

URBAN DESIGN



PORTFOLIO 2016-2017

M U D D 2 2 URBAN DEVELOPMENT & DESIGN

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Professional Work

EDUCATION EXPERIENCE HUAZHONG Agriculture University Landscape Architecture
University of New South Wales Urban Design
INTERSHIP EXPERIENCE Guizhou Architecture Design Studio Guizhou University Gate Design

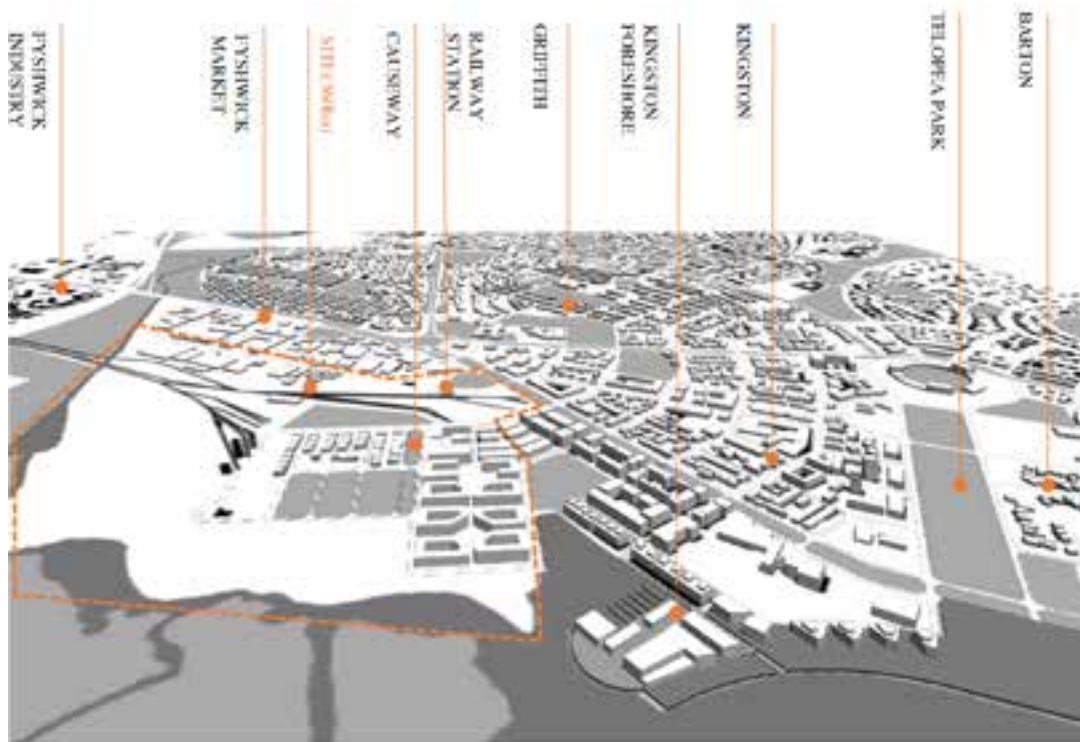
CANBERRA EAST LAKE | JERRABOMBERRA TOWN

Lyuyang Zhou, Di Wu, Lingjun Liu

CATEGORY: **GROUP DESIGN**
 LOCATION: **CANBERRA JERRABOMBERRA WETLAND**
 PROJECT SITE: **334 HA**



Location of Site



Existing Urban Form



Perspective 1



Existing Transportation
lack of connectivity



Existing Water
poor water quality



Canberra 100 Year
Flooding Map



Existing Green Space
lack of ecological value



Grassland to Wetland
lack of ecological value

INTRODUCTION

The site of Jerrabomberran water town revival project is located in the east lake of Canberra. East Lake represents a history of industrial use, it lacks diversity and vitality. As for wetland, the floodplain are periodically flooded with surface water flows.

VISION

It is anticipated that 12,800 residents will live in this newly established urban community which will emphasize sustainable living, high quality design, public interaction with natural surroundings.



