Small |
| LR 7 Agricultural | Medium | 2.38 | Low | Temporary / | Reversible / Irreversible | Medium | Medium |

| Landscape Character Areas / Landscape Resources | Sensitivity to Change | Affected by Works Area (ha) | Compatibility of Project (Good / Fair / Low) | Duration of Impacts (Construction/ Operation) | Reversibility of Change (Construction/ Operation) | Magnitude of Change | |
|-------------------------------------------------|-----------------------|-----------------------------|----------------------------------------------|-----------------------------------------------|---------------------------------------------------|---------------------|------------|
| | | | | | | Construction | Operation |
| Land | | | | Permanent | | | |
| LR 8 Rural Development Area | Medium | 0.70 | Fair | Temporary / Permanent | Reversible / Irreversible | Small | Small |
| LR 9 Industrial / Open Storage | Low | 0.69 | Low | Temporary / Permanent | Reversible / Irreversible | Small | Small |
| LR 10 Key Transportation Corridor | Medium | 1.02 | Low | Temporary / Permanent | Reversible / Irreversible | Small | Negligible |
| LR 11 Cultural Feature | Medium | 0.00 | n/a | n/a | n/a | Negligible | Negligible |

Table 11.8 Summary of Impact Significance on LRs and LCAs before mitigation

| Landscape Resource / Landscape Character Area | Impact Significance BEFORE Mitigation (Negligible, Minor, Moderate, Major) | |
|-----------------------------------------------|----------------------------------------------------------------------------|-------------------|
| | Construction | Operation (Day 1) |
| Landscape Character Areas | | |
| LCA 1 Natural Hillside Landscape | Negligible | Negligible |
| LCA 2 Rural Village Landscape | Minor | Minor |
| LCA 3 Lowland Agricultural Landscape | Moderate | Moderate |
| LCA 4 Industrial Landscape | Negligible | Negligible |
| LCA 5 Major Water Course Corridor | Minor | Negligible |
| LCA 6 Cemetery Landscape | Negligible | Negligible |
| Landscape Resources | | |
| LR 1 Channelised Water Course | Minor | Negligible |
| LR 2 Water Course | Major | Major |
| LR 3 Water Pond | Negligible | Negligible |
| LR 4 Woodland | Moderate | Moderate |
| LR 5 Fung Shui Woodland | Negligible | Negligible |
| LR 6 Scrubland/ Grassland Mosaic | Minor | Minor |
| LR 7 Agricultural Land | Moderate | Moderate |
| LR 8 Rural Development Area | Minor | Minor |
| LR 9 Industrial / Open Storage | Negligible | Negligible |
| LR 10 Key Transportation Corridor | Minor | Negligible |
| LR 11 Cultural Feature | Negligible | Negligible |

11.11 Visual Impact Assessment

11.11.1 The magnitude of visual change on each VSR during construction and operation, is detailed below and summarised in **Table 11.9**.

Photomontage

11.11.2 A total of seven VPs have been selected to prepare photomontages. The photomontage (**Figure 11.10 - Figure 11.16**) illustrate the existing conditions, Day 1 of operation without mitigation measures, Day 1 of operation with mitigation measures and Year 10 of operation with mitigation measures.

11.11.3 Apart from the 3 vehicular and 18 pedestrian crossings, the rest of Project items (i.e. improvement works to tributary sections of Ping Yuen River, construction of drainage

channels, associated drainage facilities) are all low-lying structures located below surrounding ground level and generally inconspicuous. The use of photomontages as a tool to demonstrate the value of employed mitigation measures at is therefore not appropriate for the other components. Construction of drainage channels and associated drainage facilities are generally thought to be compatible with the surroundings during operation and less so during site clearance and construction works. Largely because of this, visual impacts are often considered more severe during construction compared to operation.

VP Assessment

VP1 Further east on the Tsung Shan Range

- 11.11.4 The view from VP1 is from a point further east on the Tsung Shan Range. This VP is beyond the 500 m Study Area from the Project and is evident from the existing view that ground level structures, such as the proposed channel, are shielded by existing vegetation. Since the Ping Che area is relatively flat, this VP provides an elevated and open views and demonstrate an overview of the south of TKL 05. **(Figure 11.10)**

VP2 Ping Che Road near Tong Fong Village

- 11.11.5 This VP is looking towards one of the pedestrian crossings of TKL 05 from Ping Che Road near Tong Fong Village. It is right next to the proposed Project site and provide an illustration of what the Project might look like for residents of Tong Fong and travelling passengers of Ping Che Road in close proximity. **(Figure 11.11)**

VP3 Main access of Lei Uk Village

- 11.11.6 This VP is looking towards one of the vehicular crossings of TKL 05 near Lei Uk village. It is right next to the proposed Project site and provide an illustration of what the Project might look like for residents of Lei Uk village in close proximity. **(Figure 11.12)**

VP4 Main access of Tai Po Tin

- 11.11.7 This VP is looking towards one of the vehicular crossings near of TKL 05 at Tai Po Tin. It is right next to the proposed Project site and provide an illustration of what the Project might look like for residents of Tai Po Tin in close proximity. **(Figure 11.13)**

VP5 Pedestrian crossing near Ping Che Village

- 11.11.8 This VP is looking towards one of the pedestrian crossings of TKL 05 near Ping Che Village. It is right next to the proposed Project site and provide an illustration of what the Project might look like for residents of Ping Che Village in close proximity. **(Figure 11.14)**

VP6 Pedestrian crossing near Caritas Nursery School – Ta Kwu Ling

- 11.11.9 This VP is looking towards one of the pedestrian crossings of TKL 04 near Caritas Nursery School – Ta Kwu Ling. It is right next to the proposed Project site and provide an illustration of what the Project might look like for residents of Sing Ping Village and workers of Caritas Nursery School in close proximity. **(Figure 11.15)**

