



9 Visual Impact

9.1 Introduction

This Section provides an evaluation of the potential visual impacts due to operation of the Project in accordance with the criteria and guidelines as stated in Annex 10 and Annex 18 of the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM) as well as the requirements given in the EIA Study Brief (No. ESB-365/2024). Mitigation measures have been proposed if considered necessary.

There is no direct impact on landscape with distinctive character / resources and landscape impact assessment is not required pursuant to Appendix A in Annex 18 of the EIAO-TM and the EIA Study Brief (No. ESB-365/2024).

9.2 Relevant Legislation, Standards and Guidelines

This Visual Impact Assessment was conducted with reference to the local legislation, guidelines, plans and relevant studies as follows.

- Environmental Impact Assessment Ordinance (EIAO) (Cap.499).
- Annexes 10 and 18 of the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM) effective since 30 June 2023.
- EIAO Guidance Note No.8/2023 – Preparation of Landscape and Visual Impact Assessment under the EIAO.
- Hong Kong Planning and Standards & Guidelines (HKPSG), particularly Chapter 4, 10 and 11.
- Town Planning Ordinance (Cap. 131).
- DEVB TC(W) No.3/2012 – Site Coverage of Greenery for Government Building Projects.

9.3 Assessment Methodologies

9.3.1 Visual Impact Assessment Methodology

The visual assessment was conducted in accordance with Appendix H of the EIA Study Brief No. ESB-365/2024 and with reference to the criteria and guidelines as stipulated in Annex 10 and 18 of EIAO TM and EIAO Guidance Note No. 8/2023 to include areas from which the Project could be seen (within Visual Envelope).

9.3.1.1 Identification and Examination of Visual Envelope (VE) and Public Viewers

Geographical Information System (GIS) software was utilized to prepare the visual envelope. By analysing the topography and dimensions of buildings, the areas that could potentially see the



development during operation can be worked out. Further to the use of GIS, the study of aerial maps and site visits helped to establish locations that could and could not see the Project considering factors other than topography.

9.3.1.2 Assessment of Sensitivity of Public Viewers

The sensitivity of public viewers to change is rated as 'high', 'medium' or 'low' as influenced by the type of viewers and value of existing views.

The rating of the sensitivity of the public viewers is assessed as follows:

- High: Highly sensitive to any change in their viewing experience.
- Medium: Moderately sensitivity to any change in their viewing experience.
- Low: Only slightly sensitive to any change in their viewing experience.

9.3.1.3 Identification of Sources and Magnitude of Potential Visual Impacts

The visual impact assessment shall focus on permanent visual impacts during operation of the Project and assess the significance thresholds including magnitude of changes and sensitivity of public viewers. The magnitude of changes for assessing visual impacts includes:

- Visual composition – Impacts on visual balance, compatibility, harmony, unity or contrast.
- Visual obstruction – Impacts on condition, quality and character of visual resources, and
- Visual change – Impacts on changes with direct sightlines (considering degree of visibility and viewing distance) to the existing and future public views by comparing before and after the proposed development.

The magnitude of visual change is classified as follows:

- Substantial: The viewers would suffer a major change in their viewing experience.
- Moderate: The viewers would suffer a moderate change in their viewing experience.
- Slight: The viewers would suffer a small change in their viewing experience.
- Negligible: The viewers would suffer no discernible change in their viewing experience.

9.3.2 Impact Significance Threshold Assessment Methodology

9.3.2.1 Significance Thresholds of Visual Impact (after Mitigation Measures established)

The assessment of the potential visual impacts due to operation of the Project is created by synthesizing the "Sensitivity" and "Magnitude of Change" for the public viewers according to the following matrix in **Table 9-1**.

**Table 9-1 Impact Significance of Visual Impact**

		Receptor Sensitivity		
		Low	Medium	High
Magnitude of change	Negligible	Negligible	Negligible	Negligible
	Slight	Slight	Slight / Moderate	Moderate
	Moderate	Slight / Moderate	Moderate	Moderate / Substantial
	Substantial	Moderate	Moderate / Substantial	Substantial

An overall assessment of the impacts according to the criteria in Annex 10 of the EIAO-TM was conducted. The overall assessment was made on the development based on the identified visual impacts described as follows.

