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WATER
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DISTRICT-LEVEL WATER RESILIENCE: BINTARO JAYA WEST DISTRICT MASTER PLAN

In the second half of 2023—reeling from the compound hydrometeorological phenomena of the El Niño climatic pattern, a positive (dry) Indian Ocean Dipole (IOD) phase, the summer equinox and rising global temperatures—many areas in and around the Greater Jakarta region experienced prolonged drought.¹ Some experts have forecasted that the dry season in the southern hemisphere may persist well into next year, with rainfall predicted to increase after February 2024.² Further, the El Niño heat effect is still expected to peak come 2025.³

A paradox encountered in many regions of Indonesia is how drought and flooding seemingly alternate, especially in places without adequate measures to 'balance' one another. Despite abundant rainwater during the wet seasons, many settlements have not been equipped with the necessary means to collect water for future use. A water management expert stated that less than one per cent of all residential areas in Indonesia have rainwater catchment systems in place.⁴

Hence, there is an even stronger impetus for new developments to make good use of water as an essential resource. This entails analysing the existing hydrology and identifying adequate water infrastructures for all seasons.

PLANNING THE PATH OF WATER

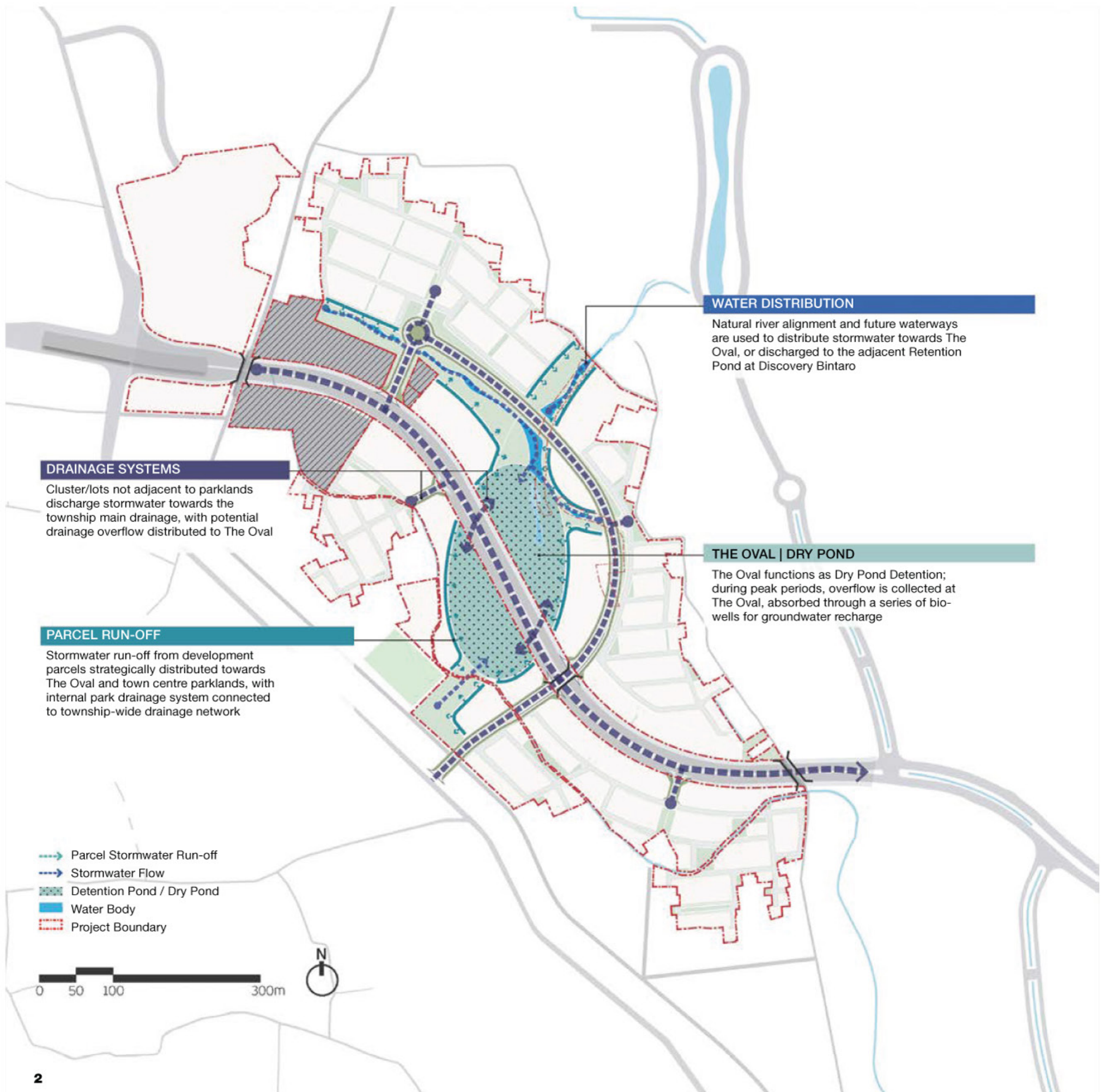
One of the greenfield developments that has applied district-level water strategies at the planning phase is the westward expansion of Bintaro Jaya in South Tangerang. The area of Bintaro Jaya itself was first established in 1979 to be a self-sufficient neighbourhood within and adjacent to Jakarta,⁵ and today it is applying '15-minute city' concepts for living, working and entertainment within close proximity.