VP7 Ping Yuen Road

- 11.11.10 This VP is looking towards Ping Yuen Road at Ping Yeung where proposed construction involves laying of underground U-channel / rectangular channel. The Project components along both Ping Yuen Road and Ping Che Road are all low lying structures and located below surrounding ground level. Although the underground Project components are generally inconspicuous, the sections of such Project components contribute approximately 57% for the Project in term of length. As such, this VP illustrates the upgrade of underground

drainage pipes / U-channel / rectangular channel for residents of Ping Yeung Village and travelling passengers of Ping Yuen Road in close proximity. This also illustrates similar underground Project components for travelling passengers of Ping Che Road. (**Figure 11.16**)

R-01 Residents of Fung Wong Wu Village; R-02 Residents of Tong Fong Village

11.11.11 During construction before implementation of mitigation, the VSRs in these areas are very close to, if not right next to the Project. Since the improvement works to tributary sections of these receivers are mainly above ground structures which are limited to the footbridges. The compatibility of the Project with the surrounding abovementioned VSRs' landscape is fair. The magnitude of change for these VSRs is considered to be **medium**.

11.11.12 During operation before implementation of mitigation, the impact will be less than during construction for these VSRs since all construction vehicles and equipment will no longer be on site, any stockpiles and temporary structures will have been removed and the channel and associated access/maintenance roads will be completed. River widening and deepening and construction of embankments at the river section associated with the VSRs are illustrated in **Figure 11.11a**. In addition, the drainage channels and associated facilities are low-lying structures. The magnitude of change is considered to be **small**.

R-03 Residents of Lei Uk Village

11.11.13 During construction before implementation of mitigation, the VSRs in these areas are right next to the Project. Since the improvement works to tributary sections of these receivers are mainly above ground structures which are limited to the footbridges and vehicular crossing. The compatibility of the Project with the surrounding abovementioned VSR's landscape is fair. The magnitude of change is considered to be **medium**.

11.11.14 During operation before implementation of mitigation, as illustrated in **Figure 11.12a**, the improvement works of TKL05 river are all below the surrounding ground level. The impact will be less than during construction for this VSR since the existing structure in the foreground, i.e. the site office building, will be completely removed during operation phase. All construction vehicles and equipment will no longer be on site, any stockpiles and temporary structures will have been removed and the channel and associated access/maintenance roads will be completed. In addition, the drainage channels and associated facilities are low-lying structures and will be screened by greening. The view will be hardly discernible. The magnitude of change is considered to be **small**.

R-05 Residents of Village between Tai Po Tin and Ping Che, R-06 Residents of Tai Po Tin Village; O-03 Workers at Industry

11.11.15 During construction before implementation of mitigation, the VSRs in these areas are very close to, if not right next to the Project. Since the improvement works to tributary sections of these receivers are mainly above ground structures which are limited to the footbridges and vehicular crossings and much of it will be screened by natural vegetation and other village structures. The compatibility of the Project with the surrounding abovementioned VSRs' landscape is fair. The magnitude of change for these VSRs is considered to be **medium**.

11.11.16 During operation before implementation of mitigation, the impact will be less than during construction for these VSRs since all construction vehicles and equipment will no longer be on site, any stockpiles and temporary structures will have been removed and the channel and associated access/maintenance roads will be completed. As illustrated in **Figure 11.13a**, the drainage channels and associated facilities are low-lying structures. The view will be hardly

discernible. The magnitude of change is considered to be **small**.

11.11.17R-08 Residents of Ha Shan Kai Wat

11.11.18 During construction before implementation of mitigation, the VSRs in these areas are very close to, if not right next to the Project. Since the improvement works to tributary sections of these receivers are mainly above ground structures which are limited to the footbridges. The compatibility of the Project with the surrounding abovementioned VSRs' landscape is fair. The magnitude of change for these VSRs is considered to be **small**.

11.11.19 During operation before implementation of mitigation, river widening and deepening at the river section associated with the VSR are illustrated in **Figure 11.14a**. In addition, the drainage channels and associated facilities are low-lying structures. The magnitude of change is considered to be **small**.

R-04 Residents of Sing Ping Village; O-01 Caritas Nursery School; LC-03 Strawberry Farm;

11.11.20 During construction before implementation of mitigation, the VSRs are very close to, if not right next to the Project but the improvement works to tributary sections of this receiver are mainly above ground structures which are limited to the footbridges and much of it will be screened by other village structures. The compatibility of the Project with the surrounding abovementioned VSRs' landscape is fair. The magnitude of change for these VSRs is considered to be **medium**.

11.11.21 During operation before implementation of mitigation, the impact will be less than during construction for these VSRs since all construction vehicles and equipment will no longer be on site, any stockpiles and temporary structures will have been removed and the channel and associated access/maintenance roads will be completed. River widening and deepening at the river section associated with the VSRs are illustrated in **Figure 11.15a**. The drainage channels and associated facilities are low-lying structures. The view will be hardly discernible. The magnitude of change is considered to be **small**.

R-07 Residents of Ping Che Yuen Ha Village; R-09 Residents of Ping Che Kat tin Village

11.11.22 During construction before implementation of mitigation, the VSRs in these areas will hardly notice the Project since the improvement works to tributary sections of Ping Yuen River and drainage works are mainly at and below ground level and screened by natural vegetation between the VSRs and Project Area. In addition, the existing degree of visibility of these VSRs is glimpse. The compatibility of the Project with the surrounding abovementioned VSRs' landscape is fair. Since the VSRs is relatively horizontal to the Project area due to the low-lying residential building and relatively considerable distance of these VSRs (>120m), the magnitude of change for these VSRs is considered to be **small**.

11.11.23 During operation before implementation of mitigation, the impact will be even less than during construction, with all construction vehicles and equipment no longer on site, any stockpiles and temporary structures removed, and the channel and associated access/maintenance roads completed. In addition, the drainage channels and associated facilities are low-lying structures located below surrounding ground level. The view will be hardly discernible. The magnitude of change is considered to be **negligible**.