- **Beneficial:** The impact is beneficial if the Project will complement the visual character of its setting, and/or will improve overall visual quality.
- **Negligible:** The impact is negligible if the assessment indicates that there will be no noticeable effects or insignificant visual effects caused by the Project.
- **Slight:** The impact is slight if there will be slight adverse visual effects caused by the Project.
- **Moderate:** The impact is moderate if there will be some adverse visual effects caused by the Project, but these can be eliminated, reduced, or moderated to a certain extent by design/mitigation measures.
- **Substantial:** The impact is substantial if the adverse effects are considered too excessive and obstructive, and significant modification is required to mitigate the impacts.

9.3.2.2 Recommendation of Visual Mitigation Measures

Possible visual mitigation measures will primarily take the form of adoption of alternative design/orientation to avoid or minimize visual obstruction resulting from the Project, careful consideration in colour and texture treatment of building features and finishes to soften the visual effects; and provision of green features and screening to neutralize the negative impacts from hard elements.

Computer-generated photomontages were prepared based on photographs taken at selected public viewing points to illustrate visual impacts on public viewers at different stages (existing conditions and the proposed development with and without mitigation measures). It is to compare the scenarios and the effectiveness of proposed mitigation measures.

9.4 Visual Baseline

9.4.1 Visual Envelope

According to the Guidance Note No. 8/2023, the boundary of visual envelope (VE) could be considered in accordance with the technical assumption of distance equal to three times of the height of the



proposed structure/building. The proposed chimney of I-PARK2 is around 70 m above ground in the reference design, the VE of 210 m from the boundary of the Project site is developed and illustrated in **Figure 9.1**. No aboveground structures are proposed for the proposed outfall at west ash lagoon. The proposed seawater outfall would be located at the seawall at sea level and the associated pipeworks would be underground. As the proposed seawater outfall and associated pipeworks would not involve any major aboveground structure, adverse visual impact due to the proposed seawall outfall and associated pipeworks is not anticipated.

9.4.2 Visual Characters and Resources

The proposed Project is located in a decommissioned ash lagoon site. The Project site is immediately surrounded by Tsang Tsui Columbarium and Garden of Remembrance located to the west, T-PARK located immediately to the east, West New Territories (WENT) Landfill Extensions to the south and Deep Bay to the north. Hence, the Project site is compatible with character of the surrounding environment.

The key visual characters and resources within the VE of the Project site are indicated below”

- Industrial buildings
- Sea area
- Ridgeline
- Vegetation/green slopes
- Vacant lands

9.4.3 Public Viewers and Key Public Viewing Points (VPs)

Within the VE, a total of 4 representative public viewing points (VPs) have been identified. The identified VPs are illustrated in **Figure 9.2** and their sensitivity are tabulated in **Table 9-3**. The visual context of these VPs is presented in **Appendix 9A**.

Visitors of T-PARK (VP3) and Tsang Tsui Columbarium (VP2) have been selected as representative viewing points of visitors visiting T-PARK and Tsang Tsui Columbarium while travellers on public routes, i.e. sea travellers (VP1) and travellers along Nim Wan Road (VP4) have been selected as representative travelling viewing points.

Most of the representative VPs (VP1, VP2 and VP3) have views of plantation/ seafront/ open sky view and their value of existing view is considered as high. For VP1, the sea travellers in the Deep Bay to / from Shekou are over 2 km from I-PARK2 while the sea travelers within the visual envelope are mainly workers on vessels carrying waste containers to landfill or the future I-PARK2. VP2 mainly consists of the visitors visiting Tsang Tsui Columbarium during the periods of Ching Ming Festival while VP3 mainly consists of the visitors visiting T-PARK. Considering the type of viewers of VP1, VP2 and VP3, their visual sensitivity is considered as medium. VP4 has views of trees along Nim Wan Road and its value of existing view is considered as medium. Considering its travelling type of viewer, the visual sensitivity of VP4 is considered as low.



9.5 Identification and Assessment of Visual Impact

9.5.1 Potential Sources of Visual Impact

The preliminary layout of the Project is illustrated in **Figure 9.3**, a stepping building height profile (from +6.5mPD to 75.5mPD) from the waterfront is introduced. The tentative dimensions of the proposed buildings and facilities within the Project site are presented in **Table 9-2**. The height of the proposed stack would be around 70 m above ground in reference design. The maximum height of other new facilities will be ranging from 5m to 70m above ground.

