



# **RAIL GARDEN, RAIL GREEN I & II @ CCK**

Weaving Nature & Heritage with High-Density Public Housing



Rail Garden, Rail Green I & II @ CCK (CCK Project) is a unique high-density public housing project that blends in the natural & cultural heritage of the site, providing quality living environment for the residents, promoting greater biodiversity, and enriching the heritage of the Rail Corridor.

The Rail Corridor belonged to Malaysia, connecting Singapore at the southern terminus across Singapore to Malaysia and further afield. Since its return to Singapore in July 2011, Urban Redevelopment Authority (URA) has launched plans to transform the Rail Corridor into a green community space, celebrate its history, and keep it connected & accessible.

As the Rail Corridor cuts through CCK Project site, there are numerous opportunities for the project to bring vast communities closer together while reconnecting with the heritage. On the west of the site, existing mature trees within the Linear Green are preserved providing a natural rustic backdrop and allow residents to appreciate & enjoy the biodiversity.

Through engagement with relevant stakeholders, agencies, nature & heritage groups, high-density public housing is carefully planned on this long & narrow site while retaining & enhancing the natural & cultural heritage it has to offer.



Site Location

Category:	<b>Analysis &amp; Planning (Unbuilt Category)</b>
Project type:	<b>Residential (Public Housing)</b>
Location:	<b>Choa Chu Kang (CCK), Singapore</b>
Site area:	<b>12.49 ha</b>
Dwelling units:	<b>2,360 units</b>





## Project Description

CCK Project comprises of 3 parcels – (1) Rail Garden; (2) Rail Green I; and (3) Rail Green II, including:

- 18 residential blocks between 5 to 31 storeys
- 3 multi-storey car park (MSCP) blocks (with roof gardens and integrated with commercial facilities & childcare centres on the 1<sup>st</sup> storey) strategically placed to abate the noise from the adjacent Woodlands Road
- Large expanse of precinct green spaces with various park amenities

2 main spatial structures of the site – **Linear Green & Rail Corridor** – tie the precinct green spaces, and provide seamless connectivity for both pedestrians & biodiversity.



