

LOOMING OUT

SAIA-KZN



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**COROBRIK**  
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## 2018 COROBRIK SAIA AWARDS OF MERIT AND EXCELLENCE

THIS YEAR 61 entries from the various regions were entered for national Award consideration. Maryke Cronje, President of the South African Institute of Architects (SAIA) convened the jury comprising sponsor representative, Musa Shangase, Commercial Director of *Corobrik*, SAIA vice-President Luyanda Mpahlwa, *Architecture SA* editor Paul Kotze, and *VISI* magazine editor-in-chief Sumien Brink, and the outcome of their deliberations was made public in Pretoria on Friday 4<sup>th</sup> May 2018.

Of the 26 Awards of Merit, three went to buildings by KZN architects: The Lake House (formerly Bluecrane) at Curry's Post by Koop Design, K-RITH tower building on UKZN Medical School campus, Durban, by FGG Architects and RCL Foods at Westway by Elphick Proome Architects. To these successes, KZN should add Nelson Mandela Children's Hospital in Johannesburg, in which Award of Merit achievement Ruben



An ecstatic Richard Stretton (centre), principal of Koop Design, received an Award for Excellence for The Lake House (formerly known as Bluecrane).



George Elphick and Pim Artz who received the Award of Merit for RCL Foods bookended the group with SAIA-President Maryke Cronje and Commercial Director of Corobrik, Musa Shangase.

### OBITUARY: DAVID ROBINS (1932-2018)

MANY READERS will fondly remember David Robins, inaugural Professor and Head of the Department of Town & Regional Planning at the University of Natal, 1974-9. Despite his obvious academic inclination, on returning to the UK and

Reddy Architects (Pty) Ltd were associated with GAPP, Sheppard Robson International (UK) and John Cooper Architecture.

However, The Lake House went on to receive one of only five nationwide Awards for Excellence, the most senior acknowledgement by one's peers!

The citation reads:

*Buildings like The Lake House require dedication and attention to detail. This building is set in the idyllic and undulating hills of the Midlands of KwaZulu-Natal, next to a small lake. The plan and section of the building is generous and deceptively simple and direct. The hands of the various levels of craftspeople who made the building are clearly visible, and so is the pride in their handiwork. The Lake House is masterful in its relaxed simplicity; a simplicity that only the highly talented and dedicated can achieve.*



The Lake House in Curry's Post, KZN-Midlands, scooped an Award for Excellence for Koop Design.

Readers are referred to SAIA-KZN Journal 2/2017 in which all the KZN projects were featured. *Editor*



Jeremy Hathorn (left), a director of FGG Architects, received the Award of Merit for K-RITH tower building on UKZN Medical School campus, Durban, from SAIA-President Maryke Cronje and Commercial Director of Corobrik, Musa Shangase.

joining Trent Polytechnic, he soon accepted a position as senior planning inspector and settled in Bath. However, the earlier five-year stint in Durban was to become the prelude for many visits to South Africa together with his wife, Anne, to a "country that had become so much part of his soul" (Eulogy). The funeral service was held in Bath Abbey. *Editor*

## Integrated Practice : Zooming Out [with public transport]

FOLLOWING ON from SAIA-KZN Journal 1/2018 'Zooming In', this edition continues its focus on integrated practices, featuring town planning, urban design and architecture active in the fields of transit-oriented development, housing, environmental rehabilitation and community engagement, while addressing social issues including safety and security.

South African cities suffer from a unique, socially-engineered settlement landscape. The legacy of an apartheid or separatist planning agenda is a city landscape that perpetuates separation rather than integration, and condemns the vast majority of its citizens to long and expensive daily commutes. For example, the average low-income household spends between 45%-60% of household income on transport, and family time in peripheral areas is compromised, with an average daily commute two-and-a-half times that of more centrally located communities (National Household Travel Survey 2013).

With South Africa's housing policies firmly focussed on "delivering houses instead of cities" this spatial pattern is further entrenched (Lepiz & Masondo, 2016. The Long Commute to Freedom. City Press, 22 June). Those with the greatest economic need continue to find themselves furthest from economic opportunity. With the PINK area (Phoenix, Inanda, Ntuzuma, KwaMashu) home to almost one quarter of eThekweni's population, it is unrealistic to expect employment opportunities to be created wholly within the area.

Enter 'GO! Durban', the term used to refer to eThekweni's Integrated Rapid Public Transport Network (IRPTN), which incorporates varied modes of transport including rail, Bus Rapid Transport (BRT), conventional buses and combi-taxis, private cars, motorcycles, bicycles, wheelchairs and pedestrians. This is an integrated system in constant development, which endeavours to establish rapid, cost-effective public transport corridors to and from the major nodes, connecting communities conveniently to job opportunities in development nodes. The first of these corridors, C3, is currently being rolled out to connect Bridge City with Pinetown and New Germany and the cover of this

issue showcases a recently constructed IRPTN station in New Germany, which will be the precursor of stations to follow along these transportation corridors.

eThekweni Municipality's spatial planning initiatives aim to focus dense development along these corridors and in key nodes throughout the metropolitan area. But IRPTN is reliant on higher densities to be viable, which our sprawling cities are currently well below.

This transit-oriented development stands alongside National Treasury's Neighbourhood Development Programme, which endeavours to focus public spend around strategically located inter-modal transport hubs, one of which is being located at KwaMashu-Bridge City. This focus on nodes, combined with substantial private sector investment towards the aerotropolis in the north around King Shaka Airport, and massive investment in housing, industry and commercial space in and around Cornubia, well positions the area for development, densification and city-building.

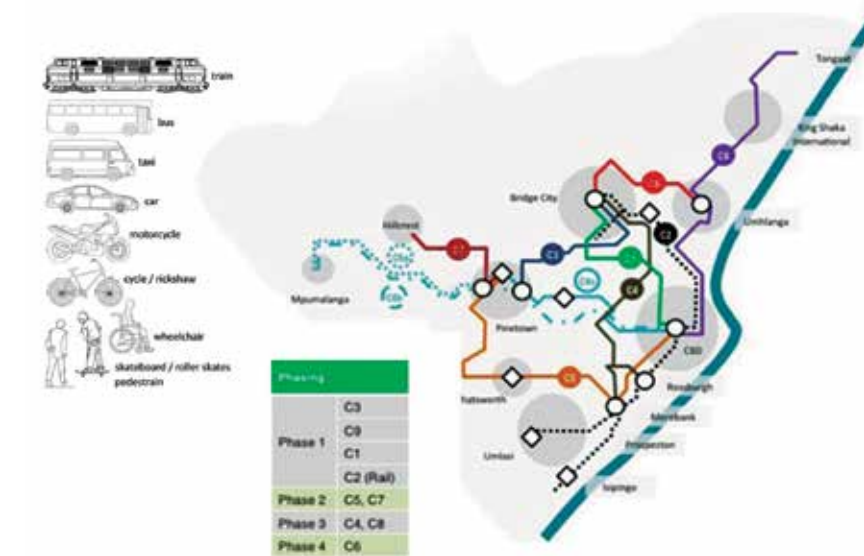
What will test our city planners in the decades to come will be the complex balancing act that requires mediation between the needs of marginalized communities (organic growth, fine grain development with small scale investment opportunities) and the unrelenting bottom-line of developer-driven environments that continue to remain out of reach to large sectors of the population.

The articles that follow provide interesting counterpoints through their very natures and methods of implementation. Cornubia, a substantial development of a scale that merges Mount Edgecombe with the town of Verulam, was planned 'from scratch' and implemented at scale. Blackburn Village is a smaller intervention grown out of the organic development of an 'established' informal settlement. The Piesang River Open Space Project focusses on the often threatened, barren wastelands that form the township's open space infrastructure, and exploring potential for providing economic upliftment while serving social and community needs, and protecting their roles as critical components of environmental systems.

**Angela Baker** Guest Editor



On graduating with distinction from Natal (UKZN) in 1994 and gaining experience both locally and overseas, Angela Baker founded her own practice in 2001. Readers are referred to the full resume in issue 1/2018. *Editor*



IRPTN corridors (GO!Durban).



# CORNUBIA New Town



Cornubia regional shopping centre (architects: Bentel Associates) with north and south shopping precincts astride SASA Boulevard and the urban sculpture on the roundabout (urban design: IYER). In the background facing east and the Indian Ocean is uMhlanga Ridge Town Centre. Drone photography by Scott Farlam, Trilight Media.