Table 9-2 Tentative Dimensions of Proposed Facilities

Proposed Facilities	Area (ha)	Maximum Height (m Above Ground)	Maximum Height (mPD)
Berthing Facility	1.4	-	6.5
Loading and Unloading Platform	1.8	11	17.5
Incineration Plant	7.3	25 to 65	75.5
Stack	-	70	81.5
IBA Treatment Facility	1.4	23	34.5
Administrative Building	0.3	20	31.5
Utilities	0.2	11	23
Carpark	0.3	5	16.5
Total	12.7	-	-

As presented in **Section 2**, once-through seawater cooling system and air-cooled system are both feasible options for I-PARK2. While condenser fan units would be required for air-cooled system, there would be no major difference in magnitude of changes between the two cooling options in terms of the overall bulk of building structures presented in **Figure 9.3** and the maximum building heights presented in **Table 9-2**. Sources and significance visual impacts identified below and in the subsequent sections are applicable to both cooling options. During operation phase, potential permanent visual impacts would arise from the following:

- O1 - Visual quality affected by the completed buildings, facilities, and stack of I-PARK2.
- O2 - Visual obstruction by blockage to open sea view/sky view/greenery/mountain backdrop.

No aboveground structures are proposed for the proposed outfall at west ash lagoon. The proposed seawater outfall would be located at the seawall at sea level and the associated pipeworks would be underground. As the proposed seawater outfall and associated pipeworks would not involve any major aboveground structure, adverse visual impact due to the proposed seawall outfall and associated pipeworks is not anticipated.

9.5.2 Impacts on Public Viewers

The assessment on the magnitude of potential visual impacts to the identified VPs based on the visual composition, visual obstruction and visual change are summarized in **Table 9-3**.



VP1 – Sea Travellers

Description of Existing View: This viewing point is located at open sea which has full degree of visibility on the Project site with sky and mountain backdrop. It also has a partial view to T-PARK, Tsang Tsui Columbarium and the WENT Landfill Extensions (under construction).

Visual Composition: The proposed development would be in juxtaposition with Tsang Tsui Columbarium, T-PARK and the WENT Landfill Extensions (under construction). The architectural and landscape design of the I-PARK2 would be coherent with T-PARK to enhance compatibility with the visual context.

Visual Obstruction: The presence of proposed new buildings and facilities would block a major portion of mountain backdrop / the WENT Landfill Extensions and a long section of the original coastal line would be replaced by the proposed berthing facilities. After the proposed development, the view of open sea and sky remain intact.

Visual Change: Considering full degree of visibility to yet with relatively farther viewing distance of about 240m from the proposed development, it would induce a notable visual change and form one of the major built elements of the view. The stepped building height design, landscaping and aesthetic measures could reduce the building bulk of the proposed development, soften its edge and blend it more into the surrounding environment.

In view of the above, the magnitude of change to VP1 would be moderate.

VP2 - Visitors at Tsang Tsui Columbarium (G/F Garden)

Description of Existing View: This viewing point is located at Tsang Tsui Columbarium Garden (G/F) which has partial degree of visibility on the Project Site with sky view. It also has some sea view and mountain view in the background, and framed by the Tsang Tsui Columbarium in the right foreground.

Visual Composition: The proposed berthing facilities would not be fully compatible with the existing coastal landscape, but the proposed development could be regarded as an extension of building elements of the adjoining site. The architectural and landscape design of the I-PARK2 would be coherent with Tsang Tsui Columbarium to enhance compatibility with the visual context.

Visual Obstruction: The presence of proposed new buildings and facilities would only block a small portion of open sky view and hillslopes. After the proposed development, the view to the open sky and landscape design of Tsang Tsui Columbarium and Garden of Remembrance would remain intact.

Visual Change: Considering partial degree of visibility with viewing distance of about 150m from the proposed development, it would induce a partial change and become one of the built elements in the view. The stepped building height design, landscaping and aesthetic measures could reduce the building bulk of the proposed development, soften its edge and blend it more into the surrounding environment.

In view of the above, the magnitude of change to VP2 would be slight to moderate.