# Project Narrative and Contents



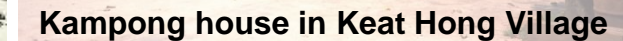
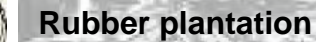
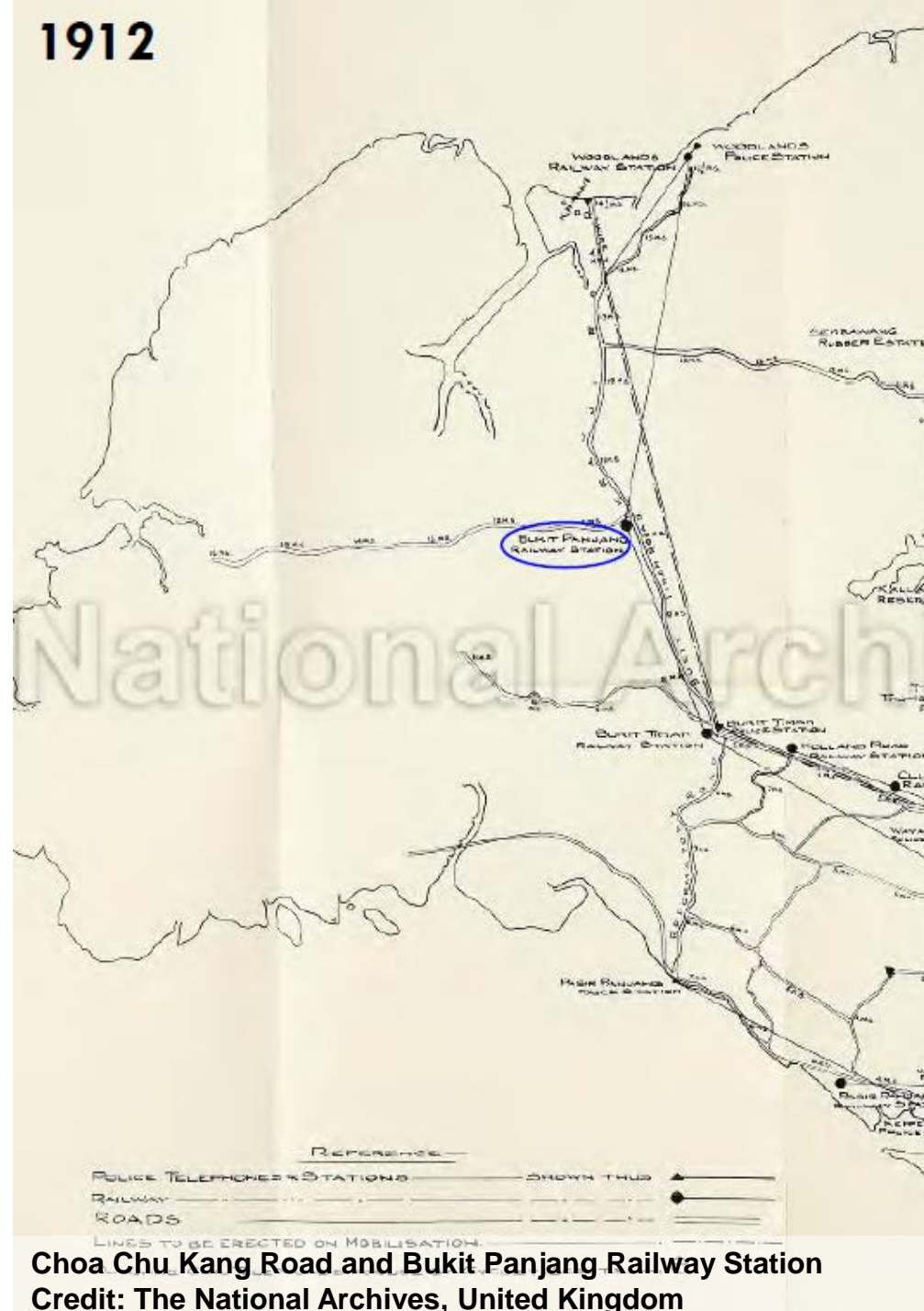
The Singapore-Johor Railway opened in the early 1900s and was operated by Keretapi Tanah Melayu (KTM), linking the southern terminus at Tanjong Pagar Railway Station to Malaysia and beyond, passing through Choa Chu Kang and CCK Project site.

First public housing was built in Teck Whye around the CCK Project site in 1977, and with military facilities allowing the retention of undulating terrain and the town being