Implementation of District Cooling System at Kai Tak Development

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- Benefits of DCS
- Background and Implementation
- Major Facilities
- Construction/Current Status of the Project
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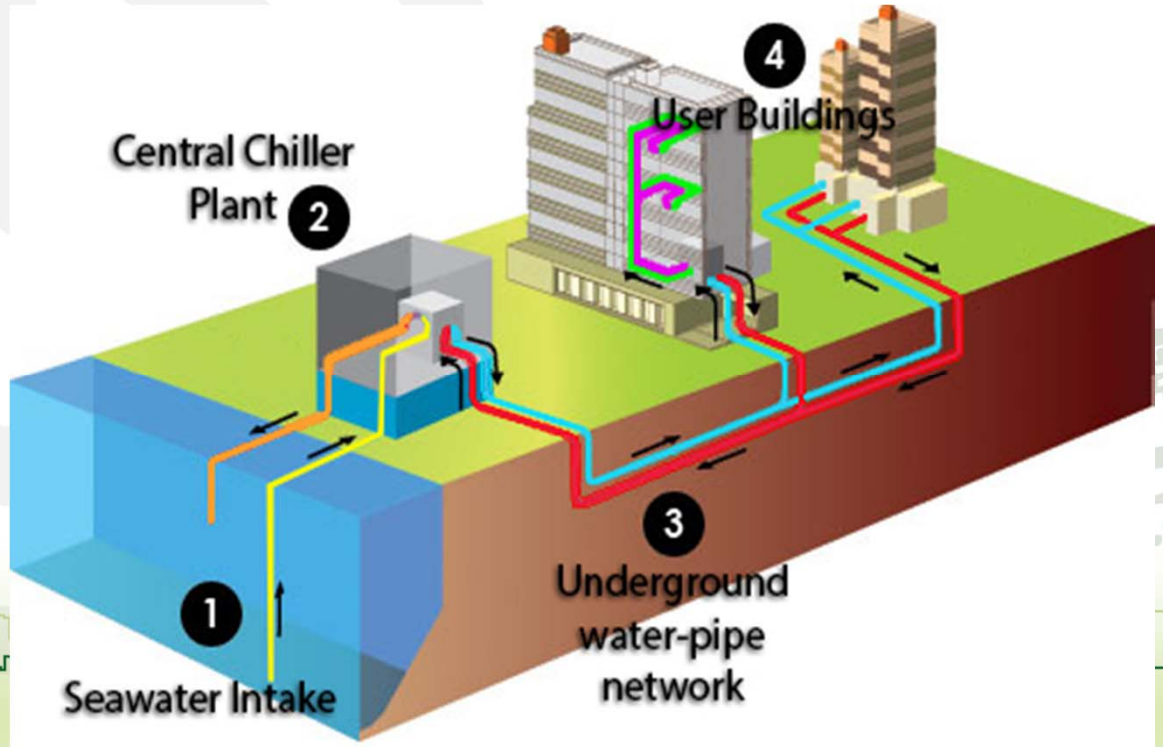
What is District Cooling System

