Hong Kong-Shenzhen Innovation and Technology Park
Batch 1 Development

Supplementary Information for
HKIBIM Award 2020 Application

Jan 2021

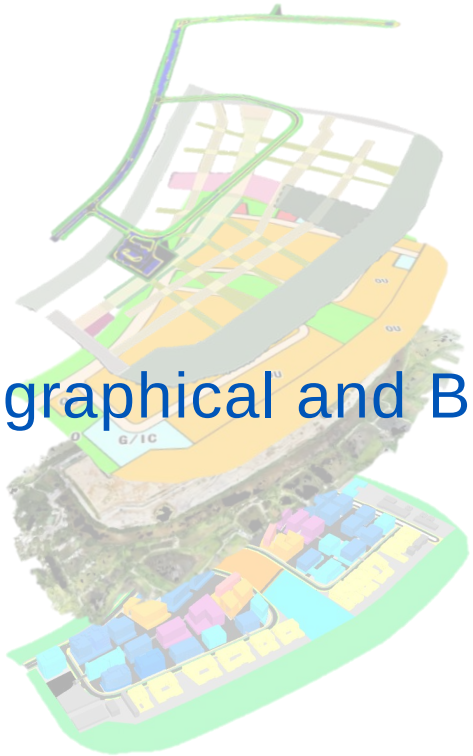
BIM & GIS Consultants:

HONG KONG-SHENZHEN
INNOVATION AND
TECHNOLOGY PARK
港深創新及科技園

HONG KONG-SHENZHEN INNOVATION AND TECHNOLOGY PARK
港深創新及科技園

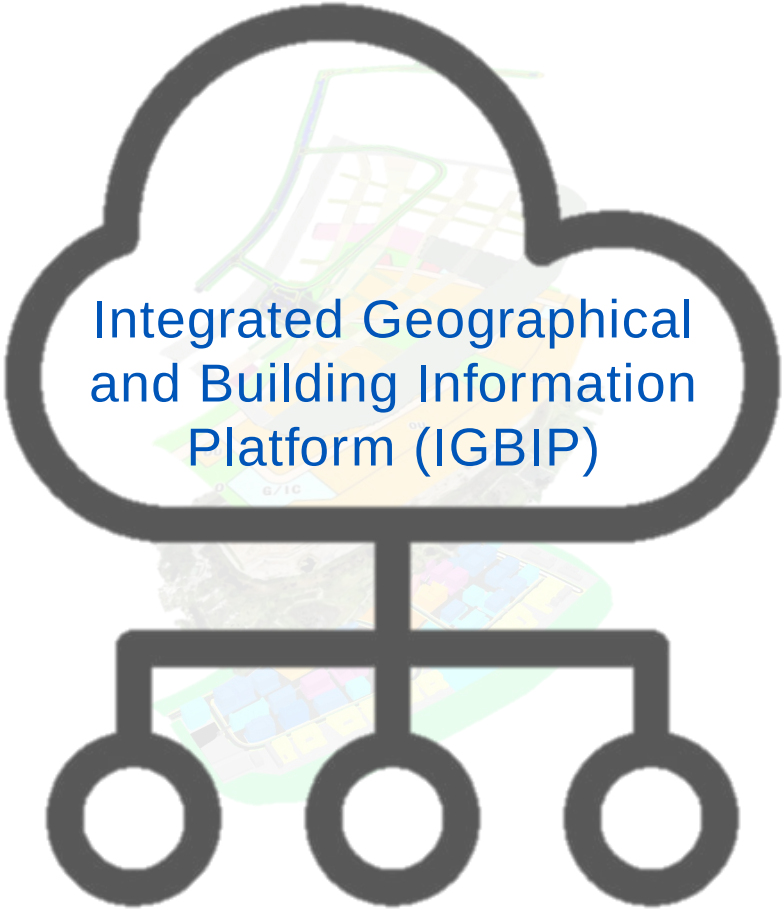
Pioneering into a New BIM Dimension

BIM X GIS



Integrating Geographical and Building Information

HONG KONG-SHENZHEN INNOVATION AND TECHNOLOGY PARK
港深創新及科技園



BIM – GIS Integration

HONG KONG-SHENZHEN INNOVATION AND TECHNOLOGY PARK 港深創新及科技園

- Satellite Map
- OZP
- Survey Map
- UAV 3D Data
- Future Road Network
- Master Planning Requirement
- EIA Requirement

→ Geospatial Data

IGBIP (Cloud-based)

→ BIM Information

- Arc
- MEP
- Structure
- Building 1
- Building 2
- ●●●
- Building 67
- Infrastructure

HSITP BIM Standard

→ Design & Constructions

Manage Multiple BIM Models in One Platform

- Extract detailed BIM information, schedules
- Count quantity, area
- Store data and drawing throughout project life-cycle

Monitor Key Development Parameters From Multiple Projects

- Count accumulative parameters from BIM models
  - e.g. GFA, CFA, LFA, UFA, Greenery Area, Tree Nos., Parking Nos, etc

Monitor & Validate Design & Construction

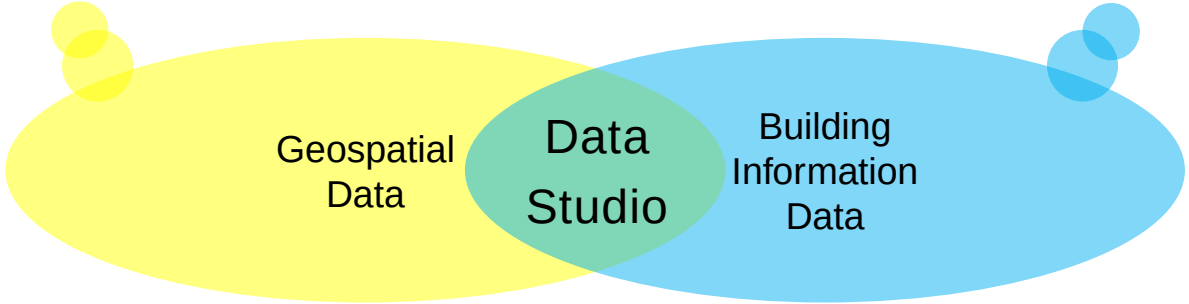
- Remote Site Monitoring
- 3D Scanning v.s. BIM
- Check wind corridor, EVA, view corridor, buffer zone, etc.

Carry Out Environmental, Spatial Analysis and Measurement

- Sun Shading
- Solar Ratio
- SkyView
- ●●●

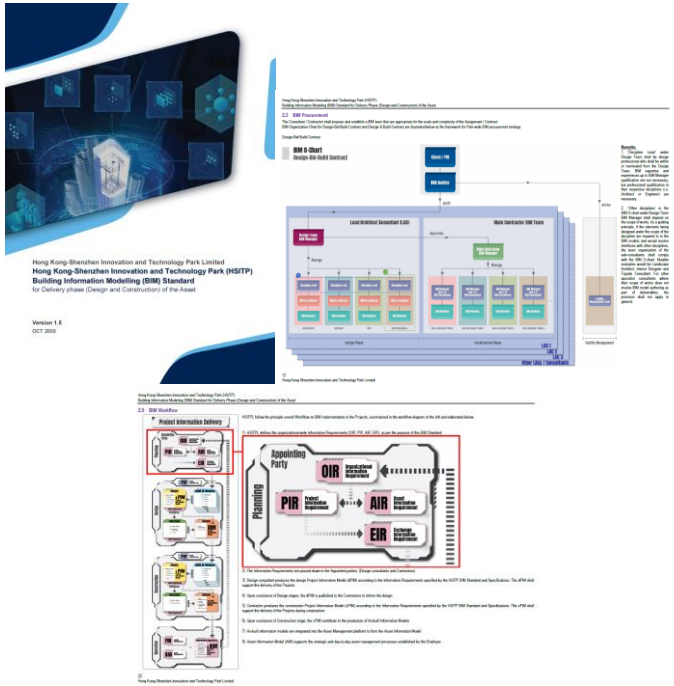

Hong Kong-Shenzhen Innovation and
Technology Park (the Park)
87 Hectares


67 Buildings


Geospatial
Data
Data
Studio
Building
Information
Data

BIM – GIS Integration

- To Standardize All Buildings BIM Information
  - HSITP BIM Standard is launched in 2020 for all design consultancies and work contracts in the Park
- To Resolve Design and Construction Challenges
  - Manage and keep track on overall development parameters from multiple projects
- To Integrate with Geospatial Data
  - Survey data, Government data, UAV 3D data and etc
- To Work Towards Park-wide Smart Management
  - Provide a one-stop-shop for all building information throughout the entire building development cycle;
  - Connect to IoTs, APIs, 4K CCTVs and other systems in the future

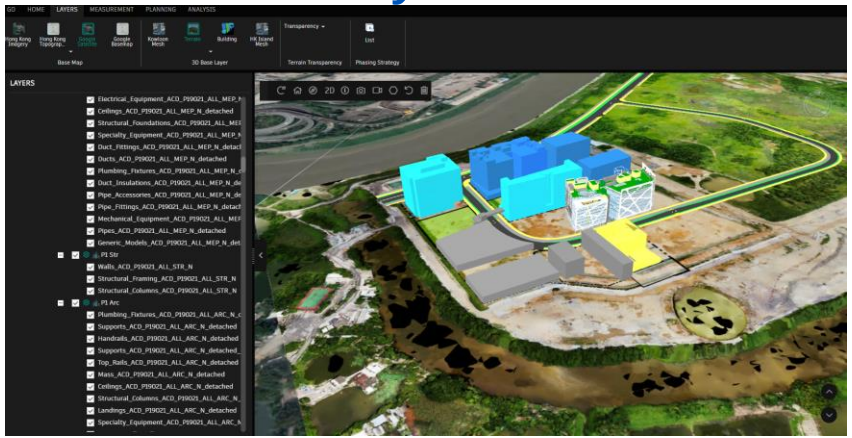


HSITP BIM Standard

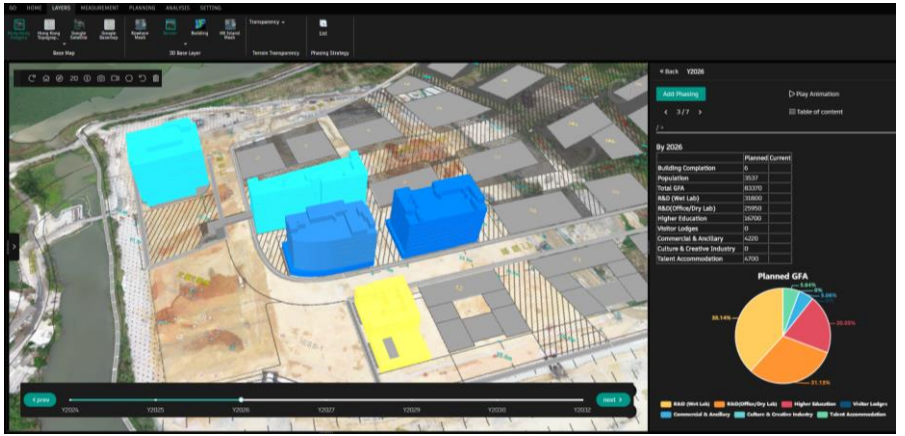
ACID, Geosys and HSITPL developed a BIM–GIS Common Platform for HSITP

