

03

DESIGN INDICATORS

3.1 INTRODUCTION

Design indicators are key informants from the larger precinct which guide the appropriate form, scale, use and massing of the proposed development. The indicators should also inform the design process. Design indicators relate to broader principles of good urban form, and apply to the general precinct.

This section of the document summarises observations and associated indicators to inform the urban design process, and to assist the environmental and heritage process and associated documentation.

The initial observations and associated indicators are categorised under spatial systems, built form, and connectivity.



3.2 SPATIAL SYSTEM

3.2.1 Natural environment

Analysis

As a result of the significance of the natural environment surrounding the site, the enhancement and preservation of the continuity of the ecological and open space systems is one of the key informants for the development of this site.

The adjacent Raapenberg bird sanctuary is an important ecological resource for the city and the immediate area. This is something to be protected and sensitively managed, but also a valuable resource to be celebrated.

A freshwater specialist's report (Day, 2017) has recommended rehabilitating the canalized section of the Liesbeek River into a more natural riverine environment by removing the concrete banks and widening its course. The specialist has recommended a development setback of around 40m along this rehabilitated river course, with variation along the length. The earlier river course to the West of the site is not functioning as a river, mostly consisting of push-back from the confluence, and the report recommends converting this to a landscaped swale, with a 10m development setback. The report recommends a maximum slope of 1:5, preferably 1:7, for all banks.

(NOTE: refer to freshwater specialist's report for final setback and gradient guidelines)

An extensive flood study has been completed, as the site is almost entirely within the floodplain of the two rivers. The study recommended raising the ground level to 6m above mean sea level, a change of between 1-3m across the site. It was found that this would not have a significant effect on flooding in the surrounding area.



3.2 SPATIAL SYSTEM

3.2.1 Natural environment

Indicators

1. Rehabilitate the canalized section of Liesbeek River to improve water flow, flood mitigation and ecological value. Respect the required environmental setbacks from the river edges, and embrace this as an opportunity to introduce public space to their edges as is seen elsewhere along the Liesbeek, potentially including e.g. boardwalks and cycling tracks

2. Celebrate the bird sanctuary through meaningful public space adjacent to it and by setting buildings back from that edge

3. Respect the recommended maximum gradient of 1:7-1:5 along riverbanks to allow their ecologies to function properly

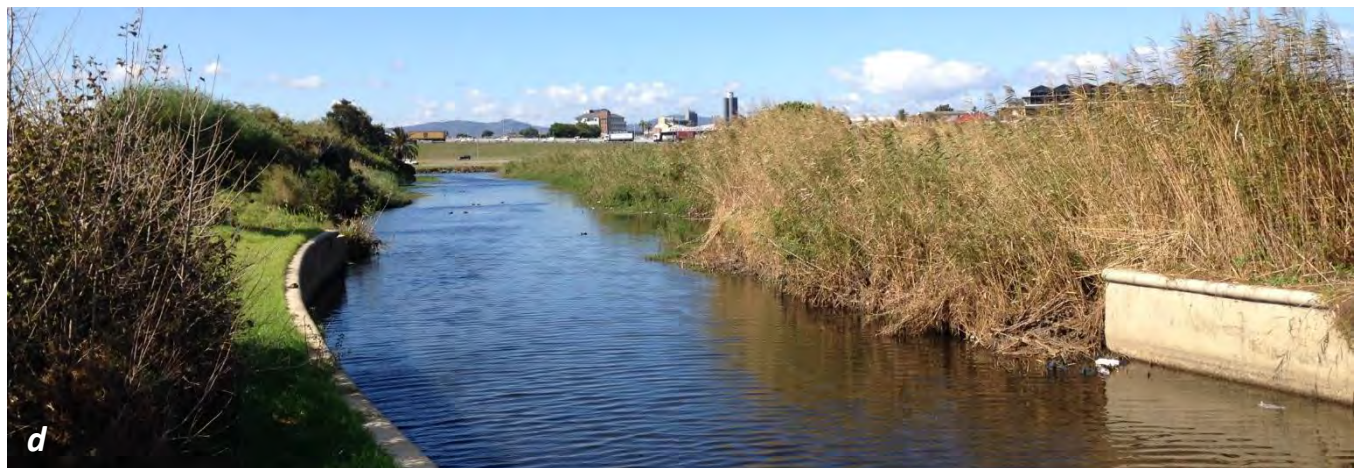
4. Assess the impact of the physical site requirements to deal with the floodlines as an integral part of the design process, and sensitively handle the required raising of the ground level so as not to create blank edges around the development

(a) Standing water in the earlier rivercourse, West of the site, looking North

(b) Canalized river course adjacent to SAAO (on the left) – note collapsing concrete lining

(c) Standing water in the earlier rivercourse, West of the site

(d) Northern end of the canalized river course, where the concrete lining ends alongside the bird sanctuary (right)



3.2 SPATIAL SYSTEM

3.2.2 Vistas and view corridors

Analysis

From the site

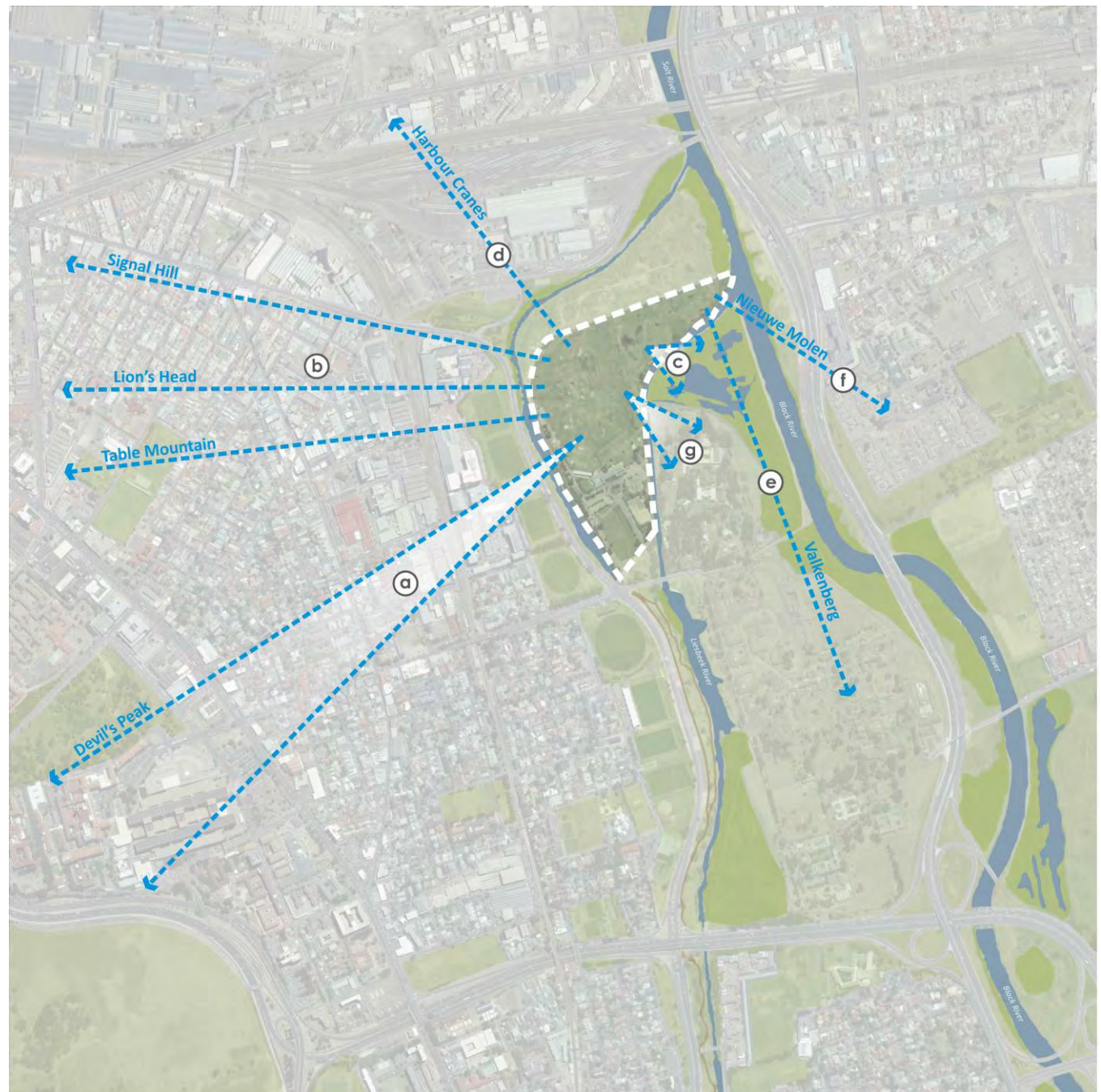
The most significant views and experience of the broader context is the prominence of Table Mountain, Lion's Head, Signal Hill, and most notably Devil's Peak (**a, b**).

A visual connection to the treed environment of the Observatory is evident, though individual buildings are not visible (**g**). One can also see some of the buildings of the Valkenberg Precinct (**e**) and the Nieuwe Molen (**f**) from the North-Eastern part of the site near to the Bird Sanctuary. The views and vistas to both the Observatory and the Valkenberg buildings are not one of the key design informants to the site, but remain a contextual informant to the design.

The immediate views from the site to the rivers and ecological systems are compromised by concrete canal lining (**c**) as and the visual impact and noise from the Liesbeek Parkway, the M5 and other connector routes.

To the site

The site currently provides a great sense of openness amidst relatively dense surroundings (**h**). Future development should maintain a sense of visual permeability through the site from either side.