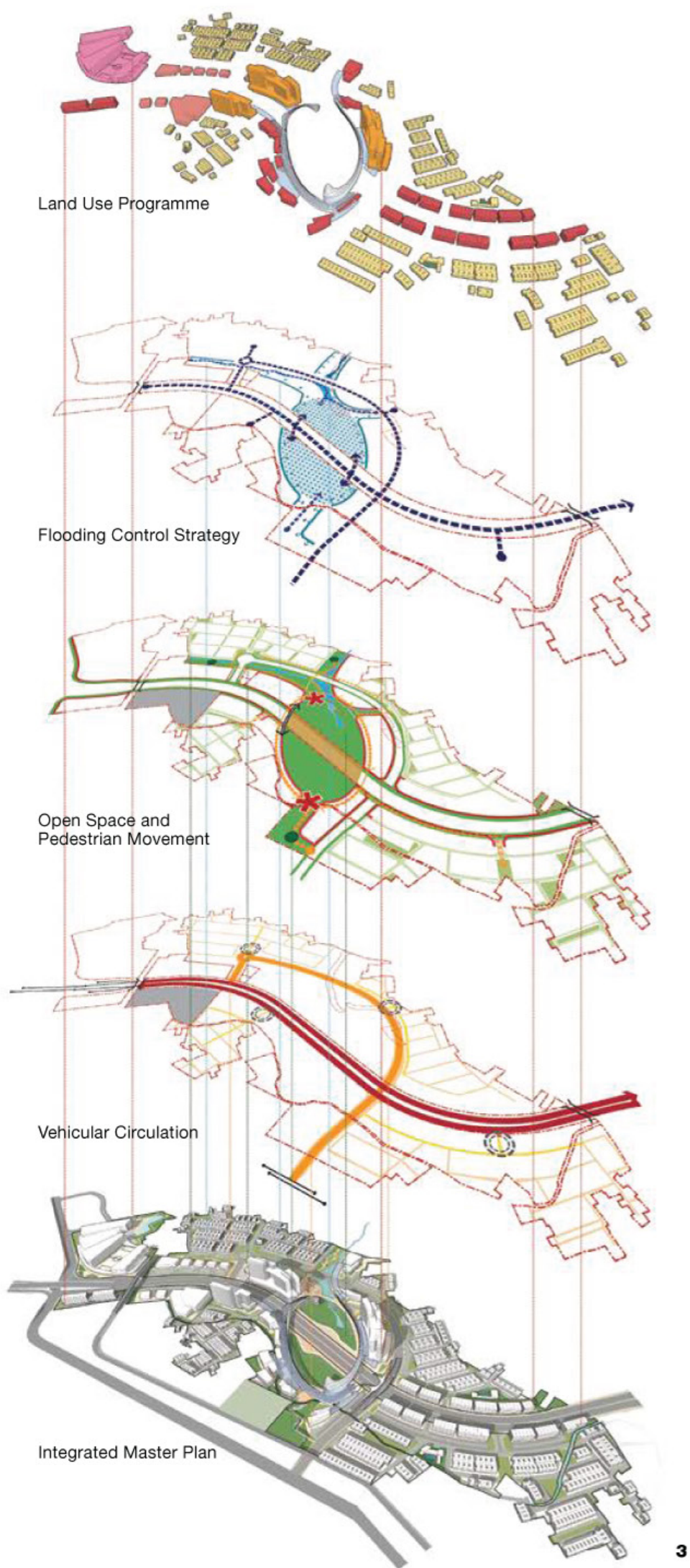
The Bintaro Jaya West District Master Plan includes landed houses, apartments, mixed-use commercial centres including office space, as well as a recreational centre. At the heart of the district, a publicly accessible green space called The Oval is designed to be an anchor for community activities equipped with eateries, retail, interactive water gardens, amphitheatres and an elevated pedestrian walkway. More notably, The Oval also serves as the district's water detention feature, also called a dry pond.

