‘Architecture provides the environment for our lives. Buildings are not just places of physical shelter, but places in which our social rituals are enacted,’ and ‘the meaning of buildings evolves and becomes established by experience and we in turn read our experience into buildings.’ [Conway + Roenisch 1995:23]

‘design is a process of engaging with a problem or set of problems, whereby a proposal for resolving the problems is formulated’
Righini [2000:165]
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The following dissertation involves a number of design phases, starting on a contextual level and gradually zooming into the site whilst exploring programmatic and design aspects appropriate to the following site.

The initial stages of design require an understanding of the different levels of systems which function within and form part of a city. The Elandsport Road threshold for Pretoria is a point of convergence in one place for many different features. These features rely heavily on the strategic location at which they converge however lack cohesion and interaction between each other. These include different modes of transport, and local facilities creating the urban fabric. The proposal for the following dissertation is based on the existing dynamics of the area which have formed over time. Consideration in connecting these features and providing an environment which fully accommodates the city visitors, locals and students walking along Elandsport Road are the main drivers.

The strategic location holds great potential to accommodate facilities and services which can support and generate activity from the active movement of people either by foot, car, train, bus or taxi. The defining of an active hub on the periphery of the CBD is possible and some what already exists yet in a disconnected form. The CBD is the main hub of activity for the city yet needs a series of smaller hubs located on the periphery like beads on a necklace as shown in illustration 7/009. These then feed the city system and to enable a more efficient spread of facilities supporting activity through out the city. The typography as shown in the contextual model illustrations 7/010 to 12 shows the location of Elandsport Road edging a ridge and leading down to the CBD. This relationship needs to be kept in mind and visual connection along the whole route becomes an important feature in the design. The below illustrations show the area dynamics, the threshold parameters and movement lines, active edges and urban fabric.

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<tr>
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<td>&gt; Students</td>
<td>+ 600 0 students on campus per day</td>
</tr>
<tr>
<td></td>
<td>&gt; Workers</td>
<td>[UNISA Property Plan 2005-2015, Development Manuel, Executive Summary]</td>
</tr>
</tbody>
</table>

**Area Dynamics**
- Residential areas
- Train line
- Roadway
- Pedestrian activity
- UNISA

**Threshold**
- Residential buffer
- Introduction to CBD
- Movement zone

**Active Realm**
- Metro Rail
- Vehicular Access
- Pedestrian Route

**Defining Edges of Urban Fabric**
- Entry point
- Connection to city grid
- Train line as a dividing element

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Unisa Sunny Side Campus
UNISA Sunny Side Campus
UNISA Sunny Side Campus
UNISA Sunny Side Campus

Central Node
Node on the Periphery

Elandsport Road
Muckleneuk
UNISA
Sunny Side Campus
Main Campus
Student Accom.

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7/017
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7/011
7/010

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University of Pretoria etd– Bevan, B J (2006)
The proposal includes the incorporation of:

- a proper train station
- bus terminals, taxi rank
- safe pick-up-and-drop off areas for temporary laborers
- gathering spaces
- a pedestrian friendly environment with shading
- stimulating and active edges
- refreshment shops,
- 24-hour facilities
- necessary services to service the Muckleneuk and UNISA residents and accommodate UNISA Campus functions.
Muckleneuk is located along Klapper Kop and Bourkes Hill forming part of the Bronberge and Langeberge known as the South ridge. This protects the Pretoria CBD bowl and creates an entrance into the city viewing onto it. The below section faces South showing the height of the site above the CBD ground level and the location of the South Entrance.

Access to Mears Train Station form Elandspoort Road runs along the South Eastern edge of the site and requires a 5.5m level change from road level to platform access enabling the train line to have a sufficient 6.5m clearance to run under Elandspoort Road.

Pedestrian patterns of movement are those of students moving from UNISA Sunny Side Campus to UNISA Main Campus along Mears Street and Preller Street. Vehicular movement is predominantly fed by the N14, R21 and M81 as an entrance into the city from Johannesburg and consists of the mass of commuters into and out of the city from Johannesburg and Centurion. Muckleneuk is a residential area and does not have retail or commercial activity to support the local residents, resulting in the need to travel to areas such as Sunnyside to do basic food shopping.