3.2 SPATIAL SYSTEM

3.2.2 Vistas and view corridors

Indicators

1. Celebrate and define the view corridor to Devil's Peak. The axis of this prominent view corridor aligns with the canal next to the Raapenberg Bird Sanctuary (a)

2. Refer to the significant institutions of the Observatory and Valkenberg in the design process and vision for the site. Although the buildings themselves are not visually prominent, the elevated ground they are located on should remain legible as a ridge within the wetlands and low-lying surrounds.

3. Utilize the new development form and proposed canal revitalization to improve the experience of the river banks and bird sanctuary (c) i.e. defining the edges of the rivers and mitigating the impact (visual and noise) of the road system

4. Maintain a sense of openness and visual permeability through the site from both sides

(a) Prominent view corridor to Devil's Peak with river and wetlands to the left

(b) Views towards Signal Hill, Lion's Head and western portion of Table Mountain

(c) Current experience of the Raapenberg Bird Sanctuary wetlands along the canalized rivercourse



*d**f**e**g*

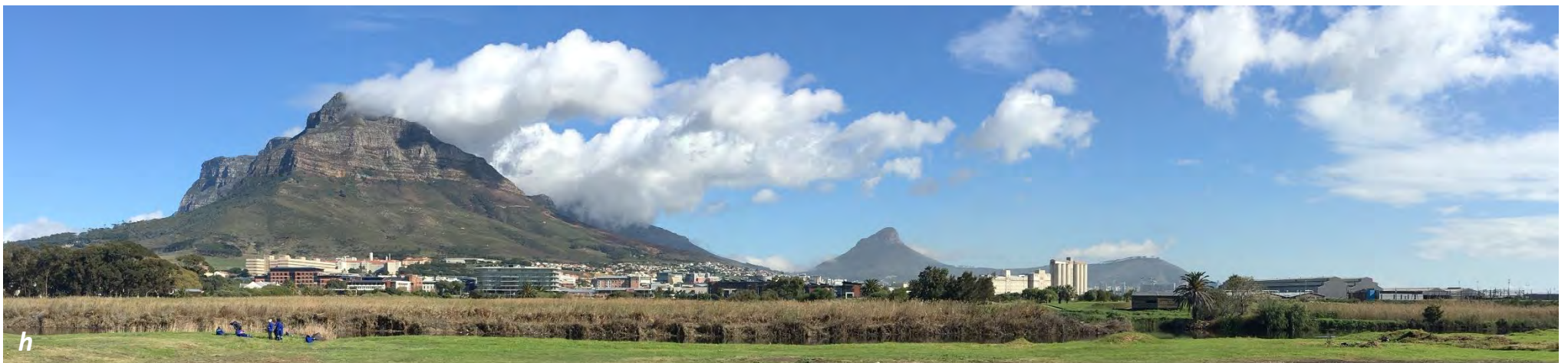
(d) View to the north: harbor cranes visible to the left, and PRASA sheds as visual barrier to the right

(e) Distant view of Valkenberg historic precinct across the wetlands

(f) View of historic Nieuwe Molen across the canalized Liesbeek River, wetland and Black River to the east

(g) The SAAO complex is experienced as a treed presence in the landscape, rather than the buildings themselves

(h) View across the site from Black River Parkway (M5) – a sense of openness in the urban fabric, with a dramatic mountain backdrop

*h*

3.2 SPATIAL SYSTEM

3.2.3 Public realm

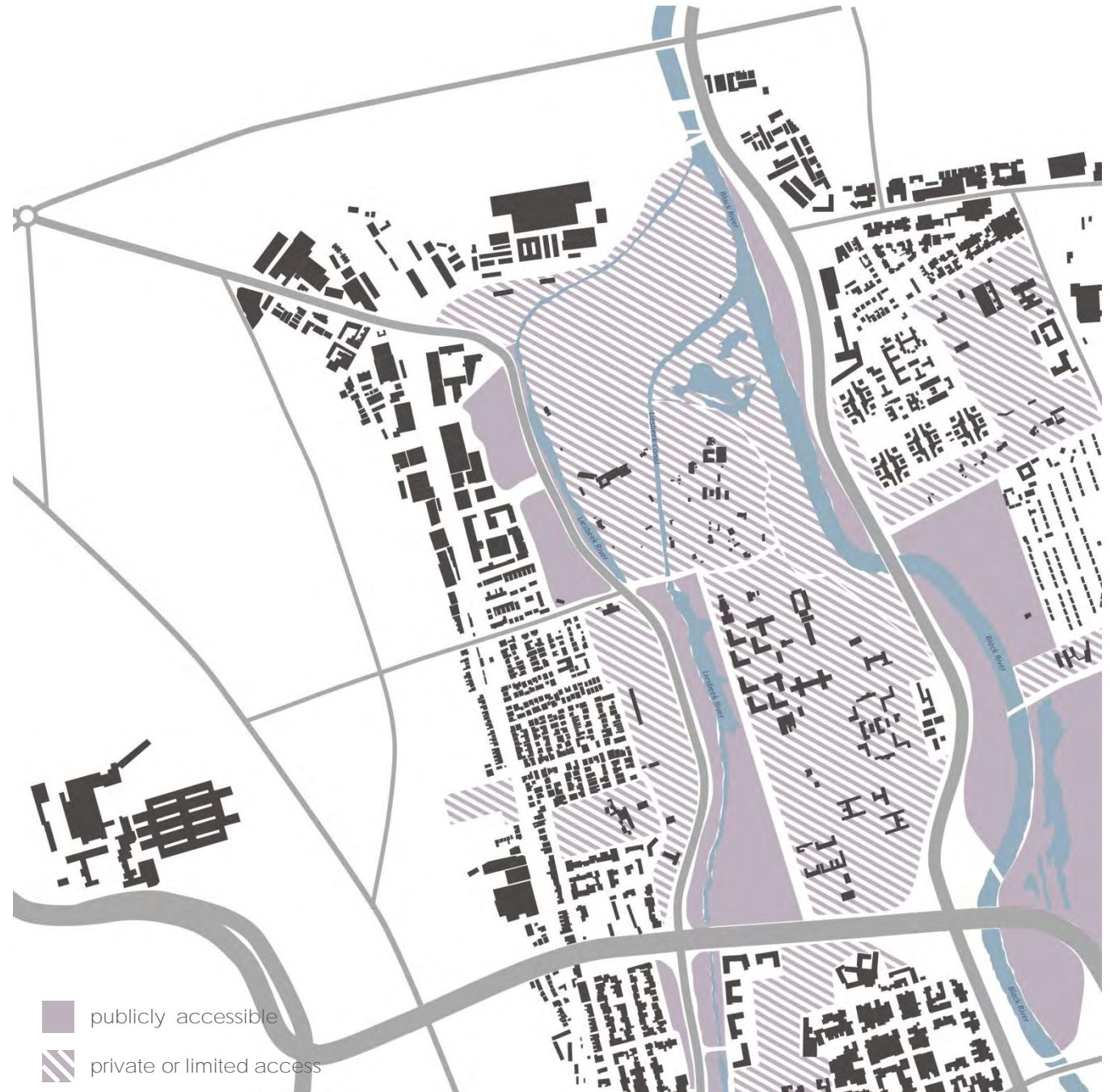
Analysis

The site is currently not accessible to the general public, as this is a private property. The same is true for much of the land in the immediate vicinity, which has the character of openness but is in fact largely private or institutional land and not physically accessible to the general public.

The public walking route from the south along the Liesbeek River (adjacent to the Valkenberg site) currently terminates at the Station road intersection where the river becomes canalized.

Indicators

1. Ensure the continuation of the walking routes beyond the Station road intersection along the rehabilitated canal. Use this revitalized river corridor to provide legibility and connectivity
2. Retain and reinforce the physical connection (creating spaces for people) with both rivers and Raapenberg Sanctuary
3. Include the experience of the Raapenberg Bird Sanctuary as an integral part of a continuous public space system, extending and enhancing the existing systems along the rivers
4. Recreational activities are strongly encouraged as part of the public space system, as this brings 'feet' to the area, creating eyes on the street and open spaces to assist with the security and surveillance of the public areas



3.2 SPATIAL SYSTEM

3.2.4 Land use

Analysis

The land use of the immediate surrounding areas is diverse, but beyond this, low-rise residential dominates with some office parks, schools etc.