Integrated Geographical and Building Information Platform (IGBIP)

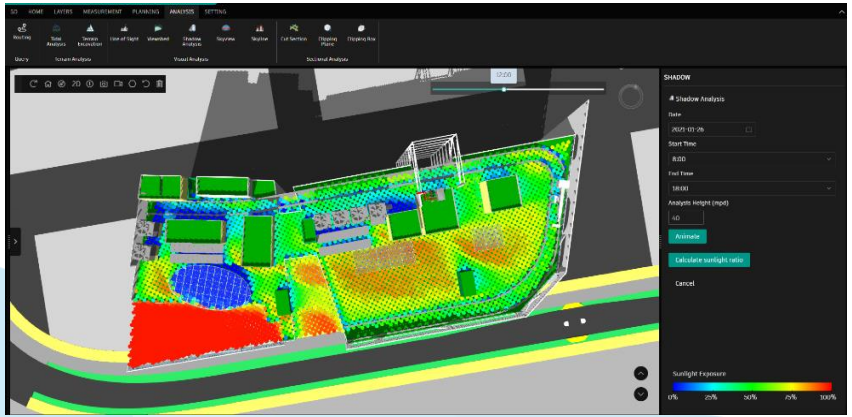
IGBIP Key Features



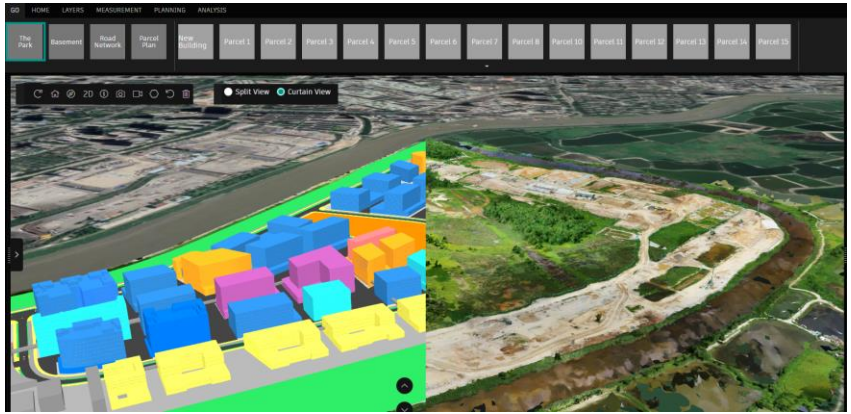
Manage Multiple BIM Models in One Platform



Monitor Overall Development Parameters From Multiple Projects

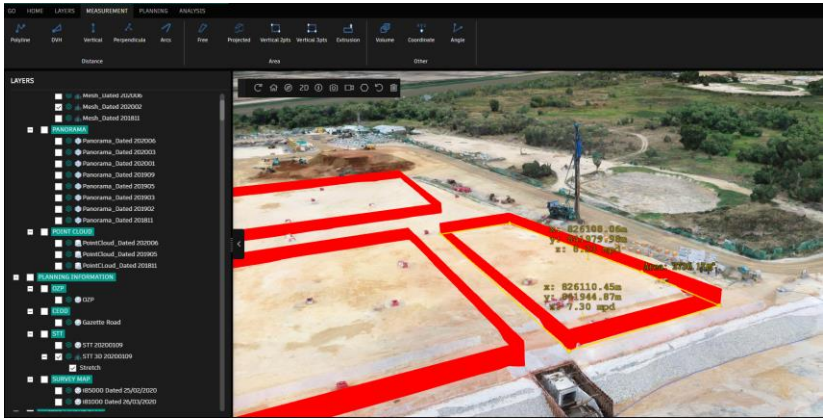


Carry Out Environmental, Spatial Analysis and Measurement

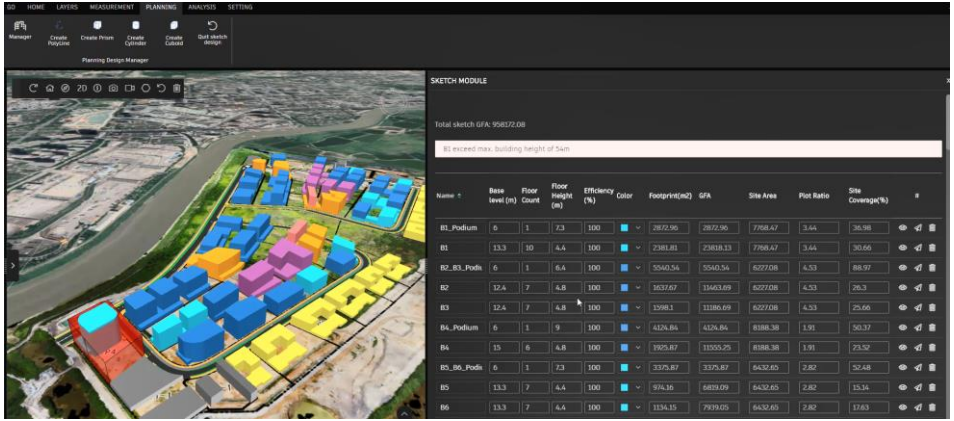


Validate Design Information against actual site works

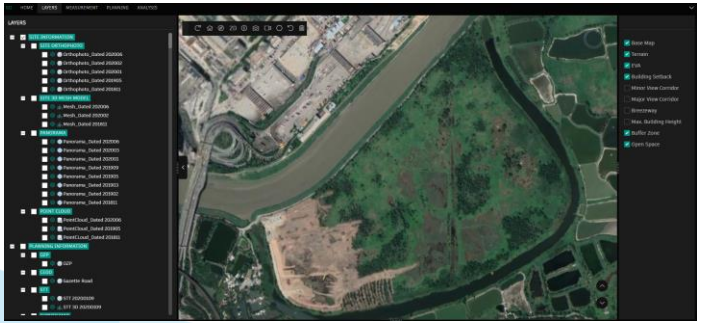
IGBIP Key Features



Remote Site Monitoring, 3D Site Survey and Analysis



Planning Design Manager



Satellite Map

LandsD Survey Map

CEDD Gazette Road

PlanD OZP

• • •

UAV Site Survey

HSITP Parcel Plan

Master Layout Plan

Integrate with Geospatial Data

Background

- On 3 January 2017, Hong Kong Special Administrative Region Government (HKSARG) and the Shenzhen Municipal People's Government signed a Memorandum of Understanding on the development of a Hong Kong-Shenzhen Innovation and Technology Park (the Park) at the Lok Ma Chau Loop in Hong Kong. The Park will be a global hub of research and development (R&D), providing players in innovation and technology (I&T) industry with physical space and a conducive environment for R&D, and allowing them to tap into the I&T talent pool, supply chain capabilities and markets in Hong Kong and the neighboring Greater Bay Area conveniently.

- The Park will focus on the development of six R&D areas, including healthcare technologies, big data and artificial intelligence, robotics, new material, microelectronics, and financial technology.

- The Park will be developed in two phases, each in three batches in general, and a total of 67 buildings are expected to be provided.

The Park Location

(source: Planning Department)

- The Park is located at the northern fringe of the New Territories of Hong Kong. It is bounded by the bank of Shenzhen River in the northwest, fish ponds of Hoo Hok Wai in the northeast, Lok Ma Chau and Tai Law Hau in the south, the Lok Ma Chau Control Point and Lok Ma Chau Spur Line Control Point in the southwest, as well as the Mai Po Nature Reserve in the further southwest.

