

# 03

## analysis

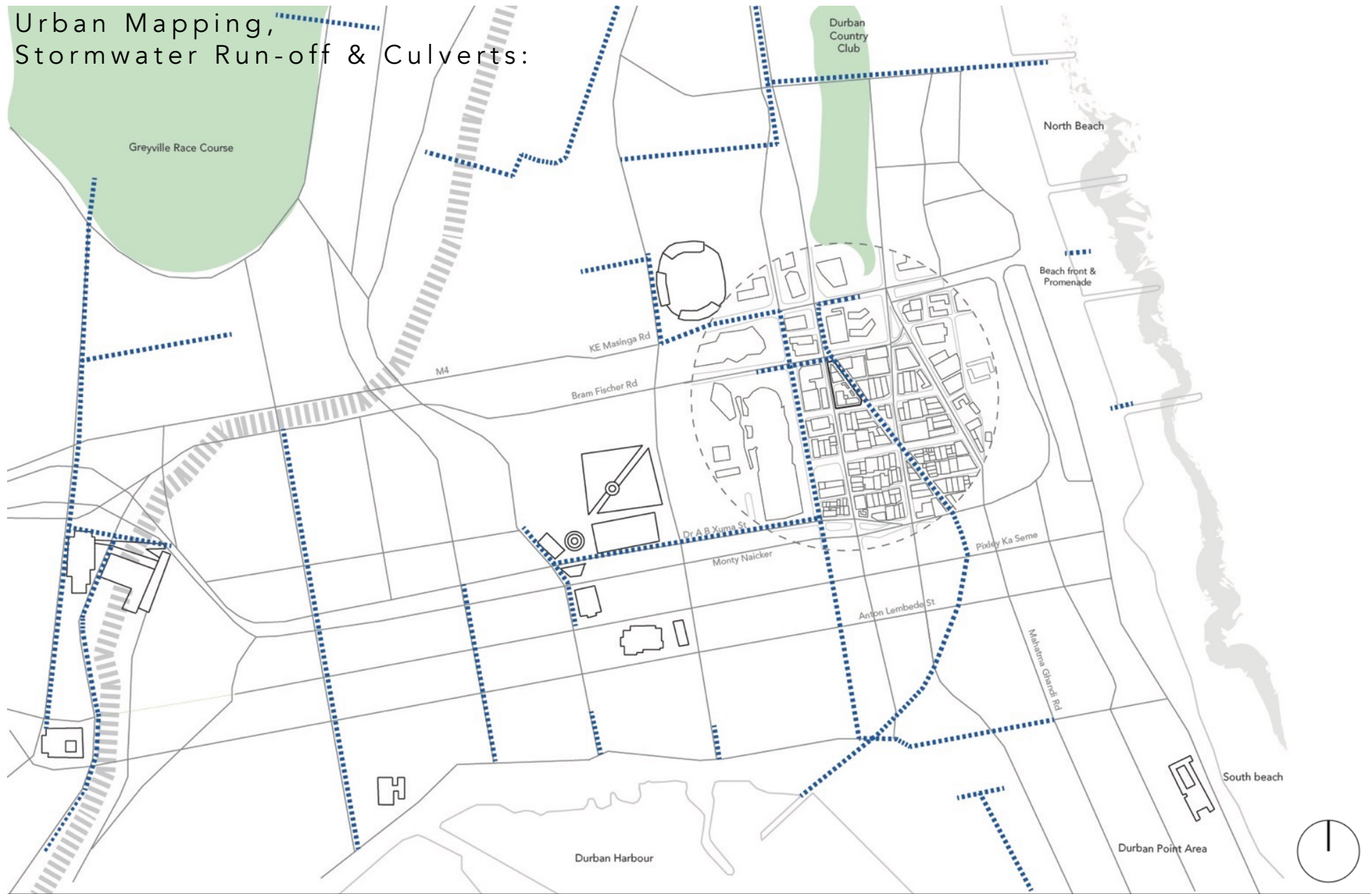
Consequently, the following chapter begins with an urban analysis, strategy and vision for cultivating the regenerative potential of the hidden water canal to become a catalyst for social and natural exchange to occur on site.



Figure 31: Existing covered canal (Author 2021)

# URBAN ANALYSIS

Urban Mapping,  
Stormwater Run-off & Culverts:



■ ■ ■ ■ ■ ■ ■ ■ ■ ■ Stormwater culverts

Figure 32: Urban Mapping, Stormwater (Adapted from : eThekweni 2040 Inner City Local Area Plan 2016:166)



# EXISTING URBAN CONDITION

## Milne's Drain:

The proposed urban vision is catalysed by the first layer of power that was imposed on this landscape, namely, the canalisation of the Eastern Vlei into Milne's drain, which acted as an open canal that traversed this precinct (figure 33).

The existing trace of Milne's Drain is currently labelled as a stormwater culvert that drains excess stormwater run-off from surrounding sites into the ocean (figure 32). The quality of this water, however, is unknown but would require filtering at the least if it is to become part of a public space or urban scheme.