Mears Train Station is a Metro rail station and lies along the rail line linking Pretoria to Germiston. It carries individuals from the South of Pretoria to the two predominate stations of Pretoria Bosman Station in the CBD and to Hatfield Station continuing on to Mamelodi. The Gautrain once in place will run along the same train line linked to Johannesburg. It will sit within the Railway Reserve of the Metro Rail Line and run parallel to the Metro Rail. The Gautrain will only stop at Bosman Station and Hatfield station and will only pass through Mears Train Station in the following dissertation precinct.
Pretoria has a geographical location of 25°44' South Latitude and 28°12' East Latitude and is typically part of sunny South Africa. It is considered a relatively lush and moderate location notorious for its greenery and beautiful purple Jacarandas which bloom in September / October. Harsh conditions are not experienced in Pretoria climatically, winters are dry and cool and summers are warm and sunny with occasional afternoon showers. The greatest issues are great exposure to sun, low angle winter sun angles and the need for shade in summer. Winters are cool and maximization on direct sunlight during winter months improves occupancy comfort.

**Sun Angles**
- Summer: Sunshine Max. 80% ALT. 85° [Dec. 22]
- Winter: Sunshine Min. 67% ALT. 60° [March 22—Sept 22]

**Temperature**
- Summer: Average. 22.5° C
- Winter: Average. 11.3° C

**Rainfall**
- Average. Precipitation 750 mm

**Wind**
- North-East Direction

**Vegetation**
- Jacarandas

**Soil Conditions**
- Shale

**Sun Path / Shadow Mask**
- VSA [Vertical Shadow Angle]: 88°
- HAS [Horizontal Shadow Angle]: 67°

**Design Discourse**

### Illustrations
- Section running East to West showing City Typography + Site location [Author]
- Diagram of city bowl + ridges [Author]
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The following dissertation requires a definite response to movement patterns, orientation and visual interaction. The design approach looks to integrate new development with the existing dynamics of the site in order to fit into the context and to set up the process of arrival into the Pretoria CBD via Elandspoort Road and Mears Street.

**Visual Access**

The Eastern and Southern Elevations hold great potential for visual connection between passers-by and the people inside the building. Surfaces of the building need to be considered from a visual access opportunity as well as an enclosing element for the building.

**Physical Access + Movement**

Mears Train Station located at the South Western point of the site motions for the building to step back, away from the road to provide the platforms with more light and to open up the existing train stopping area. Currently the station, is dark, dirty and unsafe. It lacks surveillance over the station due to too many trees and the station is cut off from rest of the context. Buildings which surround the station need to support 24 hour activities which can view onto the station and provide facilities which commuters can use after or before work on their way to their destination.

**Social Spaces**

UNISA students commuting along Elandspoort Road need to be given the opportunity to sit and gather along their route so as to create a more on-the-street presence and a place where individuals can recreate. There are a lot of student residences and apartment blocks in the area and along Mears Street which need social spaces located in close proximity, which is currently lacking in the present neighborhood. Mears Train Station also beckons for a social space which commuters can feed into as they move into and out of the station.

Such a point can be created by forming a confluence of activity where train and pedestrian commuters meet on Mears Street. A proposed pedestrian access link will run East-West connecting with the main UNISA axis route which runs North-South parallel with Mears Street along Preller Street. The location of an entrance to the following dissertation building would ideally open up onto this proposed pedestrian link and incorporate this into the building design.

**Relationships**

The creation of realms of privacy are about defining spaces and defining their thresholds so as to determine inside from outside. Not all spaces can be public and complete privacy for spaces needs to be controlled so as to not create a segregated environment. Active Edges are ideal for public spaces and private spaces are best located at centers or away from activity. Security and enclosure are the reasons for defining space, however, the following intervention will play with the different levels of interaction to define space and thresholds.
The nature of education requires a defined ordering of activities and the separation of private spaces to learn in with minimal distractions. Semi-public social spaces are needed for medium to large numbers of students to congregate in between lectures. These need to be situated close to lecture venues but can visually connect surrounding context as shown in the diagrams 7/051 to 054. The placement of defining elements such as walls can be used to form internal private spaces and open courtyards to accommodate external gathering activities. A variety of spaces allows for a facility to be balanced and to provide opportunities to work/study productively or relax and take a break. Education also requires a certain array of facilities shown in the diagram 7/055.

Display galleries and commercial venues require simple and easy access to viewing venues. Supporting facilities such as cafés and public open space located on the periphery of the building need to be clustered around venues to prolong the stay of visitors and to build up the notion of a destination with multiple activities. Due to the customer profile being mainly first off visitors access into and out of the building needs to be clear and legible through simple design strategies such as scale which enables a form of communication to the general visitor.