- Supply chilled water to more than one building through distribution networks



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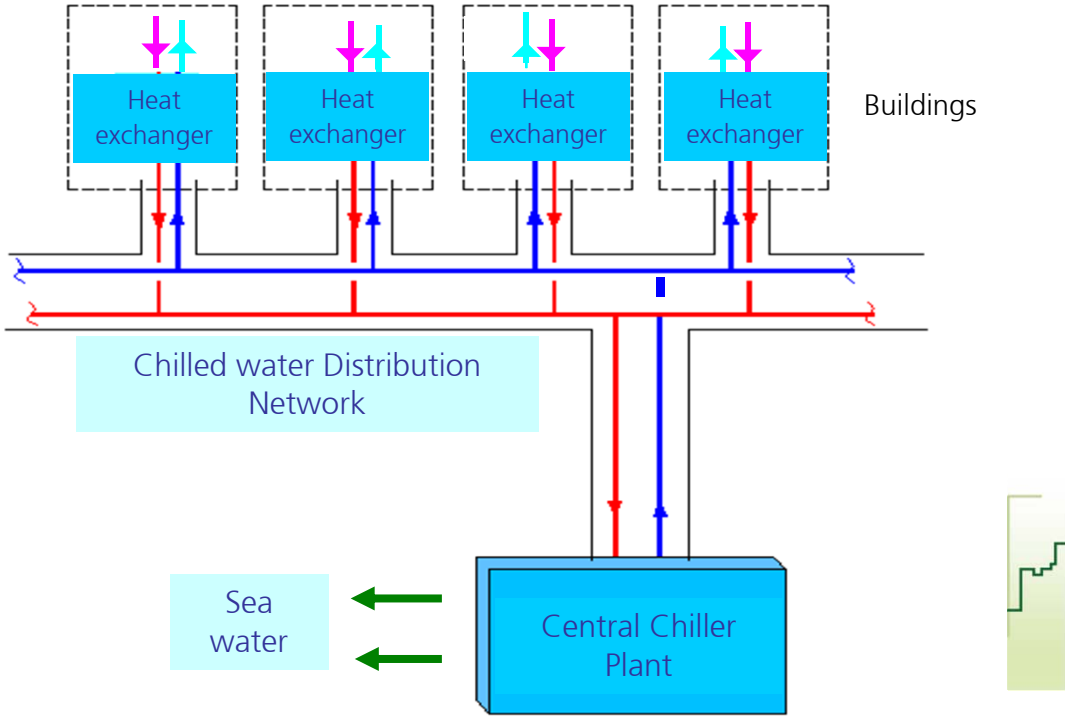
What is District Cooling System

- Major components include:
  - Central chiller plants
  - Underground distribution networks
  - Heat exchangers



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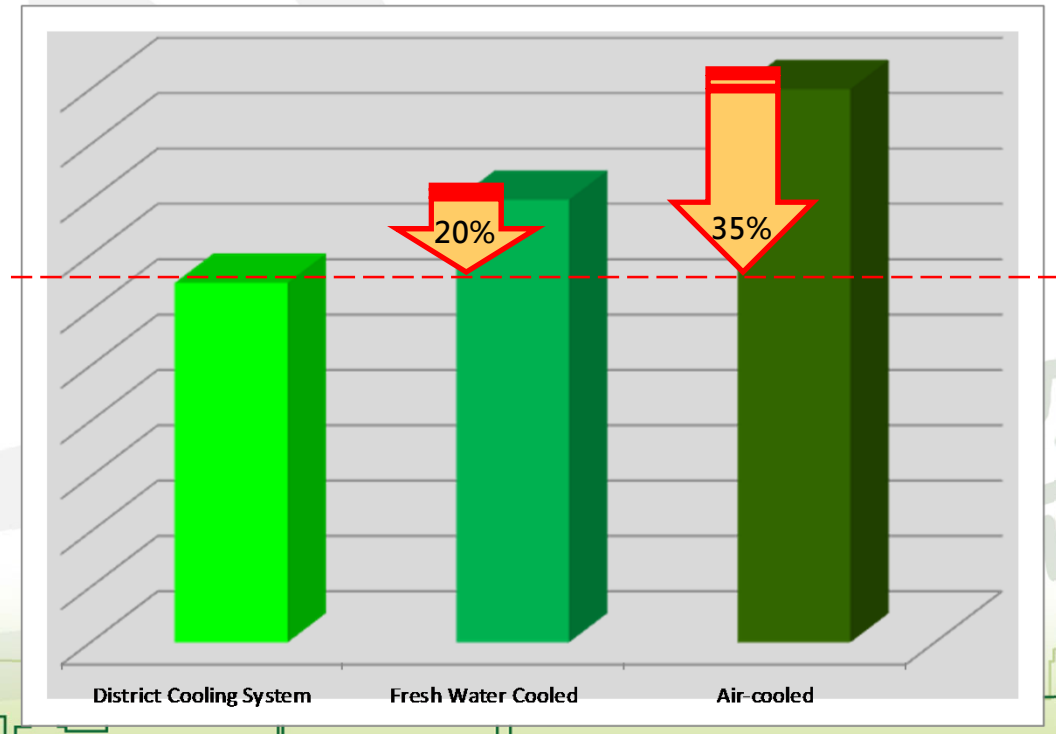
Benefits of DCS

- Save energy compared with traditional A/C systems in individual buildings



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Benefits of DCS

- Annual energy saving of up to 85 million kWh or equivalent to the reduction of 59,500 tonnes CO_2 emission upon full development

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Benefits of DCS

- More adoptable than individual system to varying demand for air-conditioning
- Noise, vibration and heat arising from individual plant could be reduced

Benefits of DCS

- Enhance building/architectural design/function, better planned maintenance, reduce heat island effect, etc.