Figures 34 and 35 demonstrate the current ground conditions of the existing canal as the main urban edge of the scheme. Currently, this space is enclosed by blank and dead neighbouring facades that do not initiate any pedestrian activity along their edges. Furthermore, this is a vehicular orientated space with hard tarmac surfaces and little green natural capital. The canal edge is heavily underutilized as a parking and even refuse space for the surrounding buildings. These are harsh ground conditions, yet the reuse of this canal presents incredible potential to catalyse urban regeneration throughout Rivertown



Figure 33: Milne's Drain, 1931 (Choromanski & eThekweni Municipality 2015)

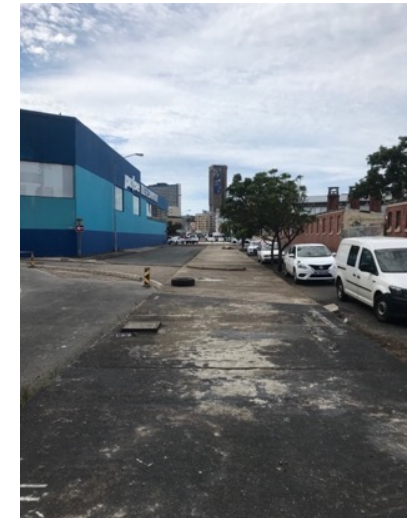


Figure 34: Existing Canal, Milne's Drain. (Author 2021)



Figure 35: Existing Canal, Milne's Drain (Author 2021)

# URBAN STRATEGY, DAYLIGHTING

It has been noted that hidden water infrastructure has often resulted in feelings of disconnectedness between man and his ecological environment (McEwen, L., Gorell Barnes, L., Phillips, K., Biggs, L 2020 : 2). Revealing and surfacing hidden infrastructure, is more than an infrastructural act, rather, it is social and political. To make urban infrastructure visible is all about social cohesion and solidarity (Amin 2014:137). Amin (2014:137) views infrastructure to be a “gathering force” and consequently advocates for the “social power of infrastructural visibility” (2014 :140).

## Urban Strategy, 1:

Therefore, in response to the powerful act of the canalization of the Eastern Vlei into hidden underground infrastructure, the first urban strategy to subvert this act of power is to daylight or deculvert the canal (figure 36).

Daylighting is defined as “expose[ing] some or all of a previously covered river, stream, or stormwater drainage” (American Rivers 2016:8).

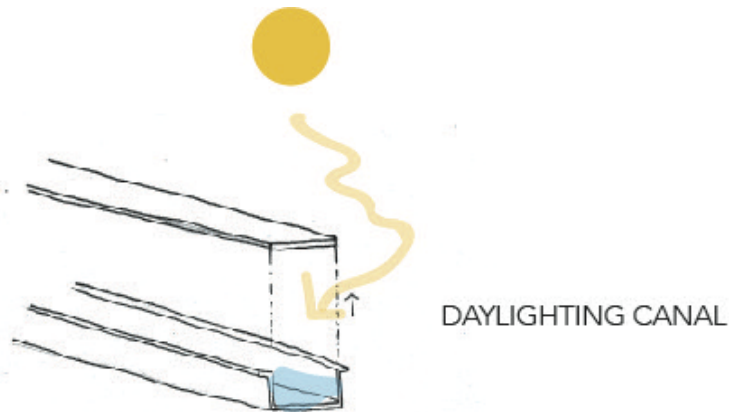


Figure 36: Daylighting (Author 2021)

Some benefits to daylighting include: Improved flood control, removal of pollutants and improved water quality, biodiversity of ecosystems, contribution to green public space and pedestrianized routes, aesthetic improvement of surrounding built environment, provides recreational opportunities (American Rivers 2016: 9), and contributes to a sense of place.

Daylighting can exist in several forms but for this dissertation “architectural restoration” is proposed where water is restored to the open air and sunlight above within a constructed channel (American Rivers 2016:8). The reason for this is that the canal is representative of an infrastructural history that shouldn’t be undone but rather layered upon and added to. Furthermore, this canal was constructed using bricks (Choromanski 2013:4) which speaks of an era prior to concrete infrastructure. Therefore, the daylighting of the canal will retain its footprint, materiality, and integrity as heritage infrastructure yet it will be ecologically restored.

A portion of the concrete cover was temporarily removed in 2014 for the UIA Conference (Choromanski 2013:4) (figure 37), which provides a hint of the brick detailing of the canal below as well as the social potential it can hold as an urban public space.



Figure 37: Existing Canal, Milne’s Drain (Author 2021)



# URBAN PRECEDENT, DAYLIGHTING

The Cheonggyecheon Stream Restoration project is an example of the successful process of daylighting hidden infrastructure. The river was covered by a busy road and elevated highway that needed restructuring (Society for Ecological Restoration, not dated). Instead of repairing the highway, traffic was redirected, and the river below was uncovered and restored as part of a larger urban renewal scheme (Society for Ecological Restoration, not dated).

## Urban Strategy, 2:

The second urban strategy after daylighting is to add "green" edges alongside the canal to filter stormwater run-off before it enters the canal (figure 43).



Figure 43: Urban strategy 2, filtering edges of canal (Author 2021)

## PRECEDENT 1

**Project :** Cheonggyecheon Stream Restoration Project  
**Designer:** SeoAhn Total Landscape  
**Completed:** 2005  
**Location:** Seoul



Figure 38: Cheonggyecheon Stream Restoration project (Landscape Performance Series not dated)



Figure 39-40 Cheonggyecheon Stream Restoration project (Society for Ecological Restoration not dated).



Figure 40



Figure 41-42: Cheonggyecheon Stream Restoration project (INHABITAT 2014)



Figure 42



# URBAN PRECEDENT, DAYLIGHTING

The Banyoles Old Town Refurbishment explores the renewal of pedestrianized public squares by uncovering existing stormwater channels and troughs and integrating these within the aesthetics of each space in order to re-signify the town's historical relationship with water (Mias Architects 2016: 4-7).

This resonates with Rivertown in that the precinct has a deeply historical relationship to water which has since been lost.

### Urban Strategy, 3:

The urban strategy adopted from this precedent is to add run-off channels alongside the scheme that allow water to feed into the green edges and be filtered before entering the canal (figure 45).