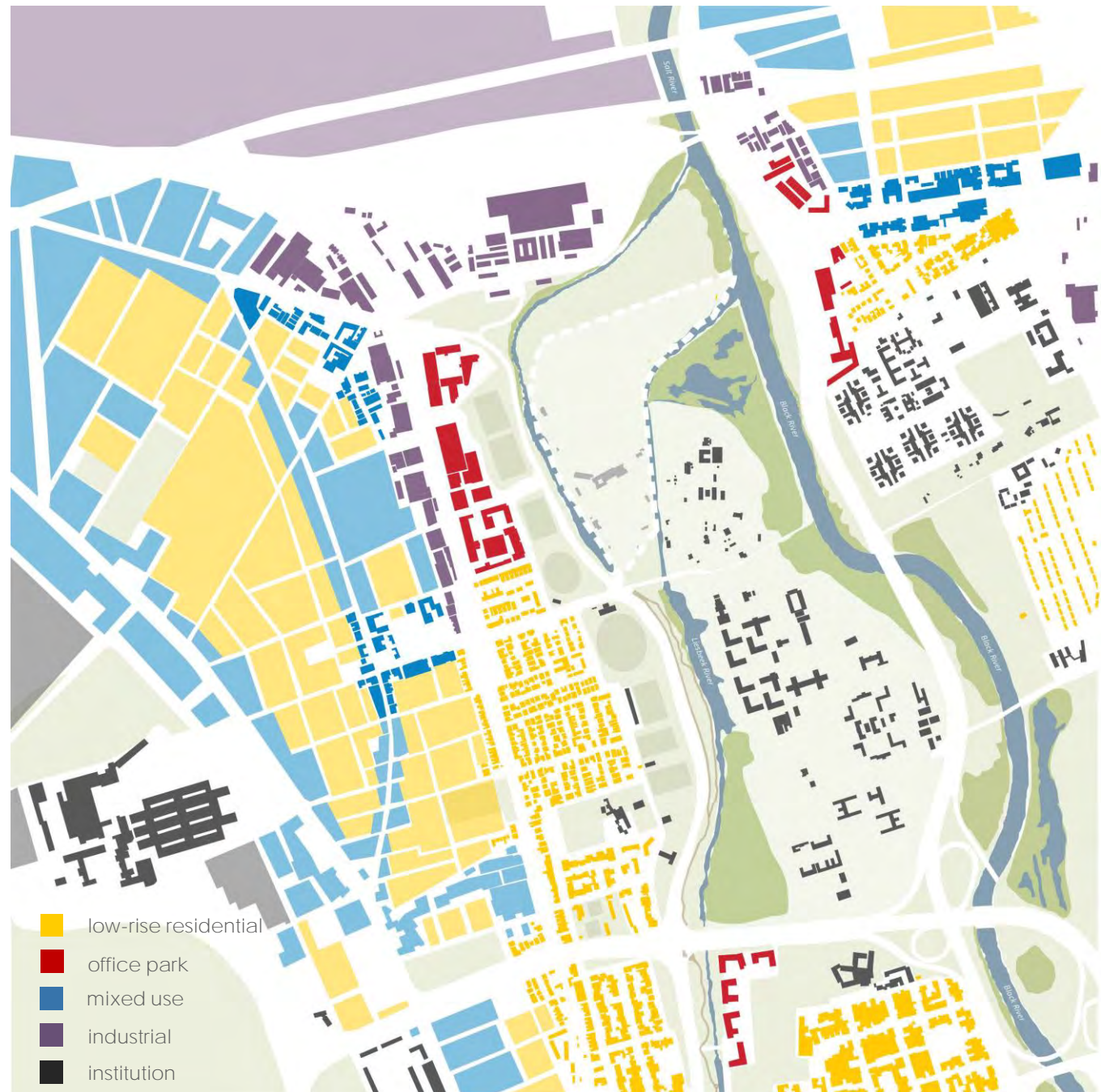
An office park (Black River Park) dominates most of the built form edge to the West of the site, with mixed uses (office, residential and light industrial) towards Salt River and Woodstock.

The areas South of the site are dominated by institutional uses. The Alexandria Psychiatric hospital is located to the East, with light industrial beyond.

The site is however very separate from the areas to the East, as the M5 highway and the adjacent Black River form a large barrier.

Indicators

1. Promote a mix of uses (private and publicly accessible) on the site to compliment the existing uses within the surrounding areas
2. Ensure that the various uses on the site be integrated. Avoid a repeat of e.g. isolated office park models



3.3 HERITAGE SIGNIFICANCE

Background

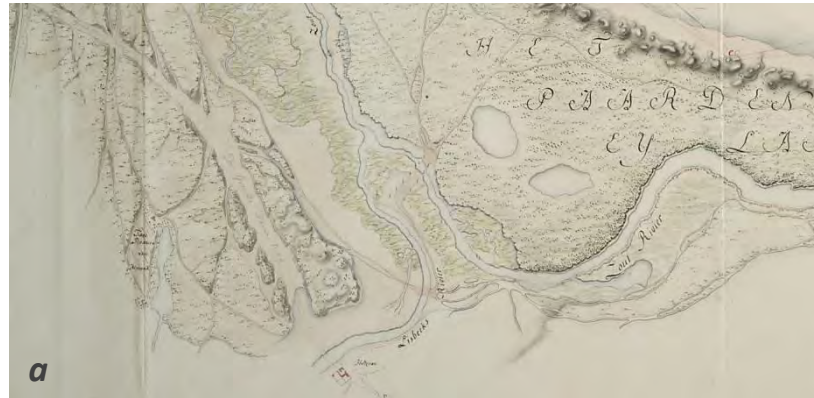
The convergence of the Black and Liesbeek rivers is a highly significant cultural and historical landmark. It represents an important seasonal crossing point for the pre-colonial Khoekhoe herders, an early site of conflict between these indigenous peoples and foreign settlers, and the site of early colonial fortifications and settlements. These historical significances result from the physical qualities of the rivers, the floodplain, the wetlands and the low ridge now occupied by SAAO.

The floodplain has largely been dredged and developed and the physical crossing point has been lost. The proposed high-order road to the North, and the proposed tall SKA office building to the South, will further alter the experience of the floodplain.

The symbolic and historical importance of the site is not in artefacts or buildings, but is represented by the natural environment. Hart and Townsend (2017) have proposed that the Liesbeek River – both the canalized and the earlier course, the confluence, and the banks – is the significant heritage resource on the site.

The meeting of the two rivers in the North-East corner of the site is the closest accessible bank to the historical crossing and this should be celebrated and respected in the proposed development.

The SAAO complex is experienced in terms of its substantial tree canopy, and development should be sensitive to this. Views to and from the individual buildings have mostly been lost and are not necessary to preserve or recreate. Valkenberg and the Nieuwe Molen are not strongly experienced from the site and therefore have low contextual significance.



(a) Early map showing the river crossing (Atlas Afrika; from Hart & Townsend, 2017)



(b) Excerpt from Van Der Graaff compilation map [1786] depicting the confluence of the rivers (Brommer, B., 2009)



(c) 1935 map showing a large portion of the Liesbeek River straightened, much of the Salt River estuary filled for railway development, and sports fields indicated on the River Club site (Chief Directorate: Surveys & Mapping)

(d) The Royal Observatory, Thomas Bowler [1854] (from Baumann, 2011)

(e) View of the SAAO hill across the wetland from where the M5 is today, with Devil's Peak and Lion's Head in the background (Mike Fortune Collection; from Hart & Townsend, 2017)

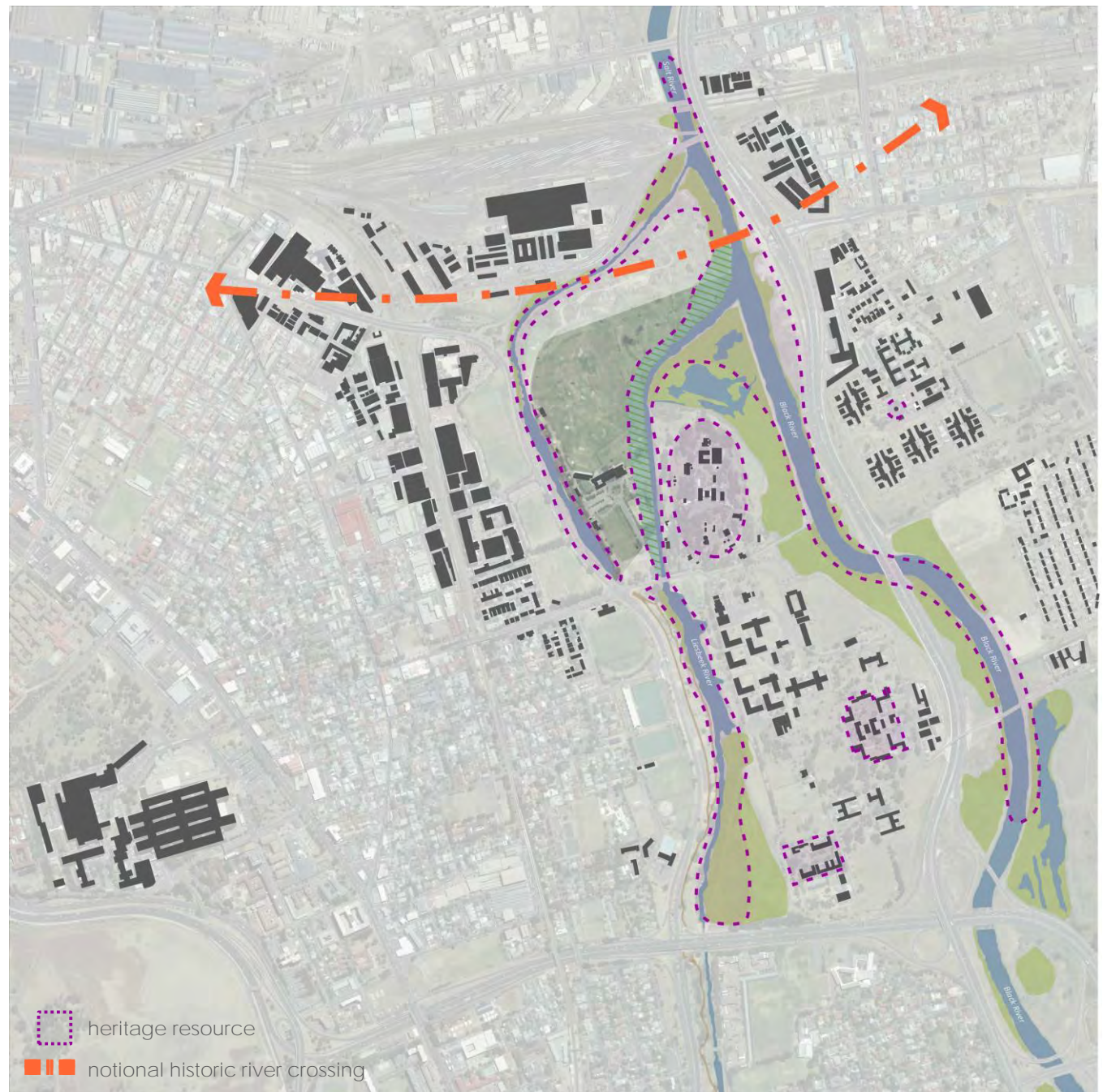


3.3 HERITAGE SIGNIFICANCE

Indicators

1. The canalized Liesbeek River should be rehabilitated to create an appropriate sense of “river-ness” which will become legible as the floodplain of the river. This should facilitate ecological well-being (flora and fauna) as well as public amenity (walking and cycling).
2. Development adjacent to the Observatory complex should be lower nearest the rehabilitated river course and step back to a higher level, ensuring the legibility of the hill and its tree canopy.
3. The earlier river course West of the site no longer functions as a river but its shape or presence in the landscape should be retained.
4. Development should have a substantial setback from the confluence in the North-East corner of the site. This space should be used to identify and celebrate this history, and there is the opportunity for a commemorative area, facility and/or event space in this location.