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Background and Implementation

- Total design cooling capacity: 284 MW
  - North Plant cooling capacity: 162 MW
  - South Plant cooling capacity: 122 MW
- Total pipe-run length: around 40 km
- Expected number of users: around 60

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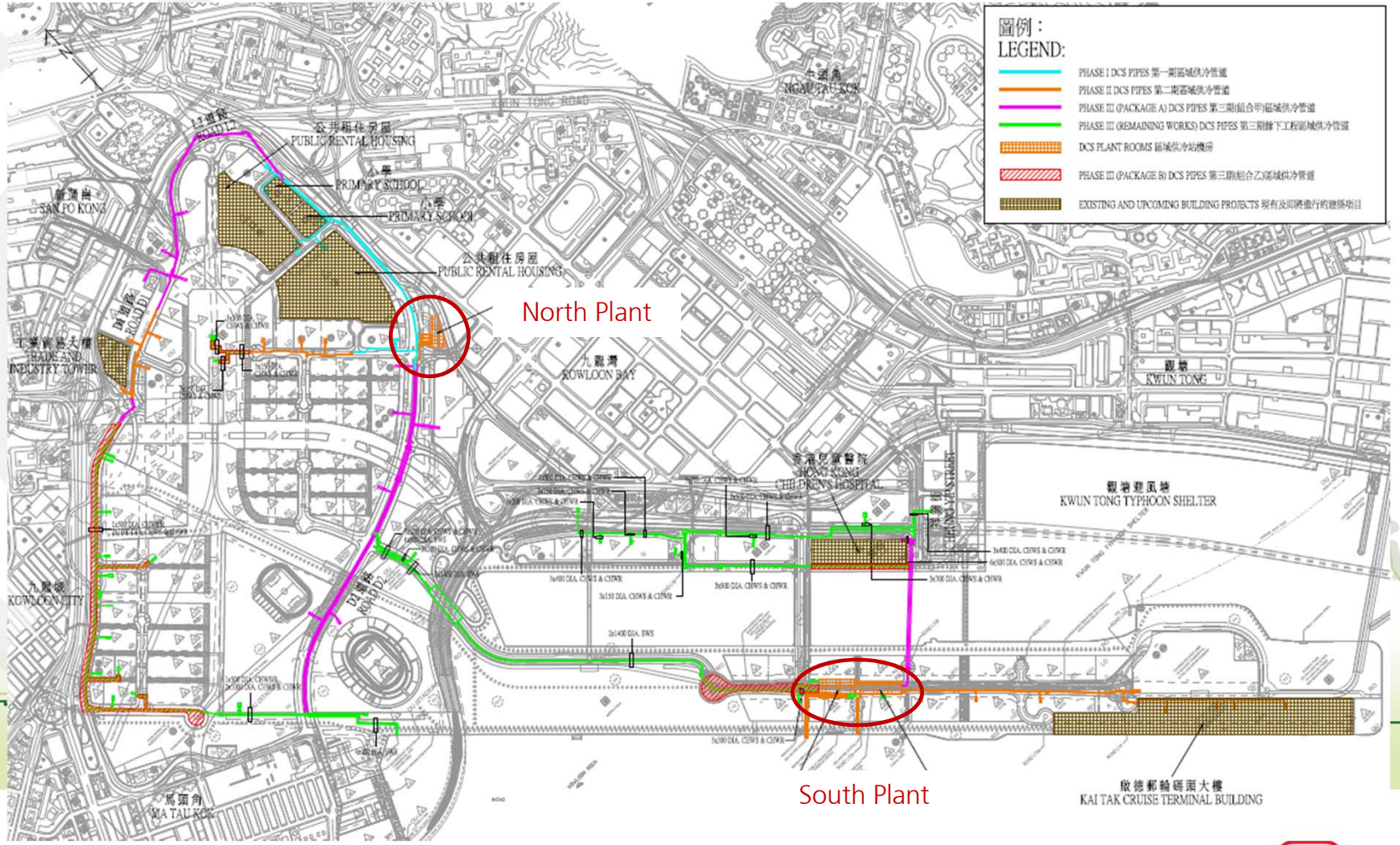
Background and Implementation



