



DESIGN  
PLATFORM

↑ Exit

DESIGN DEVELOPMENT

06:00

Design process

Vignettes

Design process concluded

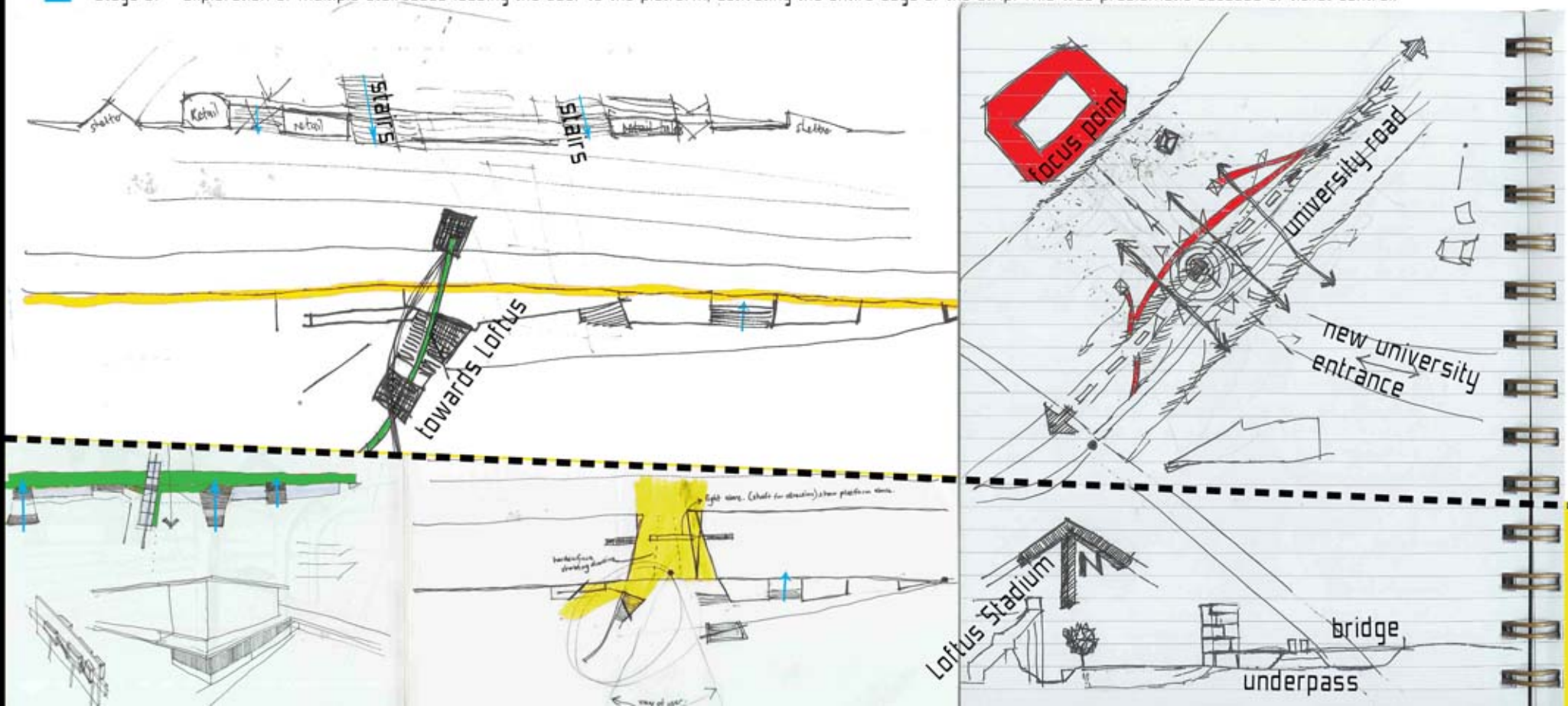




## Design Development

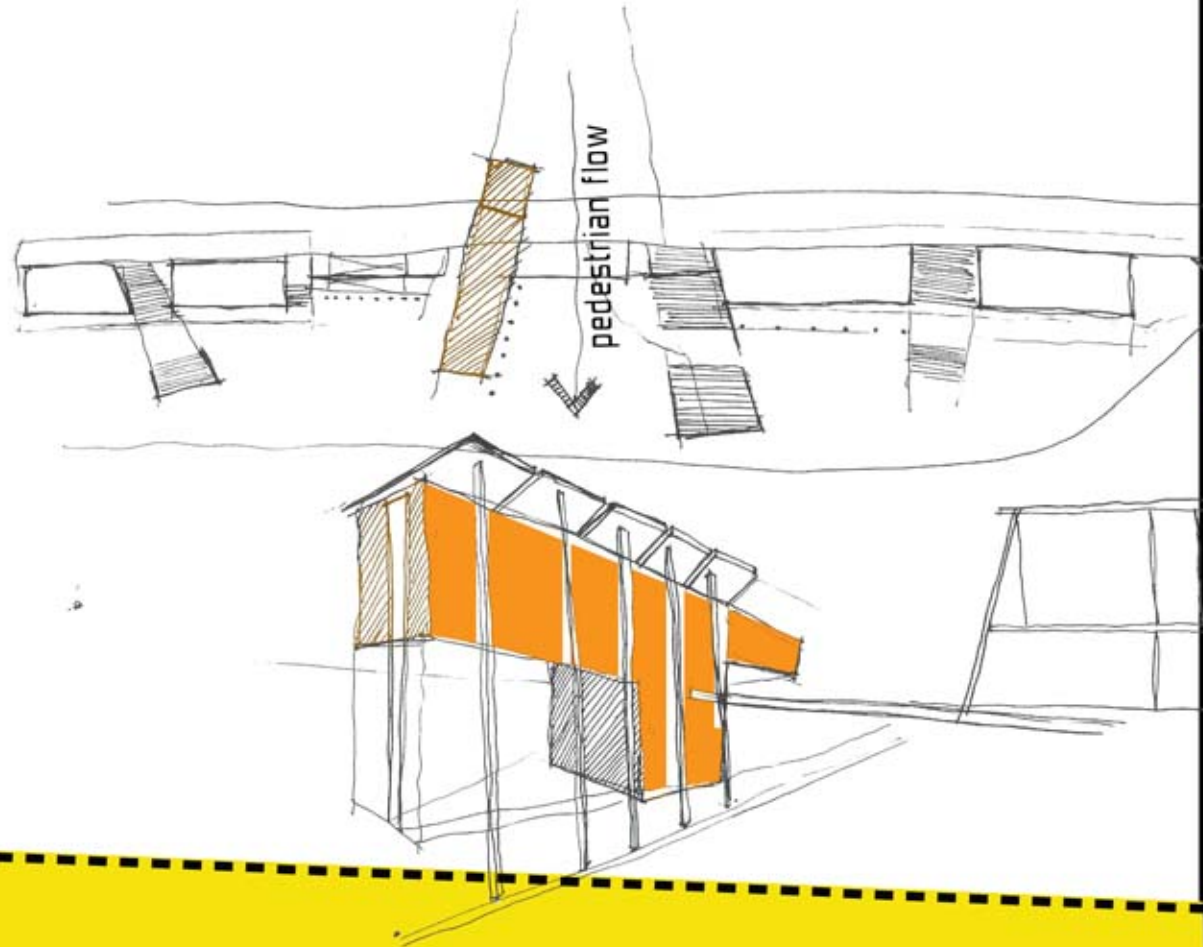
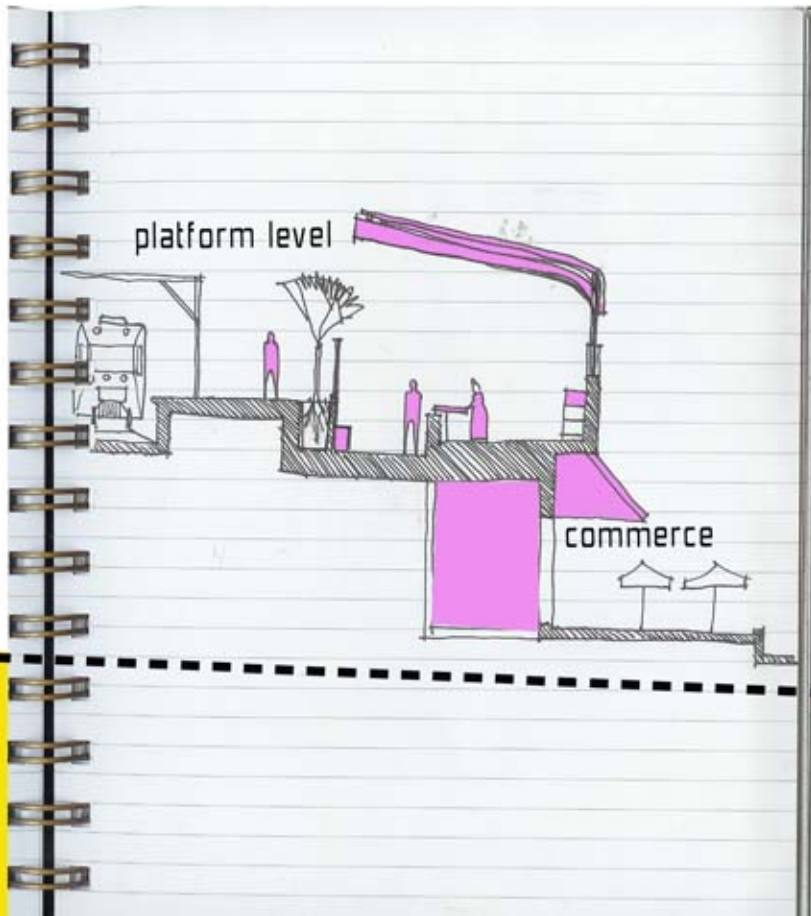
The aim is to deal with a diverse spectrum of elements - the train at the highest end of the spectrum coming in at a high speed and on the other end of the spectrum is the daily commuter. Within the spectrum, the station also accommodates the link between Loftus Versfeld city block and the University of Pretoria. All of the above mentioned require a specific design approach best suiting their individual needs. Eleven stages will be discussed, stage 6 include a story line from the users' perspective

