

Summary of Response to Feedback on Environmental Baseline Study for Choa Chu Kang N1 site

I. Site context and milestones

The Choa Chu Kang N1 site¹ is about 21.7ha and has been zoned 'Residential (Subject to Detailed Planning)' and 'Waterbody' under URA's Master Plan 2019 (see Figure 1).

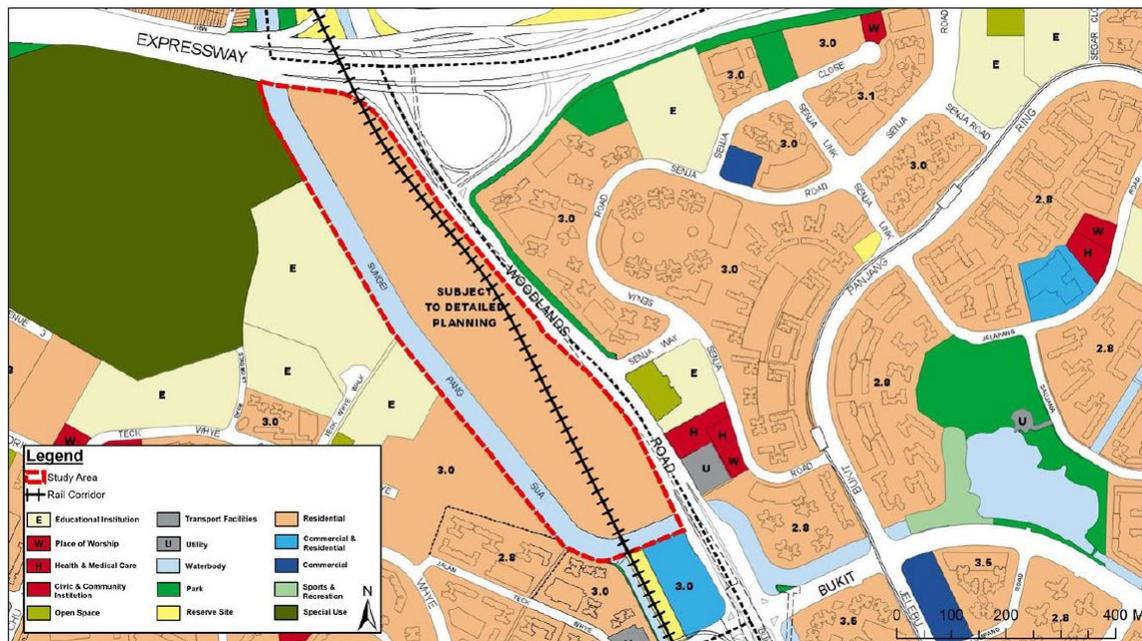


Figure 1: Zoning of the Choa Chu Kang N1 site (edged in red) according to Master Plan 2019 with indication of existing Rail Corridor alignment

The KTM Railway Line was built in 1903 and ran through the site to a station at Woodlands. Over the decades, rural settlements progressively occupied the site and the adjacent Sungei Pang Sua was canalised in the 1980s. In the early 2000s, as the settlements were cleared, the site was replanted with trees. These trees, which comprised primarily Raintrees and Khaya trees, have been actively managed by NParks since. The site was re-zoned as "Reserve Site" in URA's gazetted Master Plan 2003. In 2011, the railway track was removed after the KTM Railway Line ceased operations.

¹ Also known as 'Pang Sua Woodland' in Guttensohn TT & Leong KP (2021) Pang Sua Woodland: Sanctuary Unveiled Along the Rail Corridor. Cicada Tree Eco-Place, Singapore.

II. Engagement with stakeholders

Since 2011, URA and NParks have conducted extensive engagements with members of the public and various stakeholders including the Rail Corridor Partnership and Friends of Rail Corridor on their aspirations for the Rail Corridor. Feedback from participants highlighted the importance of ensuring continuous connectivity and preserving the character and alignment of the Rail Corridor.