THE VISION FOR CORNUBIA stems from a partnership between the eThekweni Municipality and Tongaat Hulett Developments, that started as early as 2004 with the preparation of an overall spatial framework plan.

Cornubia presents a unique opportunity to establish an entire 'new town', premised on principles of good urban design and sustainability, aimed at serving as an exemplar of post-apartheid cities. To this end, the fundamental principles of integration, complexity, compactness, density, walkability, public transport and the creation of meaningful public space were the defining qualities sought after in its design.

Cornubia is a strategic land-holding measuring 1,200ha in extent situated within the northern corridor of Durban. It is located west of the N2 and north of the M41 (in between uMhlanga and Phoenix). It lies approximately 7km south of King Shaka International Airport. The project aims at being a mixed use, mixed-income development incorporating residential, social infrastructure, industrial, commercial and open space uses.

## 1.The starting point - a robust framework plan

The Cornubia development framework guides and coordinates future development and lays the foundations for various projects and phases, some of which are currently being realised.

Key elements of the Framework Plan include:

- A range of housing typologies for 25 000 units including high-density housing set within an ethic of urban and public place making.
- Providing 15 000 units to cater for households which target the urban poor earning under R1 500 pm.
- 7 000-10 000 units for households earning between R1 500 to R3 500 pm.
- Predicating future settlement on an integrated public transport system as a fundamental backbone for sustainable settlement and accommodating eThekweni's

- planned Integrated Rapid Public Transit Network (IRPTN) system (in red on the map overleaf).
  - Approximately 85ha of industrial platform to ensure employment opportunities.
  - 1,5 million sqm of commercial opportunity including mixed-use, retail centres and offices.
  - 387ha of public open space with associated active mobility systems.
  - New access routes integrating the sub-region and breaking down the barriers of separation.
- The project value for the development is estimated at R25 billion.

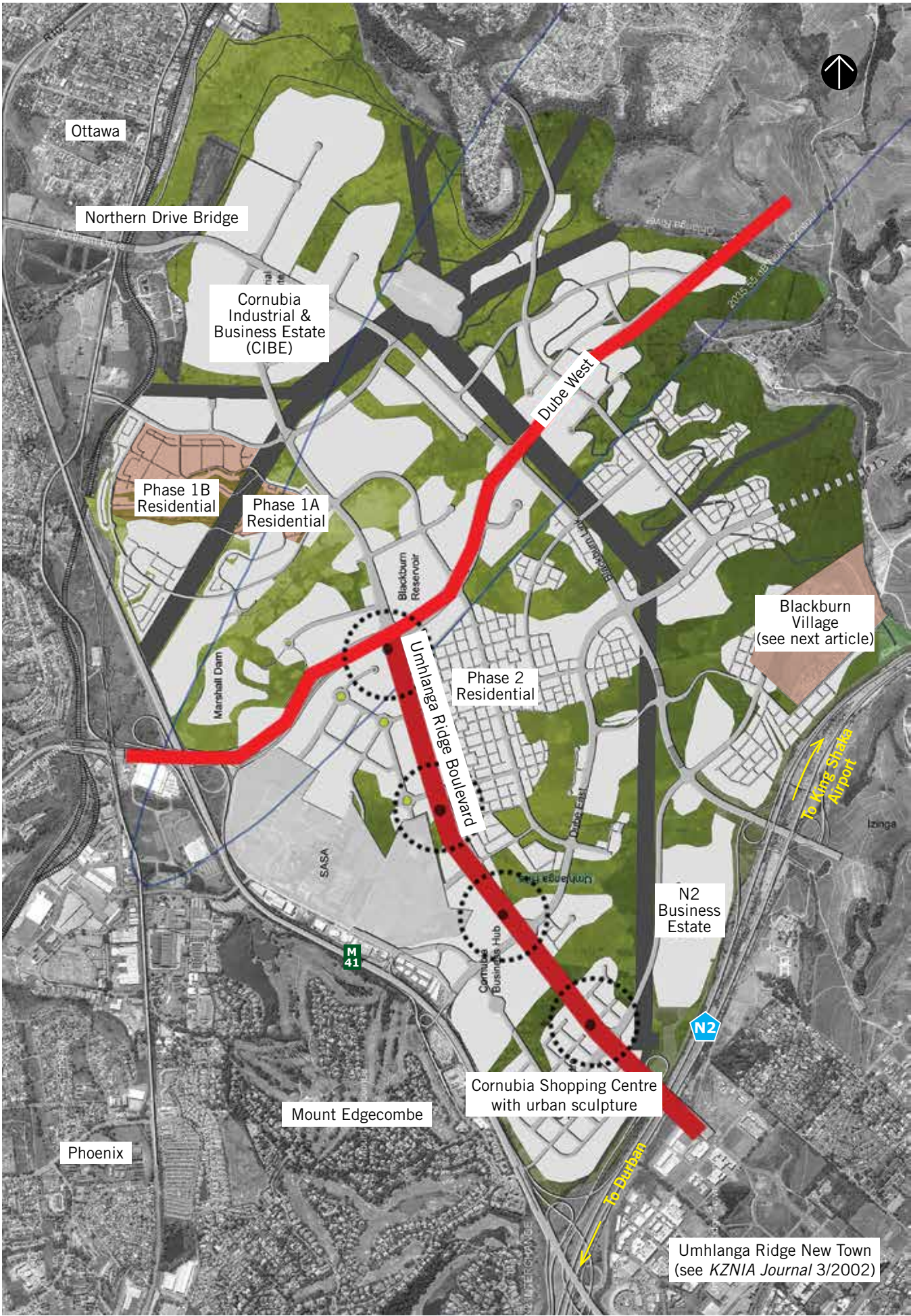
## 2. Integrating planning, urban design and architecture

### 2.1 Affordable housing as the catalyst for change

A significant component of Cornubia is establishing Integrated Human Settlements undertaken within the parameters of the National Department of Human Settlements' 'Breaking New Ground' initiative (BNG). Phases 1A and 1B of eThekweni municipality's human settlement programme, which accommodates some 3 600 families is currently nearing completion.



Residential component Phase 1A completed. Drone view from north-east. Photography: Scott Farlam, Trilight Media.



Cornubia New Town an integrated mixed-use settlement in a post-apartheid South African city.



A clear objective of Cornubia is to break away from the past systems of delivery that favoured a suburban model, and move toward a more urban courtyard housing approach, based on a pedestrian scale with well-defined public spaces. A key design driver within Cornubia is, therefore, the need to ensure that a livable housing environment is premised on the creation of public space so that a sense of community is realised.

IYER was appointed for the urban design and architecture of the first two phases of housing delivery. The project demonstrated the ability of an interdisciplinary design approach to deliver living environments within the subsidy ranges.

2.2 Supportive industrial development

It is envisaged that more than 100 000 people will eventually live in Cornubia. It is to become a town that has employment and residential opportunities for the people who reside within it, as well as catering for those who come from the surrounding communities. The Cornubia Industrial and Business Estate (CIBE), measuring 85ha in extent, provides for light industry, servicing, logistics and warehousing. CIBE was constructed simultaneously with the residential phases and is now complete. IYER was involved in establishing the architectural guidelines, precinct plan and public realm design and is continuing to play a role on the Design Review panel for the precinct.

2.3 Creation of a new town centre and retail precinct

In parallel with the housing and Industrial development is the creation of a retail precinct. Cornubia town centre as a high density, mixed-use precinct is being planned at the junction of the N2 and M41 interchange, and it should become the destination for many in and around the surrounding areas. Cornubia shopping centre (see cover) opened its doors in 2017 and the broader retail precinct is set for ongoing development. IYER has prepared the Precinct Plans which have been approved, and there is current investor interest for properties within the Cornubia Town Centre.

2.4 Shaping the public realm

SASA Boulevard is the street that traverses Cornubia shopping centre and connects with the future Cornubia town centre. IYER was tasked with preparing the urban design plan for Sasa Boulevard to use the street as a means of integrating the two portions of the Cornubia shopping centre to read as one sinuous development. One of the

landmark elements of the project is the urban sculpture, comprising a cluster of five columns of Corten steel, the tallest 15m and the lowest 10m, each with slots of light displayed vertically down the three sides, which collectively provide a landmark and bring some elevation to the relatively low-rise retail precinct. The imagery of these columns derives from cut stalks of sugar cane, a reference to the key economic basis for the region's heritage.



Sculpture of 5 Corten steel columns within the traffic roundabout inspired by cut stalks of sugar cane.