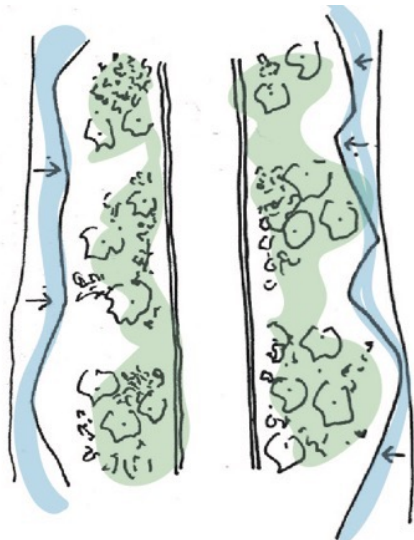


Figure 45: Urban strategy 3, Stormwater channels (Author 2021)

## PRECEDENT 2

**Project :** Banyoles Old Town Refurbishment  
**Architect:** Miás Architects  
**Completed:** 2008  
**Location:** Banyoles, Spain



Figure 44: All photographs of Banyoles Old Town Refurbishment (Adrià Goula 2016)



# URBAN PRECEDENT, PUBLIC SPACE

Superkilen is a linear urban park that traverses one of the most culturally diverse areas of Copenhagen (Bjarke Ingels Group 2012). Consequently, this park promotes notions of diversity through various chosen objects and furniture from other countries that are dotted along its length (Bjarke Ingels Group 2012).

The park is divided into three zones each with a unique character, promoting different activities and uses.

Red: Market and cultural activities

Black: Urban living room (meeting areas around food)

Green: Sport and Play

## Urban Strategy, 4:

The urban strategy adopted from this precedent is to divide the length of the existing canal into specific zones of functions and activities to invite a diversity of people to meet with and encounter one another. Furthermore, these various zones will act to catalyze the regeneration of the surrounding urban fabric (figure 48).

## PRECEDENT 3

**Project :** Superkilen

**Architect:** Topotek 1 + BIG Architects + Superflex

**Completed:** 2012

**Location:** Copenhagen, Denmark



Figure 46: Superkilen Linear Park drawing (Topotek 1 + BIG Architects + Superflex, 2012)



Red



Black



Green

Figure 47: All photographs Superkilen Linear Park (Iwan Baan 2012)

# URBAN STRATEGY, ZONING

## Urban Strategy, 4:

The main aim of urban strategy 4 which involves the zoning of the edges of the canal, is to fully pedestrianize this canal with integrated cycling routes along its length.

The entire length of the canal is renamed Rivertown Linear Park (figure 48). It is divided into three zones of varying functions, namely: the urban living room, the urban garden and the urban playground.

The urban living room will be predominantly a public space about meeting and social exchange around food which compliments and supports the proposed scheme of the Rivertown Beerhall.

The urban garden will function as a green lung in the heart of Rivertown with various plants and trees. It will also accommodate sport that can be played on grass.

The urban playground is all about sport and play, particularly on colorful, rubber textures. This space invites a diverse age group into Rivertown from children to adults.