In 2015, URA launched a Request for Proposal (RFP) to seek innovative strategies to transform the Rail Corridor into an inspiring and extraordinary community space, and to explore new ideas to integrate the Rail Corridor with future developments on adjacent land parcels. While Agencies are committed to keeping a continuous green link along the Rail Corridor, it was also recognised that some land parcels along the Rail Corridor will need to be developed to meet national needs. The unique context of the Choa Chu Kang N1 site provided an opportunity to experiment with innovative design ideas to integrate a housing precinct with the Rail Corridor and the adjacent Pang Sua Canal. The awarded concept designs for the Choa Chu Kang housing precinct under the RFP exercise were exhibited to the public in Nov 2015 and offered learning points on how the Rail Corridor could be retained as a recreational green space that is seamlessly integrated as part of the urban fabric of the area.

From 2020 to 2022, supported by NParks and URA, HDB carried out several engagements with stakeholders representing various interests, including Nature Groups and Heritage Groups on the plans for the Choa Chu Kang N1 site. These sessions provided opportunities for the various parties to come together to share their perspectives, reach a common understanding on Singapore's land-use needs and challenges, and co-create solutions to address greenery and heritage considerations.

To better understand the topography, hydrology, and ecological connectivity of the site, HDB also engaged an external consultant to conduct an Environmental Baseline Study (EBS) of the site in 2021 (for more details, please see the summary of EBS findings [here](#) and the full report [here](#)). The findings from the study will inform HDB on our planning and development strategy for the area and guide development plans in a way that would mitigate the potential environmental impact. The EBS report was published online for public feedback from 5 Apr 2022 to 3 May 2022.

III. Feedback received

In total, we received 151 responses via HDB's feedback channels. We are appreciative of the partnership with Nature and Heritage Groups, and the interest and feedback from members of the public. We have reviewed all feedback and suggestions that were submitted.

Many have voiced support for conserving at least some parts of 'Pang Sua Woodland', retaining the Rail Corridor, and acknowledged the site's function in facilitating ecological connectivity between surrounding green areas (e.g. Bukit Mandai, Bukit Timah Nature Reserve, Bukit Gombak Forest). While some have expressed concerns about the general loss of greenery and recreational spaces and suggested to consider alternative sites for

housing, others have also expressed support for new housing development in the area but hoped to see a balance between development needs, greenery, and heritage considerations.

We have also received feedback about the biodiversity within the site. This includes sightings of eagles nesting in the past and soft-shelled turtles recently. We appreciate the feedback which has given us a better understanding of the biodiversity within the site. As our surveys on fauna were carried out over a three (3) month period, the survey result provides a snapshot of the representative biodiversity assemblage that potentially uses the site during this period of 3 months. We will work with our consultants to adjust the work schedule to accommodate the fledging of the young should eagle nests be observed in any of the trees during inspections prior to works being carried out and relocate the soft-shelled turtles if needed.

In addition, there have been suggestions to conserve the mature trees for their shade, to enhance planting (e.g. more native/ fruit species), and to inject elements to capture the essence of the Rail Corridor's heritage. Some have also offered suggestions to activate the Rail Corridor space for community use, and to intensify developments in the southern portion of the site which is currently occupied by a heavy vehicle park. HDB will study all these suggestions with the consultants during the detailed design of the site.

IV. Response to feedback

Demand for public housing continues to be high across both mature and non-mature estates in Singapore. This is due to larger cohorts of Singaporeans born in the late 1980s to 1990s reaching marriageable age, and more people choosing to have their own flats instead of living together as a larger household in the same flat.

To meet this demand, agencies will adopt a range of strategies for development, including optimising housing densities in new developments, co-locating suitable uses on a single site, and redeveloping brownfield land as they become available. These strategies are already being explored wherever possible, but public housing demand remains robust. There is also a need to have public housing sites with different geographical spread to cater to different housing preferences and better facilitate mutual care and support among families.

We have studied the public's suggestions to develop alternative brownfield land parcels in the vicinity of the Choa Chu Kang N1 site. However, some land parcels are already planned for developments (including housing), while others are occupied by existing uses and are not available for development in the near-term. For example, the site currently occupied by Chua Chu Kang Secondary School cannot be redeveloped for housing in the near to medium term due to infrastructural constraints (e.g. traffic congestion concerns). As for the site currently occupied by Warren Golf & Country Club, the lease of the Club will only expire in 2030, and long-term plans for the site, including its potential for residential use, are currently being reviewed. Hence, there is still a need to develop the Choa Chu Kang N1 site to meet more immediate public housing demand.