3. Transport infrastructure - architecture and its implementation

3.1 Northern Drive vehicular bridge

An opportunity presented itself in Cornubia to transform a new bridge over the R102 that connects Cornubia with Ottawa, and IYER was tasked to prepare a design in collaboration with SMEC project engineers, to serve as an entrance and gateway for the precinct. Feature lighting was used to enhance both the approach and bridge, and this design was also incorporated in the bridge over the M4 towards Cornubia shopping centre, and has now become the identity of all entrances to Cornubia.



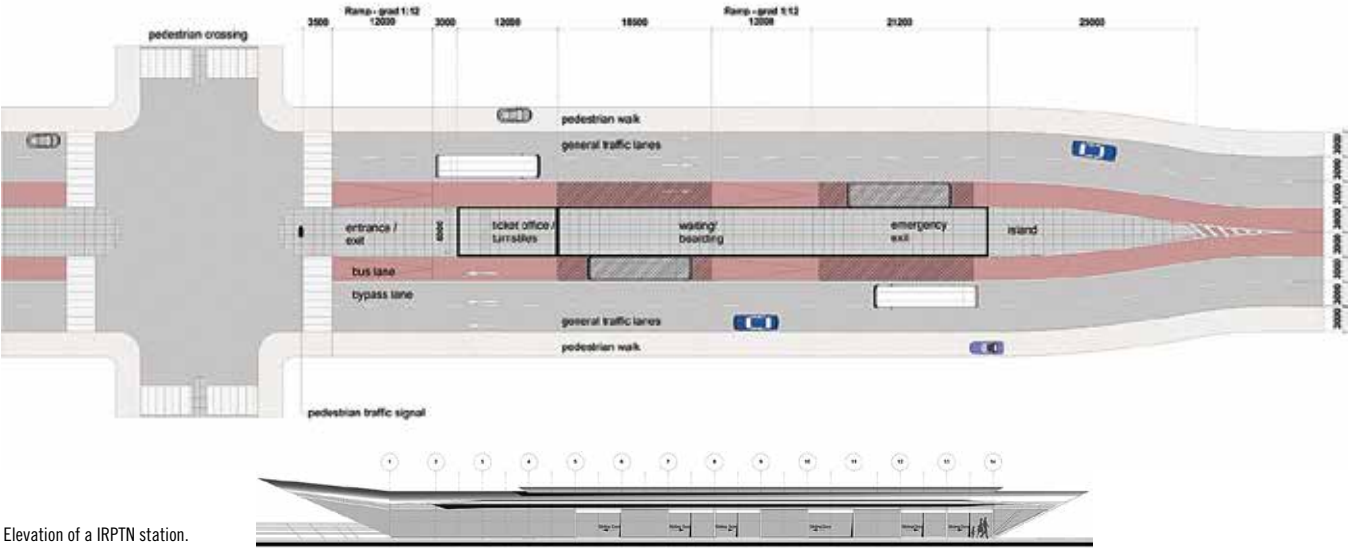
Double carriageway vehicular bridge identified by feature lighting on canted masts, which serves as a gateway into Cornubia. Photograph from north by Scott Farlam, Trilight Media.

3.2 Integrated Rapid Public Transit Network (IRPTN) station design

A key objective for Cornubia is to provide for a public transport system as part of building a sustainable city, and to ensure a shift away from private vehicular dominated environments to one predicated on public transportation, walkability and choice. This should ensure that Cornubia is effectively integrated and tied to the regional logic of movement, and that the public transport network would play a significant role in shaping future development.

IYER was involved in architectural design of the station for the entire IRPTN project, working closely with City Architects. The form of the station is inspired by movement, and the dynamic design should uplift the image of public transport, delivered at high-quality and distributed in a democratic way, across city, suburb and township. The first station was developed in New Germany, with others to follow in the near future at Cornubia.

Generic plan for an IRPTN station.



Elevation of a IRPTN station.



IRPTN station at New Germany; an example of a station to be developed at Cornubia. Photography: Lisa Woest.

IYER is an interdisciplinary practice of planners, urban designers and architects now operating from Durban and Johannesburg. The practice draws on its diverse range of skills and experiences, and operates within a studio environment, to promote interaction, creativity and innovation. Central to the approach is a belief

In sum, Cornubia is an important benchmark project that starts to illustrate the ability of design and 'zooming out' to establish the preconditions for future cities, built, so to speak, 'from scratch', and on first principles of good urban design. IYER was privileged to be able to plan, design and implement a project at city scale and at neighborhood scale, including infrastructure elements, public places, buildings and urban art.

Glanville Jacques, Nathan Iyer, Kamalen Gounden

The following clients and partners are acknowledged: Tongaat Hulett Developments; eThekweni Municipality; Human Settlements, City Architects, Transport Authority.

in design as an agent for positive change, and a key influence in enhancing the livability of cities and regions. Establishing appropriate settlement patterns and identities, integrating transportation and catering for local contexts, is central to design for our changing planet.



# Towards a vision for BLACKBURN VILLAGE and surrounds

BLACKBURN VILLAGE is an ‘informal’ settlement located just north of the Umhlanga development area (see aerial photo p3). The land surrounding the village is both privately and government owned. The settlement has approximately 1400 dwelling units of which 50% are located in a wetland or wetland buffer. Many of the existing structures are affected by flooding especially

those located in the wetland (300 units, 21% of the total). The settlement is split into two distinct areas namely Chappas and Boxer. A small, one hectare site, owned by Tongaat Hulett is located between the two settlement areas. This site is used as a pedestrian connection between the two settled areas and has an average slope of 1:7.

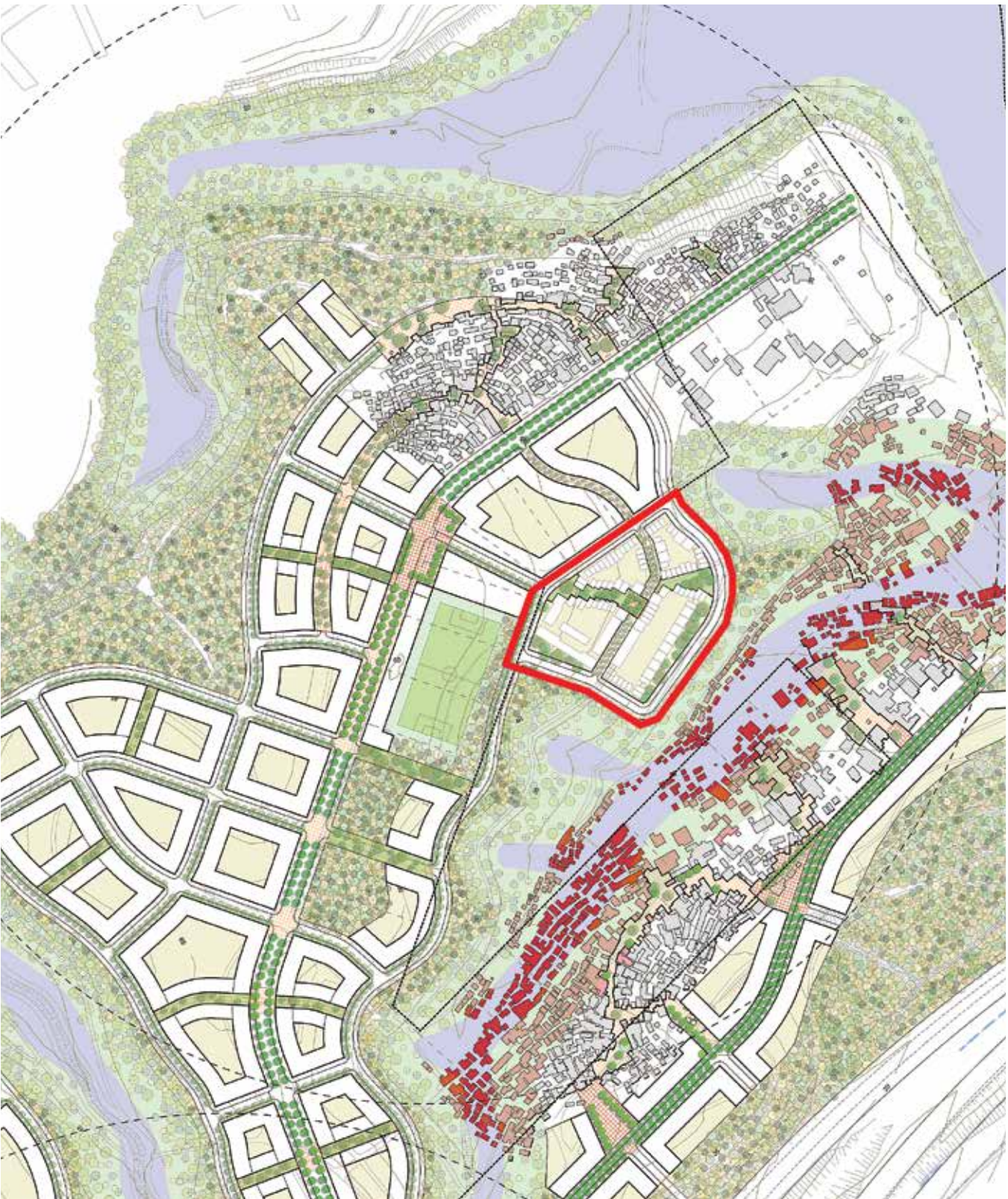


Aerial photograph showing both existing settlements and the subject site.