Perspective 2

ISSUES

There are three issues in the site. Firstly, the developed areas of East Lake are mostly underused brown fields with light industrial and commercial use. Secondly, the low efficiency of public transportation and the incomplete road network, lacks connectivity. Thirdly, water pollution. East Lake is threatened by stormwater and related pollution.

STRATEGY

The strategy for underused area is to create a multi-function district to increase the diversity of East Lake. It is expected to provide diverse blocks with a mix of housing choices in an environment of high quality open space. Secondly, increasing the reputation of the railway station will provide an opportunity to become a transport junction, includes light rail station, pedestrian and cycling network. Thirdly, recycle water system WrAMS, a multiple landscape layers of riverbed to improve the water quality of wetland.



Causeway Axis



Section A-A



Section B-B



Carparking



Master Plan

OBJECTIVES

The plan is composed of three main parts connected by two axes, the Causeway axis and the water axis from north to south. The first part consists of residential and commercial mix used buildings lining both sides of Causeway Park, this park is inspired by Griffin's plan about Causeway. There is a plaza at the end of the Causeway Park which is surrounded by three significant buildings, a 12 storey landmark building, the theatre and the rebuilt Canberra railway station. All those elements contribute to a prosperous community junction. There is medium density residential with considerable green open space and the innovative, sustainable low density residential space is surrounded by water axis.



Green Space



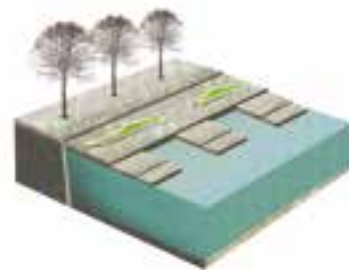
Neighbourhood Facility



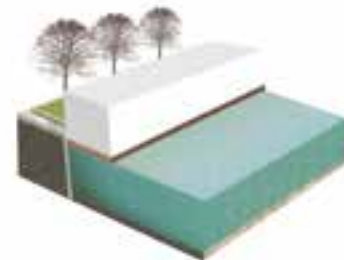
Street Network



Water Interface



① Waterfront



② Water Town



③ Water Axis

Design Details

Green space system contains natural wetland park, school playground with green space as buffer zone to against flooding, the green space around of the railway is terrain vague grassland to create green belt.
The neighbourhood facility provides educational facilities, commercial facilities and public facilities for residents.
The street network follows the street pattern of Griffin's plan.
Water system includes three types of water interface, including waterfront, water town and water axis.