Given the site's location between Choa Chu Kang and Bukit Panjang, the development of the site will present an opportunity to comprehensively rejuvenate the area with new amenities, enhance recreation opportunities and improve connectivity for existing and future residents. Being near to older neighbourhoods in Choa Chu Kang and Bukit Panjang, the new housing developments will also provide additional housing options for young families wanting to live near their parents.

V. Revised conceptual land use

In planning the development of the area, we are mindful of the need to develop sensitively, mitigate potential environmental impact and conserve the heritage value of the Rail Corridor. Taking into consideration the findings from the EBS, as well as feedback received from our many stakeholders and members of the public, we have revised the conceptual land use plan for the Choa Chu Kang N1 site. The revised plan comprises 4 key components:

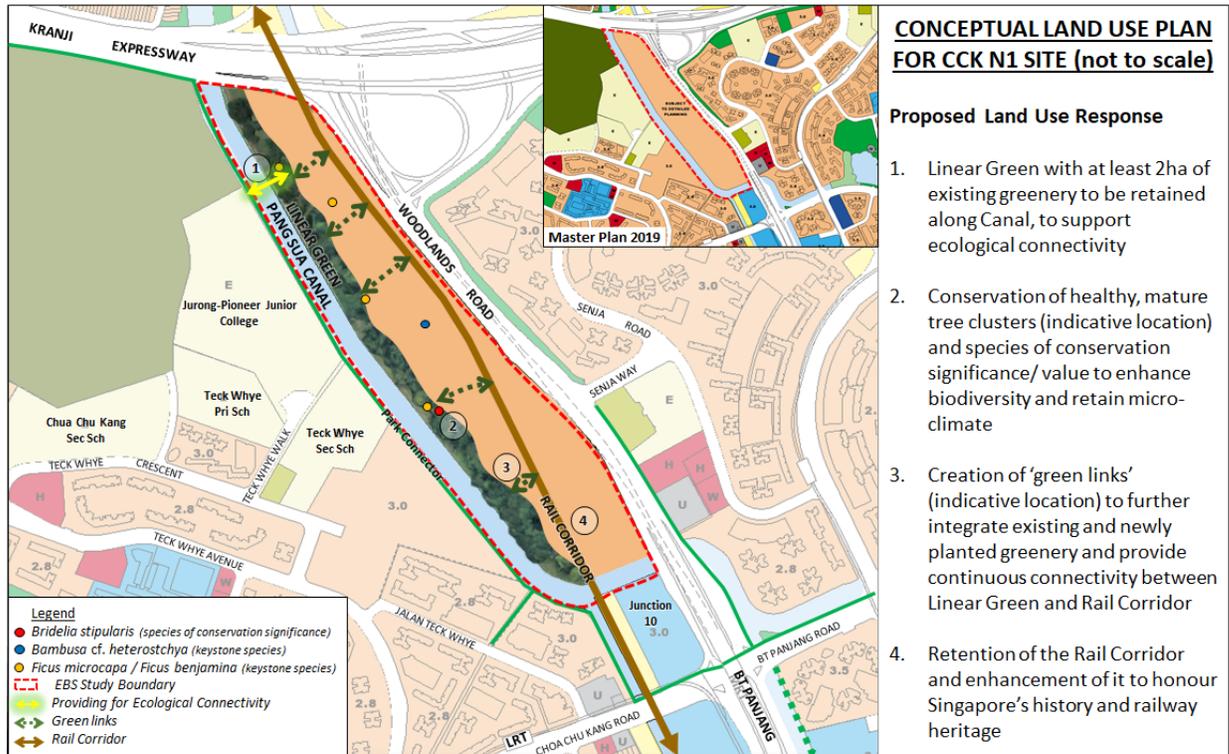


Figure 2: Conceptual Plan for the Choa Chu Kang N1 site



Figure 3: Aerial View of part of the Choa Chu Kang N1 Site with existing trees, Rail Corridor (indicative alignment in brown) and hard infrastructure

A) Linear green with at least 2ha of existing greenery to be retained along the Pang Sua Canal, to support ecological connectivity between surrounding green areas. This adds at least 2ha of safeguarded greenery to URA's Master Plan 2019. While this site does not sit along the upcoming Nature Corridor at Kranji conceptualised as part of NParks' islandwide Ecological Profiling Exercise, it has the potential to still be a steppingstone to green spaces in its wider surroundings, such as Bukit Mandai forest to the northeast and Bukit Gombak forest to the south, and to other core habitats, including Bukit Timah Nature Reserve in the southeast, and Mandai Mangrove and Mudflats in the north.