Background and Implementation

- Phase I – pipes laying works, commenced in Feb 2011, substantially completed in Jan 2013
- Phase II – DBO contract, commenced in Mar 2011, target completion by end 2014
- Phase III (A) – commenced in July 2013, target completion by 2017

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Background and Implementation

- Phase III (remaining) – to suit the actual schedule of KTD (up to around 2021)
- Operation commenced since Feb 2013 (2/2013 for Kai Tak Cruise Terminal and 5/2013 for shopping centre of public housing)
- Coming users: Hong Kong Children Hospital, Trade and Industry Tower, MTR Kai Tak Station and To Kwa Wan Station and Kowloon East Regional Headquarters and Operational Base cum Ngau Tau Kok Divisional Police Station

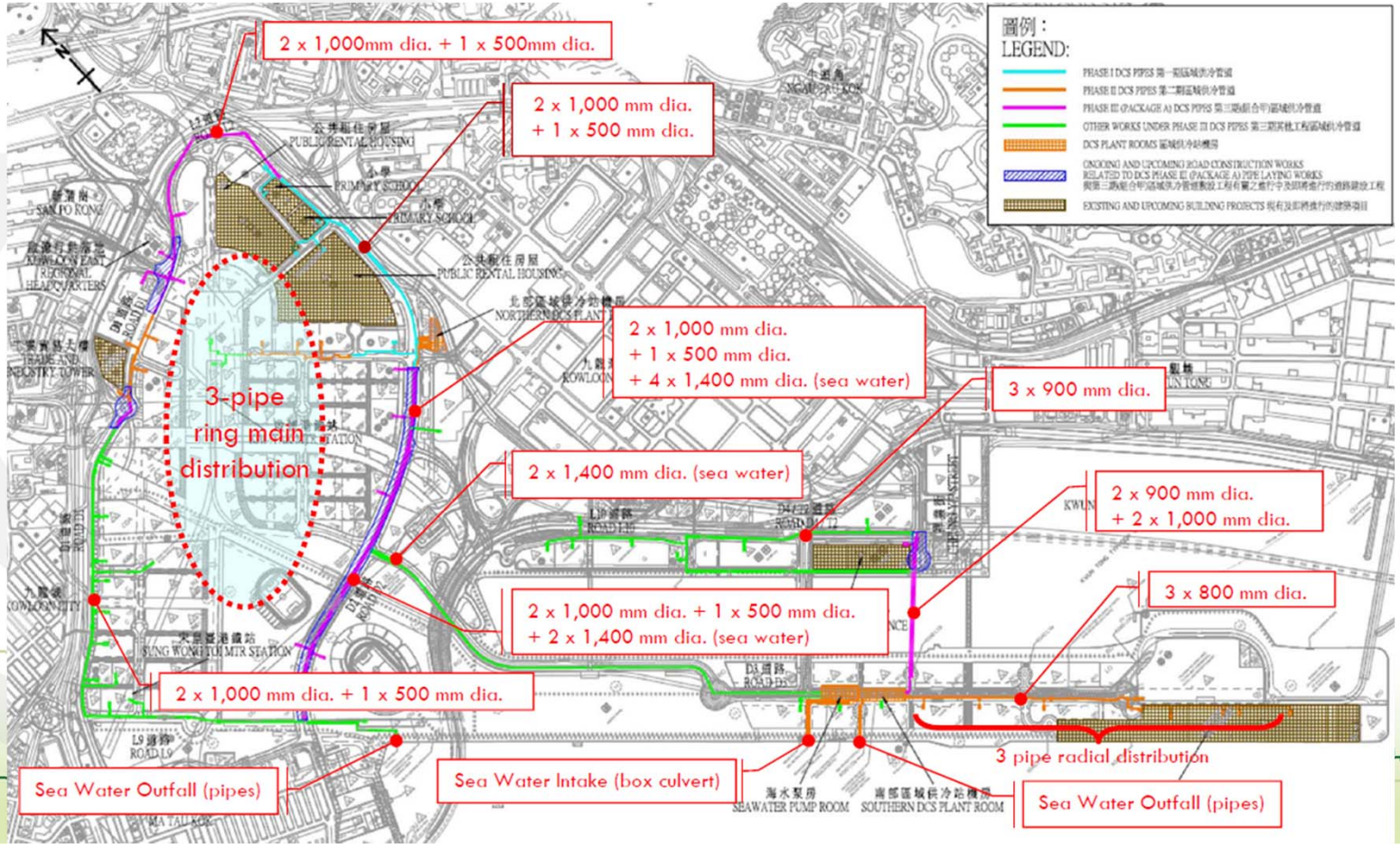
Background and Implementation

NORTH PLANT			
Phasing	Cooling Capacity (kW)	Chillers Configuration	
		Cooling Capacity (kW)	Quantity
Phase I & II	11,600	4,390	2
		1,410	2
Phase III (Package A)	17,584	8,792	2
Phase III (Remaining)	140,680	17,585	8

Background and Implementation

SOUTH PLANT			
Phasing	Cooling Capacity (kW)	Chillers Configuration	
		Cooling Capacity (kW)	Quantity
Phase I & II	17,390	4,390	3
		2,110	2
Phase III (Package A)	35,170	17,585	2
Phase III (Remaining)	70,339	8,792	2
		17,585	3

Background and Implementation



Major Facilities – North Plant

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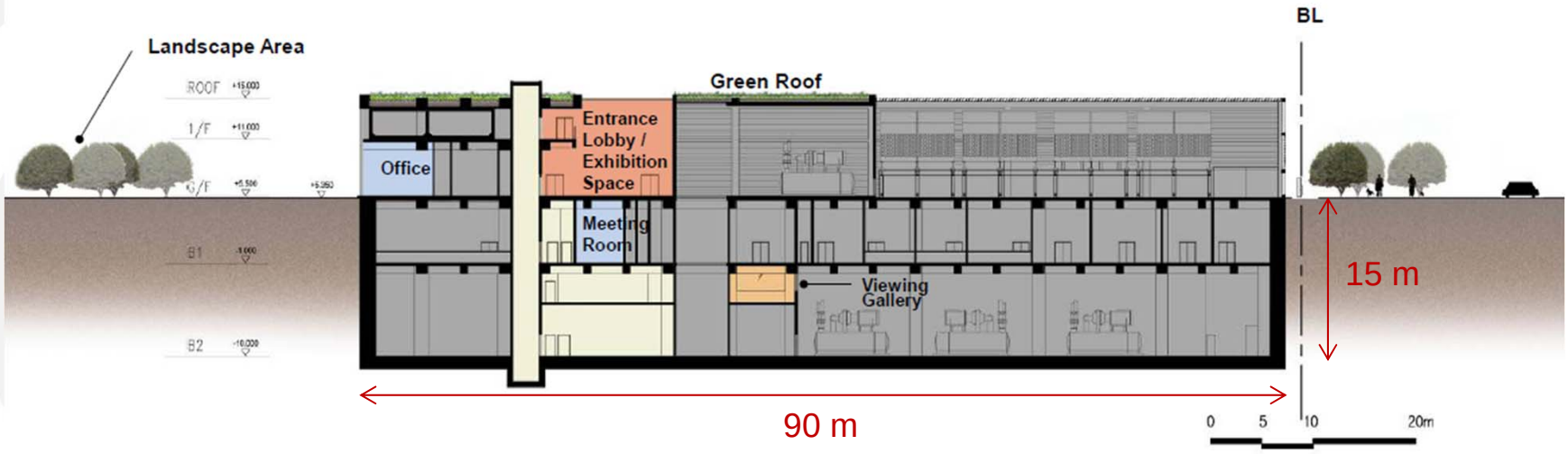
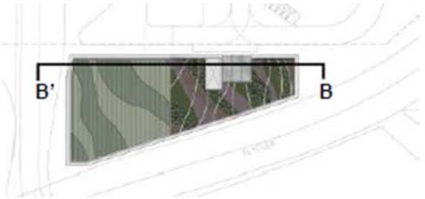