## Urban design

The municipal and privately owned land surrounding Blackburn Village is incorporated into the development framework that has been completed for Cornubia. The framework points to a majority residential land use for the sites. Urban Solutions was appointed to formulate a spatial vision for both municipal and private land holdings. The purpose of this exercise was:

1. To determine a development yield for the land based on ‘compact city’ principles.
2. To explore the integration of the existing settlement into new developments surrounding it.
3. To incorporate planned major roads into a future vision for the area.



A series of perimeter blocks astride access routes on the ridges.



Concept vision plan

The concept vision plan is characterized by:

- 1. An inter-connected street system with a primary ridge-top access street running across the site giving access to the sloped land to either side.
- 2. 'Frontage streets' define the transition between developed sites and the natural environment.
- 3. Existing connections and pathways in the settled areas are extended outwards into the new street pattern.
- 4. New public spaces are located at the intersections of existing paths and new streets, allowing community amenities to be built facing on to the public spaces.

- 5. The 'incremental' village streets are extended to connect to the new street pattern.
- 6. A network of mid-block pedestrian paths connects the main streets to the development edges, and provides storm water run-off attenuation from hard street surfaces along the ridge streets.

The vision for the extended Blackburn Village yields approximately 3500 residential units along with commercial, retail and social land uses.



Generators for the precinct plan.

Precinct design

Urban Solutions was appointed to explore the development potential of this site with a focus on the provision of incremental housing typologies that could accommodate people whose houses are most affected by flooding.

The layout of the site has the following characteristics:

- 1. A single access road is provided to the site from the main road.
- 2. A 2-way perimeter road (5,5m wide), including some on-street parking, gives access to the edge of the entire site.
- 3. A narrow (3m wide) pedestrian prioritized street runs along the contour of the site. Two long development blocks flank the street.
- 4. An existing pedestrian path connects across the slope increasing the number of blocks to four.
- 5. A small public square (15m x 15m) is created at the intersection of the pedestrian path and the narrow street.
- 6. A range of narrow-frontage unit types are placed along the perimeter of each block.
- 7. Typologies take advantage of the slope, single storey units step down the slope and double storey units run along the contours.



Six unit types with variable additional use.

- 8. Party walls separate units from each other and narrow frontages allow 'off the shelf' elements to span between party walls.
- 9. Party walls act as enabling elements for the incremental infill of each unit.
- 10. Ground floor commercial uses are located around the public square.
- 11. Units range in size from 12m2 (bedsit) to 48m2 (3 bed).

The next stage of this project is more than likely a 'zooming in' exercise to determine in more detail the feasibility of developing particular land parcels on both private and municipal owned land.

The most exciting potential for this project is that it starts to tackle the opportunities for the integration of existing settlements into future development.

Paul Wygers  
Urban Solutions Architects + Urban Designers.

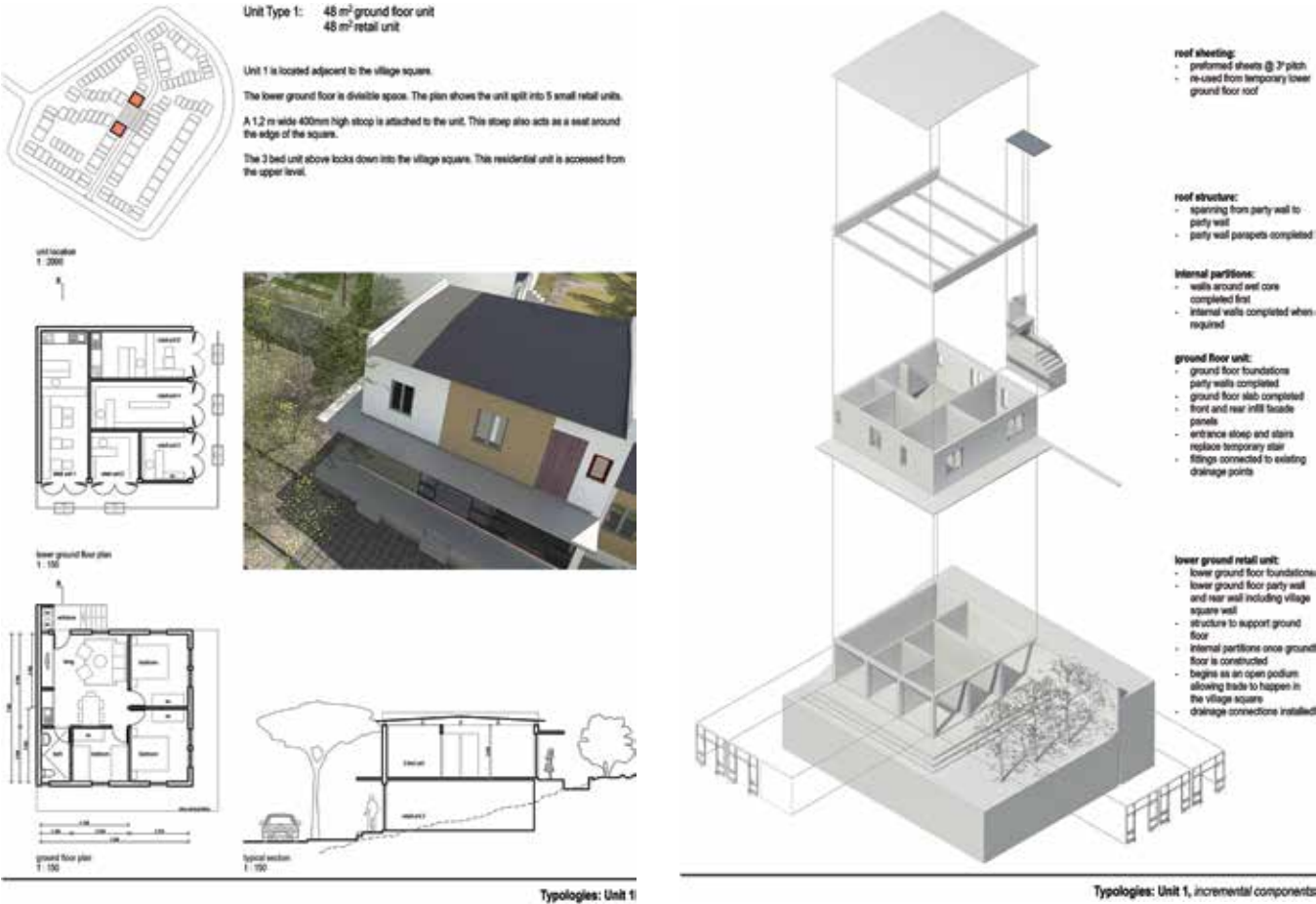
Readers are referred to SAIA-KZN Journal 1/2018 for a resume of the practice. Editor



Sketch of mid-block lane.



Sketch of square from north; Unit type 1 with retail usage on ground floor and 3-bedroom unit over.



Plans of Type 1 unit above retail space opening to the square.