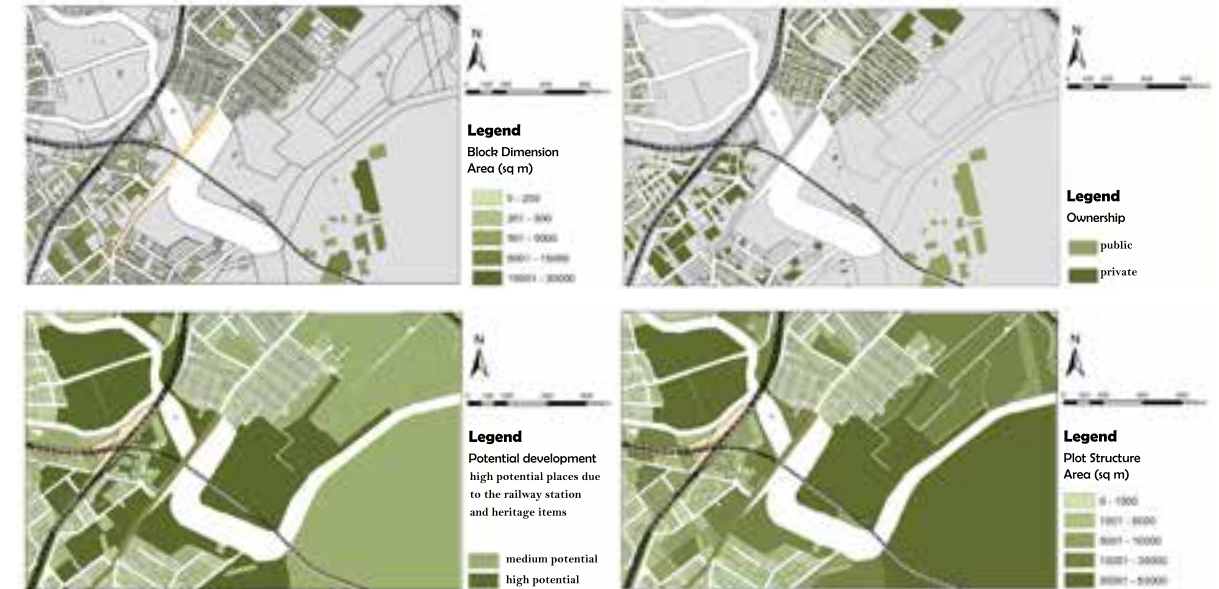
Location of Study Area



Railway Along Study Area



Street Pattern of Study Area



Perspective

INTRODUCTION

The site is located in Wolli Creek area, Rockdale region, Western Sydney. It is a developed area named as Discovery Point, close to the railway station. The study site consists of 5 different blocks with apartment buildings. one of it is multi-story buildings with heritage park, one block is apartment with railway station, one block is finished apartment area, another block is partly constructed area with apartments and warehouse, last block is consist of large supermarket and mix used buildings. analysis diagrams show that the area close to the railway station has potential developed opportunity.

THE QUALITY OF STREET DESIGN: TYPICAL ON WOLLI CREEK

How Many Driveways and Pedestrian Intersections?

How Long for Waiting to Cross Street?

DRIVEWAYS & PEDESTRAIN INTERSECTIONS

The method is counting and mapping, there are three driveways and 12 pedestrian intersections that well connect with main roads, a intersection along with supermaket is created by residents as pedestrains walk this intersection straight into market and it is time saving. As for the driveway, these driveways will cost much time for pedestrians to wait it. and the block within finished apartments has several pedestrain intersections, both of them well connect the plaza and other blocks.

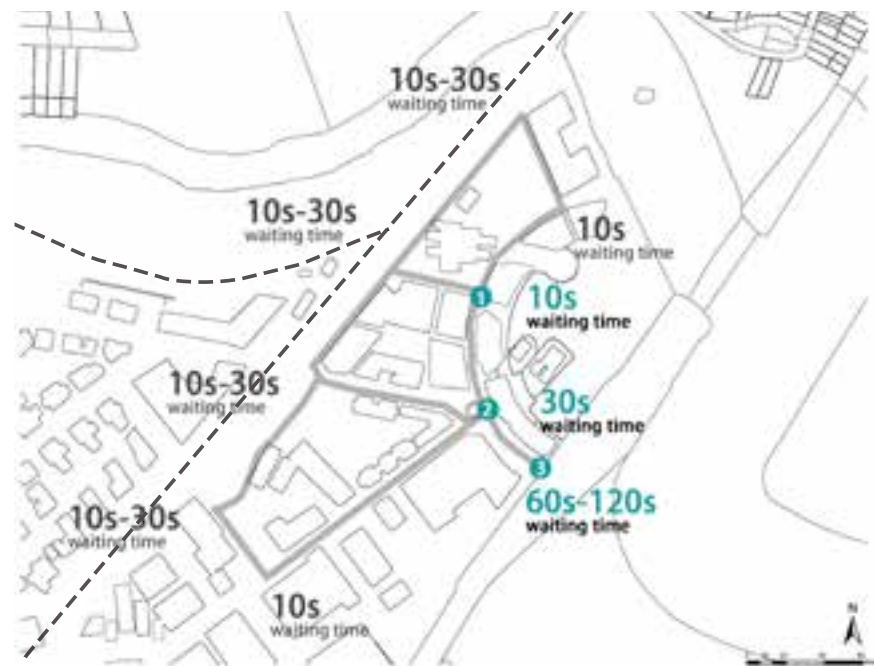
TEST WALKING

The method is test walking and maping, there are 9 street intersections in these five blocks, the test walking is focus on the waiting time of major road in study area, the average waiting time cost 10s to 30s, some intersections cost less time for waiting due to the safety signalization and safety islands, the observation shows that two intersections cost 10s and 30s seperately because of the safety signalization and island.