R-10 Residents of Ping Yeung

11.11.24 During construction before implementation of mitigation, the VSR along Ping Yuen Road are right next to the Project but the improvement works to tributary sections of this receiver are mainly underground structures which are limited to the laying of u-channels and drain

pipes. The compatibility of the Project with the surrounding abovementioned VSRs' landscape is fair. The magnitude of change for these VSRs is considered to be **small**.

11.11.25 During operation before implementation of mitigation, the impact will be less than during construction for these VSRs since all construction vehicles and equipment will no longer be on site, any stockpiles and temporary structures will have been removed and the channel and associated access/maintenance roads will be completed. The drainage channels and associated facilities are below -ground structures, as illustrated in **Figure 11.16a**. The view will be hardly discernible. The magnitude of change is considered to be **negligible**.

11.11.26 O-02 Ta Kwu Ling District Rural Committee; O-04 Ta Kwu Ling Farm; O-05 Ping Che Government Office

11.11.27 During construction before implementation of mitigation, these workers are very close to, if not right next to the Project but since the improvement works to tributary sections of Ping Yuen River and drainage works are mainly at and below ground level much of it will be screened by natural vegetation and other village structures. The compatibility of the Project with the surrounding abovementioned VSRs' landscape is fair. The magnitude of change for these VSRs is considered to be **small**.

11.11.28 During operation before implementation of mitigation, the impact will be less than during construction for these VSRs since all construction vehicles and equipment will no longer be on site, any stockpiles and temporary structures will have been removed and the channel and associated access/maintenance roads will be completed. In addition, the drainage channels and associated facilities are low-lying structures located below surrounding ground level. The view will be hardly discernible. The magnitude of change is considered to be **negligible**.

11.11.29 LC-01 Ta Kwu Ling Playground; LC-02 Wun Chuen Sin Koon; LC-04 Ping Che Children's Playground

11.11.30 During construction before implementation of mitigation the visitors of these sites are very close to the Project but since the improvement works to tributary sections of Ping Yuen River and drainage works are mainly at and below ground level much of it will be screened by natural vegetation and other village structures. The compatibility of the Project with the surrounding abovementioned VSRs' landscape is fair. The magnitude of change for these VSRs is considered to be **small**.

11.11.31 During operation before implementation of mitigation, the impact will be less than during construction for these VSRs since all construction vehicles and equipment will no longer be on site, any stockpiles and temporary structures will have been removed and the channel and associated access/maintenance roads will be completed. In addition, the drainage channels and associated facilities are low-lying structures located below surrounding ground level. The view will be hardly discernible. The magnitude of change is considered to be **negligible**.

T-01 Travelers along Ping Che Road

11.11.32 During construction and operation before implementation of mitigation, the Project will cause minimal change in the views of travellers along Ping Che Road since the Project will mainly be shielded by roadside planting. The compatibility of the Project with the surrounding abovementioned VSRs' landscape is fair. The magnitude of change is considered to be **negligible** at both stages.

Significance of Visual Impact

11.11.33 Using the VSR sensitivities described in **Section 11.8** and the magnitude of changes on each

VSR ascertained in **Table 11.9**, the matrix shown in **Table 11.2** has been used to calculate the significance of visual impacts before mitigation as shown in **Table 11.10**.

- 11.11.34 The impacts before mitigation summarised in **Table 11.10** will be mitigated using measures outlined in **Section 11.12**. **Table 11.13** details which mitigation measures would be appropriate for the impacts on each VSR and presents an assessment of the residual impacts upon mitigation at Day 1 of operation and at Year 10 of operation when soft landscaping measures will have had time to reach their full mitigating potential, as illustrated in **Figures 11.11b, 11.12b, 11.13b, 11.14b and 11.15b**.
- 11.11.35 During construction phase, mitigation measures, namely works planned with care to minimise disturbance (MM1), lighter colours of structures (MM2), screening with recessive colors hoarding (MM9) and light control (MM10) are generally applicable to all VSRs. A combination of mitigation measures, including the protection and preservation of trees (MM3), transplanting trees as necessary (MM4) and compensating for trees that are unavoidably removed (MM5), buffer planting (MM6), adoption of natural bedding substrate (MM7), use of gabion mattress for river bed (MM8) and enhancement of retained meander (MM11), will be applied on particular VSRs with higher sensitivity. The landscape and visual mitigation measures promote greening and environmental beautification and improve the compatibility of the surrounding.
- 11.11.36 During operation phase, MM2, MM4, MM5, MM6, MM7, MM8 and MM11 are largely applicable to most of the VSRs to reduce and compensate the unavoidable visual impacts by incorporating green and ecoconservation elements into water feature. The mitigations are not applicable to the VSRs along Ping Che Road and Ping Yuen Road because the sources of impacts, namely laying of below-ground drainage pipe and U-channels are considered generally inconspicuous.
- 11.11.37 During the construction phase with the implementation of the abovementioned mitigation measures, the visual impacts of majority of the VSRs is diminished to negligible. After implementing the mitigation measures during the construction phase, VSRs which will be more likely to perceive the proposed vehicular and pedestrian crossings, including the following: the visual impact of R-02, R-08 and O-03 are reduced to negligible; the visual impact of R-01, R-04, R-05, R-06, O-01 and LC-03 are reduced to minor; the visual impact of R-03 is reduced to moderate. The visual impact of all VSRs, at Day 1 and Year 10 of operation will be diminished to minor or negligible with landscaping measures. Overall, the residual visual impacts at Day 1 of operation are minor or negligible and the impacts at Year 10 of operation will be diminished to negligible. The detail of the impact significance of all VSRs before and upon mitigations are summarized in **Table 11.13**.