Heritage information and design indicators by Hart & Townsend (2017).



3.4 BUILT FORM

3.4.1 Scale and fragmentation

Analysis

The built form of the surrounding areas presents a variety of scale and grain.

Immediate context

The PRASA rail yards are located to the North of the site. The buildings are approximately 150-300m long. These monolithic buildings have a significant impact on the nature of, and the experience from, the site.

The Black River Park to the West of the site has buildings of up to 100m long.

The M5 office park is located adjacent to the M5 to the East of the site, and, in conjunction with the M5 itself, dominates the visual experience from the North Eastern corner of the site.

The Observatory (and Valkenberg further beyond) is located to the East of the site. These precincts are of a very different nature, with buildings set within a well-treed landscape. The future plans for the Valkenberg precinct, currently underway, do however change this distinct character, and propose a denser development.

Context beyond

The areas Salt River and Observatory have a strong rectilinear grid, with buildings which are built to the street edges, of a fine grain and limited heights.

Other precincts such as the Alexandra Psychiatric Hospital, Maitland Garden Village and Oude Molen Village also have a finer grain, while Ndabeni industrial area (further to the East) has larger, monolithic buildings. These precincts do not have a direct visual impact on the site.



3.4 BUILT FORM

3.4.1 Scale and fragmentation

Indicators

The proposed built form of the new development should take cognizance of the grain and nature of surrounding fabric:

1. Buildings within a landscape (public facilities, recreational buildings) to be associated with the open space system; this will assist with the use and activation of open spaces
2. More continuous buildings that define spaces and create active edges (e.g. perimeter block buildings) to be allocated in areas for noise and visual impact mitigation, as well as protection against the elements as required
3. Development should utilize a rectilinear grid in keeping with Observatory and adjacent suburbs



3.4 BUILT FORM

3.4.2 Building heights

Analysis

The building height in surrounding areas can be described as follows:

Immediate context

The PRASA rail yards are located towards the North and while the height of these buildings is only approx. 20-25m, these monolithic buildings have a significant impact on the site.

The Black River Park to the West of the site has buildings of heights that vary between 4-9 storeys.

The M5 office park is located adjacent to the M5 to the East of the site, and, in conjunction with the M5 dominates the visual experience from the North Eastern corner of site. The buildings are 3-4 storeys.

The Observatory (and Valkenburg further beyond) is located to the East of the site. These precincts are of a very different nature, with buildings set within a landscape. Buildings are one and two storeys high, built on higher ground.

Context beyond

The Salt River and Observatory areas to the west of the site have limited heights.

Other precincts such as the Alexandra Psychiatric Hospital, Maitland Garden Village and the Oude Molen Village have relatively low heights. Ndabeni industrial area (further to the East) has larger, monolithic buildings with very few tall buildings.

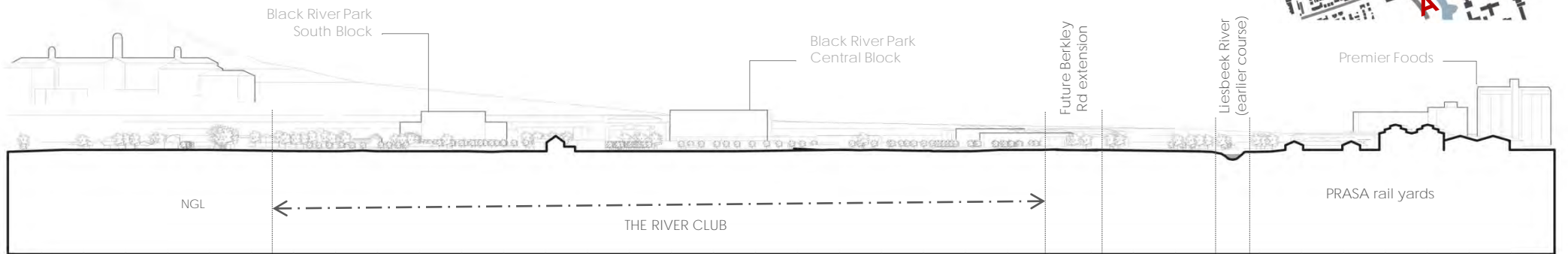
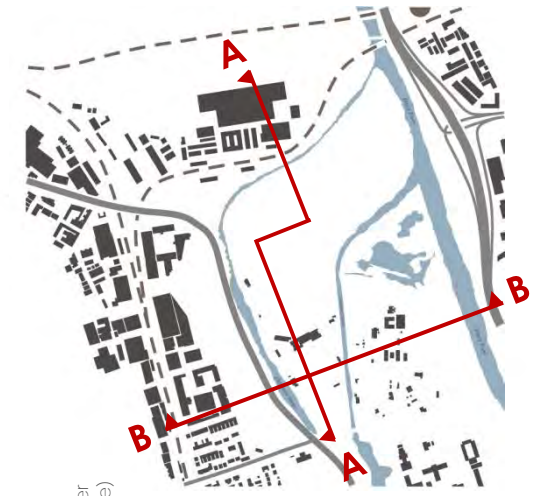
(note: 1 storey typically represents 3-5m in height depending on the land use)



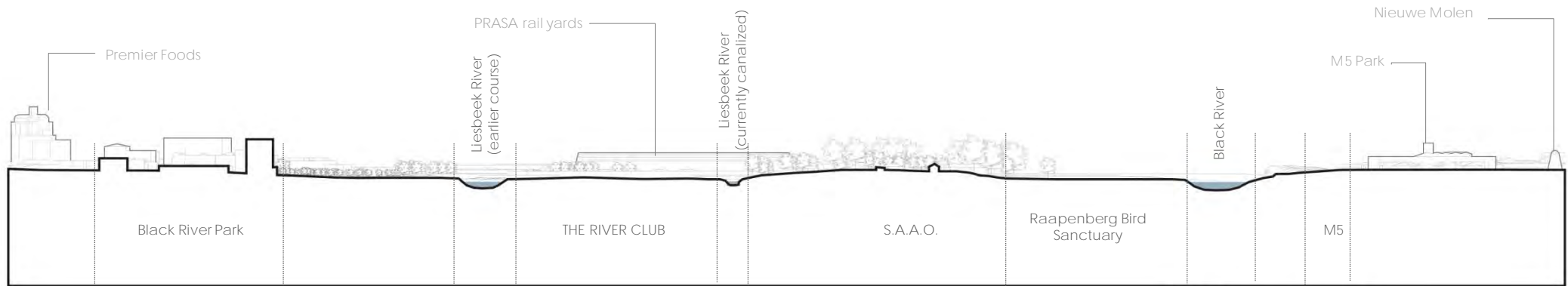
3.4 BUILT FORM

3.4.2 Building heights

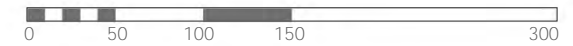
The site sections below are aimed at giving an indication of the existing gradient of the site, as well as to indicate the heights of buildings adjacent to the site.