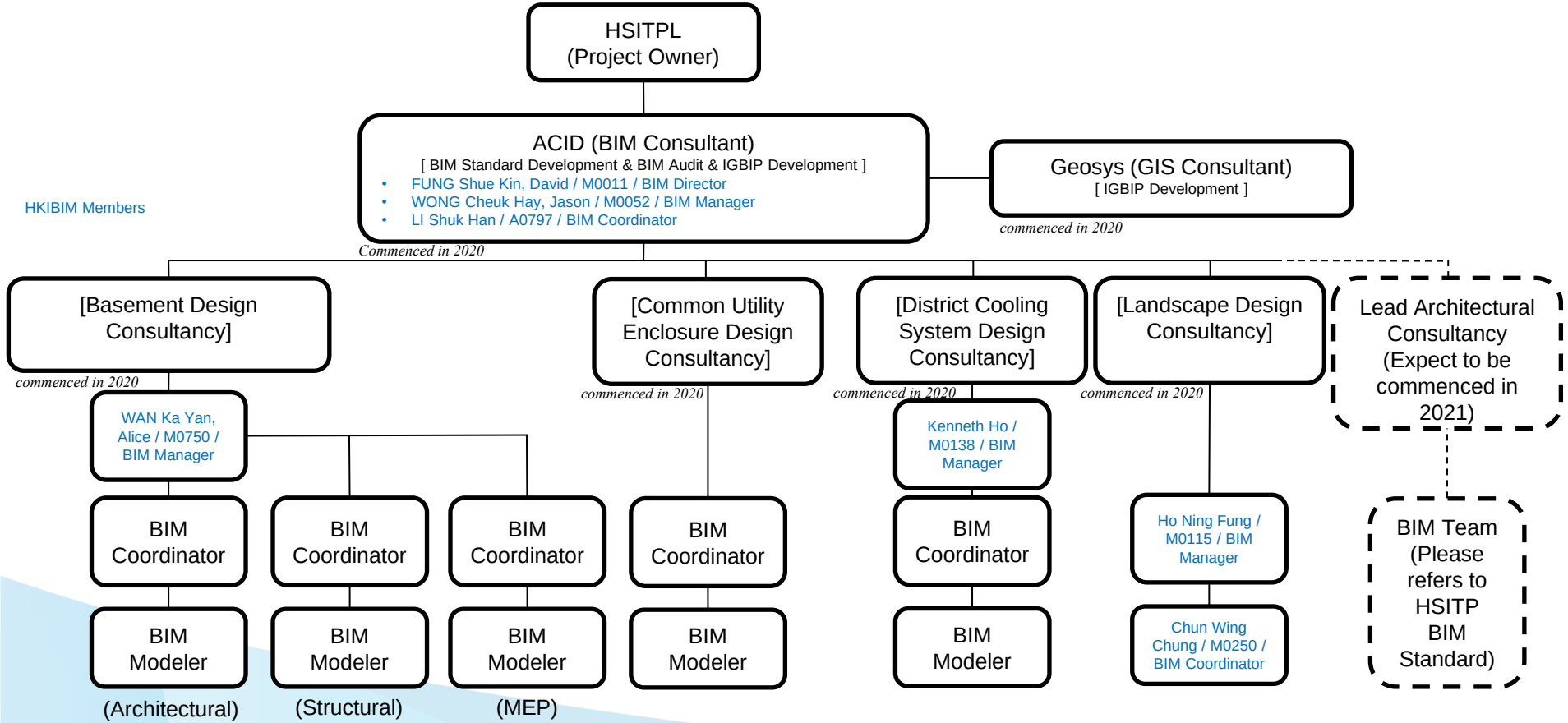
Project Information

Development Stage	Main use of buildings	Number of buildings
First three buildings	Wet laboratories ("Wet-labs")[4]	2
	InnoCell [5] and Ancillary Facilities	1
Remaining five	Offices or Dry laboratories ("Dry-labs")[6]	3
	Wet-labs	2
	Higher Education	Depending on the detailed design, the relevant facilities will be distributed in the remaining five buildings.
	Commercial and Ancillary Facilities	

(source: LC Paper No. CB(1)150/20-21(04))

- Batch 1 Development of the Park is a mega project that involves:
  - 8 buildings with wet laboratories, offices / dry laboratories, InnoCell, higher education, commercial and ancillary facilities;
  - Estimated to be completed in phases from 2024 to 2027;
  - Estimated project sum: $17.258 billion in money-of-the day ("MOD") prices (source: LC Paper No. CB(1)150/20-21(04))

BIM Team Organization Chart



All works were commenced in 2020 except Lead Architectural Consultancy, which is expected to commence in 2021

The Statement: needs for BIM-GIS integration

- Challenges:
  - Monitor and management of project data throughout the Park development;
  - Design and construction of Batch 1 will be developed concurrently;
  - Need to review and monitor the accumulative design parameters across developments, such as GFA, LFA, greenery area, trees numbers, car park nos, etc;
  - Need to involve multiple projects and disciplines with different BIM models developed at various stages;
  - Require frequent reviews on those major building design parameters to ensure the compliance with the park-wide design strategies as well as those environmental requirements;
  - Require frequent reviews on interfacing issue at the connected basement
  - Need to ensure the design and as-built information can be used for Asset Management in future with possibility to adopt IoT for park-wide management at operation stage;
- It is necessary to set-up a holistic strategy to manage enormous amount of building and geospatial information

The Statement: needs for BIM-GIS integration

- Solutions:
  - HSITP BIM Standard:
    - A HSITP BIM Standard has been developed for the Park to ensure the Consistency of the BIM information throughout the development of the Park;
    - Applied at Early Stage of the whole development;
    - Apply to All 67 buildings;
    - Consistent naming convention to ensure effective integration with IGBIP, BIM-AM, IoT, etc;
  - Integrated Geographical and Building Information Platform (IGBIP)
    - Provide a one-stop-shop for building information throughout the entire building development cycle;
    - Provide flexible and adoptability in planning, design, construction and operation;
    - Monitor concurrent design and construction development, accumulative design parameters from multiple projects;

Our Approach

- BIM-GIS Strategy
  - Holistic BIM-GIS strategy planned from the beginning
    - Comprehensive BIM protocols, including the development of HSITP BIM Standard, to control the quality, consistency of BIM information
    - BIM-GIS common platform development - IGBIP
- Integrated Geographical and Building Information Platform (IGBIP)
  - Intelligent Technologies Integration – One Platform for ALL
  - Intelligent Experience – From Virtuality to Reality
  - Intelligent Working – Simple Solutions for Complex Environment
  - Intelligent Operation – Automation and Data as a Service

BIM-GIS Strategy: Comprehensive BIM Protocols

- Comprehensive BIM protocols: BIM Standard, EIR (BIM Specifications), BIM PXP (BEP) templates, project model (Revit and Civil 3D) templates for all disciplines
- Align with international standard: ISO-19650 (Part 1 and 2);
- Align with local standard and project-specific context: follow latest HKSARG Development Bureau Technical Circulars, CIC BIM Standards and local practices, e.g. adoption of BIM Uses;
- Well-defined Information Requirements:
  - Organizational Information Requirements (OIR)
  - Project Information Requirements (PIR)
  - Exchange Information Requirements (EIR)
  - Asset Information Requirements (AIR)
  - Security Information Requirements (SIR)*

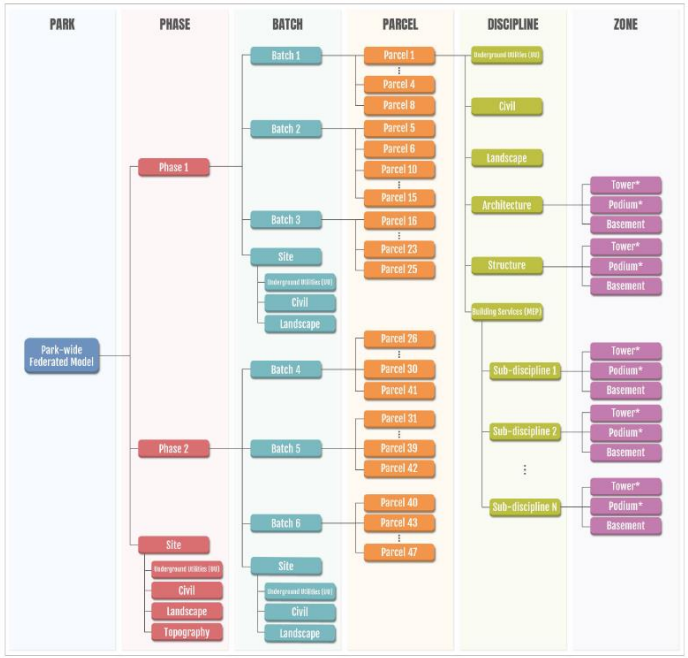
*Although currently SIRs are not explicitly stated under the BIM Standard, HSITPL has taken careful consideration on cyber security and handling of sensitive information, which comply with the Security Information Requirements under provision in ISO and CIC BIM Standards.

BIM-GIS Strategy: Comprehensive BIM Protocols

- All upcoming projects (Design and Works contracts) under the HSITP development is required to apply HSITP BIM standards and templates

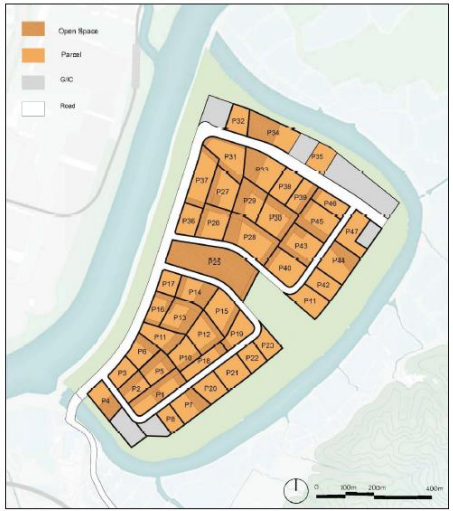
5.1.1 Overall Model Division Recommendation

The following diagram show the overall model division recommendation. Project Federated Model shall be divided by 2 phases, by 6 batches, by 45 parcels, by discipline and then by zone. For the detail project-specific model division strategies shall be proposed by Design Consultants or Contractors in project-specific BIM execution plans, subject to HSITPL approval.



Note:
*Model sub-divison of Zone may be subject to project needs and model file sizes. (refer to Section 5.2 below) Division of Tower and Podium illustrated in the diagram is for reference only. Further sub-division of model in terms of level may be necessary.
(Basement should be separately modelled since it involve interfaces with adjacent parcel and site)

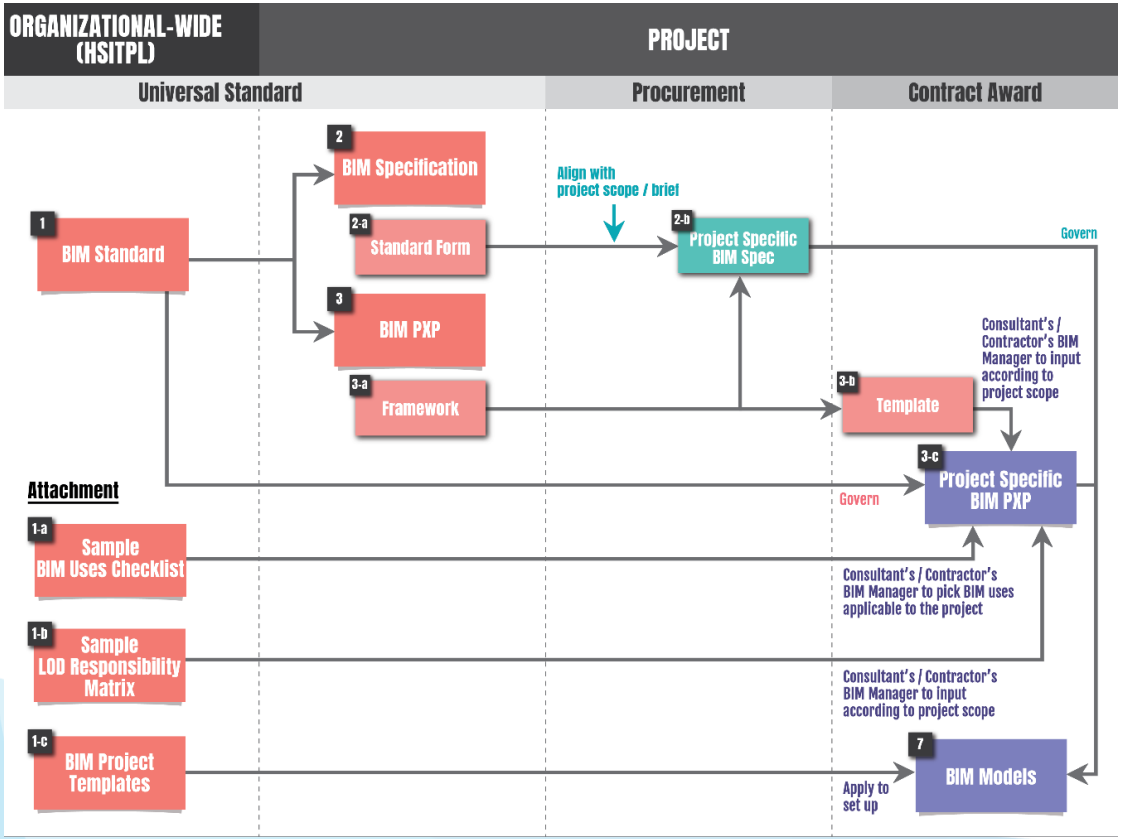
The proposed plot plan for LMCL is illustrated in the following figure. There are 45 number of plots and distribution of plots within the development area in the Plot Boundary Plan. Parcel P25 is non-developable area which is not calculated in number of parcel.
Each tower, podium and basement in the site are based on the parcel in Plot Boundary Plan.