one intersection cost 60s to 120s because of the traffic light. this also may relate to the speed of vehicle.



Pedestrian Intersections & Driveways



Test Walking



Street Intersection 01



Street Intersection 02



Street Intersection 03

THE QUALITY OF STREET DESIGN: TYPICAL ON WOLLI CREEK

How Many Times Pedestrian Stop-watching in Their Route?

Stop-watching Behavior

The method is tracing and mapping for the pedestrian movement, this question observing 10 pedestrian movement to identify their walking behavior.

There are two destinations involved in pedestrians walkable community, which including Wolli Creek railway station and Woolworth supermarket, both of them are located in a walkable distance for neighborhood.

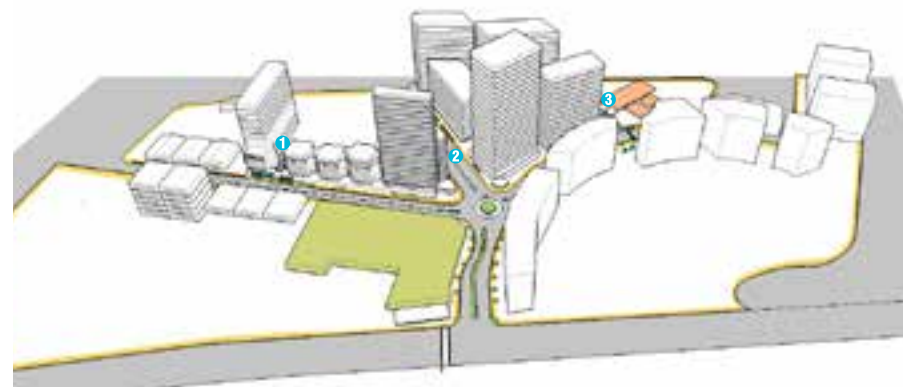
The results also shows that the narrow footpath can not attracting pedestrians stop-watching. From the diagram of sidewalk design, the footpath of 1.2 metres width is difficult for pedestrians to walk, and stairs makes pedestrian get access to the ground floor retails hardly, for this reason, it may cause this street less attractive for pedestrians.

on the other hand, an inviting space, building with large windows could attract more pedestrians stop-watching, even to walk into the shops and retails, which leads to increase the revenue of this area.

From the diagram of sidewalk design in the area close to the railway station, the 4 metres width of footpath providing space for ground floor retails and shops. for example, the cafe shop could have cafe outdoor spaces to create active and vibrant sense for the neighbourhood.