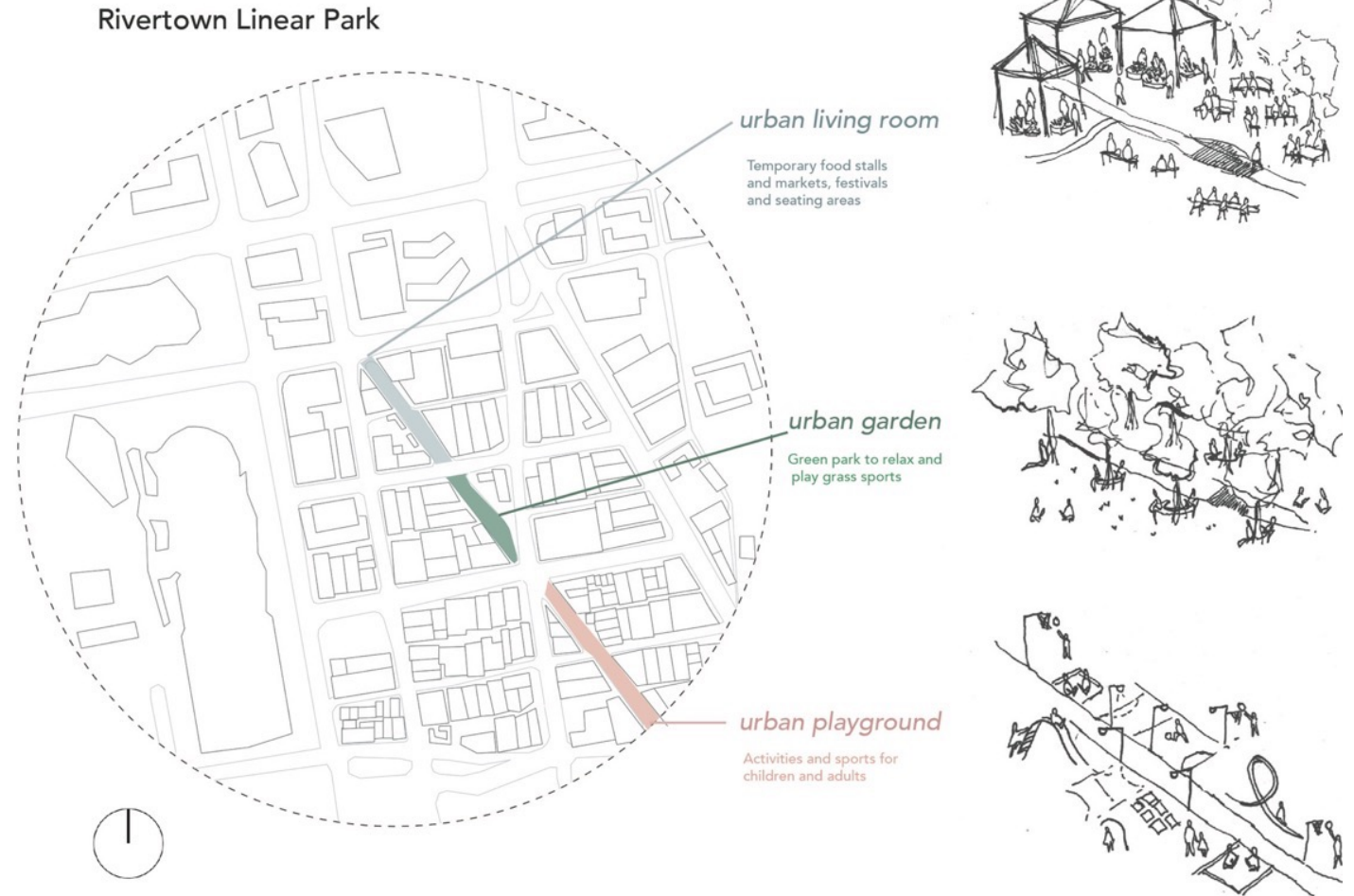


Figure 48: RivertownLinear Park (Author 2021)



# URBAN ANALYSIS

## Urban Mapping, Traffic:

Figure 49 depicts several wide, highly trafficked, one-way roads that traverse Rivertown. This creates very busy vehicular corridors that deter pedestrian movement and create noise. Furthermore, there are no pedestrian routes directly from Rivertown to the promenade and it is disconnected by an open green space (figure 49).

Busy one-way roads ———

“Buffer”/disconnect  
between promenade  
and precinct

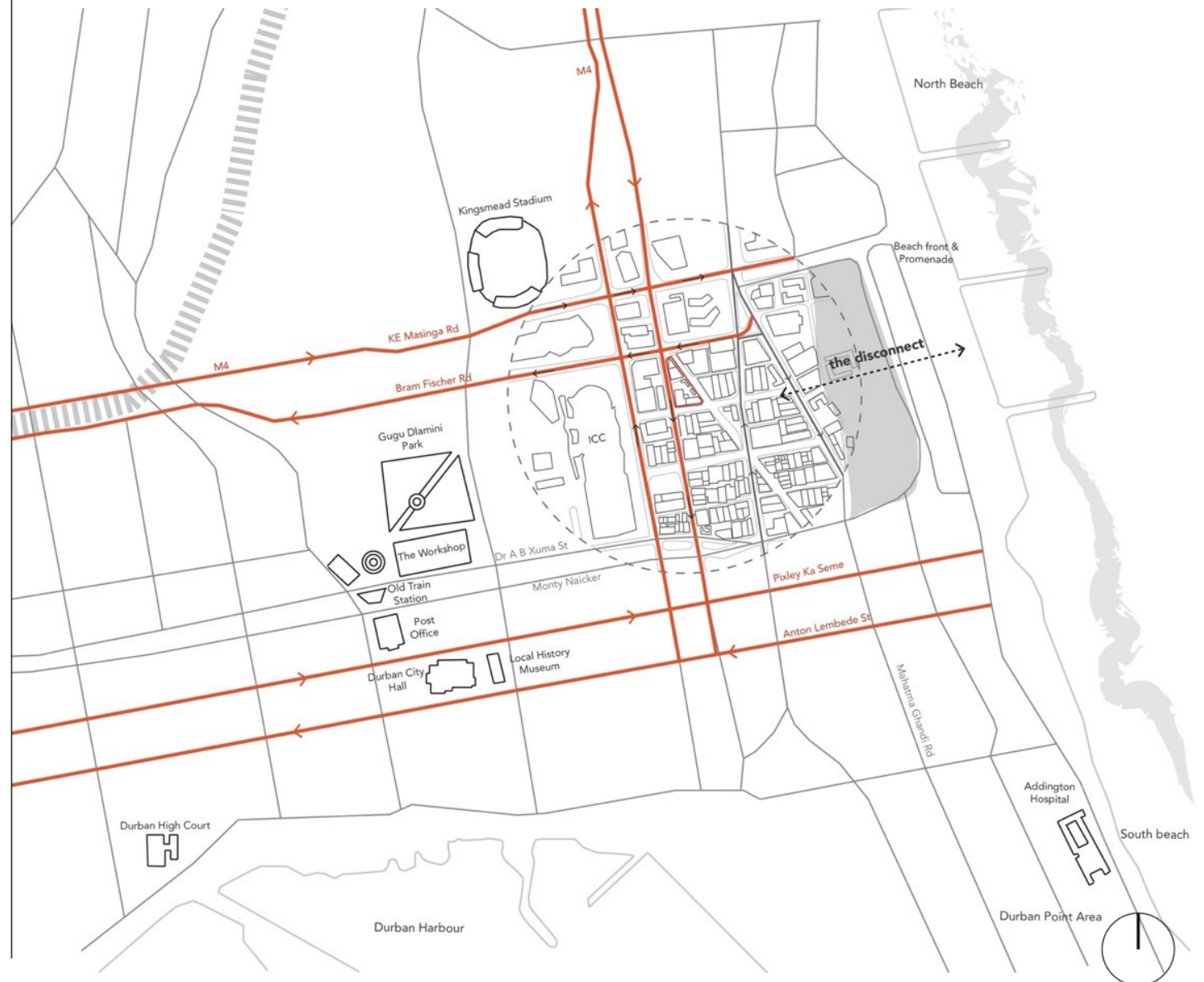


Figure 49: Urban mapping: traffic (Author 2021)

# URBAN STRATEGY, CONNECTION

## Urban Strategy, 5:

As a result of the urban mapping of traffic (figure 49), the one-way roads have been turned to two-way roads in order to reduce traffic speed and noise throughout Rivertown and to create a more pedestrian friendly environment (figure 50). Furthermore, the Rivertown Linear park is pedestrianized along its length to encourage more foot traffic in this precinct (figure 50).

Lastly, as a reaction to the disconnect between Rivertown and the beachfront and promenade, new link roads are proposed directly between the two spaces to invite the public into this precinct (figure 50).