historically associated with plantations & past farming activities, Choa Chu Kang was themed as 'Country Town'.

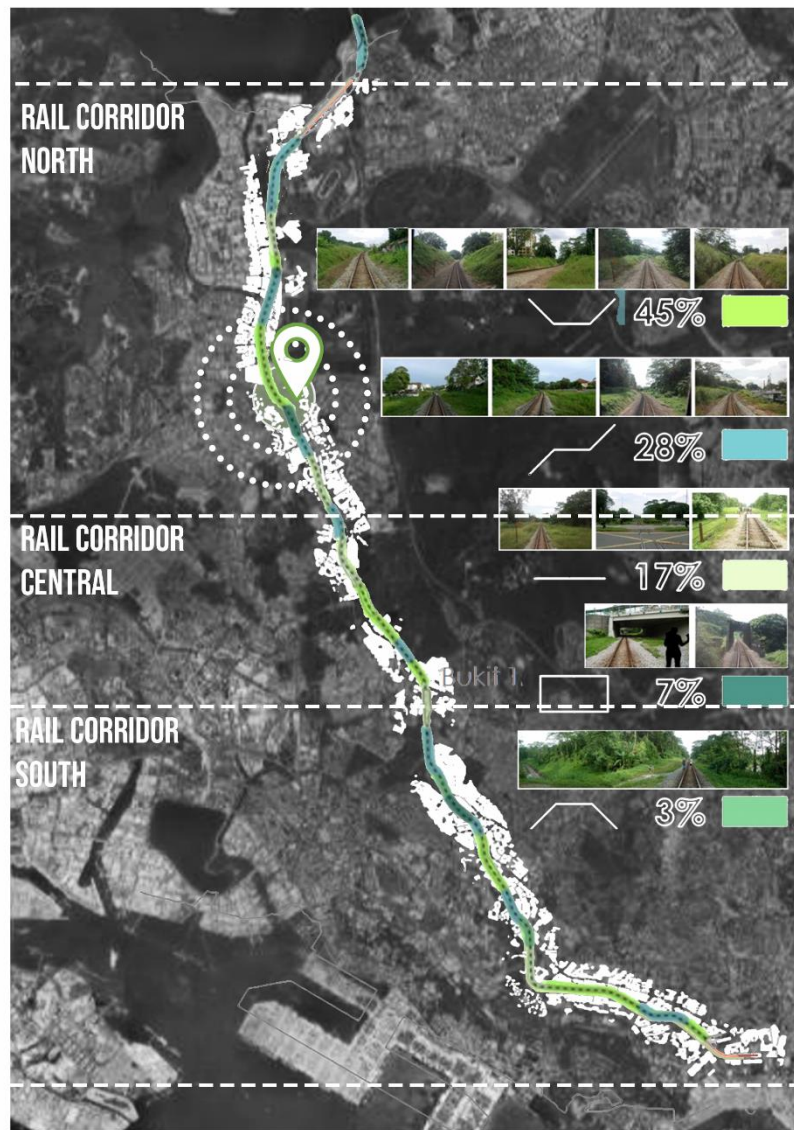
In June 2011, Tanjong Pagar Railway Station ceased operation with the relocation of the KTM station to Woodlands Train Checkpoint. The KTM land was returned to Singapore in July and is now known as the Rail Corridor. Through extensive engagement with interest groups & surrounding communities, URA launched plans to transform the Rail Corridor into a green community space, celebrate its history, and keep it connected & accessible.