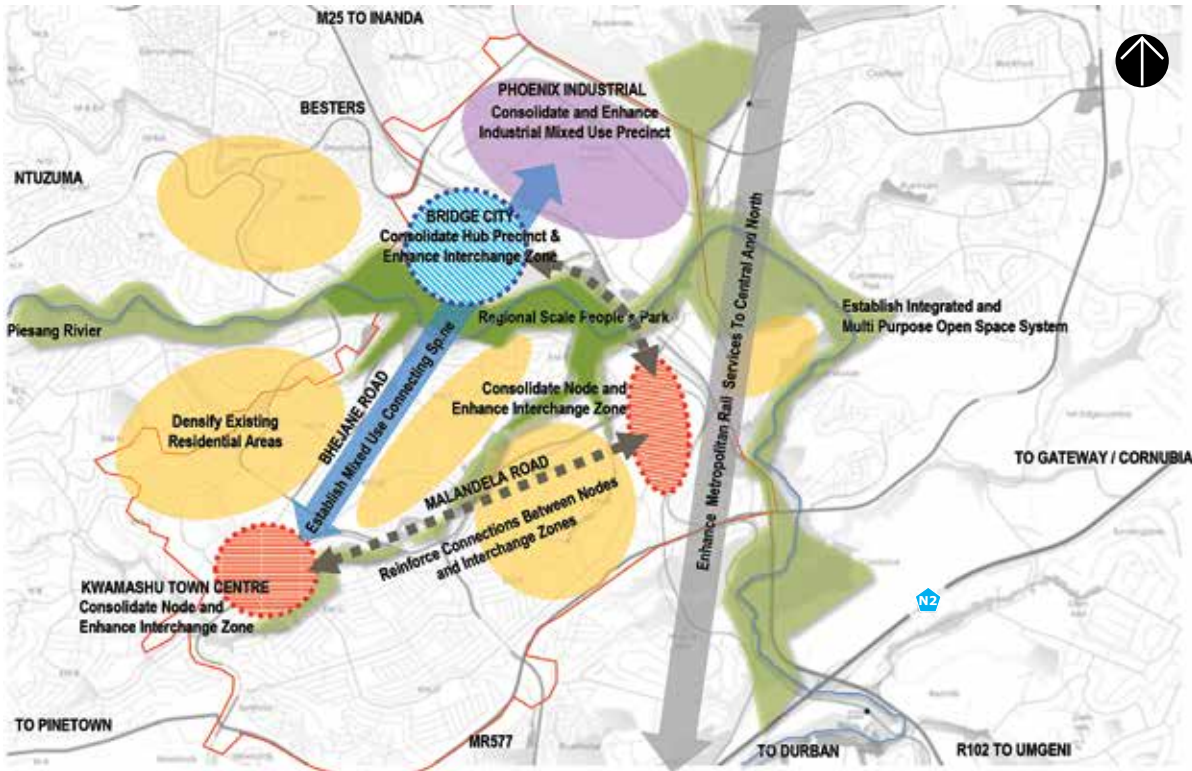
Components of a Type 1 unit.



# Piesang River Open Space Project KwaMashu/Bridge City

WITH THE PINK AREA (Phoenix, Inanda, KwaMashu and Ntuzuma) home to almost one quarter of eThekweni's resident population, KwaMashu, Bridge City, Crossroads/Duff's Road have long been the focus of development investment and planning initiatives for the City and at national level. Recent studies initiated by eThekweni Municipality's Economic Development and Investment promotion unit for National Treasury, combining 'GO! Durban', the name of

Durban's Integrated Rapid Public Transport Network (IRPTN), and the inputs of integrated practices Markewicz Redman Partnership, IYER, Architects Collaborative and ABA (KwaMashu Precinct Plan), have re-focused attention on Bridge City and surrounds, within its historically complex context. These further define the role of the area within the developing northern corridor and propose improved connections and integration within surrounding areas.



CONCEPTUAL FRAMEWORK showing metropolitan and local connections and the Piesang River system (KwaMashu Precinct Plan for eThekweni Municipality & National Treasury).



PROPOSED PUBLIC SPACE NETWORK AND BUILT FORM. Bridge City shown bounded on the south by the Piesang Rivier floodplain (KwaMashu Precinct Plan).

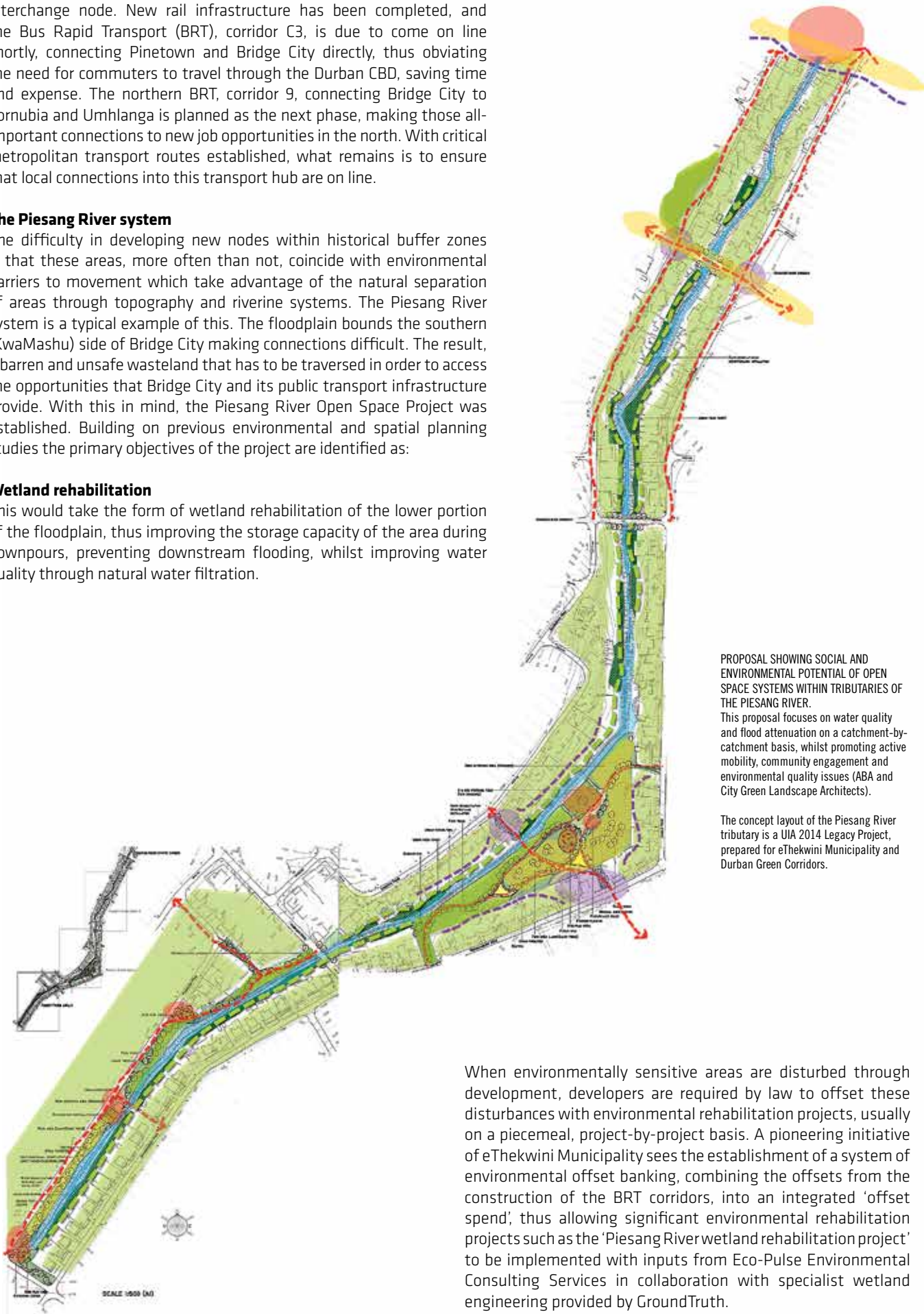
Bridge City originally formed part of the buffer zone between KwaMashu, Phoenix and Inanda, and as such was ripe for development as a transport interchange node. New rail infrastructure has been completed, and the Bus Rapid Transport (BRT), corridor C3, is due to come on line shortly, connecting Pinetown and Bridge City directly, thus obviating the need for commuters to travel through the Durban CBD, saving time and expense. The northern BRT, corridor 9, connecting Bridge City to Cornubia and Umhlanga is planned as the next phase, making those all-important connections to new job opportunities in the north. With critical metropolitan transport routes established, what remains is to ensure that local connections into this transport hub are on line.

## The Piesang River system

The difficulty in developing new nodes within historical buffer zones is that these areas, more often than not, coincide with environmental barriers to movement which take advantage of the natural separation of areas through topography and riverine systems. The Piesang River system is a typical example of this. The floodplain bounds the southern (KwaMashu) side of Bridge City making connections difficult. The result, a barren and unsafe wasteland that has to be traversed in order to access the opportunities that Bridge City and its public transport infrastructure provide. With this in mind, the Piesang River Open Space Project was established. Building on previous environmental and spatial planning studies the primary objectives of the project are identified as:

## Wetland rehabilitation

This would take the form of wetland rehabilitation of the lower portion of the floodplain, thus improving the storage capacity of the area during downpours, preventing downstream flooding, whilst improving water quality through natural water filtration.