- Stage 1. Establishment of the Loftus Precinct development and the green bicycle route for maximum success of the Loftus Metrorail Station.
  - Possible relocation of Municipal depot within proposed Loftus precinct, servicing the green route.
  - Exploration of a pedestrian bridge linking Loftus Versfeld Stadium to the University of Pretoria.
  - Proposal of a slipway underneath the railway for vehicle movement due to limited space for modal interchange on University road.
  - Relocation of passenger tunnel underneath the railway opposite the new student and vehicle entrance of the University. This provides a vista from the entrance of the tunnel to Loftus Versfeld Stadium.
- Stage 2. The exploration of the experience of the user throughout the design was implemented by creating viewpoint vistas through directional lines in the design.
- Stage 3. Exploration of multiple staircases leading the user to the platform, activating the entire edge of the strip. This was problematic because of ticket control.





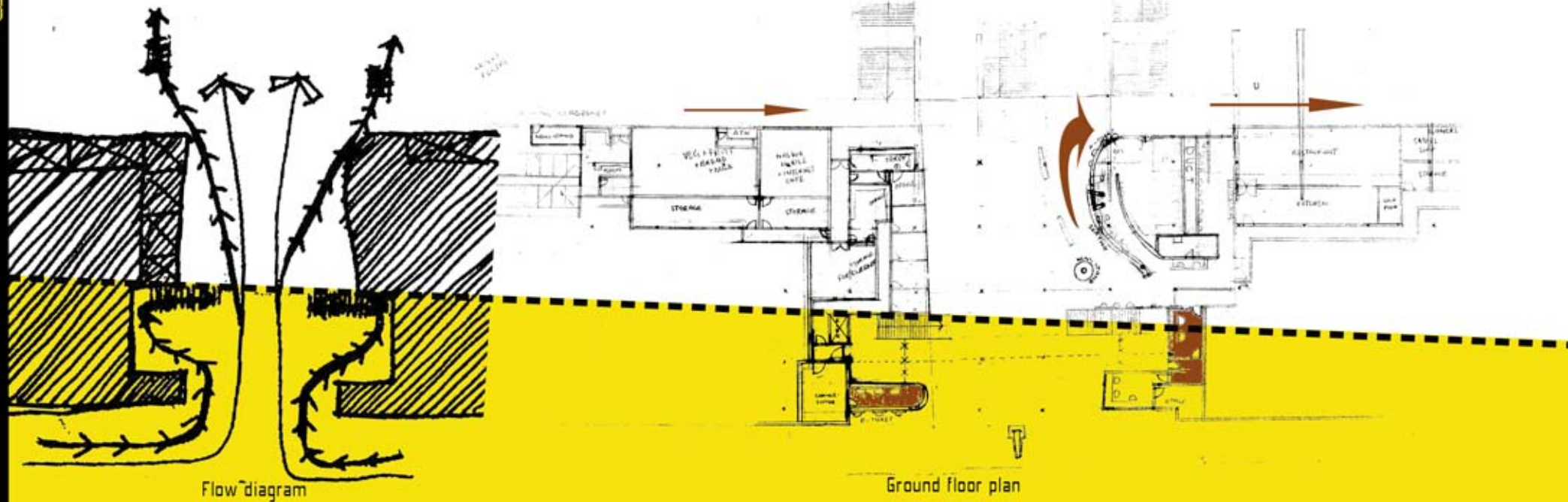
- Stage 4. Strategic placement of the station control room and the security room in full view of the platform and surroundings
- Stage 5. Activating the edge of the embankment along the existing railway track by placing functions within the height difference. Creating two different spaces of interaction on platform level for 'quick-buy' options.