The rich heritage of the site has inspired the design of CCK Project, and elements of the railway and plantations are visible throughout the project.

## Historical Context







Communities along the Rail Corridor, and the typology of the land profile



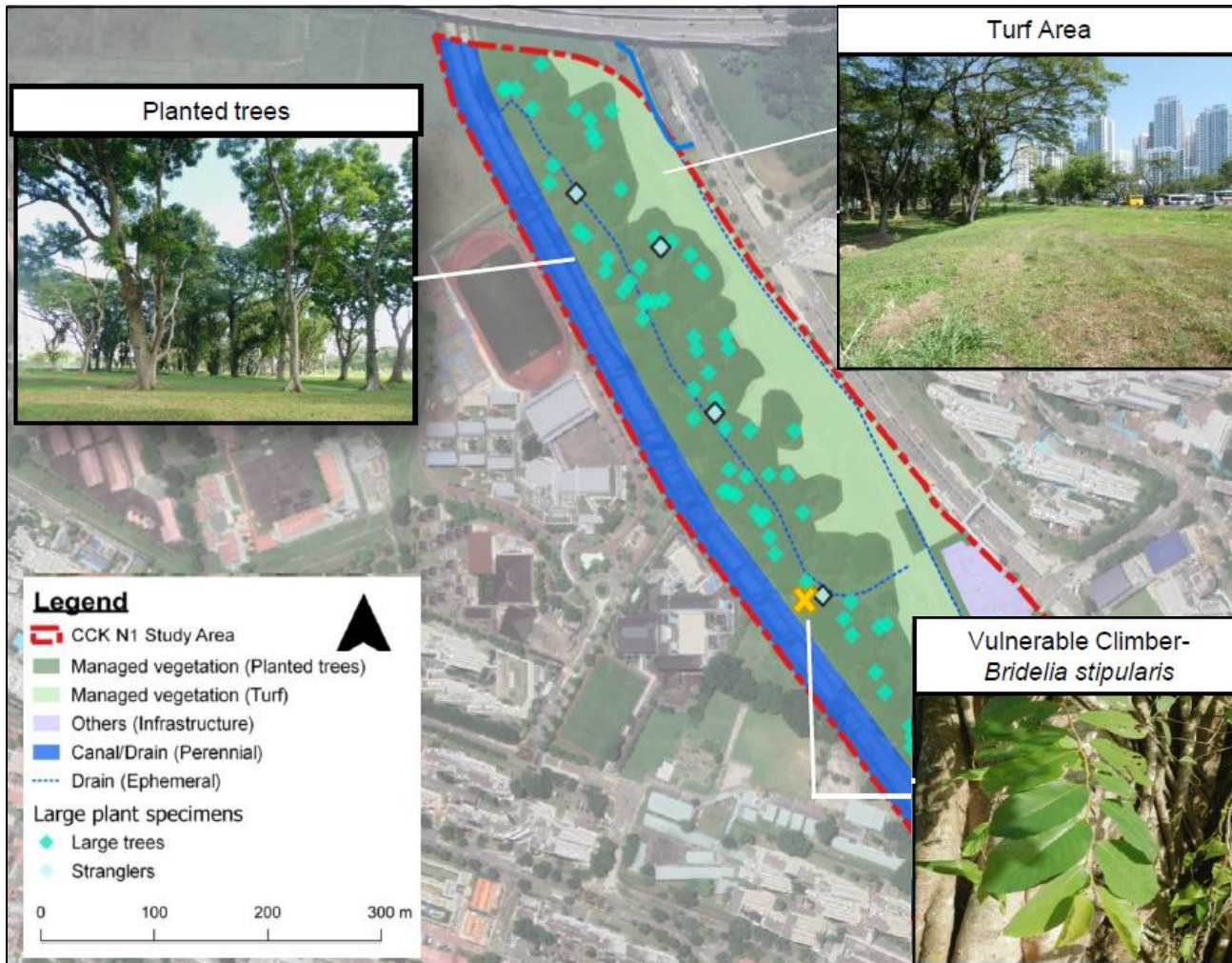
Potential ecological connectivity to surrounding ecological patches