Site Section AA



Site Section BB



3.4 BUILT FORM

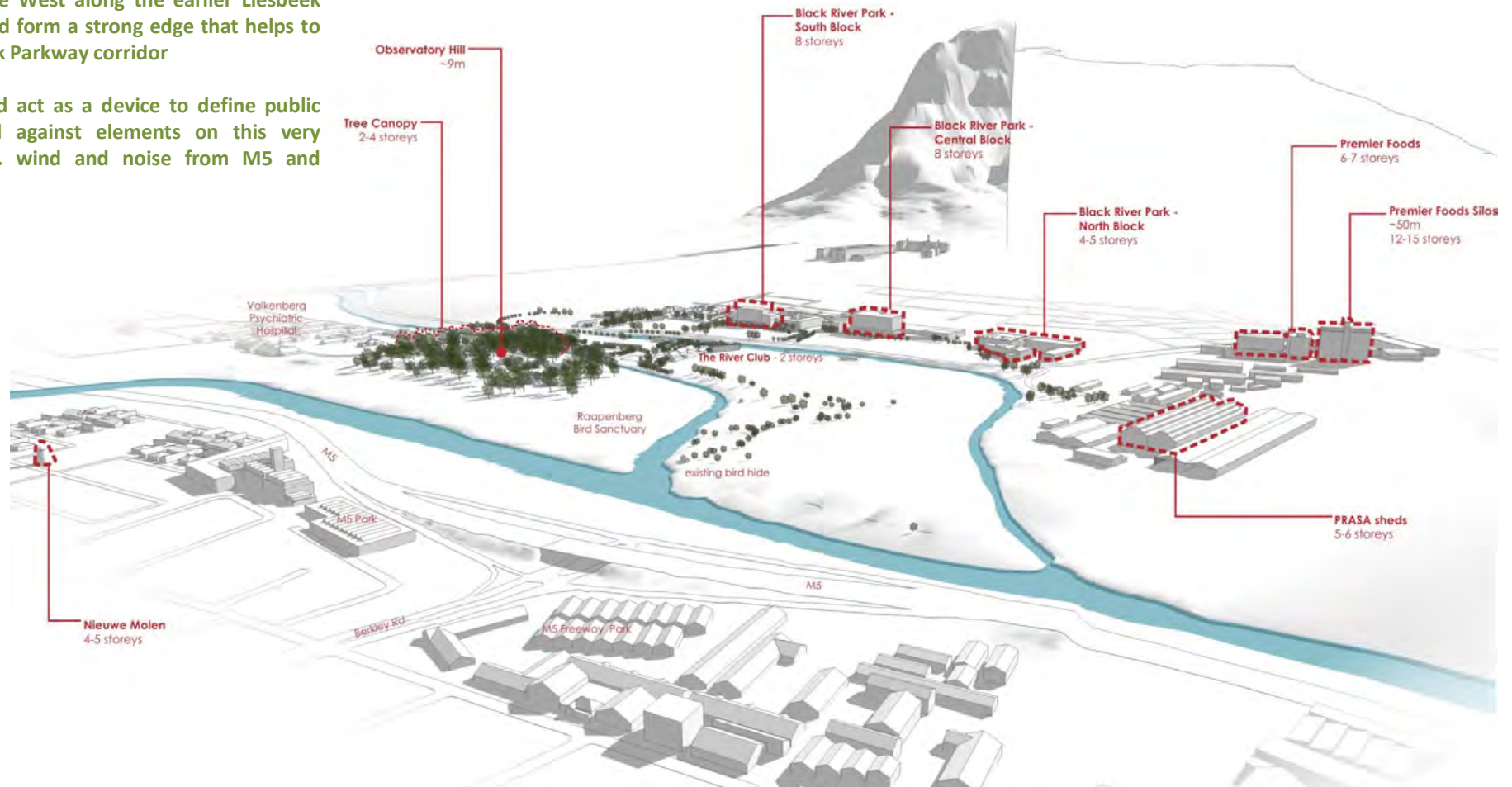
3.4.2 Building heights

Indicators

1. Scale of buildings in close proximity to the Observatory to be respectful of the scale and character of it, so as not to detract from its significance

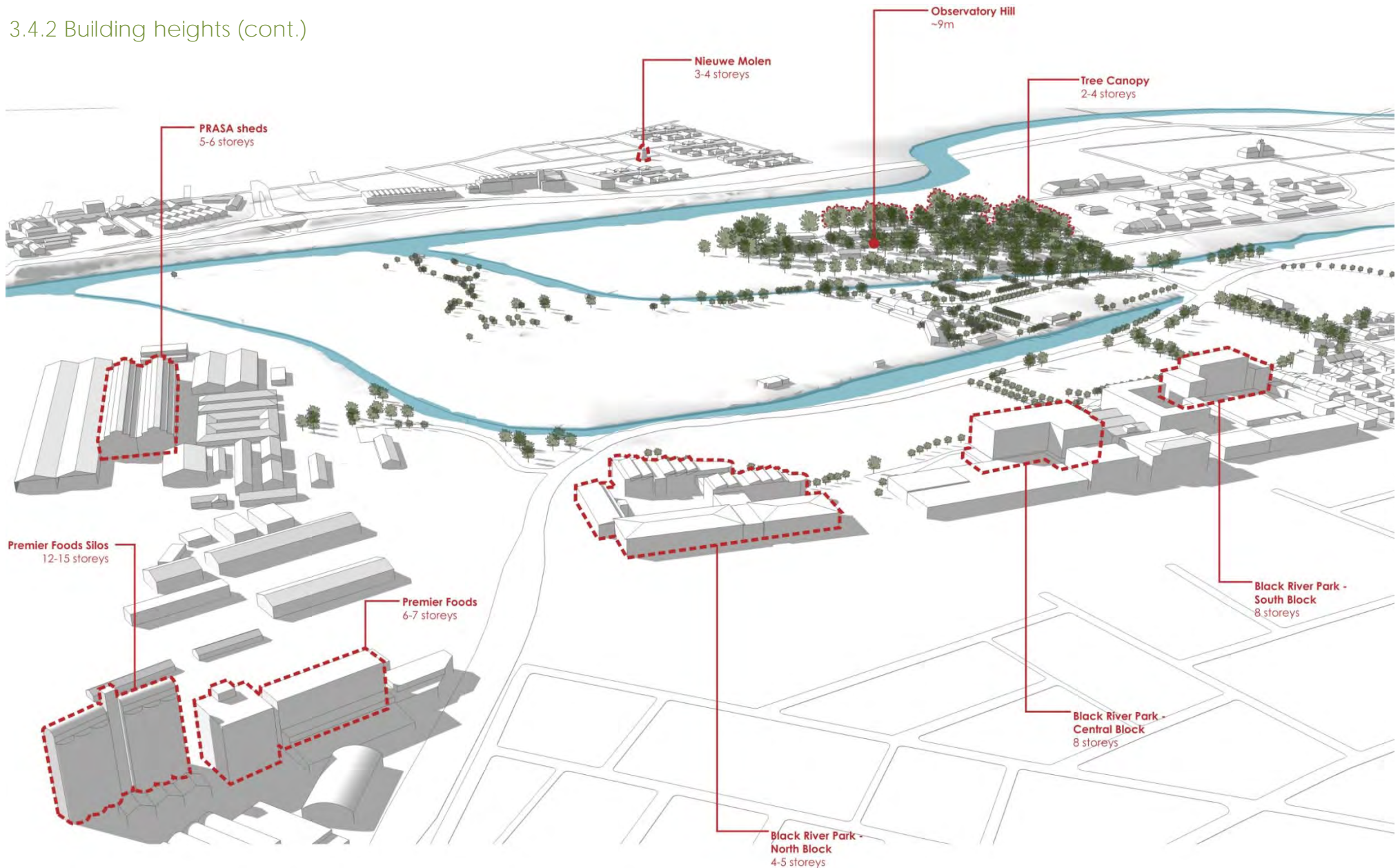
2. Buildings on the West along the earlier Liesbeek River course should form a strong edge that helps to define the Liesbeek Parkway corridor

3. Buildings should act as a device to define public space, and shield against elements on this very exposed site, e.g. wind and noise from M5 and Liesbeek Parkway



3.4 BUILT FORM

3.4.2 Building heights (cont.)



3.4 BUILT FORM

3.4.3 Landmarks and gateways

Analysis

Landmarks

As discussed in **3.4 Heritage Significance**, the site forms part of a historical landmark at the confluence of the two rivers. The site has a rich and significant pre-colonial history but almost no tangible remnant thereof, only the physical features of the landscape.

The Observatory hill with its large tree canopy is an important landmark (giving its name to the adjacent suburb). The Valkenberg complex is another historical landmark in the area and forms part of the cultural landscape, but it has little visual impact on the site.

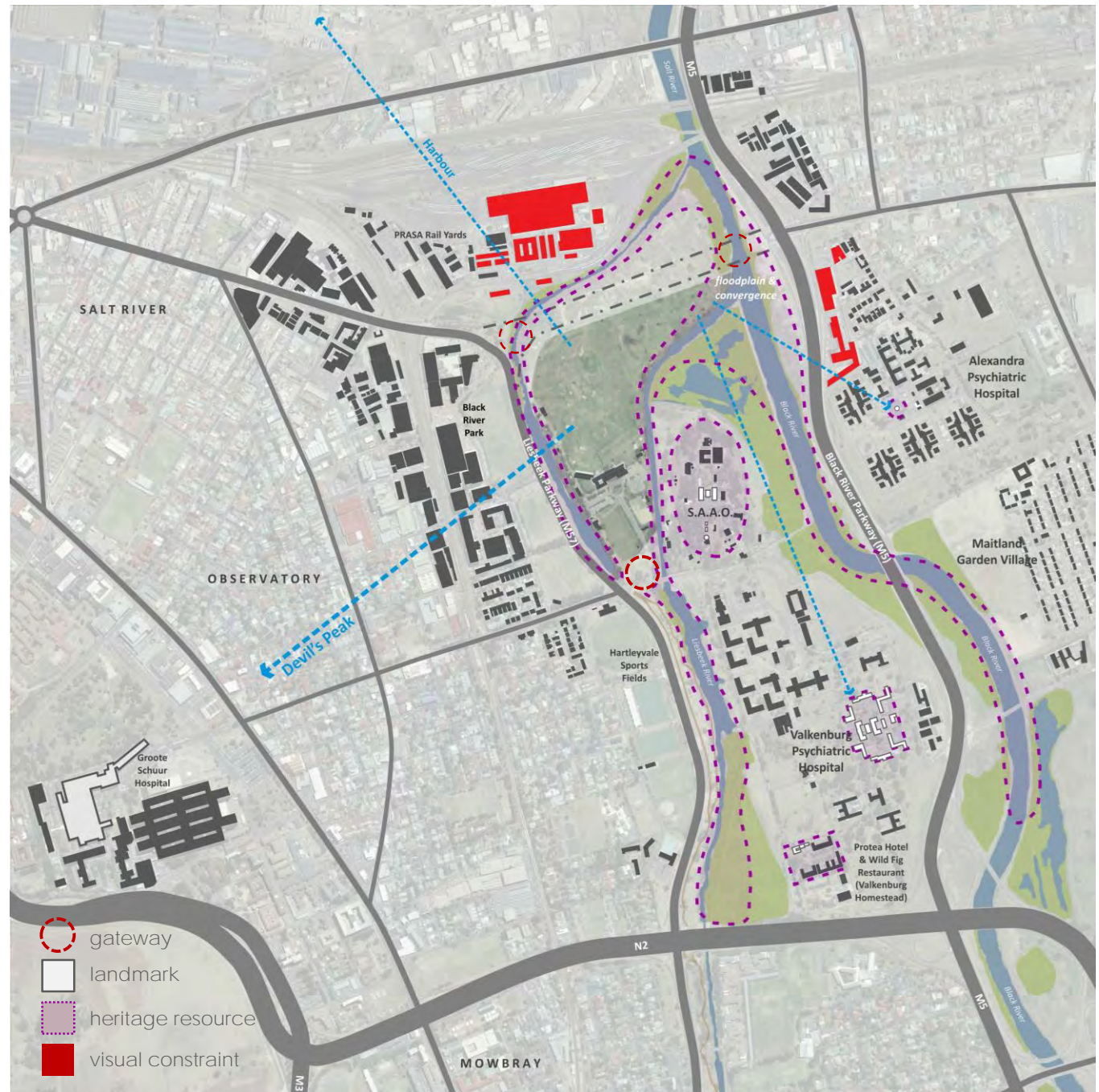
Other historic landmarks such as Nieuwe Molen in the East and Groote Schuur Hospital to the South-West are visible from the site but are not significant as experienced on site. Glimpses of the harbour cranes connect the site to the sea, and the silos to the North-West of the site are clearly visible.