Table 11.9 Summary of Magnitude of Change on VSRs before Mitigation

| VSR Ref | Representative VP | Sensitivity to Change | Closest Viewing Distance to the Project (m) | Scale of the Project when viewed from the VSR (Small / Medium / Large) | Duration of Impacts (Construction/ Operation) | Potential Blockage of View (Full/ Partial/ Nil) | Reversibility of Change (Construction/ Operation) | Magnitude of change (Large / Medium / Small / Negligible) | |
|-----------------------------------------------------------|-------------------|-----------------------|---------------------------------------------|------------------------------------------------------------------------|-----------------------------------------------|-------------------------------------------------|---------------------------------------------------|-----------------------------------------------------------|------------|
| | | | | | | | | Construction | Operation |
| R-01 Residents of Fung Wong Wu | VP2 | Medium | 157 | Small – Hardly noticeable | Temporary/ Permanent | Nil | Partly reversible/ Irreversible | Medium | Small |
| R-02 Residents of Tong Fong | VP2 | Medium | 135 | Medium | Temporary/ Permanent | Nil | Partly reversible/ Irreversible | Medium | Small |
| R-03 Residents of Lei Uk | VP3 | High | 83 | Medium | Temporary/ Permanent | Nil | Partly reversible/ Irreversible | Medium | Small |
| R-04 Residents of Sing Ping Village | VP6 | Medium | Within Works Area | Medium | Temporary/ Permanent | Nil | Partly reversible/ Irreversible | Medium | Small |
| R-05 Residents of Village between Tai Po Tin and Ping Che | VP4 | Medium | 67 | Medium | Temporary/ Permanent | Nil | Partly reversible/ Irreversible | Medium | Small |
| R-06 Residents of Tai Po Tin | VP4 | Medium | 104 | Medium | Temporary/ Permanent | Nil | Partly reversible/ Irreversible | Medium | Small |
| R-07 Residents of Ping Che Yuen Ha Village | VP7 | Medium | 123 | Small – Hardly noticeable | Temporary/ Permanent | Nil | Partly reversible/ Irreversible | Small | Negligible |
| R-08 Residents of Ha Shan Kai Wat | VP5 | Medium | 436 | Small – Hardly noticeable | Temporary/ Permanent | Nil | Partly reversible/ Irreversible | Small | Small |
| R-09 Residents of Ping Che Kat Tin Village | VP7 | Medium | 199 | Small – Hardly noticeable | Temporary/ Permanent | Nil | Partly reversible/ Irreversible | Small | Negligible |

| VSR Ref | Representative VP | Sensitivity to Change | Closest Viewing Distance to the Project (m) | Scale of the Project when viewed from the VSR (Small / Medium / Large) | Duration of Impacts (Construction/ Operation) | Potential Blockage of View (Full/ Partial/ Nil) | Reversibility of Change (Construction/ Operation) | Magnitude of change (Large / Medium / Small / Negligible) | |
|-------------------------------------------|-------------------|-----------------------|---------------------------------------------|------------------------------------------------------------------------|-----------------------------------------------|-------------------------------------------------|---------------------------------------------------|-----------------------------------------------------------|------------|
| | | | | | | | | Construction | Operation |
| R-10 Residents of Ping Yeung | VP7 | High | 68 | Small – Hardly noticeable | Temporary/ Permanent | Nil | Partly reversible/ Irreversible | Small | Negligible |
| O-01 Caritas Nursery School | VP6 | Medium | 31 | Medium | Temporary/ Permanent | Nil | Partly reversible/ Irreversible | Medium | Small |
| O-02 Ta Kwu Ling District Rural Committee | VP7 | Medium | 15 | Small – Hardly noticeable | n/a / Permanent | Nil | Partly reversible/ Irreversible | Small | Negligible |
| O-03 Workers at Industry | VP4 | Medium | 23 | Medium | Temporary/ Permanent | Nil | Partly reversible/ Irreversible | Medium | Small |
| O-04 Ta Kwu Ling Farm | VP7 | Medium | 39 | Small – Hardly noticeable | Temporary/ Permanent | Nil | Partly reversible/ Irreversible | Small | Negligible |
| O-05 Ping Che Government Office | VP7 | Medium | 100 | Small | Temporary/ Permanent | Nil | Partly reversible/ Irreversible | Small | Negligible |
| LC-01 Ta Kwu Ling Playground | VP7 | Low | 188 | Small | Temporary/ Permanent | Nil | Partly reversible/ Irreversible | Small | Negligible |
| LC-02 Wun Chuen Sin Koon | VP7 | Low | 42 | Small – Hardly noticeable | Temporary/ Permanent | Nil | Partly reversible/ Irreversible | Small | Negligible |
| LC-03 Strawberry Farm | VP6 | Medium | 58 | Medium | Temporary/ Permanent | Nil | Partly reversible/ Irreversible | Medium | Small |
| LC-04 Ping Che Children's | VP7 | Low | 62 | Small | Temporary/ Permanent | Nil | Partly reversible/ Irreversible | Small | Negligible |

| VSR Ref | Representative VP | Sensitivity to Change | Closest Viewing Distance to the Project (m) | Scale of the Project when viewed from the VSR (Small / Medium / Large) | Duration of Impacts (Construction/ Operation) | Potential Blockage of View (Full/ Partial/ Nil) | Reversibility of Change (Construction/ Operation) | Magnitude of change (Large / Medium / Small / Negligible) | |
|------------------------------------|-------------------|-----------------------|---------------------------------------------|------------------------------------------------------------------------|-----------------------------------------------|-------------------------------------------------|---------------------------------------------------|-----------------------------------------------------------|------------|
| | | | | | | | | Construction | Operation |
| Playground | | | | | | | | | |
| T-01 Travelers along Ping Che Road | VP7 | Low | Within Works Area | Small | Temporary/ Permanent | Nil | Partly reversible/ Irreversible | Negligible | Negligible |