Connectivity to nearby park spaces

## Macro Analysis

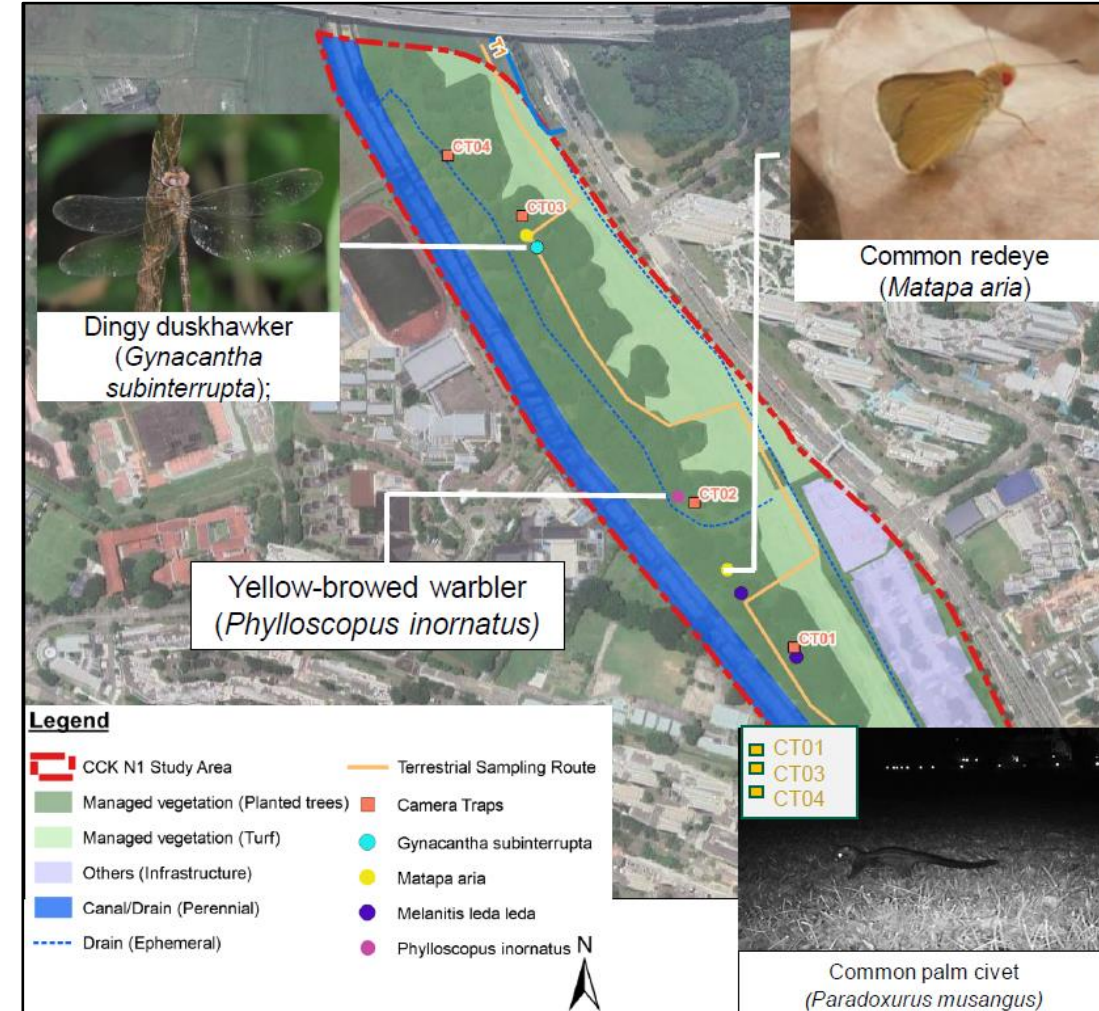




## Key Flora Findings

119 flora species:

- 1 species of conservation significance – *Bridelia stipularis*
- 90 large tree specimens, mostly *Samanea saman* & *Khaya senegalensis*



## Key Fauna Findings

78 fauna species, including 29 bird species & 18 butterfly species

## Understanding the Linear Green





**Land Use Plan (ref. URA Master Plan 2019)**

In URA Master Plan 2019, the entire CCK Project site was zoned for residential development.



**Mapping of all trees existing on site**

As there are mature trees of up to 30 metres found on site, all the trees are identified to understand their conservation significance and which clusters can be retained.



**Spatial & Connectivity Consideration**

Key connections to surrounding communities are mapped out.

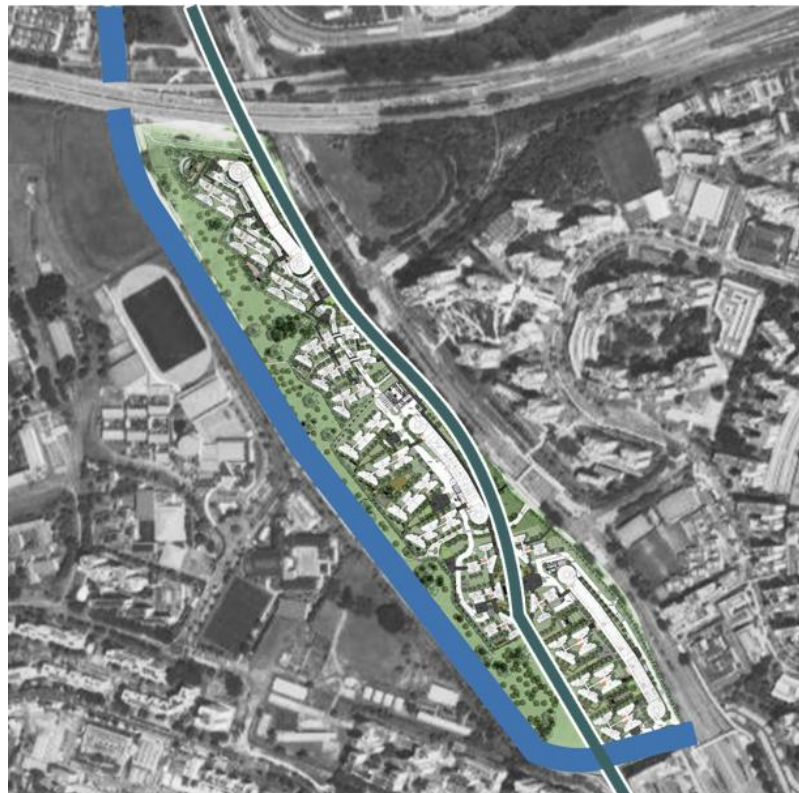
## Retaining the Linear Green





### Early layout of Linear Green

Master planning is done and building massing is tested after key tree clusters are determined.



### Final layout of Linear Green

Linear Green boundary is refined after final building layout. Precinct green spaces are crafted to link the Linear Green to the Rail Corridor.