As previously mentioned, the mountain peaks are among the most prominent landmarks experienced from the site.

Gateways

The existing entrance from Station Road is seen as a gateway to the site, though the tree-lined entrance avenue is not part of an historic landscape pattern (not evident on aerial photography dated before 1944).

The future Berkley Rd extension will potentially transform the Northern part of the site into a gateway between Maitland and Pinelands in the East and Salt River and the City in the West, but this is difficult to assess at the present.

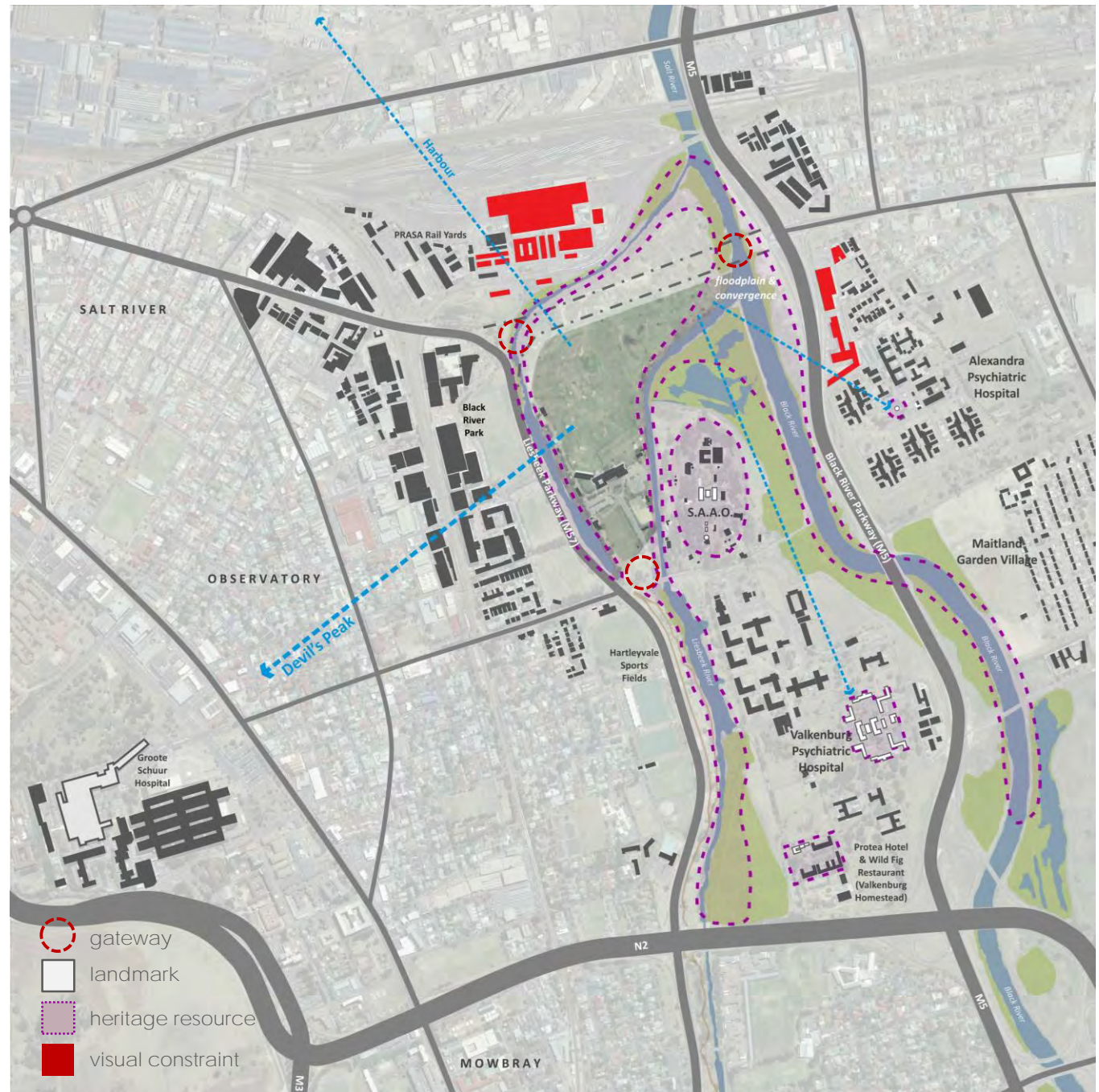


3.4 BUILT FORM

3.4.3 Landmarks and gateways

Indicators

1. The significance of the convergence of the rivers should be respected and enhanced. Built form should step back from the rivers at this point to allow this part of the landscape to be experienced and celebrated in its own right.
2. New buildings proposed adjacent to the Observatory site to be respectful of this precinct. The scale and form of buildings in this location to be fragmented and varied to avoid large monolithic buildings.
3. Ensure that the key landmarks in the immediate as well as broader context be acknowledged, and defined within the new public open space system for the site.
4. Include the existing entrance to the site from the South as a key vehicular/pedestrian link into the new development
(note: this is contingent on the nature of the SKA development on this site)



3.5 CONNECTIVITY

3.5.1 Roads, access and parking

The site is strategically located adjacent to the Liesbeek Parkway (M57) and the M5, with easy access to the N2 and areas beyond. These roads do however have a significant impact on the quality of the open space system in this area.

The most notable impact on the design of this precinct from an infrastructural point of view, is the Berkley Road extension. The Station road link to the site is also an important integrator route.

The site is also within comfortable walking distance of two train stations – Observatory to the South-West, and Koeberg to the North-East.

Indicators

1. The Berkley Road extension is one of the key informants for the design of this new precinct within Cape Town. Encourage linkages to the area North of the extension to ensure that the convergence of the rivers and surrounding area is not 'cut off' from the site and green areas beyond by the new road
2. Ensure optimal connectivity but avoid a 'rat-run' through the site. The site should be considered as a destination rather than a thoroughfare
3. Parking: The challenges of the water table to be addressed. Open surface parking areas to be provided (i.e. not only basements) and these should be contained in smaller areas
4. Conform to future design controls related to activity on streets and associated spaces



04

URBAN DESIGN
RECOMMENDATIONS

4.1 SPATIAL SYSTEM

4.1.1 Integration of environmental aspects and view corridors

- Rehabilitate the canalized river course, and include the experience of this, the Raapenberg Bird Sanctuary and the Observatory complex as an integral part of a continuous public space system
- Enhance the physical connection with the Liesbeek River – both the earlier course and the rehabilitated canal – and the Raapenberg Sanctuary by creating and defining spaces for people
- Maintain a substantial open green space in the heart of the site as a pedestrian and ecological link between the two river corridors, to celebrate the experience of Devil's Peak and maintain visual permeability and a sense of openness
- Locate publicly accessible amenities throughout the site, along the edges of the central open space and the green riverine corridors
- Ensure legible, integrated pedestrian movement system which is in line with the NMT networks and plans for the surrounding areas. It is recommended that this forms part of the river interface



4.1 SPATIAL SYSTEM

4.1.2 Public Realm Continuation

A significant publicly accessible open space system is recommended in order to welcome people into the site, maintain the site's sense of openness and continuity, and to add value to the broader urban realm.

- a) Provide public space along the edge of the rehabilitated canal as well as the earlier river course, for walking, cycling and leisure, as a continuation of the existing public space network South of the site (*see indicators*). Use staggered building footprints to define spaces along the rehabilitated river course
- b) Extend this space across the site, connecting the two river corridors, bringing people into the development. The central area has the potential to be used for public recreation, as it is less ecologically sensitive than the river edges
- c) The recommended development parcels should be visually and physically permeable to pedestrians, to help integrate the different spaces within and around the site
- d) Land uses to include a combination of commercial, residential, retail, as well as public facilities



4.2 BUILT FORM

4.2.1 Fragmentation of building form

A variety of building forms should be introduced to ensure varied grain and fragmentation.

- a) It is recommended that the larger building forms be located to the north of the site. The street grid proposed for this area of the site relates to the rectilinear grid of surrounding urban fabric. It is however important to create another level of fragmentation with a variety of roofs, at varying heights
- b) A finer grain in building form is proposed to the South, in proximity to the Observatory
- c) Buildings adjacent to the rehabilitated canal (next to Observatory) to be free-standing in areas with small footprints. No continuous perimeter block buildings are recommended along this edge
- d) Buildings along the public open space on rivers and central open space to have a level of continuity in façade treatment to ensure a well-defined edge condition, enabling active edges in areas



4.2 BUILT FORM

4.2.2 Building heights

The recommended height envelope for the site was mainly derived from the following indicators: height and scale of buildings in immediate context (PRASA Rail Yards, Black River Park, Observatory), as well as the significant visual and noise impact of the M5 freeway.