New two-way roads  
New Link Roads  
Pedestrianized

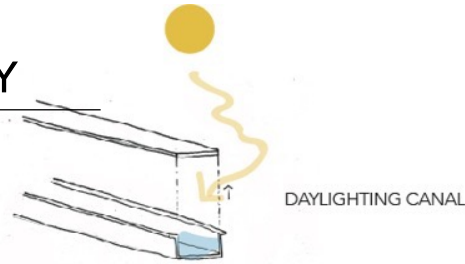


Figure 50: Urban Strategy 5, connection & Pedestrianization (Author 2021)

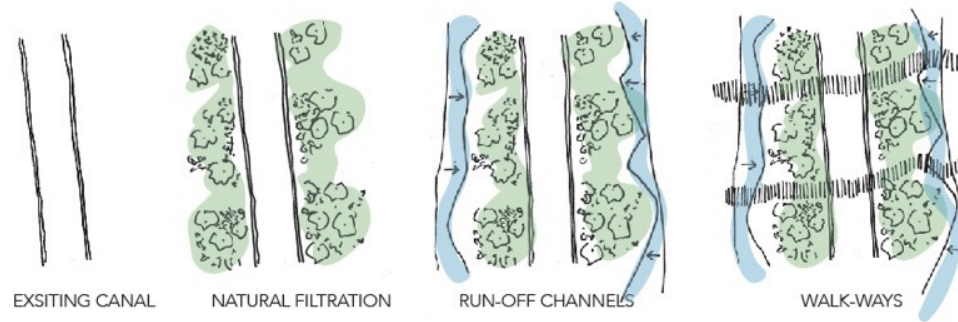


# OVERALL URBAN STRATEGY

## DAYLIGHTING



## STORMWATER FILTRATION & RUN-OFF



## ZONING



## CONNECTION & PEDESTRIANIZED ROADS



Figure 51: Overall Urban Strategy (Author 2021)

# SITE ANALYSIS

## Climate

Durban has a Subtropical climate with wet summers (September to April) and reasonably warm, dry winters (May to August). The Köppen-Geiger climate classification for Durban is Cfa (Climate-Data, not dated). In addition, figure 53 indicates that Durban's annual average temperatures are above 20°C (Meteoblue, not dated).

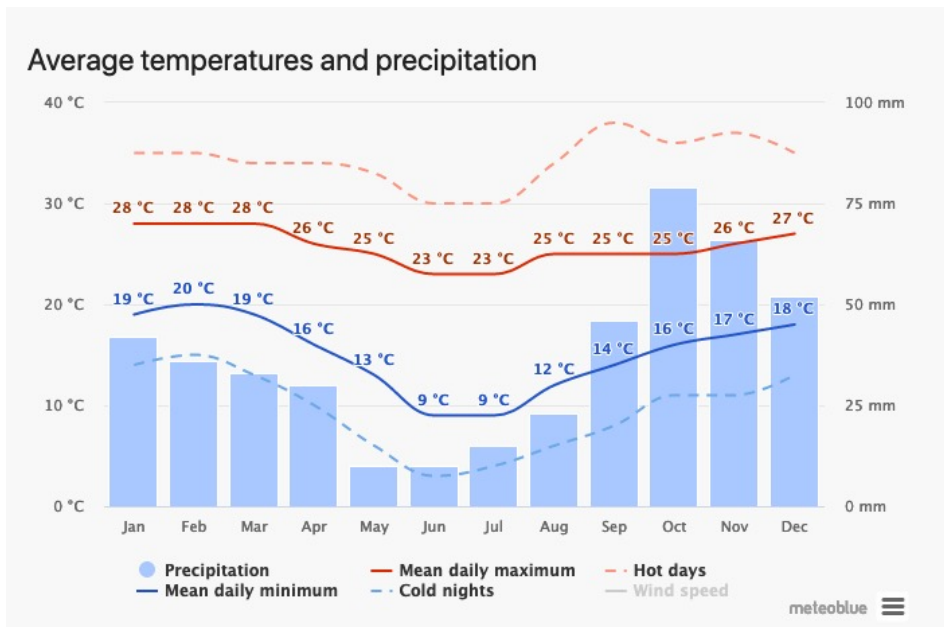


Figure 52: Average Temperatures & Precipitation (Meteoblue, not dated)

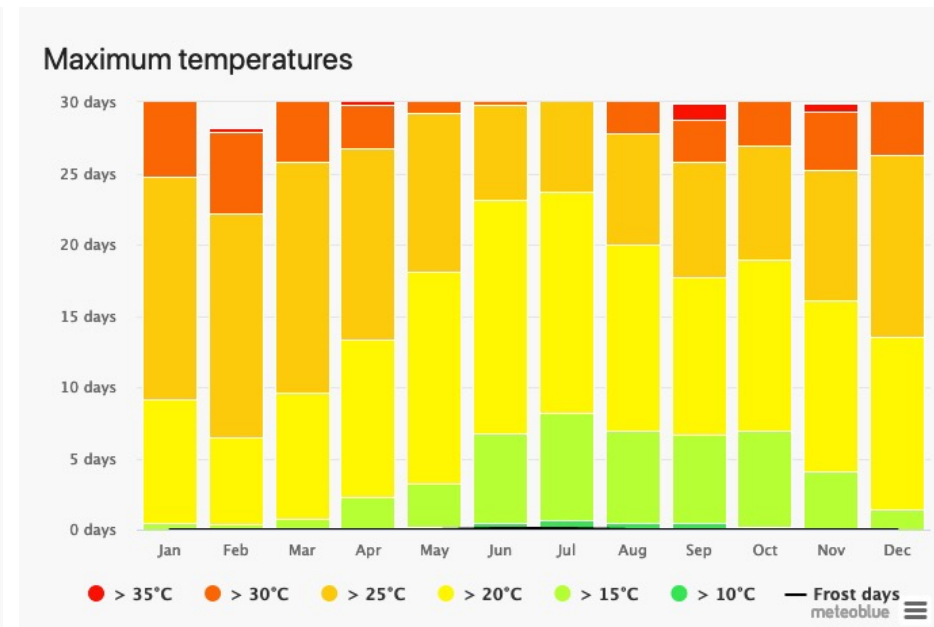


Figure 53: Maximum Temperatures (Meteoblue, not dated)