Extracted from HSITP BIM Standard

HSITP BIM Standard Structure

- Flowchart for various HSITP BIM document and templates



Activities / Document Authority

- HSITPL (Project Owner) & BIM Consultant (A.C.I.D.)
- Project Team (Supported by BIM Consultant)
- Appointed Consultant / Contractor

Extracted from HSITP BIM Standard

Align with International Standard: ISO-19650

- HSITP BIM Standard adopt ISO 19650 terms (OIR, EIR, PIR, AIR)

Hong Kong-Shenzhen Innovation and Technology Park Limited

Hong Kong-Shenzhen Innovation and Technology Park (HSITP)
Building Information Modelling (BIM) Standard
for Delivery phase (Design and Construction) of the Asset

Version 1.5
OCT 2020

Extracted from HSITP BIM Standard

Table of Contents

Evidence for “29.BIM standards”

Align with International Standard: ISO-19650

- HSITP BIM Standard adopt ISO 19650 terms (OIR, EIR, PIR, AIR)

Extracted from HSITP BIM Standard

Evidence for “29.BIM standards”

Align with Local Standards and Guidelines

References to International and Local Standards and Guidelines

- Comprehensive studies and references have been made in formulating the HSITP BIM Standard and documents

Hong Kong-Shenzhen Innovation and Technology Park (HSITP)
Building Information Modeling (BIM) Standard for Delivery Phase (Design and Construction) of the Asset

Appendix B – List of References

Although this BIM Standard is intended to be self-contained, the preparation of this BIM Standard has taken reference, and shall align with the following industry-wide common standard, both internationally and locally:

- Hong Kong Construction Industry Council – Building Information Modelling Standards – General
- Hong Kong Construction Industry Council – Building Information Modelling Standards – Mechanical, Electrical and Plumbing
- Hong Kong Construction Industry Council – Production of Building Information Modelling Object Guide – General Requirements
- BS EN ISO 19650-1: Organization and digitization of information about buildings and civil engineering works, including building information modelling – Information management using building information modelling: Concepts and principles
- BS EN ISO 19650-2: Organization and digitization of information about buildings and civil engineering works, including building information modelling – Information management using building information modelling: Concepts and principles
- BS 1192-1:2007 – Collaborative production of architectural, engineering and construction information – Code of practice
- PAS 1192-2:2013 – Building Information Management – Information requirements for the capital delivery phase of construction projects
- BIM Forum – Level of Development Specification
- Autodesk Industry Advisory Board (AIAB) FLIP Guideline
- HKSARG Electrical & Mechanical Services Department (EMSD) - Building Information Modelling for Asset Management (BIM-AM) Standards and Guidelines (version 2)
- HKSARG Buildings Department – Guidelines for using Building Information Modelling in General Building Plans Submission
- Hong Kong Housing Authority – Housing Authority Building Information Modelling Standards and Guidelines (HABIMSG) – version 2.0

Evidence for “29.BIM standards”

Extracted from HSITP BIM Standard

Align with Local Standards and Guidelines

HONG KONG-SHENZHEN INNOVATION AND TECHNOLOGY PARK 港深創新及科技園

Align with local practice & standards

- e.g. BIM Uses based on latest HKSARG Development Bureau's Technical Circular (DEVB TC(W) No. 12/2020) on BIM adoption;
- Easy for participants engaged in the Project to comprehend and implement;
- Continuously review and update to align with latest development

	BIM Use	Inception & Feasibility Stage (IF)	Design Stage			Construction Stage (C)	Post Completion Stage (PC)
			Scheme Design Stage (SD)	Detailed Design Stage (DD)	Tender Stage (T)		
1	Design Authoring	M	M	M	M	M	
2	Design Reviews	M	M	M	M	M	
3	Drawing Generation (Drawing Production)	O	M	M	M	M	M
4	Existing Conditions Modelling	M	M	M	M	M	
5	Sustainability Evaluation		M[(a)]	M[(a)]		M[(a)]	
6	Site Analysis	M	M	M			
7	Space Programming	O	M	M			
8	Cost Estimation (5D Model)	O	O	M	M	M	
9	Spatial Coordination		M	M	M	M	
10	Engineering Analysis	O*	M	M		M	
11	Facility Energy Analysis			O		O	
12	Phase Planning (4D Modelling)			O	O	M	
13	Digital Fabrication			M[(b)]	M[(b)]	M[(c)]	
14	Site Utilization Planning				O	O	
15	3D Control and Planning					M	
16	3D Construction Coordination					M	
17	Construction Quality Management					M	
18	As-built Modelling					M	M
19	Maintenance Scheduling					M	M
20	Project Systems Analysis					O	O
21	Space Management and Tracking					O	O
22	Asset Management				O	M	M

Evidence for "26.BIM Uses" and "29.BIM standards"

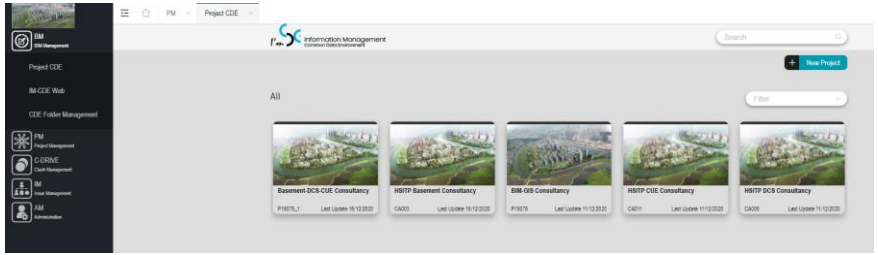
* Additional requirement compared with DEVB TC(W) No. 12/2020

Extracted from HSITP BIM Standard

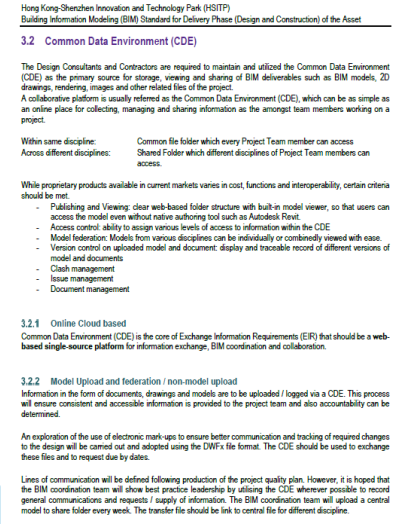
Exchange Information Requirements (EIR)

Exchange Information Requirements (EIR)

- All upcoming projects (Design and Works contracts) under the HSITP development is required to adopt CDE
- IM-CDE (Cloud-based CDE) is adopted for current design consultancies



IM-CDE (CDE) for current design consultancy



Hong Kong-Shenzhen Innovation and Technology Park (HSITP)
Building Information Modeling (BIM) Standard for Delivery Phase (Design and Construction) of the Asset

3.2 Common Data Environment (CDE)

The Design Consultants and Contractors are required to maintain and utilized the Common Data Environment (CDE) as the primary source for storage, viewing and sharing of BIM deliverables such as BIM models, 2D drawings, rendering, images and other related files of the project.
A collaborative platform is usually referred as the Common Data Environment (CDE), which can be as simple as an online place for collecting, managing and sharing information as the amongst team members working on a project.

Within same discipline: Common file folder which every Project Team member can access
Across different disciplines: Shared Folder which different disciplines of Project Team members can access.

While proprietary products available in current markets varies in cost, functions and interoperability, certain criteria should be met.

- Publishing and Viewing: clear web-based folder structure with built-in model viewer, so that users can access the model even without native authoring tool such as Autodesk Revit.
- Access control: ability to assign various levels of access to information within the CDE
- Model federation: Models from various disciplines can be individually or combinedly viewed with ease.
- Version control on uploaded model and document: display and traceable record of different versions of model and documents
- Clash management
- Issue management
- Document management

3.2.1 Online Cloud based

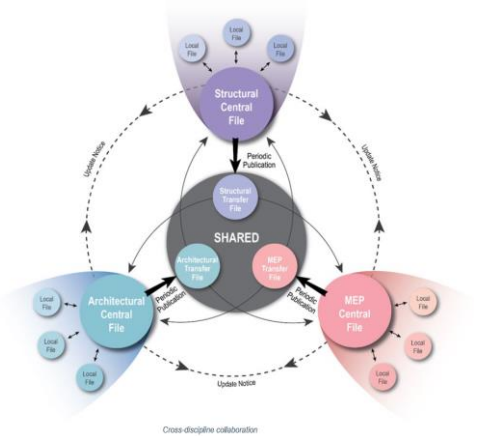
Common Data Environment (CDE) is the core of Exchange Information Requirements (EIR) that should be a **web-based single-source platform** for information exchange, BIM coordination and collaboration.