Plant Room Area

Internal Circulation



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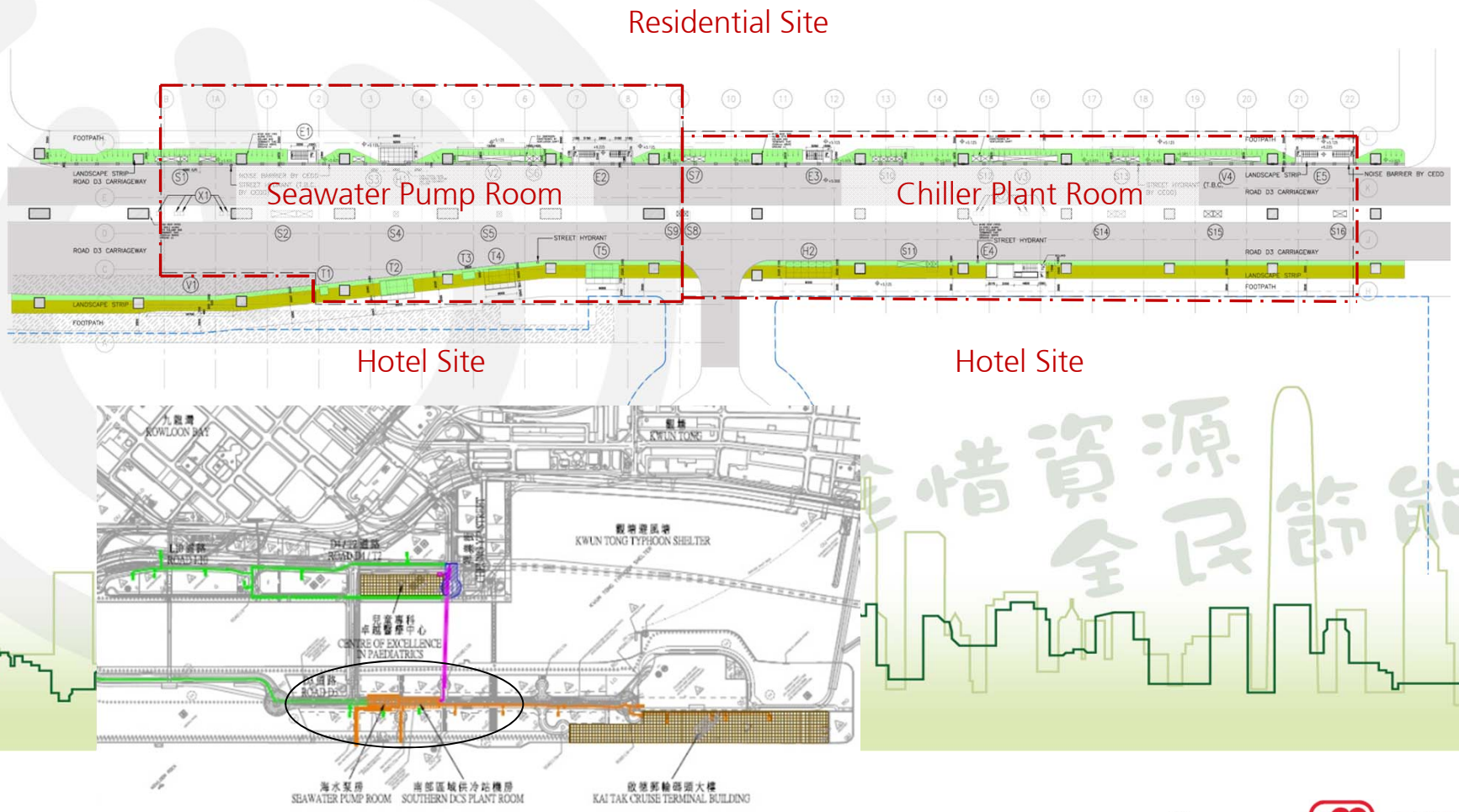
Major Facilities – South Plant