Circulation for both programmes is an important governing factor in this design and coupled with the location of the site certain programmatic responses can be teamed up with Dynamic and Environmental Responses to create a fully integrated design. Edges located on a movement network ideally should attempt to combine programmatic active activities along dynamic site active edges. In the case of the following dissertation the circulation component of the building is located along the Mears Street edge to allow for visual connection between passers-by and people moving within the building. For security reasons though the circulation is raised from the street level to prohibit physical access between the public street and the semi public circulation strip of the building. This then provides the opportunity for street furniture seating. The main connecting link running East West is intended as a completely public route with access points into the buildings north and south zones clipping off of this. The idea is also to allow the general public the opportunity to inhabit the building with access to upper levels yet solely to the connecting component. If one wishes to access further into the building, thresholds need to be crossed which are carefully controlled by admin gates. Vertical Circulation incorporates a even spread of mechanical lift cores and open air louver screened stair cases. The lift cores are accessible from both sides to allow access on basement levels from one side and then access to circulation strips on upper floor levels from the other side. Basement requirements involve sufficient parking space according to the activities held by the building but essentially manoeuvrability of vehicles, ventilation and light shafts with access to vertical circulation to take people into the building. Access is from road ways Berea Street and a proposed road link on the South allowing sufficient height clearance for access.
A response to Contextual, Environmental, Dynamics and Programmatic factors are the basis of the following dissertation. Connection and Communication are taken as important concepts and from the essence of the following facility to reflect a responsive approach.

These concepts are explored and expressed in the building through an attempt to integrate construction and design on multiple levels. The general functioning of the building needs to express these concepts even down to the details which stand at the ultimate point of connection between elements. The careful choice in materials, structuring systems and building elements is determined by the attempt to strive towards a sophisticated and technologically advanced building which is expressive of it’s place in time. Media and Image are components of our digital and technological culture and are going to be houses in this facility. Thus the building needs to reflect this and can be done my making use of digital surfaces and technologically smart materials. The characteristics of sleek, simple, straight and clear lined surfaces are to be echoed throughout the design to fully express a digitally smart building. This can be interpreted through a number of ordering principles, these being:-

- Connection
- Communication
- Defining Spaces
- Thresholds
- Circulation Strips
- Transparent Edges
- Display Surfaces
Conceptual Development 7.6/
Defining of Spaces

The defining of clear spaces to accentuate place, thresholds and order requires solid forms such as walls. Courtyards consisting of a defined nesting qualities with the option to view out defines a difference between being within the courtyard and being beyond it. Defined spaces emphasise the difference between spaces and thus connection, which is communicated physically and visually through materials.

Thresholds
The concept of a threshold is that which is before or after something and thus should be communicated through level changes, material changes, change in scale and difference in light qualities. These are all approaches essentially attempting to make a physical change to ones experience and define one space from another through a distinct character embedded in each space.

Circulation Strips
The intention of circulation routes are to set an order to access and thus process of experience. The idea of creating a space which though open and interactive still has a character of it’s own and quality of experience different to those spaces connected to it.

Transparent Edges
Visual Connection from inside to outside and outside to inside enables a truly connected form of architecture which glass allows for in the expression of communication through connection. Thus bridging the gap whereby architecture is essentially about forming enclosure yet only on a physical level. Technology is able to allow for visual connection whilst still providing enclosure. Its surroundings even more. A wall no longer needs to only function as a wall it can do so much more.

Display Surfaces
Advances in technology and especially display can enable building elements to become more than structuring forms but surfaces for display. The building envelope has the potential to display and communicate with surroundings even more. A wall no longer needs to function just as a structuring element, or enclosing element but as a surface for display.

Design Development 7.7/
The above Architectural Aspects are explored further in Design Development in a 3 Dimensional form with the use of models. The Models are displayed in sequence from the beginning stages of design. These start with responding to context and creating an Urban Design, Conceptual, Programmatic and Form Proposals.
DESIGN DISCOURSE 7/

Design Development 7.7/

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Urban Design Model 1:1000

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Proposal for Threshold Development + Site [Author]
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Programme Extrusion 1:250
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Programme Extrusion Model Showing Courtyards + Circulation 1:250
Formalising of Design Model 1:450 with focus on Programme + Conceptual Approach

Formalising of Design Model 1:450 with focus on Programme + Conceptual Approach
Design Development 7.7/ Models

Working Model 1:200 towards final Product [Author]