3.2.2 Model Upload and federation / non-model upload

Information in the form of documents, drawings and models are to be uploaded / logged via a CDE. This process will ensure consistent and accessible information is provided to the project team and also accountability can be determined.

An exploration of the use of electronic mark-ups to ensure better communication and tracking of required changes to the design will be carried out and adopted using the DWFx file format. The CDE should be used to exchange these files and to request due by dates.

Lines of communication will be defined following production of the project quality plan. However, it is hoped that the BIM coordination team will show best practice leadership by utilising the CDE wherever possible to record general communications and requests / supply of information. The BIM coordination team will upload a central model to share folder every week. The transfer file should be link to central file for different discipline.



Extracted from HSITP BIM Standard

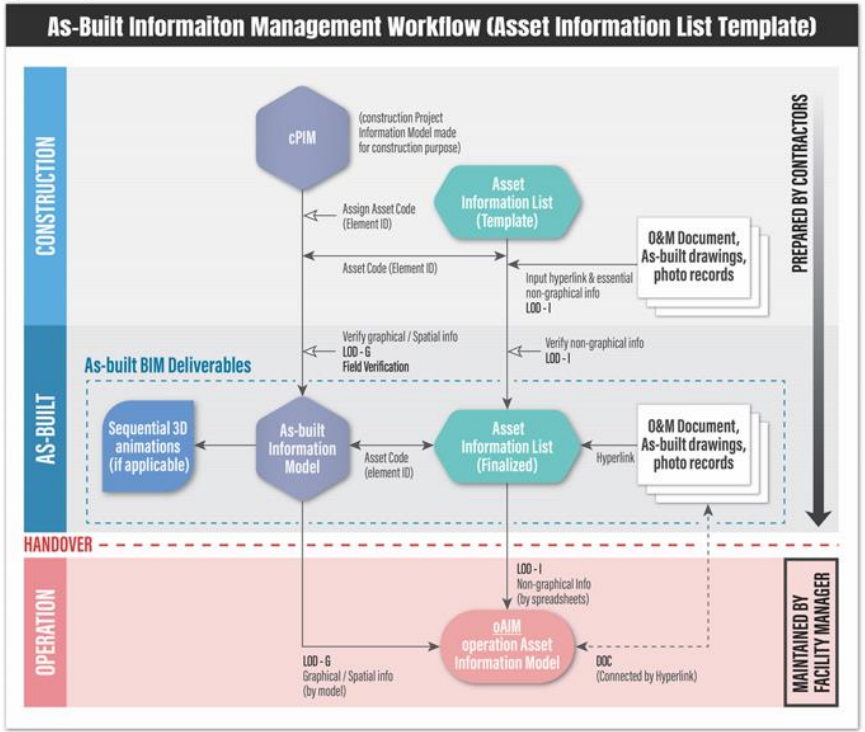
Asset Information Requirements (AIR)

Asset Information Requirements (AIR)

- AIR, including workflow on preparation of As-built BIM deliverables for future Asset Management has been proposed at very early stage (subject to future AM/FM input)

6.2.1 Proposed Workflow

In a holistic perspective, below flowchart summarized the Contractor's workflow on preparation of As-built BIM deliverables for handover so as to effectively facilitate the preparation of the Asset Information Model (AIM) for operation by the FM team.



Workflow on preparation of As-built BIM deliverables upon As-built Stage

Extracted from HSITP BIM Standard

Asset Information Requirements (AIR)

Asset Information Requirements (AIR)

- Asset Coding to identify Location (Where) and Object (What) to be included in the Asset Information Model;
- Asset Coding is developed based on the EMSD BIM-AM Standards and Guidelines for MEP system and equipment

Requirement of Asset Coding					
1	2	3	4	5	6
	Location identifier			Object identifier	
District Code	Building /Zone Code	Building Level	Discipline / BS System Code	Object / Equipment Code	Number
=5 characters	≤5 characters	≤3 characters	≤5 characters	≤5 characters	4 characters
HSITP	BDG01 BDG02 D1 – Road D1 D2 – Road D2 OU1 – Open Space 1 OU2 – Open Space 2 …	L00 – Ground floor L01 – 1st floor L02 – 2nd floor B01 – Basement 1 R – Roof UR – Upper Roof M – Mezzanine XX – (not applicable) …	ARC STR MVAC FS EL PL DR … (Refer to section 6.4.2)	WDW DOR AHU FCU … (Refer to section 6.4.3)	0001 0002 0003 0004 …

Example:

Window on 10/F in Building 01 -
Asset Code: HSITP-BDG01-L10-ARC-WDW-0001

Air Handling Unit on 2/F in Building 15 -
Asset Code: HSITP-BDG15-L02-MVAC-AHU-0001

Landscape Planter at Open Space 1
Asset Code: HSITP-OU1-XX-LAN-PTR-0001

Extracted from HSITP BIM Standard

BIM-GIS Integration

Shareable BIM and Park-wide Parameter for BIM-GIS Integration

- Additional requirement for BIM-GIS integration;
- Defined Park-wide Parameter List and rules for Consultants / Contractors to prepare shareable BIM on IGBIP;
- Parameter list includes Areas (GFA, UFA, Greenery Areas), Calculated Values, Elemental Areas and Quantities of MEP equipment, etc.;

2.6.3 Shareable BIM (for GIS Integration)

Upon conclusion at Design Stage and As-built Stage, or as required by the Employer, the Consultants / Contractors shall provide a simplified Design BIM / As-built BIM (Shareable BIM) with reduced file sizes and information that can be efficiently **shared and integrated into the Park-wide CGISP**.

Key purposes of the Shareable BIM in CGISP include:

- Provide the Park-wide overview of the Design and As-built BIM
- Enable Park-wide visualisation in CGISP and other GIS visualisation tools
- Enable the Employer or the Consultant to carry out baseline desktop studies on certain aspect of site and engineering analysis in the CGISP or other GIS and analytical platform

To achieve the above purposes, detail Information Requirements for Shareable BIM may vary and subject to scope of Works and the integration process with CGISP, but in principle the following criteria shall be met:

- For As-built Model, contain the Asset Code as stipulated under Section 6.4 so as to allow filtering and sorting of the elements required.
- Contain the relevant Parameters specified under Section 2.6.4 (LOD-I)
- For elements at site and exterior spaces, LOD-G shall be 200 for final Design BIM and 300 for As-built BIM in general
- For elements at the building façade, LOD-G shall be 300 in general.
- For interior structural and architectural elements, LOD-G shall be 200 in general.
- Satisfy the requirements to facilitate carrying out of baseline desktop studies on certain aspects of Site and Engineering Analysis in CGISP (Section 4.5 shall be referred)

Extracted from HSITP BIM Standard

BIM-GIS Integration

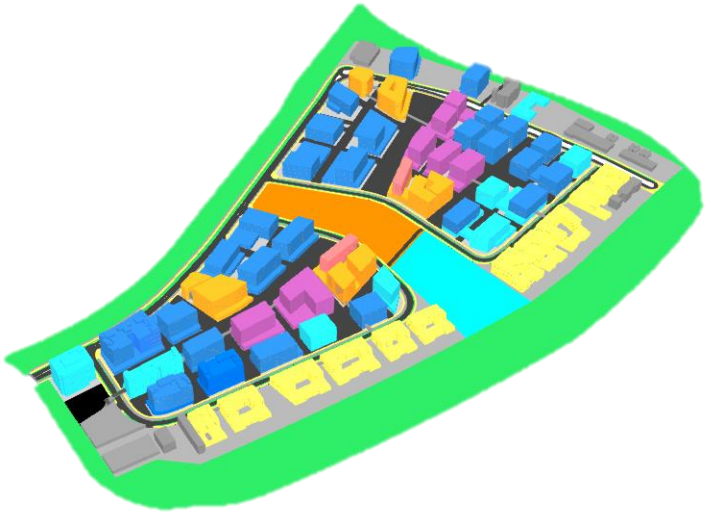
BIM Parameter List (for GIS Integration)

Required Parameter			Revit Family & Parameter			
Nature	**Items**	**Sub-items**	**Family Category**	**Methodology**	**Parameter Name / Area Scheme Name**	**Type of Parameters**
Area	Site Area	-	a) Property Line b) Area (from area plan)	a) Default Parameter b) specific Area Scheme	a) (Default) Area b) (Area Scheme) SITE AREA	a) Area (elemental) b) Area
	GFA	Total (per building)	Area (from area plan)	specific Area Scheme	(Area Scheme) GFA	Area
		R&D (Wet Lab) (per parcel)	Area (from area plan)	Default Parameter for filter, Obtain area by default parameter	(Default) Name (Default) Area	
		R&D (Office/Dry Lab) (per parcel)	Area (from area plan)	Default Parameter for filter, Obtain area by default parameter	(Default) Name (Default) Area	
		Higher Education (per parcel)	Area (from area plan)	Default Parameter for filter, Obtain area by default parameter	(Default) Name (Default) Area	
		Visitor Lodges (per parcel)	Area (from area plan)	Default Parameter for filter, Obtain area by default parameter	(Default) Name (Default) Area	
		Commercial & Ancillary (per parcel)	Area (from area plan)	Default Parameter for filter, Obtain area by default parameter	(Default) Name (Default) Area	
		Culture & Creative Industry (per parcel)	Area (from area plan)	Default Parameter for filter, Obtain area by default parameter	(Default) Name (Default) Area	
		Talent Accommodation (per parcel)	Area (from area plan)	Default Parameter for filter, Obtain area by default parameter	(Default) Name (Default) Area	
	UFA	Total (per parcel)	Room	Add parameter for filter, obtain area by default parameter	UFA CLASSIFICATION (Default) Area	Text Area (Elemental)
	UFS	Total (per parcel)	Room	Add parameter for filter, obtain area by default parameter	UFS CLASSIFICATION (Default) Area	Text Area (Elemental)
	CFA	-	Area (from area plan)	specific Area Scheme	(Area Scheme) CFA	Area
	Greenery area	Total (per parcel)	Area (from area plan)	specific Area Scheme	(Area Scheme) Greenery	Area
		Primary zone	Area (from area plan)	Default Parameter for filter, Obtain area by default parameter	(Default) Name (Default) Area	Text Area
		Other (vertical green)	Area (from area plan)	Default Parameter for filter, Obtain area by calculated value	(Default) Name ACCOUNTABLE GREEN AREA	Text Area
		Other (water features, paving, etc.)	Area (from area plan)	Default Parameter for filter, Obtain area by calculated value	(Default) Name ACCOUNTABLE GREEN AREA	Text Area