VP3 - Visitors at T-PARK (G/F Garden)

Description of Existing View: This viewing point is located at T-PARK Garden (G/F) which has partial degree of visibility on the Project Site with sky view, and its view is framed by the building of TPARK in the left foreground.

Visual Composition: The proposed buildings and facilities would be largely screened off by the plantations of T-PARK, with its upper portion forming an extension of building elements of the adjoining site. The architectural and landscape design of the I-PARK2 would be coherent with T-PARK to enhance compatibility with the visual context.

Visual Obstruction: The proposed buildings and facilities would be screened off by the plantations of T-PARK. The presence of proposed new buildings and facilities would only block a minor portion of open sky view. After the proposed development, the view to the open sky view and landscape design of T-PARK would remain largely intact.

Visual Change: Considering a glimpse to with relatively farther viewing distance of about 250m from the proposed development, it would induce a perceivable change and become one of the built elements in the view. The stepped building height design, landscaping and aesthetic measures could reduce the building bulk of the proposed development, soften its edge and blend it more into the surrounding environment.

In view of the above, the magnitude of change to VP3 would be slight.

VP4 - Travellers along Nim Wan Road

Description of Existing View: This viewing point is blocked by dense vegetation along the roadside.

Visual Composition: The proposed development would be largely screened off by the trees along the roadside.

Visual Obstruction: Only a glimpse of the proposed buildings would be visible without any notable visual obstruction at this VP.

Visual Change: Considering that only a glimpse of proposed development would be visible and despite viewing distance of about 80m from the proposed development, it would not induce a discernible visual change at this VP.

In view of the above, the magnitude of change to VP4 would be negligible.



Table 9-3 Significance of Visual Impact

VP	Location	Sensitivity of Viewers			Magnitude of Change				Proposed Mitigation Measures (Section 9.6)	Significance Threshold of Visual Impact (After Mitigation Measures Established) ^[2]
		Type of Viewers	Value of Existing Views (High/ Medium/ Low)	Visual Sensitivity	Visual Composition	Visual Obstruction	Visual Change (Considering degree of visibility and viewing distance)	Magnitude of Change ^[1]		
VP1	Sea	Travellers	High	Medium	Please refer to Section 9.5.2			Moderate	OM1-OM5	Moderate
	(i) Description of Existing view: Please refer to Section 9.5.2. (ii) Approximate No. of Viewers: Few (iii) Source of Impact : O1-O2									
VP2	Tsang Tsui Columbarium (G/F Garden)	Visitors	High	Medium	Please refer to Section 9.5.2			Slight to Moderate	OM1-OM5	Slight to Moderate
	(i) Description of Existing view: Please refer to Section 9.5.2. (ii) Approximate No. of Viewers: Few ^[3] (iii) Source of Impact : O1-O2									
VP3	T-PARK (G/F Garden)	Visitors	High	Medium	Please refer to Section 9.5.2			Slight	OM1-OM5	Slight
	(i) Description of Existing view: Please refer to Section 9.5.2. (ii) Approximate No. of Viewers: Few (iii) Source of Impact : O1-O2									
VP4	Nim Wan Road	Travellers	Medium	Low	Please refer to Section 9.5.2			Negligible	N/A	Negligible
	(i) Description of Existing view: Please refer to Section 9.5.2. (ii) Approximate No. of Viewers: Few (iii) Source of Impact : O1-O2									

Note:

[1] Classified as Substantial/ Moderate/ Slight/ Negligible

[2] Classified as Beneficial/Substantial/ Moderate/ Slight/ Negligible

[3] VP2 has few no. of viewers during the year except for limited periods during the Ching Ming and Chung Yeung festivals.



9.6 Design / Mitigation Measures

The potential visual impacts arising from the Project have been identified in the previous sections. The incinerator plant is a bulk structure consist of different facilities. As an alternative design, stepping building height design is adopted to reduce the building bulk. A series of design / mitigation measures have been proposed to alleviate the effects of these impacts. The proposed design / mitigation measures during operational phases are summarized in **Table 9-4**. The visual impact mitigation plan is provided in **Appendix 9B**. During detailed design stage, the I-PARK2 contractor shall appoint a registered architect and a registered landscape architect who are suitably qualified and experienced to further develop the detailed architectural and landscape design, taking into account the proposed design / mitigation measures to reduce or moderate the visual effects and enhance the overall visual quality. The detailed architectural and landscape design will be submitted to Architectural Services Department for advice on the aesthetics in accordance with ETWB TCW No. 8/2005.