Table 11.10 Summary of Impact Significance on VSRs before Mitigation

| VSR ID* | VSR Name | Impact Significance BEFORE Mitigation (Negligible, Minor, Moderate, Major) | |
|---------|-------------------------------------------------------------------|----------------------------------------------------------------------------|------------|
| | | Construction | Operation |
| R-01 | Residents of Fung Wong Wu Village | Moderate | Minor |
| R-02 | Residents of Tong Fong | Moderate | Minor |
| R-03 | Residents of Lei Uk | Major | Moderate |
| R-04 | Residents of Sing Ping Village | Moderate | Minor |
| R-05 | Residents of Residents of Village between Tai Po Tin and Ping Che | Moderate | Minor |
| R-06 | Residents of Tai Po Tin | Moderate | Minor |
| R-07 | Residents of Ping Che Yuen Ha | Minor | Negligible |
| R-08 | Residents of Ha Shan Kai Wat | Minor | Minor |
| R-09 | Residents of Ping Che Kat Tin | Minor | Negligible |
| R-10 | Residents of Ping Yeung | Moderate | Negligible |
| O-01 | Workers of Caritas Nursery School | Moderate | Minor |
| O-02 | Ta Kwu Ling District Rural Committee | Minor | Negligible |
| O-03 | Workers at Industry | Moderate | Minor |
| O-04 | Workers at Ta Kwu Ling Farm | Minor | Negligible |
| O-05 | Workers at Pig Che Government Office | Minor | Negligible |
| LC-01 | Visitors of Ta Kwu Ling Playground | Negligible | Negligible |
| LC-02 | Visitors of Wun Chuen Sin Koon | Negligible | Negligible |
| LC-03 | Visitors of Strawberry Farm | Moderate | Minor |
| LC-04 | Visitors of Ping Che Children's Playground | Negligible | Negligible |
| T-01 | Travellers along Ping Che Road | Negligible | Negligible |

Note:

The source of impacts of VSRs along Ping Che Road and Ping Yuen Road are considered generally inconspicuous as

the Project components such as drainage pipe and U-channel / rectangular channel located at and below the surrounding ground level. Hence, the recommended mitigation measures during operation are not available to those VSRs.

11.12 Mitigation Measures

- 11.12.1 Mitigation measures follow the principle of the mitigation hierarchy, which is firstly to undertake all means to avoid impacts, reduce any unavoidable impacts to as low as possible and finally to mitigate any remaining impacts.
- 11.12.2 Mitigation measures are proposed to be considered during design, construction and operation and should be implemented at the earliest feasible stage of the Project.
- 11.12.3 Mitigation measures can be relevant to both construction and operation phases of the Project. For example detailed design measures will be implemented during construction but will aim to reduce both construction and operation impacts. Equally soft landscape mitigation measures may be implemented during construction, but their full effect will often not be appreciated for 10 years.
- 11.12.4 **Table 11.11** below outlines the proposed mitigation measures for the Project Funding. The suggested funding, maintenance and management bodies for each measure is included in the table, and these must be agreed before the start of construction. **Figure 11.23** illustrates the landscape mitigation plan.
- 11.12.5 In addition to the mitigation measures listed in **Table 11.11**, as a general good site practice uncontaminated excavated topsoil should be stripped and stored for re-use in the construction of the soft landscape works of this Project or other projects.
- 11.12.6 **Table 11.12** and **Table 11.13** respectively summarise the impact significance on LCA, LR and VSR both before and upon mitigation.

Table 11.11 Proposed Mitigation Measures for Landscape and Visual Impacts

| ID No. | Mitigation Measure | Funding Agency | Implementation Agency | Management/ Maintenance Agency |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------------------------------|----------------------------------------------------|
| MM1 | Minimise Disturbance – temporary structures and construction works should be planned with care to minimise disturbance to vegetation including riparian vegetation along the river as well as existing built structures. The footprint of the Project should be kept to a practical minimum and form, textures and colours selected to be as compatible with the existing surroundings as possible. | DSD | DSD/ Contractor | DSD |
| MM2 | Colours of Structures - Colours for the structures e.g. fences should be chosen to complement the surrounding area. Lighter colours such as shades of light grey, off-white and light brown may be utilised where technically feasible to reduce the visibility of the structures. | DSD | DSD/ Contractor | DSD |
| MM3 | Tree Protection and Preservation – Trees/ woodland within the Works Area will be protected and preserved as far as possible in accordance with <i>DEVB TC(W) No. 04/2020</i> . For example, the Project will be designed to avoid tree felling wherever possible. | DSD | DSD/ Contractor during construction ⁽¹⁾ | DSD/ Contractor during construction ⁽¹⁾ |
| MM4 | Tree Transplantation – Should removal of trees be unavoidable due to construction impacts, trees will be transplanted or felled ⁽²⁾ according to Clause 3.97 of the <i>General Specification of Civil Engineering Works – Section 3 Landscape Softworks and Establishment Works</i> , including ensuring transplanted trees are treated with establishment works immediately after transplanting works, for a period of no less than 12 months. At the detailed design stage the tree transplantation plan should be refined to ensure the locations proposed to receive the transplanted tree is suitable. Established trees of value are to be re-located where practically feasible. The transplant planting will be included in a detailed landscape design and planting plan, which is recommended to be implemented as early as practicable in the Project timeline. | DSD | DSD/ Contractor | Contractor / DSD and LCSD ⁽³⁾ |
| MM5 | Compensatory Tree Planting - Where loss of existing trees is unavoidable, compensatory planting of trees should be provided in accordance with <i>DEVB TC(W) No. 04/2020</i> to compensate for those trees felled. Implementation of compensatory tree planting will be of a ratio not less than 1:1. Plants will have 12 months to establish. At the detailed design stage the tree compensation and transplantation plan should be refined to confirm the separation distance of the heavy standard compensatory | DSD | DSD/ Contractor | DSD |

⁽¹⁾ This measure is only applicable during construction.