Park-wide BIM Parameter List extracted from HSITP BIM Standard

Integrated Geographical and Building Information Platform (IGBIP)

- Consolidate all BIM Models and Information by:
  - Step 1: Initial massing model of the whole development was created based on Master Planning Study Information;
  - Step 2: Once schematic and/or detailed design or construction BIM model created by Consultants / Contractors, the latest BIM model shall be uploaded to the IGBIP to replace the old design models
  - Step 3: Parameters and schedules can be retrieved directly from the BIM models uploaded to IGBIP
  - Step 4: IGBIP will consolidate all uploaded models and parameters to provide visualization on park-wide information



Integrated Geographical and Building Information Platform (IGBIP)

Government Provisions

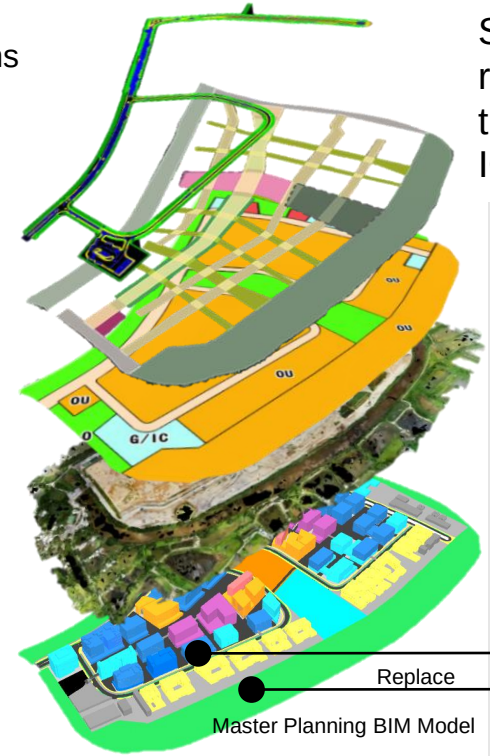
Site Constraints

Land Requirements

Site Conditions

Park-wide BIM Model

Keep Track Development Targets

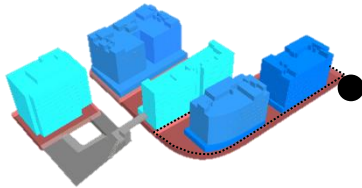


Starting from Master Planning BIM Models, models will be replaced by “more detailed” BIM models one by one throughout each design consultancies/ work contracts on IGBIP, similar to “Lego Bricks”

Schematic Design Stage

Detail Design Stage

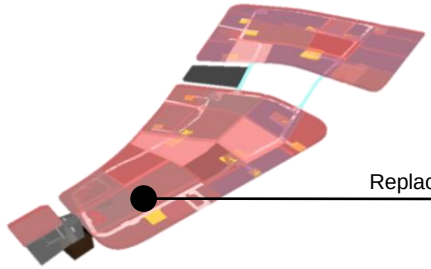
Replace



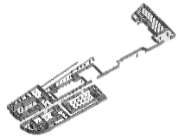
Technical Feasibility Study BIM Model

* Example BIM model is for testing and illustration only

Replace



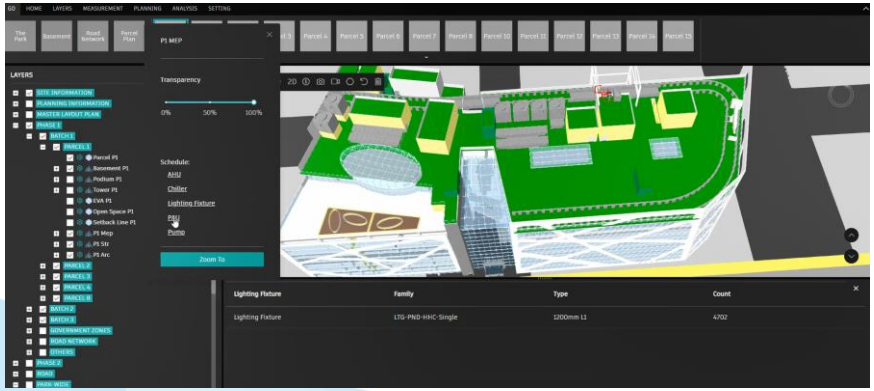
Replace



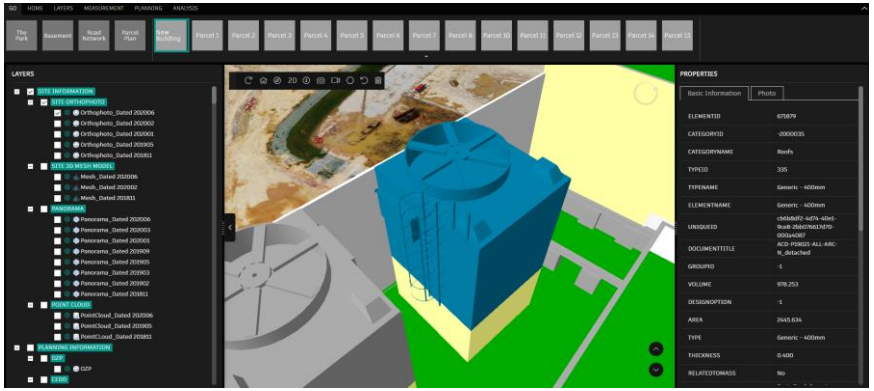
IGBIP Selected Key Features

Consolidate and manage all BIM Models from multiple projects

Consolidate MEP, Structural, Architectural and other BIM Model



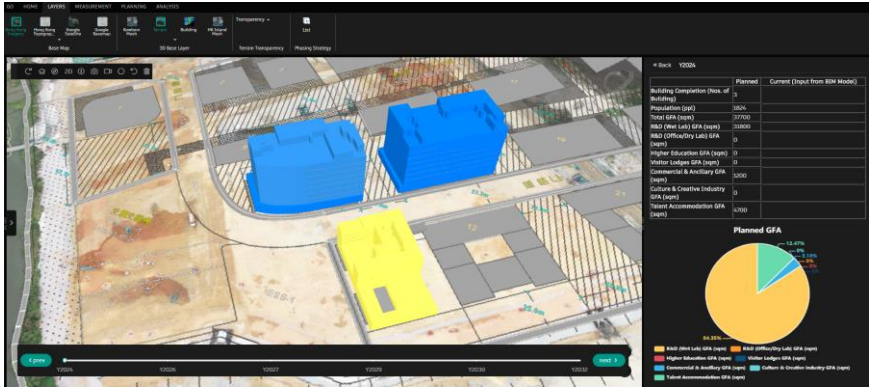
Extract schedule information from BIM Model – e.g. Lighting Fixture



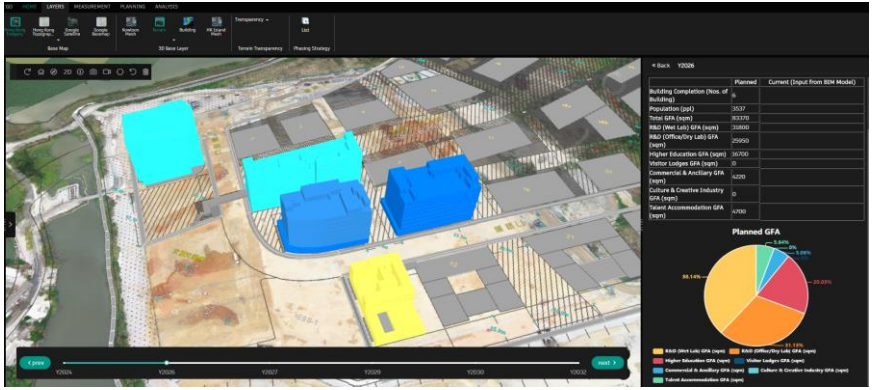
Extract detail information from BIM Model – size, brand, design parameters, etc

* Example BIM model is for testing and illustration only

IGBIP Selected Key Features



Monitor Overall Development Parameters From Multiple Projects (Year 2024)

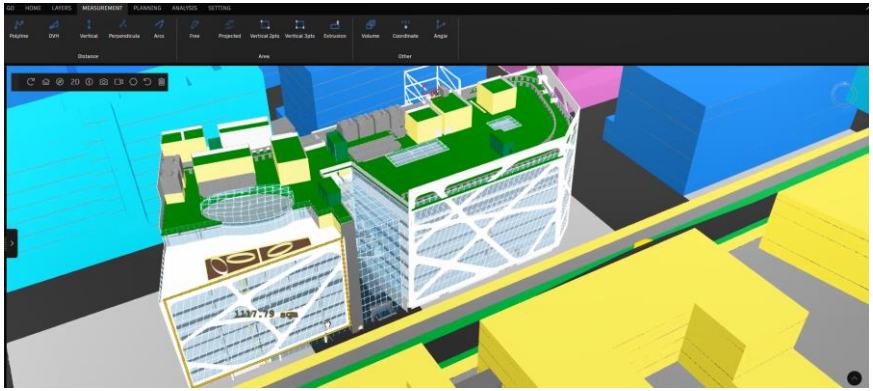


Target Development Parameters - Year 2026

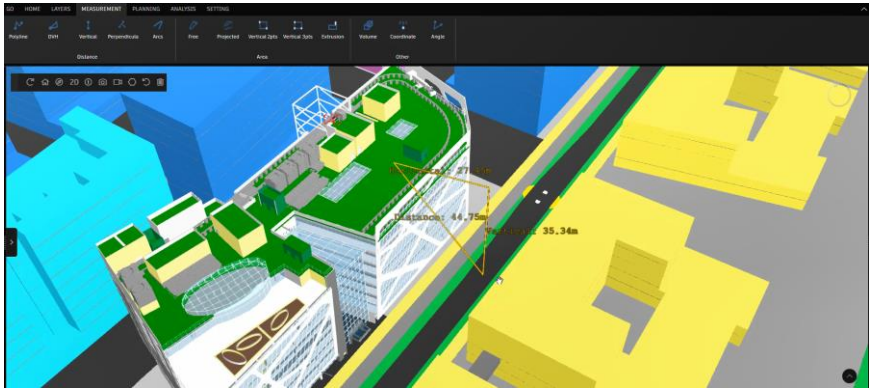
Modify Development Phasing – Impact to Key Development Parameters