Pedestrian Movement Tracing



Pedestrian Stop-watching Point



Woolworth Supermarket & Railway



Sidewalk Design 01



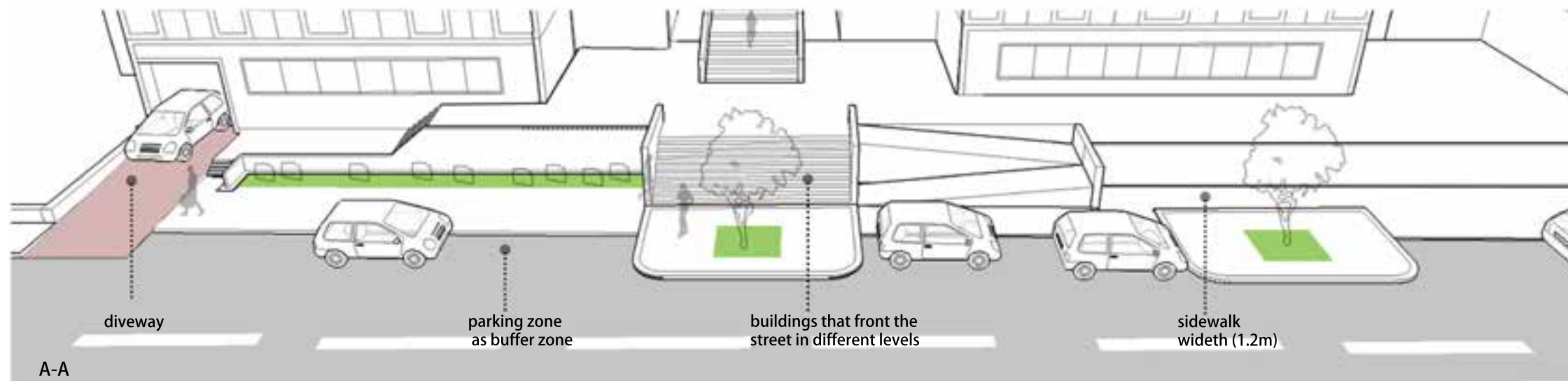
Sidewalk Design 02



Sidewalk Design 03

THE QUALITY OF STREET DESIGN: TYPICAL ON WOLLI CREEK

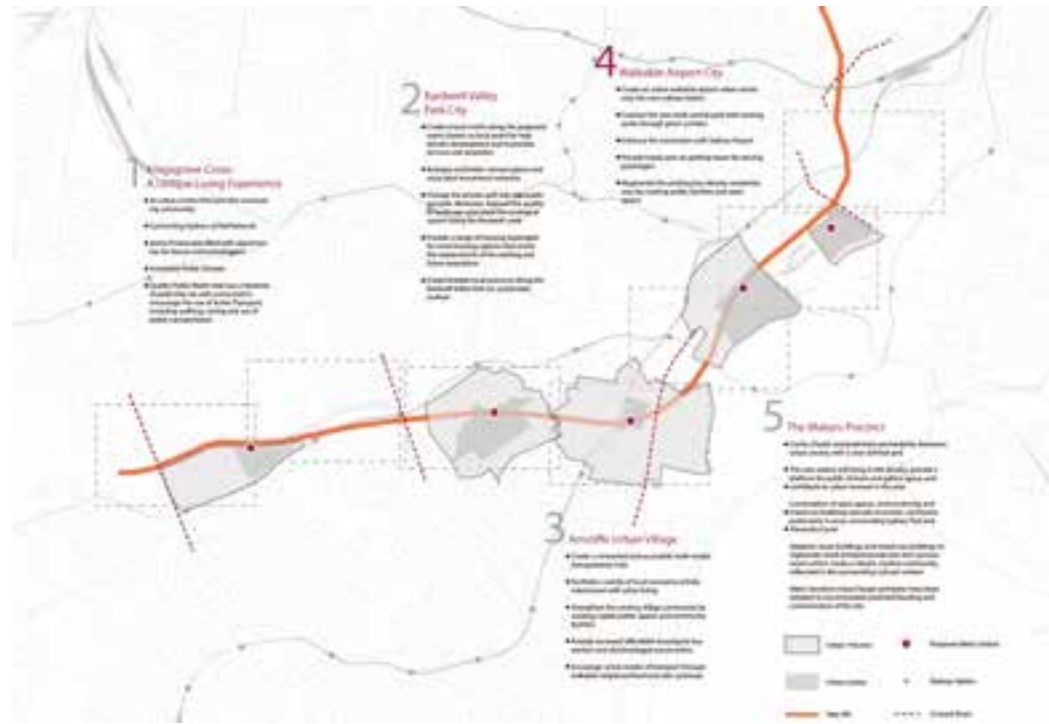
How Many Times Pedestrian Stop-watching in Their Route?