⁽²⁾ Wood resulting from tree removal should be recycled as mulch or soil conditioner for re-use within the Project or in other projects as far as possible e.g. for the construction of soft landscape work, where practical.

⁽³⁾ Contractor responsible for landscaping during the agreed establishment and maintenance period. Other designated management and maintenance agents to take up maintenance and management of landscaping after end of agreed period.

| ID No. | Mitigation Measure | Funding Agency | Implementation Agency | Management/ Maintenance Agency |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------|--------------------------------|
| | trees and ensure the outlined areas are sufficient for the planting necessary to compensate for the affected trees. The selection of planting species shall be made with reference to the species identified in the Tree Survey and be predominantly native to Hong Kong or the South China region. The compensatory planting will be applied along the proposed river alignment. But the actual implementation will be subject to detailed landscape design and planting plan, and recommended to be implemented as early as practicable in the Project timeline. | | | |
| MM6 | Buffer Planting – Tall screen/buffer trees shall be planted to screen the proposed channelised water course. This measure may additionally form part of the compensatory planting and will improve compatibility with the surrounding environment. | DSD | DSD/ Contractor | DSD/ Contractor |
| MM7 | Natural Bedding Substrate – Natural bedding substrate will be used for Channel TKL 04 and 05. | DSD | DSD/ Contractor | DSD/ Contractor |
| MM8 | Use of Gabion Mattress at River Bed – The river bed will be lined with gabion mattress, which is environmentally compatible with good aesthetic appeal. It is expected that natural vegetation can grow on the gabions of Channel TKL 04 and 05, and help beautify the river environment. | DSD | DSD/ Contractor | DSD/ Contractor |
| MM9 | Screening – Stockpiles of materials should be covered or hoarding erected where possible to reduce undesirable views of the construction site, having consideration for safety and security. It is proposed that screening be compatible with the surrounding environment and where possible, non-reflective, recessive colours be used. Hoarding should be taken down at the end of the construction period. | DSD | DSD/ Contractor | DSD/ Contractor |
| MM10 | Light Control – The guidelines in “Charter on External Lighting” and “Guidelines on Industry Best Practices for External Lightning Installations” promulgated by ENB for glare control will be implemented. | DSD | DSD/ Contractor | DSD/ Contractor |
| MM11 | Enhanced Meander - Efforts will be made to enhance the site conditions of the meanders to be maintained (to augment their wetland functions and favor wetland associated flora and fauna species. The enhancement would be accomplished from hydrologic and vegetative aspects. That includes: grasscrete paving at maintenance access, granite stone facing on retaining wall and creepers planting on river slopes will be implemented. | DSD | DSD/ Contractor | DSD/ Contractor |

Table 11.12 Summary of Impact Significance on LRs and LCAs, both before and upon mitigation

| Landscape Resource / Landscape Character Area | Sensitivity (Low, Medium, High) | Magnitude of Change BEFORE Mitigation (Negligible, Small, Medium, Large) | | Impact Significance BEFORE Mitigation (Negligible, Minor, Moderate, Major) | | Recommended Mitigation Measures | | Residual Impact Significance UPON Mitigation (Negligible, Minor, Moderate, Major) | | |
|-----------------------------------------------|---------------------------------|--------------------------------------------------------------------------|------------|----------------------------------------------------------------------------|------------|---------------------------------|---------------------|-----------------------------------------------------------------------------------|-----------------|-------------------|
| | | Construction | Operation | Construction | Operation | Construction | Operation | Construction | Operation Day 1 | Operation Year 10 |
| Landscape Character Areas | | | | | | | | | | |
| LCA 1 Natural Hillside Landscape | High | Negligible | Negligible | Negligible | Negligible | n/a | n/a | Negligible | Negligible | Negligible |
| LCA 2 Rural Village Landscape | Medium | Small | Small | Minor | Minor | MM3, MM4, MM5 | MM2, MM4, MM5 | Negligible | Negligible | Negligible |
| LCA 3 Lowland Agricultural Landscape | Medium | Medium | Medium | Moderate | Moderate | MM3, MM4, MM5, MM8, MM11 | MM4, MM5, MM8, MM11 | Minor | Minor | Minor |
| LCA 4 Industrial Landscape | Low | Small | Small | Negligible | Negligible | MM3, MM4, MM5, MM8 | MM4, MM5, MM8 | Negligible | Negligible | Negligible |
| LCA 5 Major Water Course Corridor | Medium | Small | Negligible | Minor | Negligible | MM2, MM6, MM8 | MM2, MM8 | Negligible | Negligible | Negligible |
| LCA 6 Cemetery Landscape | Medium | Negligible | Negligible | Negligible | Negligible | n/a | n/a | Negligible | Negligible | Negligible |
| Landscape Resources | | | | | | | | | | |
| LR 1 Channelised Water Course | Medium | Small | Negligible | Minor | Negligible | MM2, MM6, MM8 | MM2, MM8 | Negligible | Negligible | Negligible |
| LR 2 Water Course | High | Large | Medium | Major | Major | MM7, MM8, MM11 | MM7, MM8, MM11 | Moderate | Moderate | Minor |
| LR 3 Water Pond | High / Medium | Negligible | Negligible | Negligible | Negligible | n/a | n/a | Negligible | Negligible | Negligible |
| LR 4 Woodland | Medium | Medium | Medium | Moderate | Moderate | MM3, MM4, MM5 | MM4, MM5 | Minor | Minor | Negligible |
| LR 5 Fung Shui Woodland | High | Negligible | Negligible | Negligible | Negligible | n/a | n/a | Negligible | Negligible | Negligible |
| LR 6 Scrubland/ Grassland Mosaic | Medium | Small | Small | Minor | Minor | MM3, MM4, MM5, | MM4, MM5 | Negligible | Negligible | Negligible |
| LR 7 Agricultural Land | Medium | Medium | Medium | Moderate | Moderate | MM3, MM4, MM5, MM11 | MM4, MM5, MM11 | Moderate | Minor | Minor |
| LR 8 Rural Development Area | Medium | Small | Small | Minor | Minor | MM2, MM3, MM4, MM5 | MM2, MM4, MM5, | Negligible | Negligible | Negligible |
| LR 9 Industrial / Open Storage | Low | Small | Small | Negligible | Negligible | MM3, MM4, MM5 | MM4, MM5 | Negligible | Negligible | Negligible |
| LR 10 Key Transportation Corridor | Medium | Small | Negligible | Minor | Negligible | MM3, MM4, MM5 | MM4, MM5 | Negligible | Negligible | Negligible |
| LR 11 Cultural Feature | Medium | Negligible | Negligible | Negligible | Negligible | n/a | n/a | Negligible | Negligible | Negligible |