### Land Use Plan (ref. URA Master Plan 2019 (Updated Gazetted))

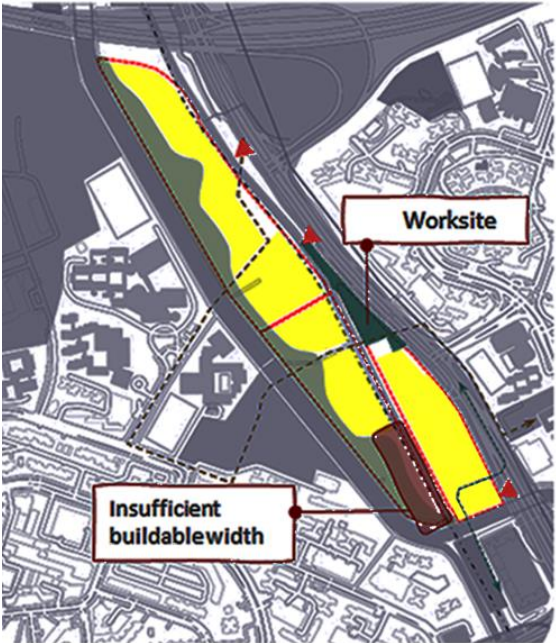
URA Master Plan 2019 is updated and published, and has safeguarded:

**approx.3.16 ha of park space & greenery, of approx. 14.12 ha of total site area**

## Retaining the Linear Green

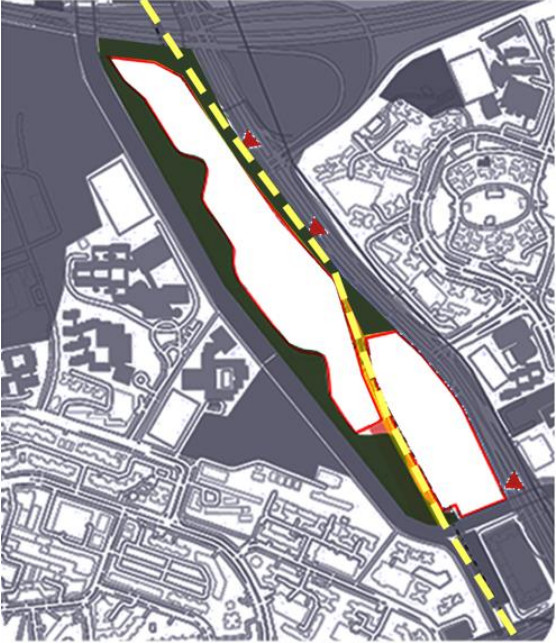


At the precinct scale, detailed analyses are done to inform of the placement of blocks and outdoor landscape programmes.



**Land Parcellation**

As the site is long & narrow, it is divided into 3 sizeable parcels with sufficient buildable area in each.



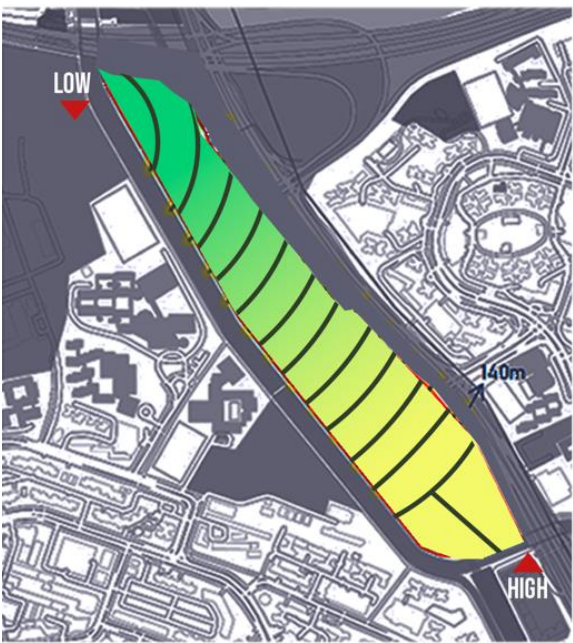
**Celebrating Railway Heritage**

Each parcel fronts the Rail Corridor which is zoned as a Park space for all to enjoy.



**Balancing Development & Conservation**

MSCP blocks were placed along a busy Woodlands Road to abate the noise while residential blocks aligned to allow connection between Linear Green & Rail Corridor.



**Height Restrictions**

Height restrictions inform of the building heights allowable.