Given that the Pang Sua Canal could complement the safeguarded greenery and contribute to the ecological connectivity of the area, agencies have also studied the proposal by Cicada Tree Eco-Place and Nature Society (Singapore) to naturalise the canal. Taking into consideration residential development needs and drainage requirements, the naturalisation of the canal would require additional land-take and result in the clearance of existing trees, including keystone species, along the western edge of the site. This will compromise the retention of greenery and ecological connectivity that is meant to be part of the proposed Linear Green. As the priority is to ensure continuous green connectivity, the naturalisation of the canal is not a feasible design due to the substantial trade-offs. We will, however, study alternative designs, such as greening of the canal walls and more planting next to the canal, to integrate the canal with the proposed Linear Green without compromising on the stormwater conveyance function of the Canal.

The greenery will provide visual relief for users of Pang Sua Park Connector and residents of Choa Chu Kang and Bukit Panjang towns living in the vicinity. To minimise and mitigate potential human-wildlife encounters, agencies will study how design measures (e.g. lighting strategies for areas with different use) and public education measures can be put in place.

- B) Conserving healthy, mature tree clusters and species of conservation significance and keystone species, to enhance biodiversity and retain micro-climate.** The mature raintrees, with their denser canopies, can provide a more conducive micro-climate allowing for profusion of ferns and other epiphytic plants and fauna species. They will also provide shade and contribute to a cooler environment, thereby reducing ambient temperatures to create a conducive environment for recreation. Enhancement planting with native and fruit species could also provide food sources for fauna. In addition, we are exploring the retention of flora species of conservation significance, i.e. *Bridelia stipularis*, a small cluster of which is found on a *Ficus benjamina* (weeping fig), and keystone species including specimens of *Ficus microcarpa*, *Ficus benjamina* and *Bambusa cf. heterostchya*. We will study how these species can be integrated into the future development, in line with the EBS recommendations.
- C) Creating 'green links' to further integrate existing and newly planted greenery and provide continuous connectivity between the Linear Green and Rail Corridor.** HDB has put in place a Biophilic Town Framework to guide efforts to integrate nature with the urban environment. Beyond the proposed Linear Green and retention of mature tree clusters, we will introduce 'green links' to interface with the precinct greenery and open spaces within the housing development. These 'green links' will form part of a landscaped network of pedestrian paths to connect the development and surrounding areas to various amenities such as transport facilities (e.g. from Teck Whye area to the bus stop fronting Woodlands Road via the Pang Sua bridge). Together, these will contribute to a lush environment and a sense of openness, providing relief and recreation opportunities to support residents' health and well-being.
- D) Retaining the Rail Corridor and enhancing it to honour Singapore's railway heritage and history.** The Rail Corridor is an important heritage asset given its historical significance. Hence, we will celebrate the Rail Corridor through these key strategies:
- i. Retain the Rail Corridor along its original alignment as much as possible.
 - ii. Locate key community spaces/ amenities such as playgrounds and fitness corners along the Rail Corridor to activate the corridor.
 - iii. Adopt building forms and typologies which allow for more greenery and openness along the Rail Corridor. For example, buildings along the Rail Corridor could be angled to provide porosity, while L-shaped/U-shaped courtyard blocks could allow for more greenery and open spaces along the Rail Corridor.
 - iv. Explore landscape design strategies to retain the continuous connectivity and enhance the character of the Rail Corridor.
 - v. Inject elements such as heritage markers, rail elements and information panels to celebrate its heritage.

- E) Beyond these strategies, HDB will also implement an **Environmental Monitoring and Management Plan (EMMP)** before construction works commence. A specialist consultant will be engaged to develop an EMMP to mitigate and manage any potential environmental impact arising from development works. This includes shepherding of wildlife before site clearance, earth control measures and noise monitoring. The appointed consultant will closely monitor the works from start to end.

Agencies will continue to review our land use needs, to ensure that we judiciously steward Singapore's scarce land resources and carry out developments in a sustainable manner, while balancing social, environmental, and economic considerations. As land use plans are not static, we will regularly review our plans to ensure they remain relevant and trigger the development or launch sites only after careful consideration of the various options and engagement with stakeholders.

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