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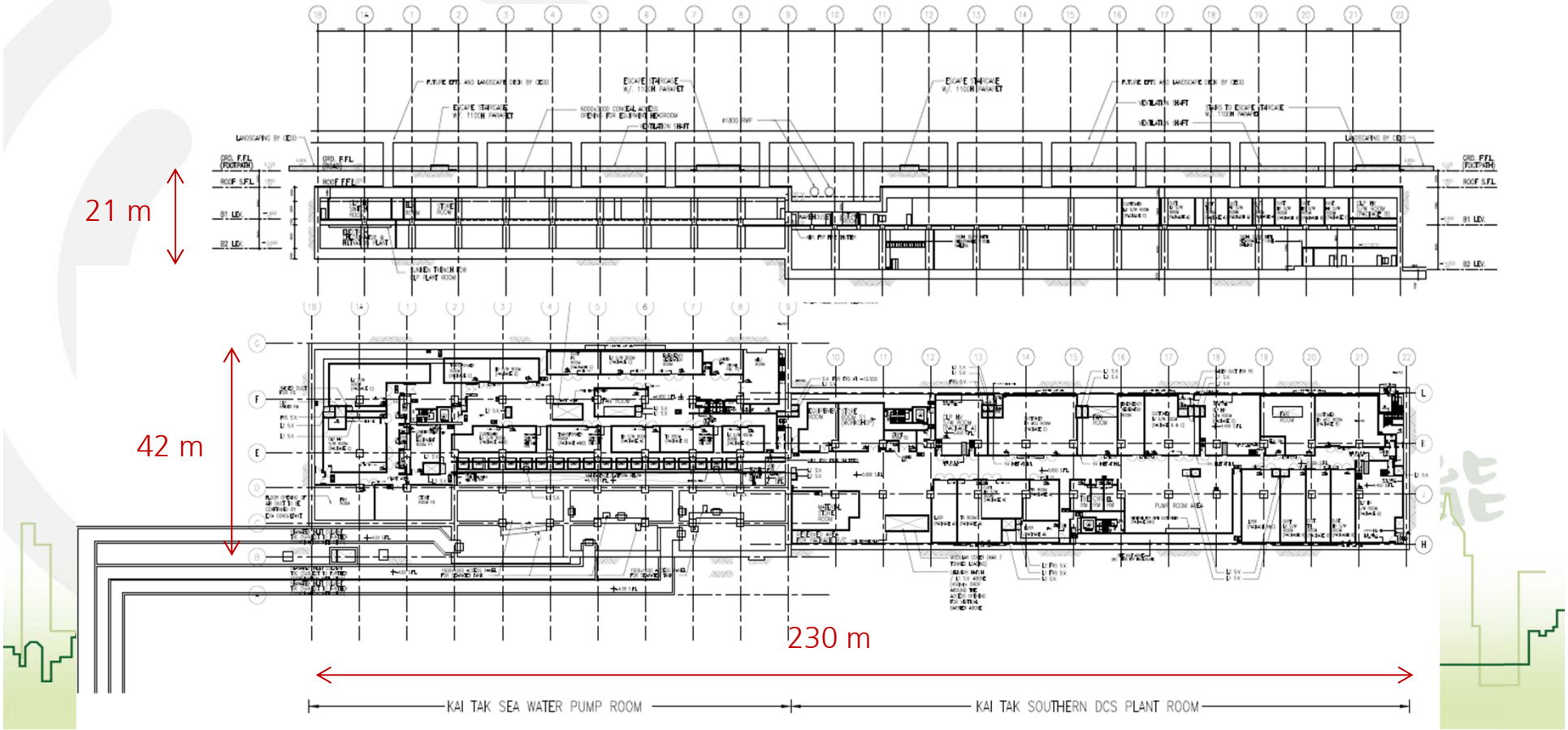
Major Facilities – South Plant



Major Facilities – Customer Substation

- Normally, one sub-station per building to house two heat exchangers

Construction – North Plant

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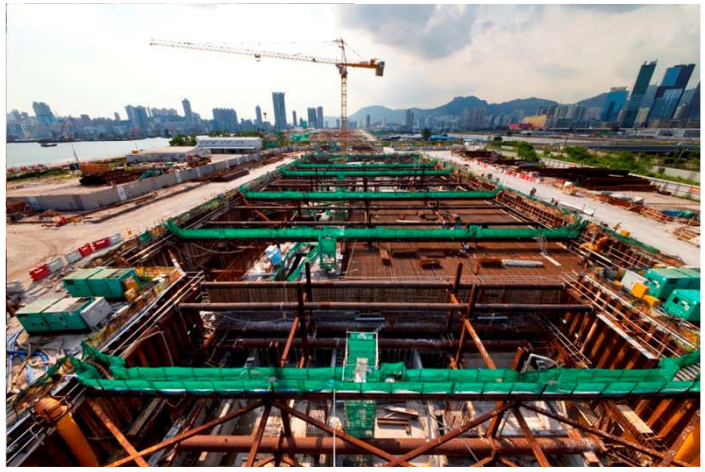
Construction – South Plant



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Construction – Pipeworks

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Current Status – North Plant

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Current Status – South Plant

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Current Status – South Plant

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Q & A

Thank You!

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