## Sun Shadow

To ensure outdoor programmes are sufficiently shaded in Singapore's tropical weather, sun shade analysis of the blocks is done so that key landscape programmes can be cooled passively.



## Pedestrian Circulation

A series of sheltered walkways & outdoor footpaths are planned to provide convenient access for residents from their blocks to the outdoor spaces.



## Views & Vistas

Outdoor programmes also capitalize on the views towards the Linear Green & borrowed greenery as much as possible.

# Precinct Analysis



The project aims to foster community living, allow residents to experience the ‘Country Town’, and reminisce the railway heritage, through the following landscape strategies:

- [C]ommunity Spirit
- [C]ountry Escape
- [K]TM Style



**Programming**



Community gardening



Flexible space for community events



Family play community furniture



**Planting style**



Rustic planting



Earth mounds to control view points



**Hardscape treatment**



Industrial and railway inspired aesthetic











3-Generational (3G) facilities – 2 nature-themed playgrounds & an elderly fitness station – to encourage social bonding, capitalizing on the views towards the Linear Green



Playground design reminiscent of past pineapple plantation

## Key Outdoor Programme Distribution

### Legend

-  Playground
-  Fitness area
-  Plaza / deck
-  Community lawn





**A** **Boulevard**  
Uniform tree row  
close canopy



**B** **Forest**  
Continuous canopy  
Diverse species



**C** **Gardens**  
Shrubs, colors, texture  
Butterfly attracting species



**D** **Meadows**  
Signature trees  
Ground cover

## Softscape Planning





**Childcare Centre**

**Adult Fitness Station**

**Commercial Amenities**

Eating House  
Supermarket  
Shops

**Central Courtyard**

Train-themed Playground  
Elderly Fitness Station  
Precinct Pavilion  
Community Lawn

**Fitness Circuit Stations**

**Heritage Gallery**

To Senja Estate

To Senja Estate

To Teck Whye Estate

To Junction 10

The Rail Corridor cuts through the CCK Project and is a vital spatial structure that informs of the overall design of the project. 2 key strategies were adopted:

- Creating community links to surrounding communities at key sections
- Activating community spaces & programmes along the Rail Corridor

## Activating the Rail Corridor





## Heritage Gallery

- Shelter design inspired by Bukit Timah Railway Station marks the start of the CCK Project at the south
- Educational panels on the heritage of the Rail Corridor
- Railway design elements that also slow recreational cyclists





**Upper Body Exercises**



**Core Exercises**

## **Fitness Circuit Stations**

Rail Corridor users and residents can warm up or cool down at these fitness circuit stations, each targeting a different body part



**Lower Body Exercises**



An architectural rendering of a central courtyard. The scene is filled with mature trees and lush greenery. A paved walkway with a checkered pattern runs through the center. To the right, a red and yellow train-themed playground structure is visible. In the background, a modern building with a white and yellow facade is partially obscured by trees. A red line with a dot points from the text 'Precinct Pavilion designed like a train platform overlooking the activity areas' to a pavilion structure on the left. Another red line with a dot points from the text 'Train-themed playground that inspires imaginative play' to the train structure. A third red line with a dot points from the text 'Railway design elements tie the different programmes together' to the checkered walkway.

**Precinct Pavilion designed like a train platform overlooking the activity areas**

**Train-themed playground that inspires imaginative play**

## **Central Courtyard**

The designed is heavily inspired by the railway heritage, and spaces are functional and arranged to encourage social interaction

**Railway design elements tie the different programmes together**





### **Community Link (between Teck Whye & Senja Estates)**

This is one of several community links that aim to connect surrounding communities to the Rail Corridor through the CCK Project. Elements such as Precinct Pavilion, community plaza space and planter seating are designed to promote bonding.





## Commercial Amenities

The ground spaces of the MSCP block is designed to house commercial amenities such as a supermarket, eating house and shops, where Rail Corridor users and residents alike can have chance encounters while they do their daily grocery shopping.



CCK Project aims to provide a quality living environment to the residents, through an understanding of the natural & cultural heritage of the site, comprehensive analysis & planning, and extensive engagement with relevant stakeholders, agencies, nature & heritage groups, to achieve high-density public housing in this unique site.



**Providing Quality Living Environment**