Table 11.13 Summary of Impact Significance on VSRs, both before and upon mitigation

| VSR ID* | VSR Name | Sensitivity (Low, Medium, High) | Magnitude of Change BEFORE Mitigation (Negligible, Small, Medium, Large) | | Impact Significance BEFORE Mitigation (Negligible, Minor, Moderate, Major) | | Recommended Mitigation Measures | | Residual Impact Significance UPON Mitigation (Negligible, Minor, Moderate, Major) | | |
|---------|-------------------------------------------------------------------|---------------------------------|--------------------------------------------------------------------------|------------|----------------------------------------------------------------------------|------------|---------------------------------------------------------|-------------------------------------------|-----------------------------------------------------------------------------------|-----------------|-----------------|
| | | | Construction | Operation | Construction | Operation | Construction | Operation | Construction | Operation Day 1 | Operation Yr 10 |
| R-01 | Residents of Fung Wong Wu Village | Medium | Medium | Small | Moderate | Minor | MM1, MM2, MM3, MM4, MM5, MM6, MM7, MM8, MM9, MM10, MM11 | MM2, MM4, MM5, MM6, MM07, MM8, MM10, MM11 | Minor | Negligible | Negligible |
| R-02 | Residents of Tong Fong | Medium | Medium | Small | Moderate | Minor | MM1, MM2, MM3, MM4, MM5, MM6, MM7, MM8, MM9, MM10, MM11 | MM2, MM4, MM5, MM6, MM07, MM8, MM10, MM11 | Negligible | Negligible | Negligible |
| R-03 | Residents of Lei Uk | High | Medium | Small | Major | Moderate | MM1, MM2, MM3, MM4, MM5, MM6, MM7, MM8, MM9, MM10, MM11 | MM2, MM4, MM5, MM6, MM07, MM8, MM10, MM11 | Moderate | Minor | Negligible |
| R-04 | Residents of Sing Ping Village | Medium | Medium | Small | Moderate | Minor | MM1, MM2, MM3, MM4, MM5, MM6, MM7, MM8, MM9, MM10, MM11 | MM2, MM4, MM5, MM6, MM07, MM8, MM10, MM11 | Minor | Minor | Negligible |
| R-05 | Residents of Residents of Village between Tai Po Tin and Ping Che | Medium | Medium | Small | Moderate | Minor | MM1, MM2, MM3, MM4, MM5, MM6, MM7, MM8, MM9, MM10, MM11 | MM2, MM4, MM5, MM6, MM07, MM8, MM10, MM11 | Minor | Minor | Negligible |
| R-06 | Residents of Tai Po Tin | Medium | Medium | Small | Moderate | Minor | MM1, MM2, MM3, MM4, MM5, MM6, MM7, MM8, MM9, MM10, MM11 | MM2, MM4, MM5, MM6, MM07, MM8, MM10, MM11 | Minor | Minor | Negligible |
| R-07 | Residents of Ping Che Yuen Ha | Medium | Small | Negligible | Minor | Negligible | MM1, MM2, MM9, MM10 | n/a | Negligible | Negligible | Negligible |
| R-08 | Residents of Ha Shan Kai Wat | Medium | Small | Small | Minor | Minor | MM1, MM2, MM3, MM4, MM5, MM6, MM7, MM8, MM9, MM10, MM11 | MM2, MM4, MM5, MM6, MM07, MM8, MM10, MM11 | Negligible | Negligible | Negligible |
| R-09 | Residents of Ping Che Kat Tin | Medium | Small | Negligible | Minor | Negligible | MM1, MM2, MM9, MM10 | n/a | Negligible | Negligible | Negligible |
| R-10 | Residents of Ping Yeung | High | Small | Negligible | Moderate | Negligible | MM1, MM2, MM9, MM10 | n/a | Minor | Negligible | Negligible |
| O-01 | Workers of Caritas Nursery School | Medium | Medium | Small | Moderate | Minor | MM1, MM2, MM3, MM4, MM5, MM6, MM7, MM8, MM9, MM10, MM11 | MM2, MM4, MM5, MM6, MM07, MM8, MM10, MM11 | Minor | Minor | Negligible |
| O-02 | Ta Kwu Ling District Rural Committee | Medium | Small | Negligible | Minor | Negligible | MM1, MM2, MM9, MM10 | n/a | Negligible | Negligible | Negligible |
| O-03 | Workers at Industry | Medium | Medium | Small | Moderate | Minor | MM1, MM2, MM3, MM4, MM5, MM6, MM7, MM8, MM9, MM10, MM11 | MM2, MM4, MM5, MM6, MM07, MM8, MM10, MM11 | Negligible | Negligible | Negligible |
| O-04 | Workers at Ta Kwu Ling Farm | Medium | Small | Negligible | Minor | Negligible | MM1, MM2, MM9, MM10 | n/a | Negligible | Negligible | Negligible |
| O-05 | Workers at Pig Che Government Office | Medium | Small | Negligible | Minor | Negligible | MM1, MM2, MM9, MM10 | n/a | Negligible | Negligible | Negligible |
| LC-01 | Visitors of Ta Kwu Ling Playground | Low | Small | Negligible | Negligible | Negligible | MM1, MM2, MM9, MM10 | n/a | Negligible | Negligible | Negligible |
| LC-02 | Visitors of Wun Chuen Sin Koon | Low | Small | Negligible | Negligible | Negligible | MM1, MM2, MM9, MM10 | n/a | Negligible | Negligible | Negligible |
| LC-03 | Visitors of Strawberry Farm | Medium | Medium | Small | Moderate | Minor | MM1, MM2, MM3, MM4, MM5, MM6, MM7, MM8, MM9, MM10, MM11 | MM2, MM4, MM5, MM6, MM07, MM8, MM10, MM11 | Minor | Minor | Negligible |
| LC-04 | Visitors of Ping Che Children's Playground | Low | Small | Negligible | Negligible | Negligible | MM1, MM2, MM9, MM10 | n/a | Negligible | Negligible | Negligible |
| T-01 | Travellers along Ping Che Road | Low | Negligible | Negligible | Negligible | Negligible | MM1, MM2, MM9, MM10 | n/a | Negligible | Negligible | Negligible |