1 Aerial perspective **2 Stormwater management diagram**



Image by KOMA, courtesy of 10 Design





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- 1. The Oval - Sunken Great Lawn
- 2. The Oval Viewing Deck
- 3. Sculpture Plaza
- 4. Interactive Fountain Plaza
- 5. Central Lake
- 6. Cascading Falls
- 7. Iconic Pedestrian Bridge
- 8. The Oval Pedestrian Loop
- 9. Riverine Promenade
- 10. Riverine System
- 11. Iconic Parkland Pavilion

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Dry ponds are 'basins' of land that detain excess stormwater for a short amount of time to help mitigate flood risk. They are usually designed with vegetation that should withstand both dry and wet conditions.⁶ The sizeable landscape of The Oval is placed in a central and sunken position in the district to collect and store rainwater overflow, relieving inundation during peak rainy periods. The water is then absorbed through a series of bio-wells for long-term groundwater recharge.

This landscape feature is situated in alignment with local hydrological features, including a retention pond in the adjacent district. The planning and urban design team of 10 Design shared: "The existing river and waterway systems have been integrated into the main development's open space network. The design concept aims to create a unifying open space with natural waterways as a unique character in the west district. By placing the waterways within public parks, it encourages a shared space for all residents, enabling them to interact and foster a sense of community."

Greenways, parklands and linear parks are interwoven throughout the neighbourhood spaces. Along with 'water-touching' experiences and riverside promenades for jogging and cycling, connected to the wider Bintaro Jaya cycling loop, they provide Nature-centric recreational opportunities for residents and visitors alike.

As supporting infrastructure for the new Bintaro Jaya West District has begun construction in early 2023, *FuturArc* hopes that the next phases of architectural design will also implement water catchment, conservation and reuse strategies at the building level, as well as landscape design that invites biodiversity, to foster a truly water-resilient ecosystem.

The design team added: "The concept of rejuvenating the existing waterways and integrating them into the master plan is aimed at preserving the natural soft edge and enhancing the quality by introducing indigenous plantings to reinforce the waterway." They hope that this approach will foster a vibrant ecosystem within the district.

¹ <https://www.kompasiana.com/pradanaabimantrasoekaryadi2207/6520f89aedff763f2830f3a2/mengatasi-krisis-air-bersih-di-kota-tangerang-selatan>;
<https://www.bidiktangsel.com/info-tangsel/97010327113/18-titik-wilayah-di-tangsel-alami-kekeringan-dan-kesulitan-air-bersih>;
<https://tangseloke.com/2023/10/07/bpbd-tangsel-libatkan-swasta-atasi-bencana-kekeringan/>
² <https://www.cnnindonesia.com/teknologi/20230828162423-199-991476/el-nino-menggilg-bmkg-ingatkan-ancaman-kekeringan-hingga-november>
³ <https://www.cnbcindonesia.com/news/20230530093827-4-441677/alert-ramalan-terbaru-ri-panas-mendidih-sampai-tahun-2025>
⁴ <https://www.medcom.id/pendidikan/news-pendidikan/nbw009xk-pakar-ugm-sebut-ancaman-kekeringan-mesti-diantisipasi-sebelum-masuk-musim-kemarau>
⁵ <https://www.bintarojaya.id/about>
⁶ United States National Pollutant Discharge Elimination System (NPDES): Stormwater Best Management Practice—Dry Detention Ponds



Images by KOMA, courtesy of 10 Design

PROJECT DATA

Project Name
 Bintaro Jaya West District Master Plan
Location
 South Tangerang, Banten, Indonesia
Status
 Under construction
Completion Date
 Planning complete 2023
Site Area
 362,000 square metres
Client/Owner
 Jaya Real Property
Master Planner; Urban Designer
 10 Design
Design Principal
 Peter Barrett
Architecture Team
 Leonard Kawun; Hafizh Adinugraha; Toy Petchdee; Erwin Setiawan; Octa Wardhana
Images
 KOMA; 10 Design



- 3** Conceptual diagrams
- 4** Central parkland design idea
- 5** Riverside promenade
- 6** Multi-functional landscaped amphitheatre

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