The height and scale of context further away was also considered, but its impact on urban design recommendations is mainly dealt with under land uses, scale and fragmentation.

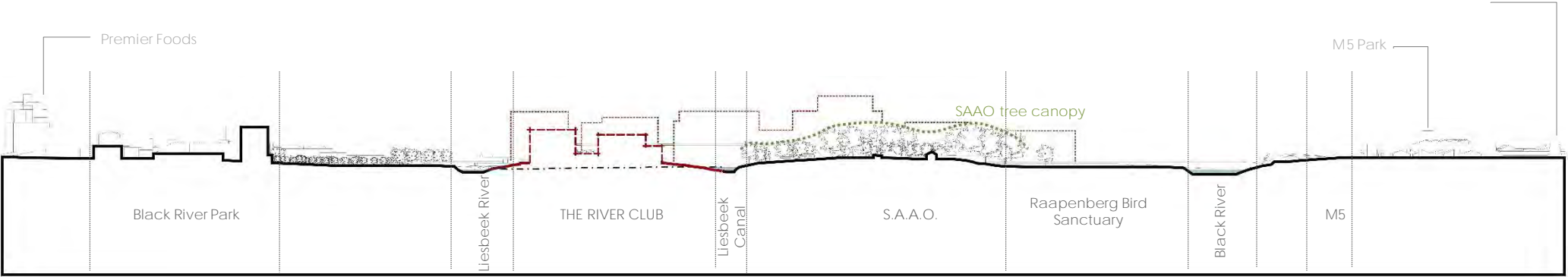
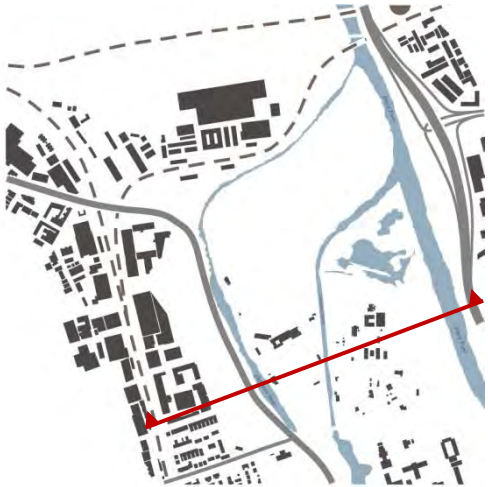
- It is recommended that the taller building forms be located to the north of the site. This will assist in defining the Berkley Road edge, and will play a role in defining public areas on this very exposed, noisy site.
- Lower buildings are recommended to the South (Observatory proximity). The tree canopy of the Observatory site is most prominent, and should not be overshadowed (the Observatory itself is not clearly visible from the site)
- The opportunity to include **focus buildings*** (slightly taller than adjacent built form) is noted. Two key positions are identified: the first is to signal the entrance point from Berkley Road; the second is proposed in close proximity to the other entrance to the site from Liesbeek Parkway, and suggests a focus building on the new public park. It is recommended that this building has a mix of uses, for example retail and hotel/conferencing.



4.2 BUILT FORM

4.2.3 Building heights

The indicative site section below is aimed at giving an indication of the suggested height envelope (i.e. **maximum** heights).



Indicative Site Section



4.3 CONNECTIVITY

4.3.1 Site integration and accessibility

The diagram alongside identifies key routes to ensure an accessible, integrated structure. Please note that a second level of movement routes (e.g. pedestrian routes alongside the river's edge) will be vital from a public point of view, and will be a key component in the detail design development phase.

It is recommended that the following objectives be achieved in the design of the site's movement system:

- The ability to traverse the site, and integrate the site with surroundings, without creating a 'rat-run' for vehicles
- Continuity of public access and pedestrian movement throughout the site
- The vehicular system to include public transport node(s) to alleviate private transport pressures
- Access points: the proposed Berkley Road extension has been identified as a class 2 road in the transport & planning frameworks. From a planning and urban design perspective it is recommended that multiple intersections be considered into the site, as this will encourage more of an activity-type road (integrator). Other access points include the proposed Liesbeek access, and the existing site access from the Station Rd extension. This entrance is not guaranteed as it crosses the neighbouring property, but is desirable as it integrates the site with its surroundings.



4.4 CONCLUSION

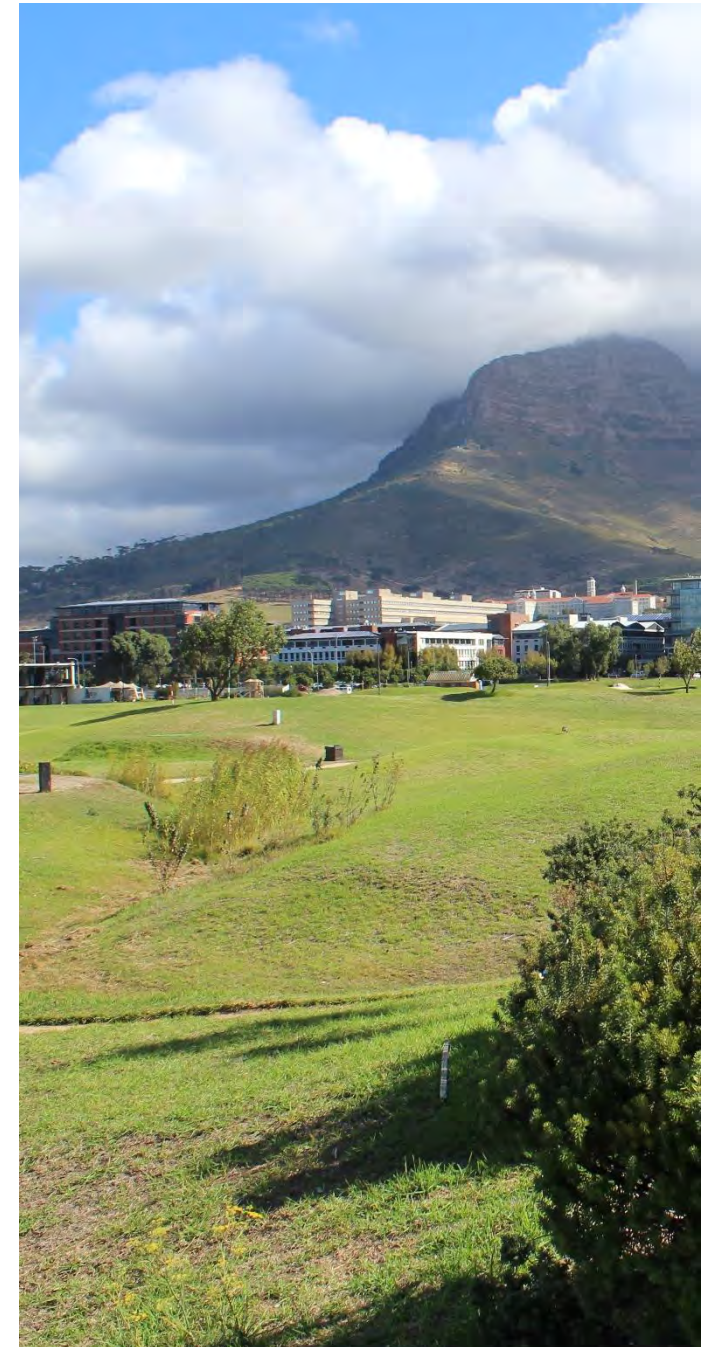
The indicators and recommendations in this document establish guidelines for the responsible development of this important site.

The spatial recommendations seek to provide a coherent urban form which relates to its surroundings while retaining the site's unique sense of place, and enhancing the views from, into, and through the site. Emphasis is placed on well-defined public space allowing pedestrians access to the rivers and through the site, with commercial and other activity considered as a way to increase safety and vibrancy.

The most important recommendation from urban design, heritage and environmental perspectives, is the revitalization of the Liesbeek River by removing the concrete canal, reintroducing planted banks and widening its course to create a more natural river-like environment. This is an opportunity to improve its ecology and the surrounding ecosystems, as well as creating a special place for pedestrians to experience the river.

The interpretation of heritage indicators is intended to respect and enhance the major historical and cultural significance of this resource, most notably the Liesbeek River. The experience of this landscape should be made more accessible to the public, and its historical importance made legible.

In addition to the above indicators, it is suggested that a cultural, historical and environmental resource or interpretation center be developed on the site. This could educate the public on the significance of the site and the broader precinct, including nearby sites such as SAAO and Valkenberg, as well as the rivers and wetlands as cultural and ecological resources.