PROPOSAL SHOWING SOCIAL AND ENVIRONMENTAL POTENTIAL OF OPEN SPACE SYSTEMS WITHIN TRIBUTARIES OF THE PIESANG RIVER. This proposal focuses on water quality and flood attenuation on a catchment-by-catchment basis, whilst promoting active mobility, community engagement and environmental quality issues (ABA and City Green Landscape Architects).

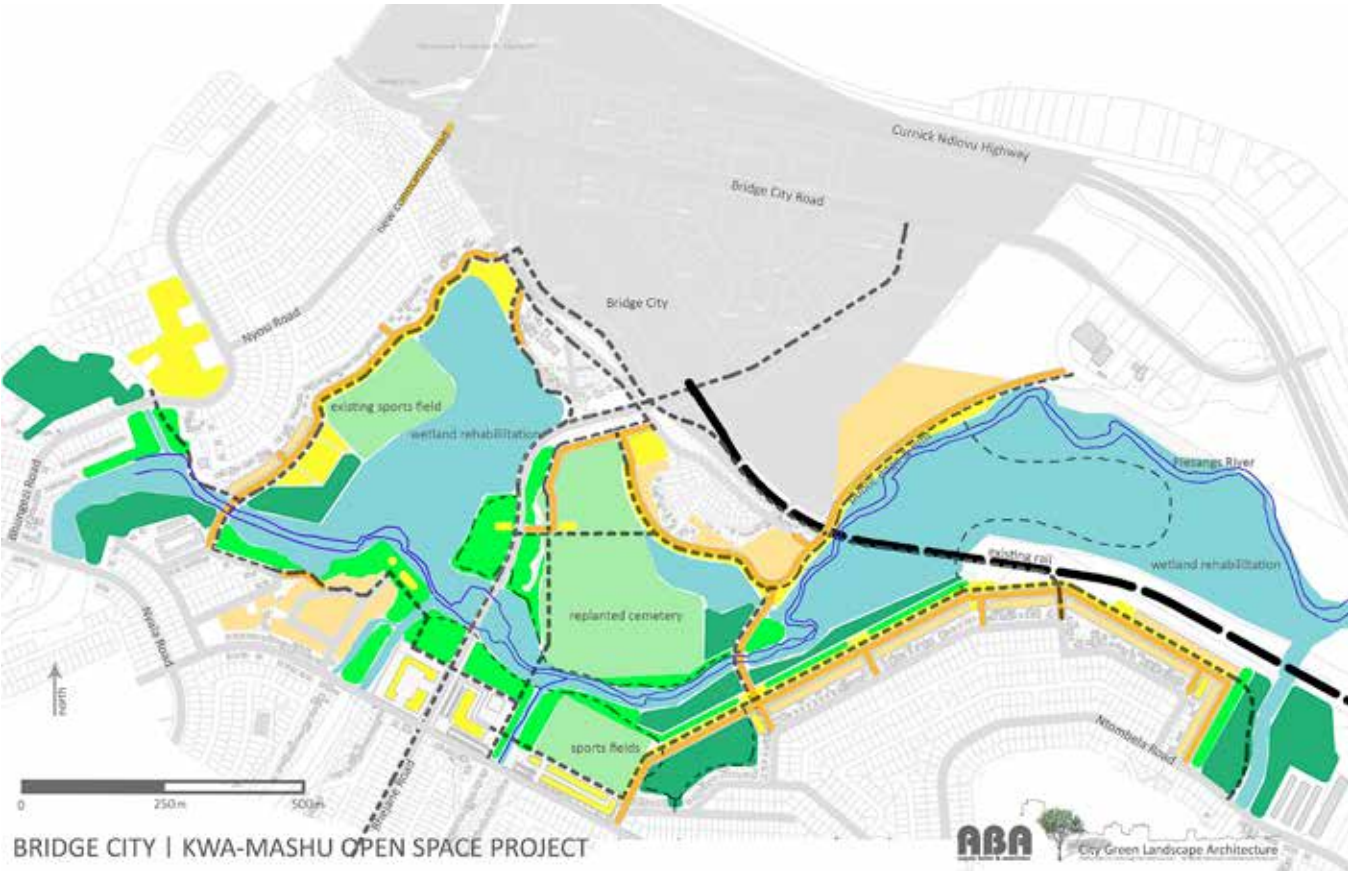
The concept layout of the Piesang River tributary is a UIA 2014 Legacy Project, prepared for eThekweni Municipality and Durban Green Corridors.

When environmentally sensitive areas are disturbed through development, developers are required by law to offset these disturbances with environmental rehabilitation projects, usually on a piecemeal, project-by-project basis. A pioneering initiative of eThekweni Municipality sees the establishment of a system of environmental offset banking, combining the offsets from the construction of the BRT corridors, into an integrated 'offset spend', thus allowing significant environmental rehabilitation projects such as the 'Piesang River wetland rehabilitation project' to be implemented with inputs from Eco-Pulse Environmental Consulting Services in collaboration with specialist wetland engineering provided by GroundTruth.



Addressing the catchment

The Piesang River floodplain is fed from a series of tributaries in the KwaMashu area. These streams often comprise the only remaining vacant areas within settlements and are thus critical components of the open space system. Tributaries within the catchment area have been identified and addressed in terms of their water attenuation capacity as well as their open space roles. Community participation and environmental education around issues such as littering and refuse disposal have been undertaken and programmes for development of the sports and recreational facilities with the tributaries have been put in place, the first of which is due for detail design and implementation.



Map showing potential elements of the open space system (ABA and City Green Landscape Architects).

CONCEPTUAL PROPOSAL FOR A PEOPLE’S PARK AT REGIONAL SCALE.

The floodplain

The Piesang River floodplain currently performs numerous environmental and social functions. The aim of the design is to improve on what is currently offered, whilst adding the required supporting elements to create a space that can accommodate both communities’ needs, whilst connecting previously disjointed communities.

Development of the open space as a connector

Safe and convenient active mobility routes are a priority. These routes extend into the surrounding areas and connect communities with transport infrastructure. Pedestrian priority is key with cycling being promoted. Safety is addressed through surveillance (open, highly visible spaces) and the addition of as much public activity as possible.

The bike park

The GO! Durban bike park initiative allows for school-going children to be trained in cycling and equipment maintenance as well as other sporting codes suitable to the area. They also offer academic support to children enrolled in the programme, and this initiative is seeing good results in areas where after-school activities for children are limited. This GO! Durban initiative is implemented by ‘Durban Green Corridors’, a not-for-profit organisation, which addresses youth development, economic upliftment and environmental stewardship. In terms of its mandate it aims to transform open spaces and develop their social and economic values, which includes trails and other outdoor activities along the length of the Umgeni River and its feeder, the Piesang River.

Serving local community needs

The provision of appropriate sporting facilities as a component of an integrated approach in the KwaMashu area to serve local schools and sports clubs serves to improve activity and surveillance within the open space.



Bike park design for GO! Durban and Durban Green Corridors (ABA).

Economic opportunity

The addition of activity and foot traffic through the area, as well as the development of Bhejane Road as an activity corridor, allows small scale business to access a new market at the proposed activity node.

Food security

A key initiative in the face of climate change and concern over food quality and carbon footprint, allows for the establishment of small scale agricultural producers with training and support through an established Parks Department programme with a local fresh produce outlet proposed.

Culture and heritage

KwaMashu is an artificially created township, comprised of families that were forcibly removed from Cato Manor in the 1960s. As such, KwaMashu’s is a relatively young history, and when opportunity arose through eThekweni Parks Department: Cemeteries to renovate the abandoned and ruined cemeteries building, this work was conceived as a heritage component of the area, with information around prominent community members and their life stories being included in the new administrative facility. This aspect adds another layer of richness to the established and growing Inanda Heritage trail.

An integrated and partnership-based approach

The Piesang River Open Space Project forms part of the ‘Integrated Expert Programme’ through which the German government co-funds professionals from the EU to work within developing world municipalities to build their capacity. Through



Community engagement processes around open spaces and tributaries were arranged by the consultants, Durban Green Corridors. This particular meeting was held at How Long Park, Umlazi.

a German co-operation programme called ‘Experts for municipal partnerships worldwide’ a German integrated spatial planning expert was seconded to eThekweni Municipality to co-ordinate the Green Corridors development ‘KwaMashu- Bridge City Open Space Project’. This speaks to the partnership approach of the project, as well as an understanding of the need for an integrated design and delivery methodology which is community-based.