Note:
The source of impacts of VSRs along Ping Che Road and Ping Yuen Road are considered generally inconspicuous as the Project components such as drainage pipe and U-channel / rectangular channel located at and below the surrounding ground level. Hence, the recommended mitigation measures during operation are not available to those VSRs.

11.13 Cumulative Impacts

11.13.1 Referring to the latest information provided by DSD on the interfacing projects, the major scopes include sewerage system upgrading works nearby Ping Che Road and drainage improvement works in Ping Yuen River. With implementation of control measures during construction, no major adverse impact is anticipated. Considered the scale and nature of the cumulative project, no major adverse cumulative impact would be anticipated. To further minimise the potential cumulative impacts during construction phase, it is recommended that the contractor shall plan the works area of the close proximity work sections which will not overlap with the works area of interfacing project as far as practical.

11.14 Conclusion

11.14.1 Residual landscape impacts remain minor on the water course (LR2), agricultural land (LR7) and lowland agricultural landscape (LCA3) after Year 10 of operation. Residual landscape impacts are negligible on all other LRs and LCAs. Certain number of trees will be felled for this Project, but these will be adequately compensated for with compensatory planting of not less than 1:1 ratio within the Project Site. Water course (LR2) and agricultural land (LR7) will be affected by channelisation works of the Project and the residual impacts are considered moderate at construction, minor to moderate at Day 1 of operation and reduce to minor by Year 10 of operation with proper implementation of the recommended mitigation measures.

11.14.2 Overall, residual visual impacts of the VSRs are minor or negligible at Day 1 of operation and will be diminished to negligible residual impacts at Year 10 of operation.

11.14.3 By operation, construction equipment will have been removed and earthworks completed. Therefore with sensitive architectural design of the structures, tree planting and careful design of lighting, residual visual impacts would further reduce at Day 1 of operation of TKL 04 and TKL 05. The new structures are expected to blend into the surrounding environment, with denser vegetation at Year 10.

11.14.4 According to Annex 10 of the EIAO-TM, following the introduction of landscape and visual mitigation measures, the Landscape and Visual Impacts of this Project, are considered acceptable with mitigation measures.

11.15 Environmental Monitoring & Audit

11.15.1 This Section defines the Environmental Monitoring and Audit (EM&A) requirements that have been recommended to ensure that the proposed landscape and visual mitigation measures are effectively implemented.

Construction Phase

11.15.2 The landscape and visual mitigation measures proposed shall be incorporated in the Construction Contract.

11.15.3 Site audits should be undertaken monthly during the construction phase of the Project to ensure that the proposed mitigation measures and good site practices proposed to manage and mitigate landscape and visual impacts, are implemented.

Operational Phase

11.15.4 A specialist landscape subcontractor should be employed for the implementation of tree and landscape works and subsequent maintenance operations during the establishment period.

- 11.15.5 Site audits should be undertaken bi-monthly for 12 months after operation begins, to ensure newly planted vegetation remain healthy. In addition, annual trimming of the bank side vegetation will be required to retain the hydraulic capacity of the channel.
- 11.15.6 After the 12 month establishment period for soft landscaping, standard maintenance will be required to ensure mitigation measures to retain their full efficacy.

11.16 Bibliography

11.16.1 English

Black & Veatch, 2007. EIA Final Assessment Report under Drainage Improvement in Northern New Territories – Package C, for Drainage Services Department, Hong Kong: Government of the HKSAR

Black & Veatch, 2020. Agreement No. CE89/2017 (DS) Drainage Improvement Works in Ta Kwu Ling – Investigation, Design and Construction: Draft Tree Felling Application, for Drainage Services Department, Hong Kong: Government of the HKSAR

Mott MacDonald, 2015. EIA Final Assessment Report under Liantang / Heung Yuen Wai Boundary Control Point and Associated Works, for Civil Engineering and Development Department, Hong Kong: Government of the HKSAR

Planning Department. Landscape Character Map of Hong Kong Explanatory Notes [available from]
(https://www.pland.gov.hk/pland_en/p_study/prog_s/landscape/notes/e_note.htm)
(accessed on 26 January 2021)

11.16.2 Map

Town Planning Board, 2009. S/NE-WKS/10 Wo Keng Shan Outline Zoning Plan.

Town Planning Board, 2010. S/NE-TKL/14 Ping Che & Ta Kwu Ling Outline Zoning Plan.

Town Planning Board, 2016. S/NE-TKLN/2 Ta Kwu Ling North Outline Zoning Plan.

Town Planning Board, 2017. S/NE-MKT/4 Man Kam To Outline Zoning Plan.

Town Planning Board, 2017. S/NE-HLH/11 Hung Lung Hang Outline Zoning Plan.

Planning Department, 2015. Landscape Character Map of Hong Kong.

END OF TEXT