SYDNEY WESTCONNEX | WALKABLE AIRPORT CITY

Lyuyang Zhou, Zoe, Sophie, Patty

CATEGORY: **GROUP DESIGN**
 LOCATION: **TEMPE, SYDNEY**
 PROJECT SITE: **58 HA**



Location of urban centre (walkable airport city)



INTRODUCTION

Tempe is located in south-eastern Sydney. It is a district with a lot of light industrial and low density residential uses; IKEA is under the site and all of the residential area placed with houses and terraces. Moreover, the site has a substantial ecologic condition; the Cooks River is surrounded around the site partly. also the Tempe Recreation Reserve and a golf park belong to the site area.



ISSUES

Zoning map shows the fragmented land use is complex. and the existing road system is disconnected with residential area, furthermore, the site is close to the airport within 800metres, which leads to noise and building height limits. flooding also impacts a tiny part of the urban centre area.



Park to Park



Station to Station



Connect Airport



Road Network

CONCEPT

Airport city proposed park to park and station to station structure, it follows the street pattern to form road network, and create bus route to connect the urban centre and new metro station with airport.



Land Use



Transportation



Green Space



Master Plan

VISION

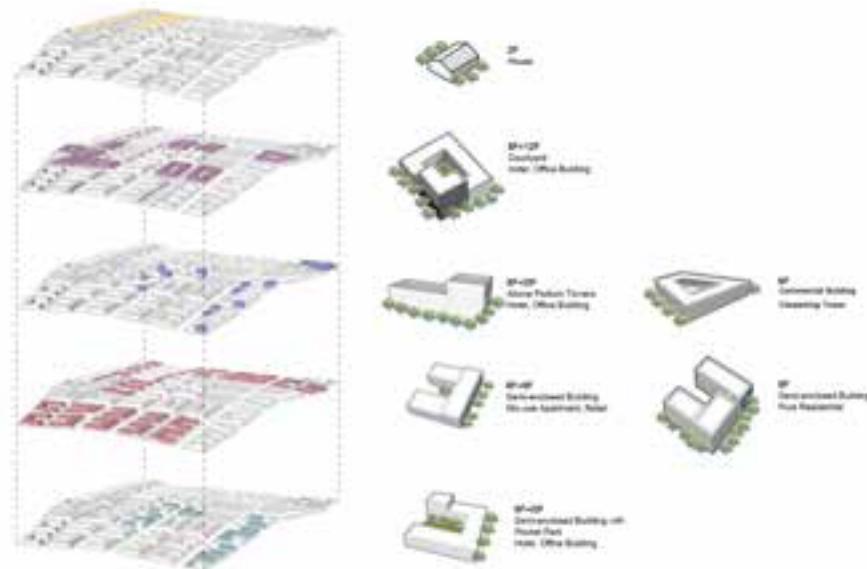
To create a walkable airport city with metro station to serve the Sydney Airport. Providing hotels and conference buildings, retails as well as car parking tower in this area, which contribute to create an important commercial and transportation node for airport. Meanwhile, rezoning this area to improve the living environment, create a more liveable community for residents.

OBJECTIVES

- To connect the ne-built central park with existing parks through the main green corridor.
- To connect the proposed metro station with existing railway stations through road networks.
- To enhance the connections of Sydney airport, build an bus lane from new station to airport terminal.
- To continue the urban fabric by following the existing street pattern.
- To provide hotels and car parking tower serving the airport.
- To regenerate the existing low-density residential area into dense housing.

STRATEGY

- Rezoning the fragmented lands to unified the precinct into different land use.
- Following original street pattern to complete the pedestrain network.
- create a bus route across new central park to link the new metro station to Tempe railway station and Sydney airport.
- Controlling the building height below 12 story, the average story is 6 floors.
- The last strategy is using the green space as buffer zone to release the potential stress from flooding, create pocket park and riparian green space.



Building Type



Perspective 2



Perspective 3



Perspective 1



Existing Section A-A



Designed Section A-A

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