# SITE ANALYSIS

## Climate: Solar Study & Shading

The solar study (figure 54) indicates that the site is predominantly full of sun throughout the year with minimal shading from the surrounding buildings. Consequently, east and west facades will need to be shaded from harsh morning and afternoon sun respectively in the proposed design. Occasionally on winter mornings (June) the surrounding buildings on the east shade the site.

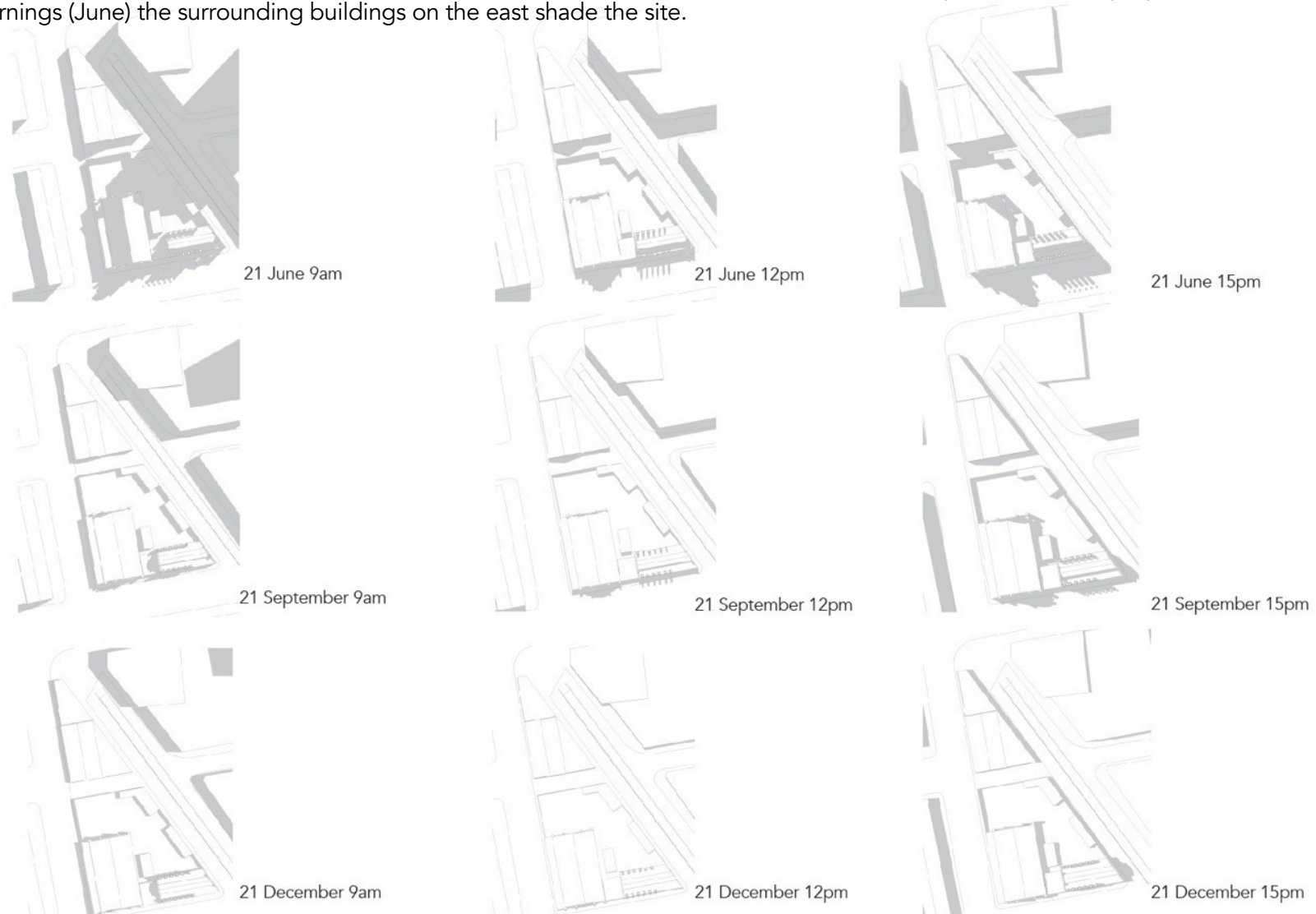


Figure 54: Solar study & shading (Author 2021)

# SITE ANALYSIS

## Climate: Wind

Durban experiences two prevailing wind directions: The north easter (NNE) and south wester (SSW). The site seems reasonably protected by SW from the ICC and the NE by the height of the surrounding buildings. The surrounding buildings can act to diffuse the prevailing winds but the southern façade should remain in tact to shield the courtyard. Furthermore, The northern most point of the site should increase in height to block the north easterly wind from entering the central spaces of the site.