Monitor Overall Development Parameters From Multiple Projects

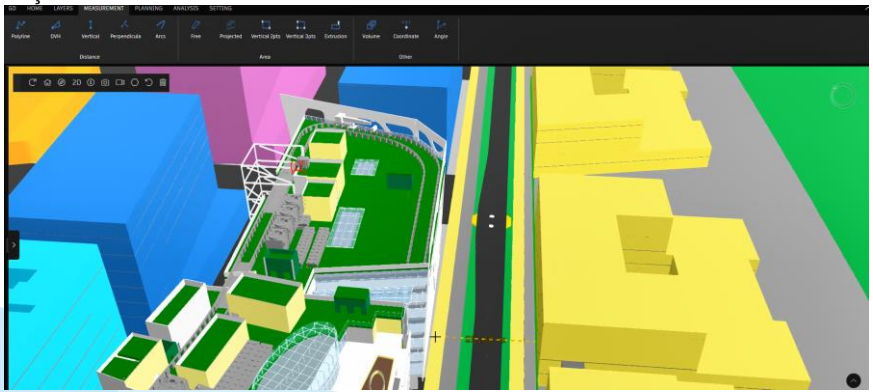
IGBIP Selected Key Features



Façade Area Measurement



Distance, Height, Angle Measurement

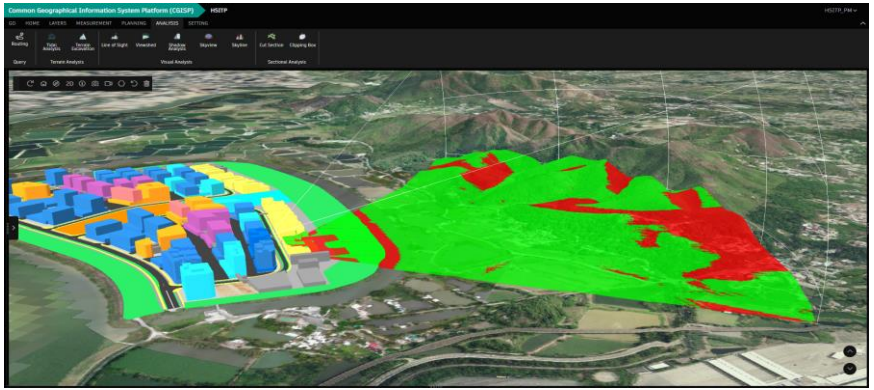


Building Separation Measurement

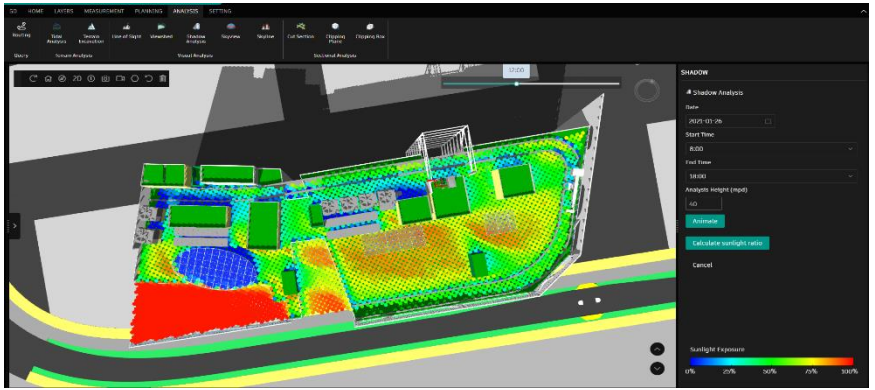
Cut Section for Internal Measurement, such as floor-to-floor

* Example BIM model is for testing and illustration only

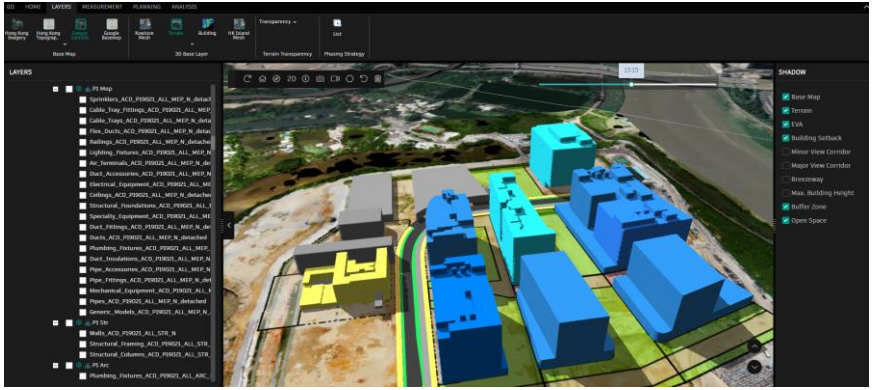
IGBIP Selected Key Features



Visibility Analysis



Rooftop Solar Ratio Analysis



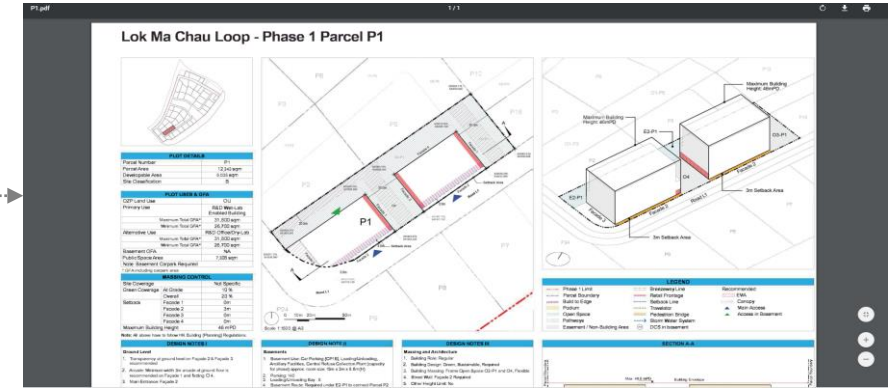
Compare Sun-shading for Different Building Design Option

* Example BIM model is for testing and illustration only

Carry Out Environment Analysis using BIM Model

IGBIP Selected Key Features

Contains Design Constraint and Requirements



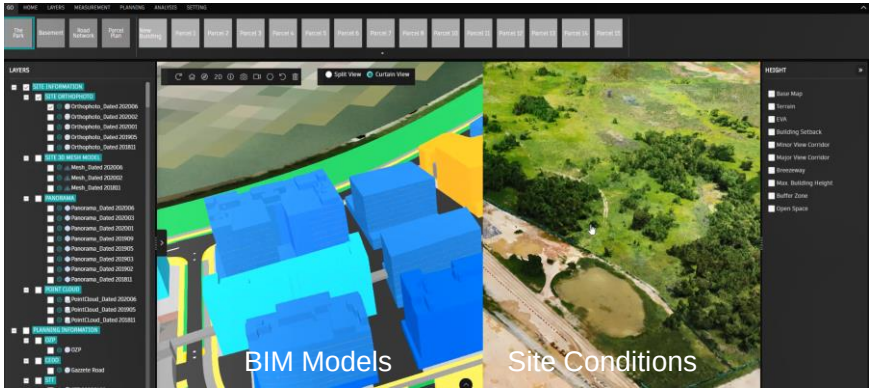
Contains Design Constraint and Requirements Documents

Visualize Design Constraint - EVA

Visualize Design Constraint – Breezeways

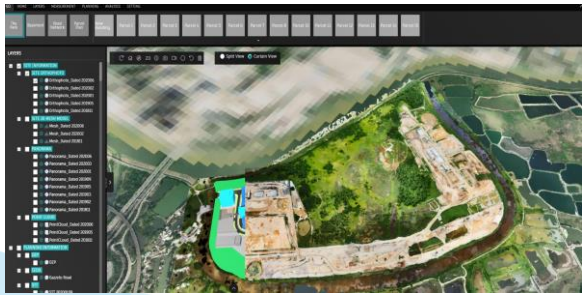
Validate Design Validate Design Information

IGBIP Selected Key Features



Compare BIM Models with Real Site Condition

By split view

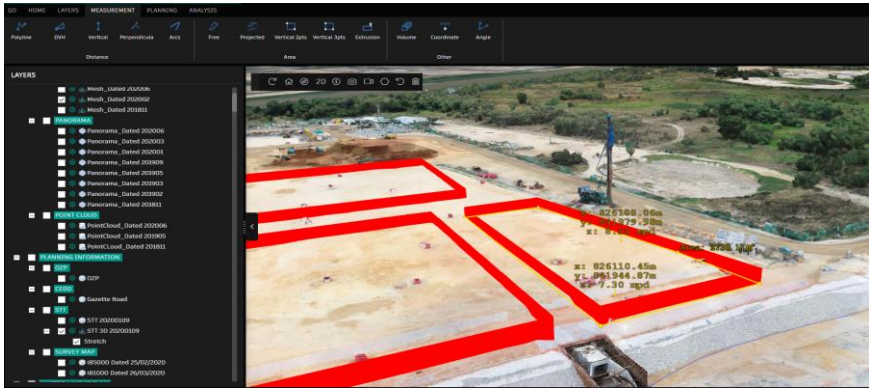


By curtain view

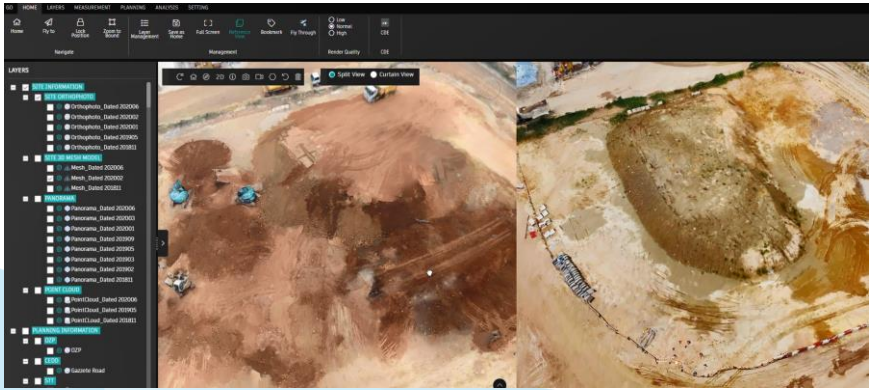
Validate Design Validate Design Information against actual site works