Angela Baker  
ABA and Associates

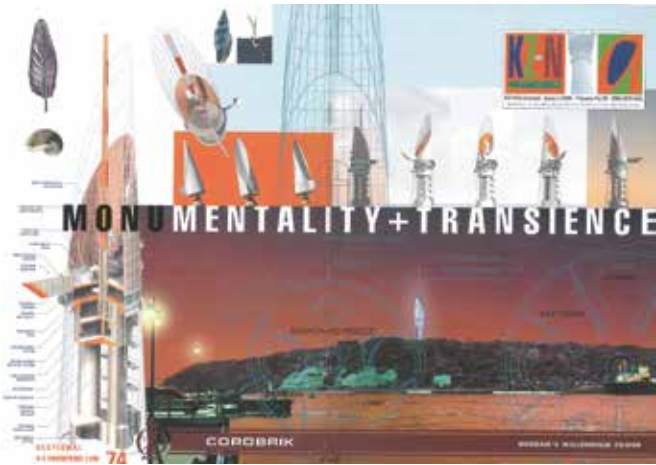
Readers are also referred to KZNIA Journal 3/2006. Editor



PROPOSAL FOR CEMETERY HERITAGE AND ADMINISTRATION BUILDING for eThekweni Municipality: Department of Sports and Recreation (ABA)



# Millenium Tower Repair Proposal



Cover of KZNIA Journal 1/2000 with presentation details of the winning entry for the Millennium Tower design competition by Alex Pienaar with Don Albert of soundspacedesign cc.

AS A RENOWNED SYMBOL many people familiar with Durban's Millennium Tower were shocked to find its iconic cowl missing after a disastrous storm had critically damaged it in October of 2017. In the interests of user safety, the Harbourmaster ordered the dismantling thereof and soon after soundspacedesign cc, the original architects, were contacted by the Port Engineers in order to look at alternative structural solutions for the Bluff's landmark building.

### Background

In November of 1999, an architectural competition for Durban's new port control tower was launched by Transnet's National Port Authority (NPA), coordinated by Transnet's construction wing Protekon-KZN. On the 10th of February 2000, adjudicated by senior port officials, Durban City Architect's Jonathan Edkins and Professor em. Brian Kearney, the unanimous winners out of a field of 52 KZN registered architects was announced as Alex Pienaar with soundspacedesign cc.

### Construction Challenges

On award of the job, the architects were informed that Protekon was to be the main contractor, with soundspacedesign cc acting as Principal Agent, and that the works were to be put to tender via a number of packages, with an emphasis on nascent Black Economic Empowerment (BEE) award criteria.

A host of challenges beset construction from the outset, including the bankruptcy of the initial glazing contractor, which caused a six-month delay in the completion of the concrete-work tender-package with a resulting knock-on-effect on all other trades that had to be re-tendered as their pricing had expired in the interim.

This, coupled with the rapid devaluation of the Rand, meant that some of the special features requiring imported materials had to go out to tender for a third time as the original prices were again invalid, and these elements had to be reduced in scope and quality in order to keep to the original competition budget, including the rotating cowl. A project that had been slated with an eighteen-month construction period took over three years to build.

### The challenge of October 2017

Notwithstanding the fact that the cowl had not been rotating for some time due to inadvertent maintenance hiccups, on the 10th

of October 2017, a freak storm, ripped through southern Durban causing millions of Rand's worth of damage to property and port infrastructure, and saw the Cabinet declare a provincial disaster. Unfortunately the tower's cowl which was designed for 180 km/hr winds was dealt a final blow by extreme gusts as recorded by the Harbourmaster of 100 knots, which is 185km/hr!

Fortunately, the NPA intends to lodge an insurance claim for the repair of Millennium Tower, as well as other structures damaged by the storm. It should be noted, that despite the budget challenges that beset the project from the outset, NPA and its Engineers have been tireless in their attempts to maintain the structure since completion. Furthermore, any new solution for the repair needs to take climate change and increasingly severe storms into account.

### Other challenges

Millennium Tower was conceived as a gigantic barometer of maritime conditions, "rotating, responding, transmitting" (Kearney in KZNIAJ 1/2000 p2), and was intended to provide 'real time' wind and tide information to mariners, surfers, sailors and tourists, and to reach out to the public not only by way of its kinetic behavior but also through lighting algorithms that could be programmed by members of the public via mobile technology. Unfortunately Durban's ship signaling requirements requires an explicitly legible system of red, white and green, which limits the potential for public interaction.

Another means of public engagement with the building was via the construction of a viewing platform half way up the tower base, which provides an unmatched view of Durban, however access to the site is still restricted 18 years after the decommissioning of the naval operations on the Bluff. The opportunity for the Millennium Tower to be a *bona fide* tourist attraction is still possible if public access to the site could be addressed.

### Current Situation

In May 2018, after consultation with the original structural engineer Pat Duffy, the architects presented NPA a number of options for the repair of Millennium Tower, all of which are still under consideration.

The architects' preferred option is a new welded stainless steel 'diagrid' solution with a 'tartan grid', option 3. In this option, a hierarchy of structural members is arranged on an 'as required' basis as opposed to a uniform grid. This creates a dynamism that is more in line with basket weaving and combined with proposed new LED lighting, an African beadwork pattern is possible, which extends the naturalist symbolism of the original transient monument into more humane, 'hand-made' territory – appropriate for our times.

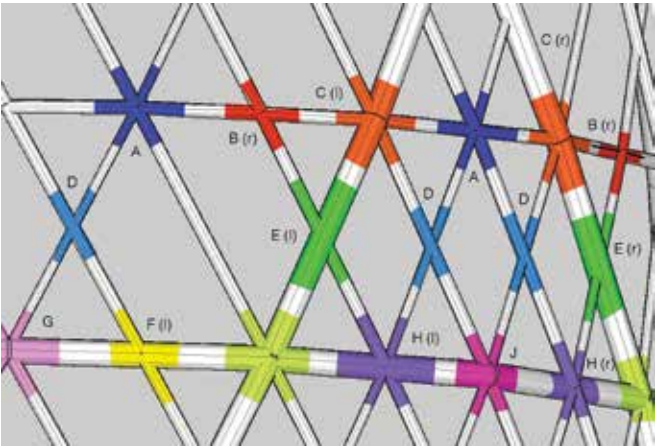
It should be noted that at the time of press, the future of the Millennium Tower is still in the balance as NPA has yet to announce its intended direction for the building.

It would be a great shame if this opportunity for renewal and rebirth of Millennium Tower, in line with the original competition brief and outcome, was not taken up with gusto as the development of the Point and new passenger terminal needs an auspicious neighbor as a gateway to Africa's busiest port.

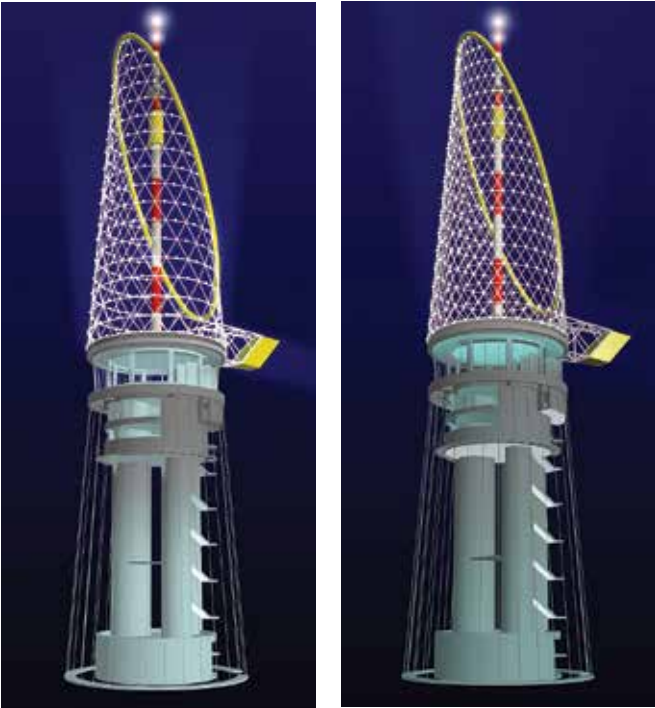
Don Albert  
soundspacedesign cc



Animation stills showing cowl and tidal spire movements, and light signalling.