ANNEXURE B
Alternative 1 Feasibility Analysis



QUANTITY SURVEYORS

RIVER CLUB

INDICATIVE IMPROVEMENT COST

SCHEME 5 REVISION 2 ALTERNATIVE 1 RIVERINE CORRIDOR ALTERNATIVE

MLC - 0000

20-Jun-19

SCHEDULE "A"

EXECUTIVE SUMMARY

A AREA SUMMARY			
1.00	GROSS BUILDING AREA EXCLUDING PARKING	m ²	144,790
2.00	GROSS LETTABLE AREA	m ²	129,363
3.00	% EFFICIENCY		89.3%

B CAPITAL COST	COST / GBA m ²	COST / GLA m ²	% OF TOTAL COST	TOTAL COST	
	R	R		R	
1.00	LAND COST				
1.01	Land Cost	1,990	2,227	6.5%	R 288,101,000
1.02	Bulk Infrastructure Contributions	499	558	1.6%	72,183,000
	SUBTOTAL - LAND COST	2,488	2,785	8.1%	R 360,284,000
2.00	IMPROVEMENT COSTS				
2.01	Construction Cost	17,137	19,180	55.6%	2,481,208,000
2.02	Contingency Allowance	857	959	2.8%	124,060,000
2.03	Cost Escalations	1,812	2,028	5.9%	262,394,000
2.04	Professional Fees	2,698	3,019	8.8%	390,607,000
	SUBTOTAL - IMPROVEMENT COSTS	22,503	25,187	73.1%	R 3,258,269,000
3.00	GENERAL COSTS				
3.01	Non Taxable Costs	9	10	0.0%	1,317,000
3.02	Taxable Costs	2,047	2,292	6.6%	296,451,000
3.03	Capitalised Interest	3,755	4,203	12.2%	543,651,000
	SUBTOTAL - GENERAL COSTS	5,811	6,504	18.9%	R 841,419,000
4.00	VAT				587,251,000
	TOTAL CAPITAL COST INCLUDING VAT				R 5,047,223,000
5.00	VAT RECOVERY				(587,251,000)
	TOTAL IMPROVEMENT COST EXCLUDING VAT	30,803	34,476	100%	R 4,459,972,000

C VIABILITY ANALYSIS				
1.00	GROSS FIRST YEAR INCOME	129,363 m ² @ average f	299.36	R 464,720,000
2.00	FIRST YEAR OPERATING COSTS	13.5%	R 40.41	(62,737,000)
3.00	NET FIRST YEAR INCOME			R 401,983,000
4.00	NET FIRST YEAR RETURN (BEFORE TAX)			9.01%

5.00 ESTIMATED RATES AND TAXES ON COMPLETION

BULK AREA	m2	ESTIMATED VALUATION	TARRIF	& TAXES
146,790		3,921,785,000	0.012795	R50,179,000

ANNEXURE C
Alternative 2 Feasibility Analysis

SCHEDULE "A"

EXECUTIVE SUMMARY

A AREA SUMMARY			
1.00	GROSS BUILDING AREA EXCLUDING PARKING	m ²	144,790
2.00	GROSS LETTABLE AREA	m ²	129,363
3.00	% EFFICIENCY		89.3%

B CAPITAL COST	COST / GBA m ²	COST / GLA m ²	% OF TOTAL COST	TOTAL COST	
	R	R		R	
1.00	LAND COST				
1.01	Land Cost	1,990	2,227	6.4%	R 288,101,000
1.02	Bulk Infrastructure Contributions	258	289	0.8%	37,401,000
SUBTOTAL - LAND COST		2,248	2,516	7.2%	R 325,502,000
2.00	IMPROVEMENT COSTS				
2.01	Construction Cost	17,561	19,655	56.4%	2,542,608,000
2.02	Contingency Allowance	878	983	2.8%	127,130,000
2.03	Cost Escalations	1,857	2,079	6.0%	268,887,000
2.04	Professional Fees	2,762	3,092	8.9%	399,939,000
SUBTOTAL - IMPROVEMENT COSTS		23,058	25,808	74.1%	R 3,338,564,000
3.00	GENERAL COSTS				
3.01	Non Taxable Costs	9	10	0.0%	1,317,000
3.02	Taxable Costs	2,065	2,311	6.6%	299,001,000
3.03	Capitalised Interest	3,740	4,186	12.0%	541,489,000
SUBTOTAL - GENERAL COSTS		5,814	6,507	18.7%	R 841,807,000
4.00	VAT				554,829,000
TOTAL CAPITAL COST INCLUDING VAT				R 5,060,702,000	
5.00	VAT RECOVERY				(554,829,000)
TOTAL IMPROVEMENT COST EXCLUDING VAT				R 4,505,873,000	

C VIABILITY ANALYSIS				
1.00	GROSS FIRST YEAR INCOME	129,363 m ² @ average f	299.36	R 464,720,000
2.00	FIRST YEAR OPERATING COSTS	13.5%	R 40.41	(62,737,000)
3.00	NET FIRST YEAR INCOME			R 401,983,000
4.00	NET FIRST YEAR RETURN (BEFORE TAX)			8.92%

5.00 ESTIMATED RATES AND TAXES ON COMPLETION

BULK AREA	m2	ESTIMATED VALUATION	TARRIF	& TAXES
146,790		3,921,785,000	0.012795	R50,179,000

ANNEXURE D
Alternative 3 Feasibility Analysis



QUANTITY SURVEYORS

RIVER CLUB

INDICATIVE IMPROVEMENT COST

SCHEME 5 REVISION 2 ALTERNATIVE 3 MIXED USE AFFORDABLE ALTERNATIVE

MLC - 0000

20-Jun-19

SCHEDULE "A"

EXECUTIVE SUMMARY

A AREA SUMMARY			
1.00	GROSS BUILDING AREA EXCLUDING PARKING	m ²	105,910
2.00	GROSS LETTABLE AREA	m ²	93,705
3.00	% EFFICIENCY		88.5%

B CAPITAL COST	COST / GBA m ²	COST / GLA m ²	% OF TOTAL COST	TOTAL COST			
	R	R		R			
1.00	LAND COST						
1.01	Land Cost	2,023	2,286	5.4%	R 214,229,000		
1.02	Bulk Infrastructure Contributions	353	399	0.9%	37,396,000		
SUBTOTAL - LAND COST				2,376	2,685	6.4%	R 251,625,000
2.00	IMPROVEMENT COSTS						
2.01	Construction Cost	21,509	24,310	57.8%	2,277,967,000		
2.02	Contingency Allowance	1,075	1,215	2.9%	113,898,000		
2.03	Cost Escalations	2,275	2,571	6.1%	240,900,000		
2.04	Professional Fees	3,384	3,825	9.1%	358,443,000		
SUBTOTAL - IMPROVEMENT COSTS				28,243	31,922	75.9%	R 2,991,208,000
3.00	GENERAL COSTS						
3.01	Non Taxable Costs	12	14	0.0%	1,317,000		
3.02	Taxable Costs	2,161	2,442	5.8%	228,870,000		
3.03	Capitalised Interest	4,398	4,971	11.8%	465,791,000		
SUBTOTAL - GENERAL COSTS				6,571	7,427	17.7%	R 695,978,000
4.00	VAT				486,039,000		
TOTAL CAPITAL COST INCLUDING VAT							R 4,424,850,000
5.00	VAT RECOVERY				(486,039,000)		
TOTAL IMPROVEMENT COST EXCLUDING VAT				37,190	42,034	100%	R 3,938,811,000

C VIABILITY ANALYSIS						
1.00	GROSS FIRST YEAR INCOME	93,705	m ² @ average f	283.98	R	319,329,000
2.00	FIRST YEAR OPERATING COSTS	13.5%		R	38.34	(43,109,000)
3.00	NET FIRST YEAR INCOME					R 276,220,000
4.00	NET FIRST YEAR RETURN (BEFORE TAX)					7.01%

5.00 ESTIMATED RATES AND TAXES ON COMPLETION

BULK AREA	m2	ESTIMATED VALUATION	TARRIF	& TAXES
107,910		2,694,829,000	0.012795	R34,480,000

ANNEXURE E
Alternative 4 Feasibility Analysis

SCHEDULE "A"

EXECUTIVE SUMMARY

A AREA SUMMARY			
1.00	GROSS BUILDING AREA EXCLUDING PARKING	m ²	95,450
2.00	GROSS LETTABLE AREA	m ²	85,380
3.00	% EFFICIENCY		89.4%

B CAPITAL COST	COST / GBA m ²	COST / GLA m ²	% OF TOTAL COST	TOTAL COST
	R	R		R
1.00	LAND COST			
1.01	Land Cost	2,036	5.4%	R 194,355,000
1.02	Bulk Infrastructure Contributions	392	1.0%	37,396,000
SUBTOTAL - LAND COST		2,428	6.5%	R 231,751,000
2.00	IMPROVEMENT COSTS			
2.01	Construction Cost	21,338	57.0%	2,036,675,000
2.02	Contingency Allowance	1,067	2.8%	101,834,000
2.03	Cost Escalations	2,257	6.0%	215,384,000
2.04	Professional Fees	3,352	8.9%	319,967,000
SUBTOTAL - IMPROVEMENT COSTS		28,013	74.8%	R 2,673,860,000
3.00	GENERAL COSTS			
3.01	Non Taxable Costs	14	0.0%	1,317,000
3.02	Taxable Costs	2,552	6.8%	243,631,000
3.03	Capitalised Interest	4,453	11.9%	425,027,000
SUBTOTAL - GENERAL COSTS		7,019	18.7%	R 669,975,000
4.00	VAT			440,893,000
TOTAL CAPITAL COST INCLUDING VAT				R 4,016,479,000
5.00	VAT RECOVERY			(440,893,000)
TOTAL IMPROVEMENT COST EXCLUDING VAT		37,460	100%	R 3,575,586,000

C VIABILITY ANALYSIS				
1.00	GROSS FIRST YEAR INCOME	85,380 m ² @ average f	300.03	R 307,402,000
2.00	FIRST YEAR OPERATING COSTS	13.5%	R 40.50	(41,499,000)
3.00	NET FIRST YEAR INCOME			R 265,903,000
4.00	NET FIRST YEAR RETURN (BEFORE TAX)			7.44%

5.00 ESTIMATED RATES AND TAXES ON COMPLETION

BULK AREA	m2	ESTIMATED VALUATION	TARRIF	TAXES
97,450		2,594,176,000	0.012795	R33,192,000