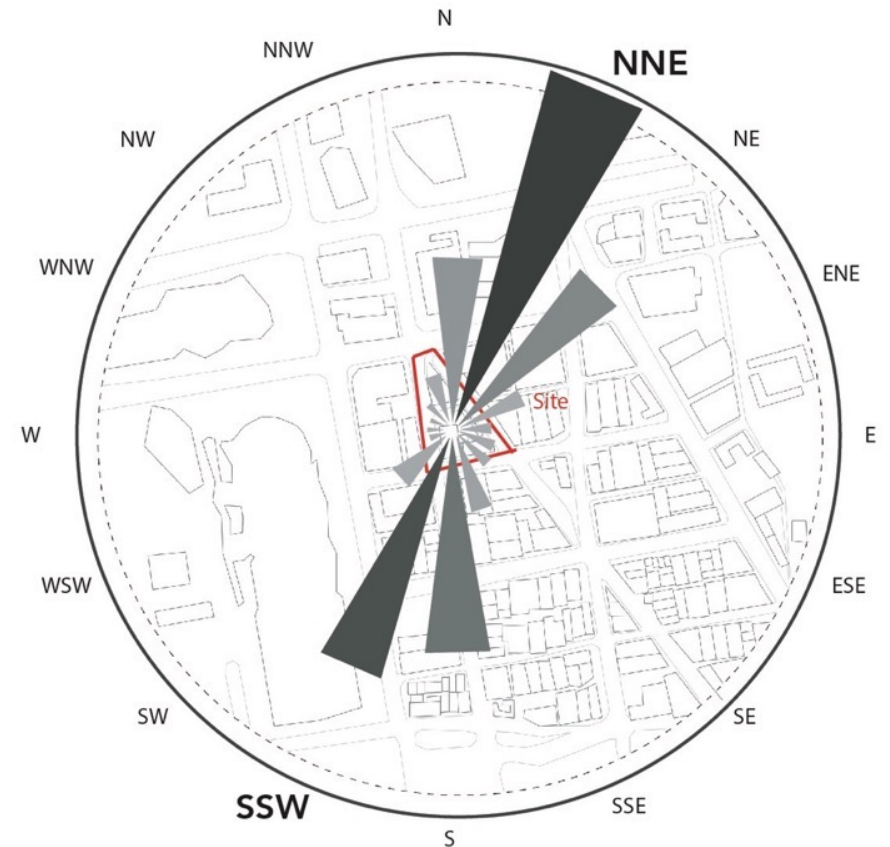
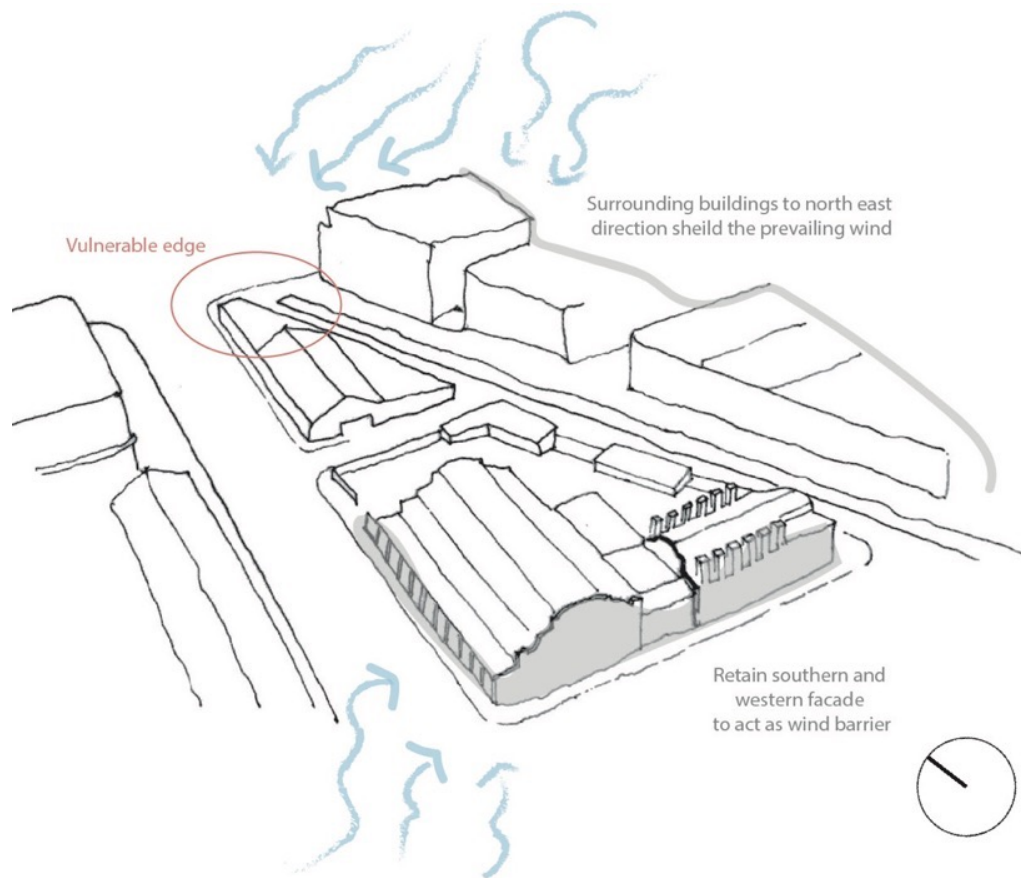


Figure 55: Wind study on site, 3D (Author 2021)

Figure 56: Wind study on site, plan (Author 2021, adapted from Meteoblue)



# SITE ANALYSIS

## Access & Linkages

The site is surrounded by heavy vehicular traffic produced by 4-lane roads on the northern and western sides. The western side should therefore be used for most services and deliveries instead of this being the primary pedestrian access node. The northern edge should have some type of threshold between the scheme and this busy road. The eastern side, therefore has the potential to be the primary link and access node into the site. Pedestrian foot traffic is created with the connection to the ICC, on the southern edge however this could be further improved.

This quiet southern road (Morrison Road) could serve as one or two pedestrian entrances to the site. Currently, the canal edge is used for parking which degrades the overall urban environment. The two currently disconnected sites have the potential to be tied together by the manipulation of the canal edge.