Table 9-4 Proposed Visual Design / Mitigation Measures

ID	Mitigation Measures	Funding Agency	Implementation Agency	Maintenance/ Management Agency
OM1	<u>Infill Planting</u> Infill planting of trees, shrubs and/or groundcovers shall be provided where space is available.	EPD	I-PARK2 Contractor	I-PARK2 Contractor
OM2	<u>Tree Planting along Site Boundary</u> Tree planting shall be provided along the site boundary as far as practicable to provide visual screening effect.	EPD	I-PARK2 Contractor	I-PARK2 Contractor
OM3	<u>Green Roof and Vertical Greening</u> Where practicable, green roof and vertical greening on the external walls without the coverage of architectural elements will be provided.	EPD	I-PARK2 Contractor	I-PARK2 Contractor
OM4	<u>Aesthetic Design of Buildings</u> Aesthetically pleasing design as regard to the form, material and finishes shall be incorporated to buildings, engineering structures and associated infrastructure facilities so as to blend in the buildings and structures to the adjacent landscape and visual context where practicable.	EPD	I-PARK2 Contractor	I-PARK2 Contractor
OM5	<u>Control for Lighting and Glaring</u> Maintain only essential lighting and implement suitable measures to reduce potential light nuisance during night-time and minimise nuisance caused by glare reflected from buildings or photovoltaic (PV) panels (e.g. adjusting tilting angle and orientation of the panels, and applying anti-reflective coating where appropriate) as far as practicable. The Guidelines on	EPD	I-PARK2 Contractor	I-PARK2 Contractor



ID	Mitigation Measures	Funding Agency	Implementation Agency	Maintenance/ Management Agency
	Industry Best Practices for External Lighting Installations should be observed with a view to minimising potential impacts arising from external lighting.			

9.7 Significance Threshold of Visual Impact (after Mitigation Measures established)

The visual impacts on representative VPs after implementation of mitigation measures are illustrated in **Table 9-3**. The significance threshold of visual impact (after mitigation measures established) on VPs would be ranging from negligible to moderate.

9.7.1 Photomontage Illustration for Selected Views

Representative views from the VPs are selected to illustrate the effectiveness of the proposed mitigation measures and the impacts of the proposed works. Selected VPs are shown in **Figure 9.2** and their photographic record is provided in **Appendix 9A**. For each selected public viewers and VPs, photomontages were prepared for the following scenarios:

- Existing baseline condition;
- Development without mitigation;
- Development with mitigation.

The photomontage illustration is provided in **Appendix 9C**. The proposed development would be viewed from VP1 and screened by buildings and vegetation for VP2, VP3 and VP4. The tree planting (OM2) along the site boundary of the Project can screen the proposed buildings and facilities. Infill planting (OM1) and green roof / vertical greening (OM3) can provide greenery to soften the industrial nature of the development as well as increase the aesthetic quality of the Project Site. Aesthetic design of the buildings (OM4) would blend in the proposed buildings / structures to the surrounding environment and visual context. With proper implementation of the mitigation measures, the overall visual impact will be ranging from negligible to moderate.

9.8 Environmental Monitoring and Audit

As presented in **Section 9.4** of this report, the I-PARK2 contractor shall further develop the detailed architectural and landscape design during detailed design stage. Design audit of the architectural and landscape design shall be carried out by the Environmental Team Leader and verified by the Independent Environmental Checker as conforming to the recommendations in **Table 9-4** of this report. Site audit shall be carried out during the implementation and the first year after completion of the proposed design / mitigation measures to ensure its proper implementation and effectiveness to reduce or moderate the visual effects and enhance the overall visual quality.



9.9 Conclusion

Visual assessment has been conducted in accordance with Appendix H of the EIA Study Brief No. ESB-365/2024 and with reference to the criteria and guidelines as stipulated in Annexes 10 and 18 of EIAO-TM and EIAO Guidance Note No. 8/2023. The overall visual impact will be ranging from negligible to moderate¹.

¹ The impact is moderate if there will be some adverse visual effects caused by the project, but these can be eliminated, reduced or moderated to a certain extent by design / mitigation measures.