IGBIP Selected Key Features

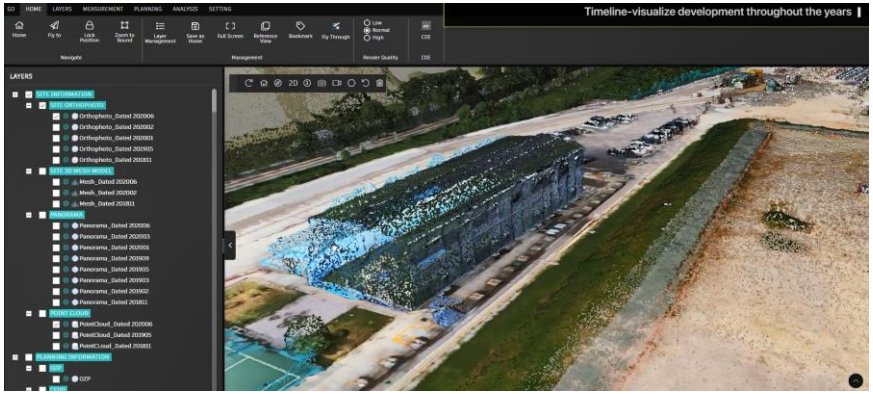
Remote Site Monitoring – Regular UAV Site Survey



Measurement and Site Analysis using 3D Site Data

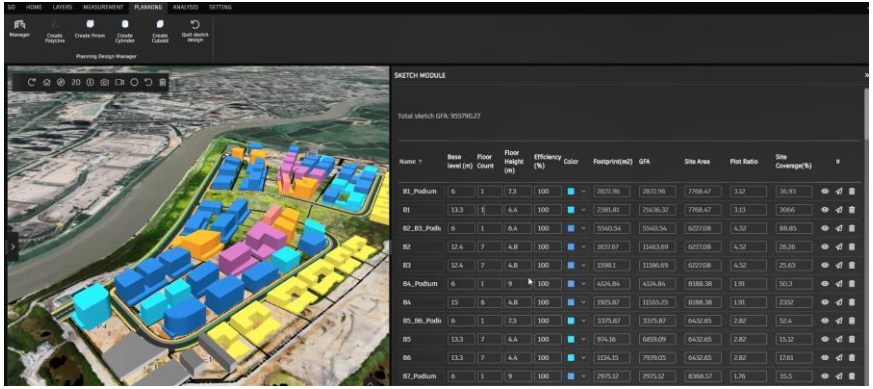


Monitor and Compare Site Progress

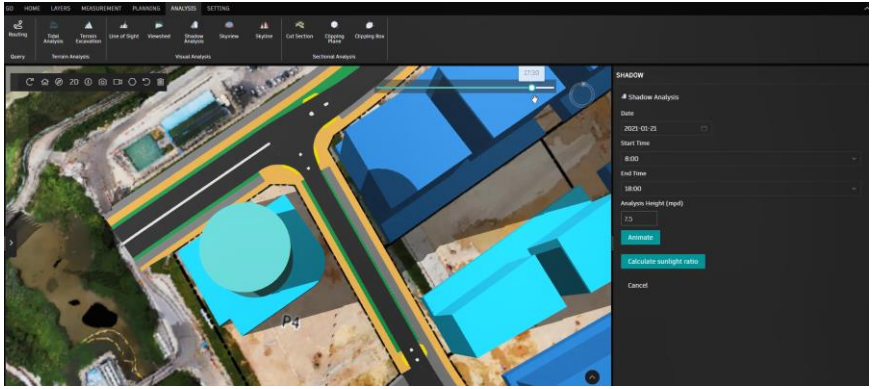


Point Cloud or 3D Mesh Site

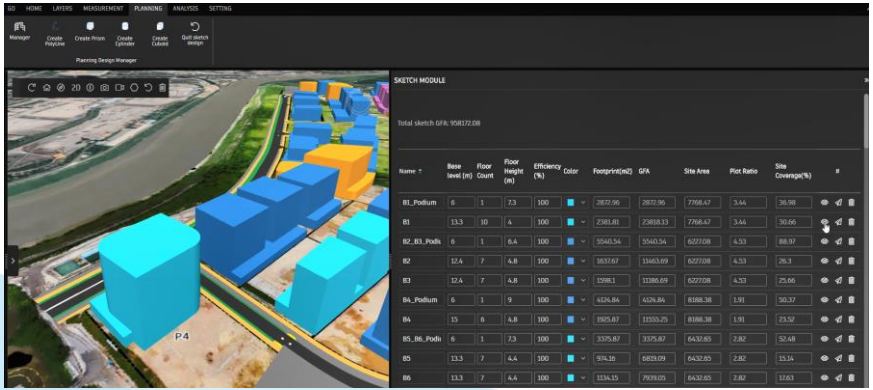
IGBIP Selected Key Features



Carry Out Quick Master Planning



Quick Environmental Analysis for New Design



Sensitively Testing on New Design with Building Form, Footprint, GFA, Floor-to-Floor, Nos. of Floor, etc.

Design Constraints Alert, such as Exceed Max. Building Height

IGBIP Selected Key Features

Satellite Map

LandsD Survey Map

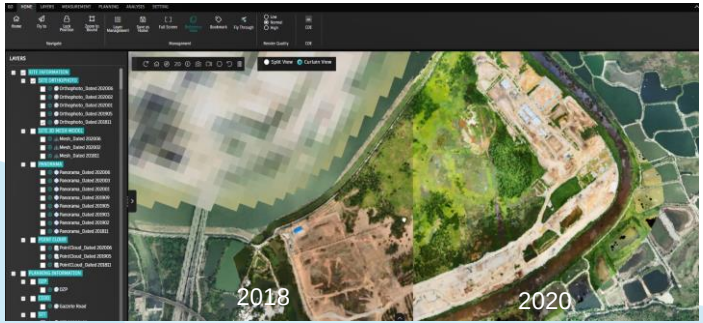
CEDD Gazette Road

PlanD OZP

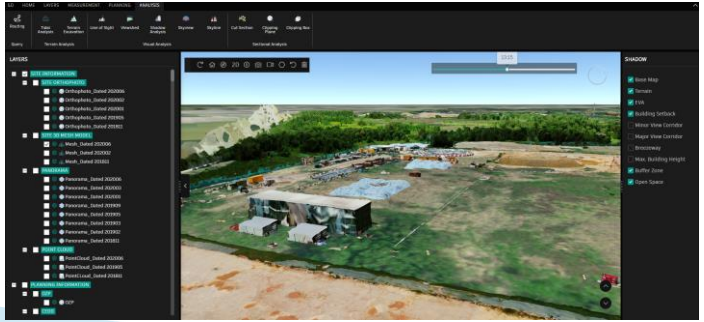
UAV Site Survey

HSITP Parcel Plan

Master Layout Plan



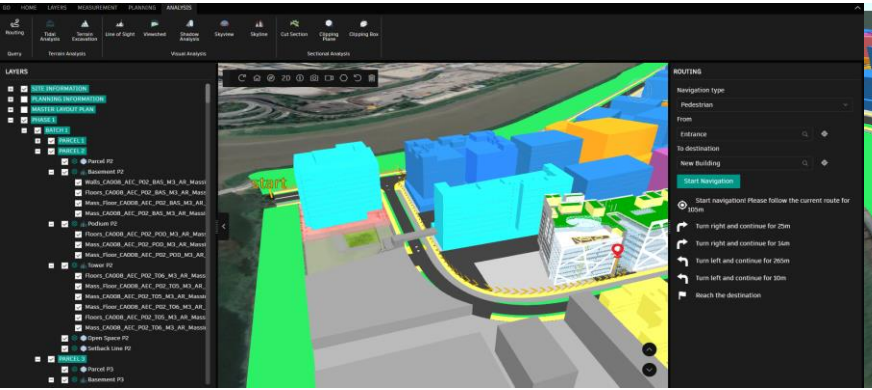
Compare UAV Site Survey Data

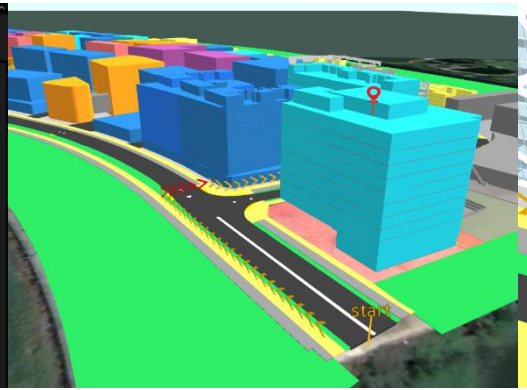


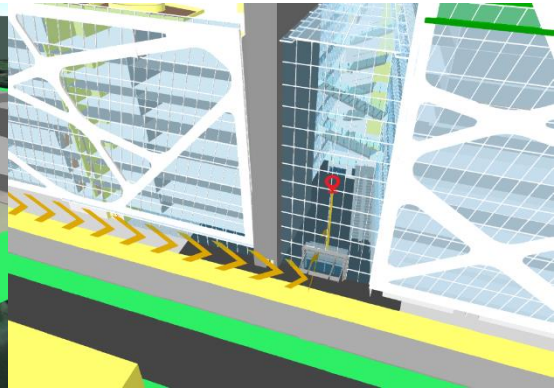
UAV 3D Site Survey Data

One-Stop-Shop Data Studio

IGBIP Selected Key Features



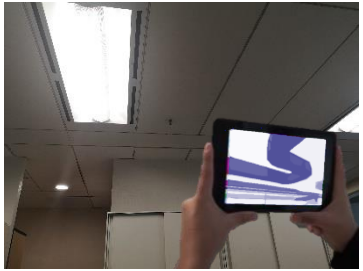




Outdoor navigation for vehicle, pedestrian, bicycle and etc.

* Example BIM model is for testing and illustration only

Possible to connect with CCTV for Construction Site Security and Safety Monitoring**



Possible to connect with AR enabled devices to display built-in building service systems, underground utility, etc**

Possible to adopt 3D Laser Scanning for construction and BIM validation

Possible to connect to IoT devices, APIs, smart meters, environment and energy dashboards

** Example pictures are for illustration only

Applications for Future Smart Park Management

Thank you

Hong Kong-Shenzhen Innovation and Technology Park Limited
港深創新及科技園有限公司