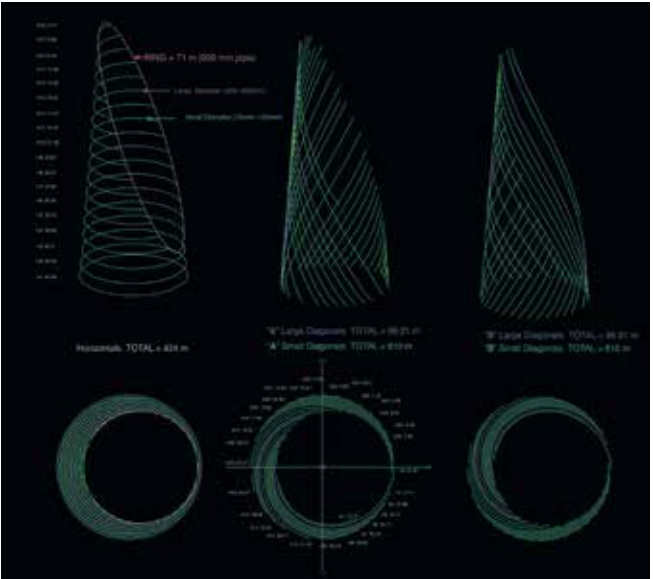


Detail showing range of welded joints in for Option 3 with tartan grid.



Option 1 - 2m diagrid.

Option 2 - 1m diagrid.



Symmetrical diagrid member diagram.



Option 3 with tartan grid



TRAVEL DIARY : Beira



Beira city map, 2018 (after Morais et al, 2014).

Beira, Moçambique, presents a good lesson in how not to site a town. At 20° south of the equator, and 1200km north of Maputo, the city sits uncomfortably on the east African coast, wedged between a perennial swamp, the Indian Ocean and a navigable river. But for the thin strip of coastal dunes steadily denuded by the Agulhas current and by aggressive sand-mining, most of Beira lies below sea level! When visiting this town, it is a good idea to seek first floor accommodation.

Founded in 1887 as a Portuguese military outpost on the mudflats of the Pungu'e River, by late-1950 the port of Beira had swollen into a 'modernist' city of concrete pomp, with *Beaux-Arts* boulevards, tourist beaches and an extensive hydrological network of drainage canals criss-crossing the swamplands. The *bairro indigines* of reed huts and footpaths lay two or three kilometres inland, the other side of the swamp. If all this is not enough of a strain on the urban resilience register, on the day before the hoisting of the flag of political independence on 25 June 1975, in an exodus of biblical proportions, 95% of the settler population (including the architectural profession) fled the country. Salazar's *ancien regime* had toppled, the Modern Movement in Moçambique and the first chapter of Beira's precarious, post-colonial future began. Three decades of low-level civil war followed, from early-1980 to 2015, swelling the earlier

Beira cathedral, 1907.



Old Beira, colonnades.



Old Beira, stilts.

post-independence quantum of vacant and destroyed buildings which to this day line the pot-holed and sandy streets.

An emergent, social cohort of 'subsistence-urbanists' has quietly moved into this scarred landscape, filling up the gaps between the debris, the fading villas of eccentric expatriates who remain, and the freshly concreted mansions of the local elite. For the next three years, this will be the physical and social landscape I face, along with my wife, Susanne, who has a contract with KfW, the German Development Bank, to upgrade town markets, the crumbling ocean piers to Beira's shoreline and the odd municipal bus depots around Sofala province. Overall, a difficult legacy confronts this city and its citizens.

For an outsider, the reading of Beira's history is straightforward, but defining its pulse and understanding the sensibilities of its citizenry, is less so. Sofala, the ancient, *dhow* trading-port 80kms southwards, has washed away and sunk below the sea. Beira benefitted from its neighbour's demise by transporting the stones of the old fort (c.1507) to build an elegant, plastered, city cathedral for their archbishop, but ignored the history lesson of precarious urbanism that Sofala offered.

Construction of early Beira responded as competently as a colonial outpost could, to the tropical cocktail of monsoon, cyclone, perennial flooding and insect predation with an architectural syntax of raised plinths, colonnades, generous upper-storey verandas, and houses perched on stilts. But there the history lesson ends. Today, one sees construction in the *cementos*, or cement-city, which is utilitarian and ill-considered, with disregard for its *genius loci*. Ultimately, such unsustainable practices require cleaning up and post-colonial Beira is becoming increasingly reliant on international donor funding to do this. The shadows of Sofala reach out!

In the *canicos*, or reed-city, is found an informal counterpoint to the *cementos* and for the last 50 years in Beira this has functioned as the sponge or shock-absorber for refugees from a rural hinterland depleted by wars and recurrent natural disasters. The spatial advance of the reed-city, from urban perimeter into the swamplands, mangroves and urban core, is steady and unrelenting. As a settlement type it appears indefinitely sustainable. If cities-of-the-global-south theorist, Abdoumalig Simone, is to be believed when advocating that "people are the fundamental infrastructure" of such cities, in Beira, that fundamental infrastructure pivots about the *canicos* (with the second ç spoken as a sybilant z, as with *Moçambique*).



Cement-city, formal Beira. (shaded black on city map).



Reed-city or canicos, informal Beira. (See dotted areas on city map)



On the sidewalks both downtown and in the *canicos*, one sees people sitting on, or assembling, the three-legged mangrove-chair, an insect-resistant and made-to-order *objet* of local ingenuity and economy of means, two green saplings cross-bent and nailed in tension. Like Rietveld's chair of 1918, all joints side-lap. Home-grown enterprise in Beira trumps foreign funders?

Mangrove-chair.

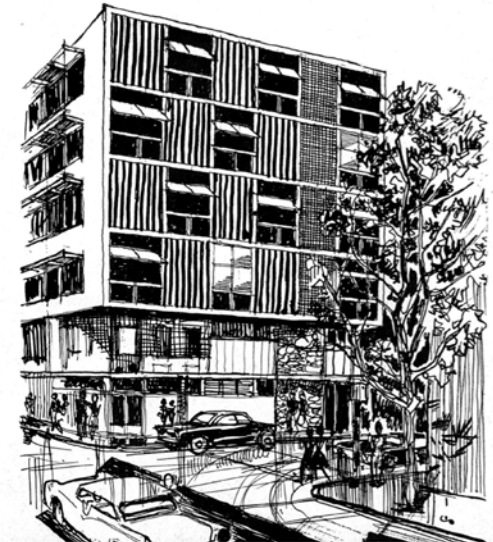


Grande Hotel, Ponte Gea, 1954. Jose Porto.

If cities need metaphors, then Beira's is decidedly the *Grande Hotel*. This hotel-casino development, which financially collapsed soon after the archbishop's sanction in 1963, mutated into an officially condoned high-rise refugee camp of 3,000 residents after the mid-

1990 floods. As a mode-of-being, 'subsistence-urbanism', or living-off-the-streets, is the defining attribute of post-colonial Beira.

For the architectural traveller, Beira presents a pageant of mid-century Modernism. In 2010, Docomomo and its international chair, Ana Tostões, listed over a hundred sites for this city of 500,000 people. Whatever the structures lack in technological finesse or formalistic originality, many are highly skilful compositions with an evident global sensibility. Pancho Guedes, in far-distant Lourenço Marques (Maputo), was critical of their lack of local expression. Architectural tourist Bob Cole-Bowen, visiting Beira in 1963, differed with his observations. He described "buildings gay with sunlight, shadows, colours and *brise soleils* ...The Portuguese had brought into Beira no romantic transplantations from their Motherland, but had built there instead a home of their own in Africa".



Sketch by Bob Cole Bowen (Architect & Builder, April 1963).

But there is arguably a more substantial charge. How, in 1975, could this community-of-origin so abruptly abandon and disown that 'home'? That legacy of values and conduct must surely, and problematically, impact on the values and regard of today's community-of-responsibility. But this is a topic for future interrogation.



Palacio do Casamentos, Ponta Gea, 1957. Paulo de Sampaio, architect.

In conclusion, here is one of the Docomomo-listed sites, which illustrates something of the legacy. The 'Palace of Weddings' in Ponta Gea is lyrically sited on the water's edge, vacant and boarded-up. A fisherman along with his family squats in a mean, black plastic-sheet hovel stretched between the pilotis. He knows about water, feels the rise of tides is increasing, and is fearful for the future of the building. After all, has it not become his building?

Kirk White

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