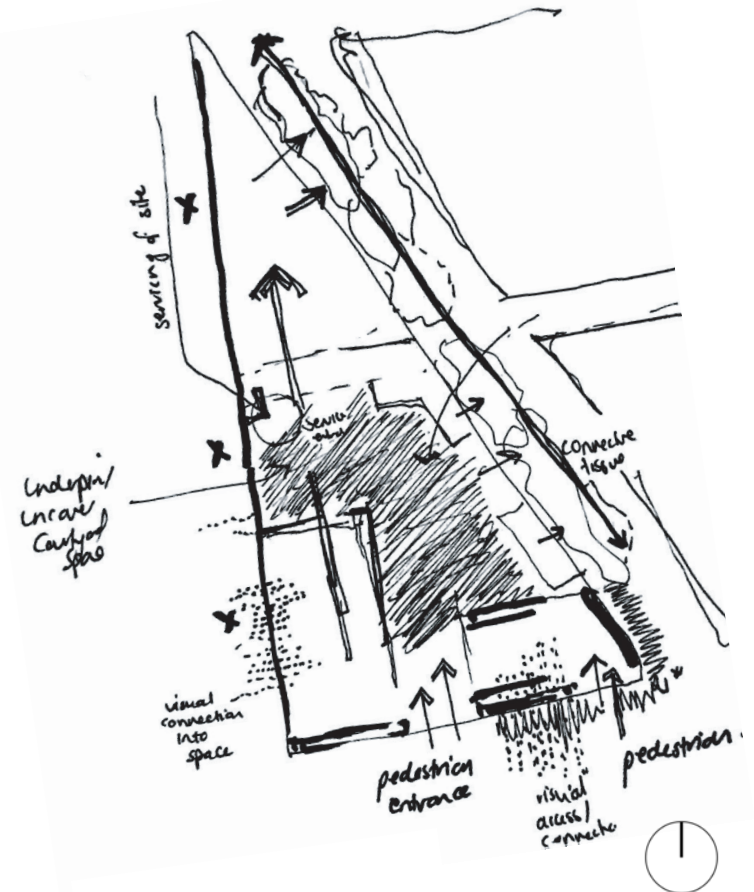
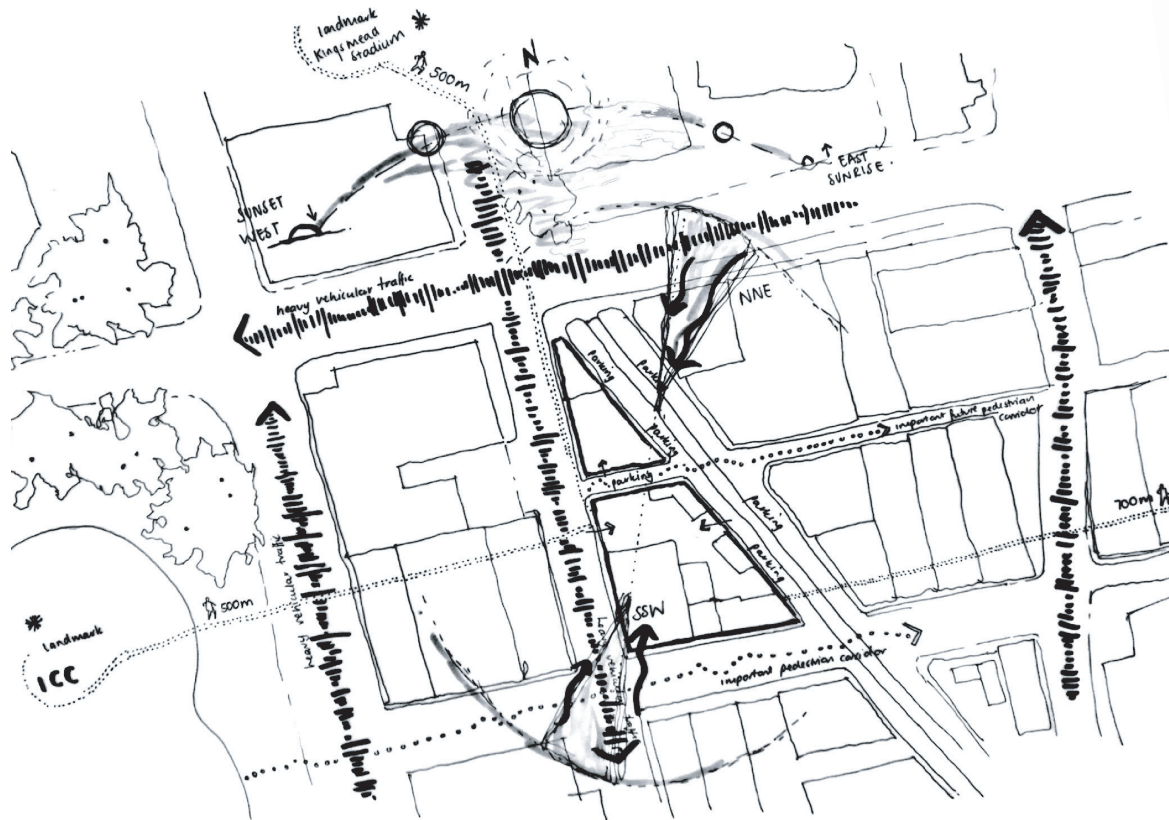


Figure 57: Site Analysis drawing (Author 2021)

Figure 58: Access & Linkages (Author 2021)

# SITE ANALYSIS

## Surrounding Context

The surrounding context consists of light industrial heritage buildings which have been neglected over the years and are largely in dire need of maintenance and repair. The precinct is vehicular orientated, however, with the fine grain scale of single story buildings, this has the potential to be a very comfortable pedestrian-friendly precinct. The use of red clay brick and painted steel windows is predominant in these industrial buildings.



Figure 59: All photographs of surrounding context (Author 2021)