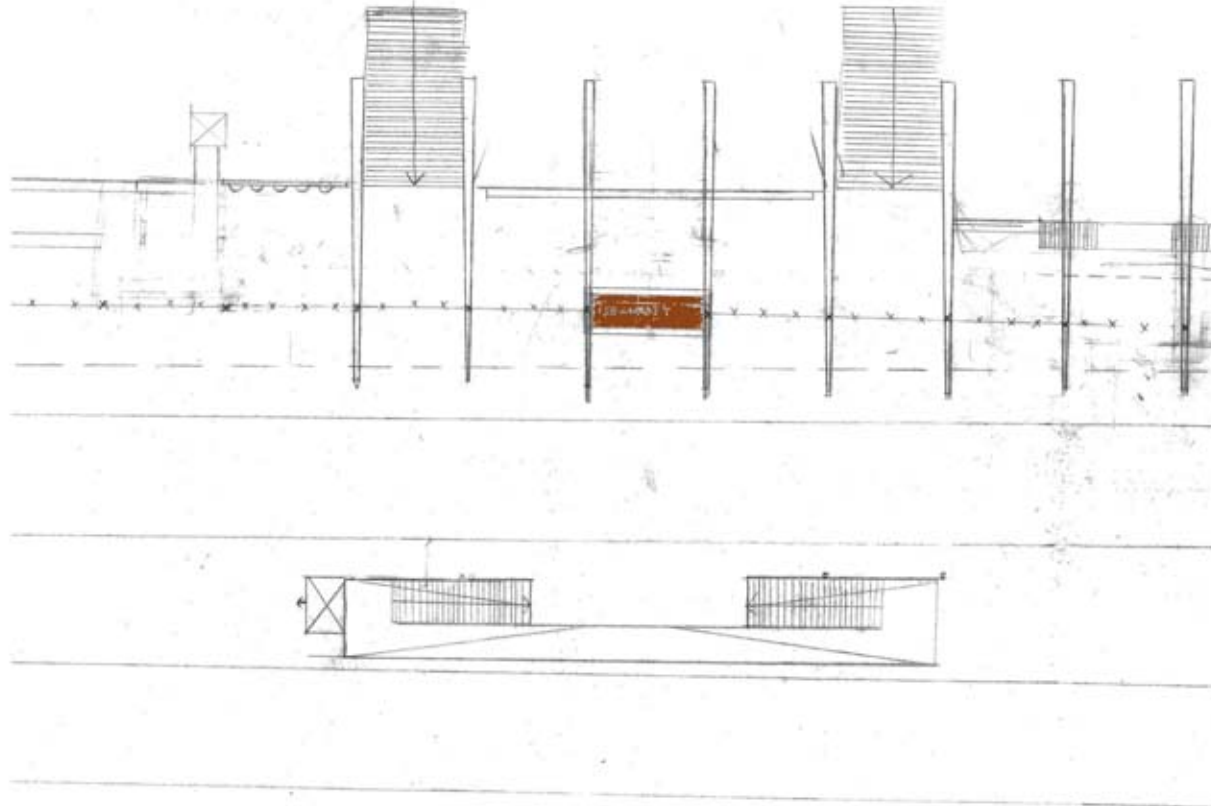


Concepts lack substance in the sense of place. Focus must shift from creating an active platform arcade to designing a station building, focusing on ticket control and security, this became the first turning point in the design process

- Stage 6. Plan is simple and legible
  - The column grid allows the walls in between to have free form since it needn't be load bearing. This allows free flowing forms suggesting movement on plan
  - Structure is open and transparent
  - All modes of movement open and translucent for quick decision making
  - Public facilities open and visible from everywhere
  - Ground level: Shopping arcade parallel to railway, perpendicular to main movement to assist with function identification
  - Structure suggests movement, designed to draw user in and disperse into different destinations
  - Security points overlook turnstiles, avoiding ticket evasion and improving active surveillance
  - Main feed to Loftus Precinct is from the station - therefore direct and uninterrupted access via bridge.

06:03





Platform level plan

## The Story

In order to understand the simultaneous movement systems in this part of the design process, one has to think like the user of the space. (refer to theory chapter)

Therefore a series of stories, illustrated through vignettes (seen on the next page), were created to express how the different users of the space would perceive it through their own eyes. By establishing a track through space which becomes the actual path and so doing become the dominant organizing force in design.

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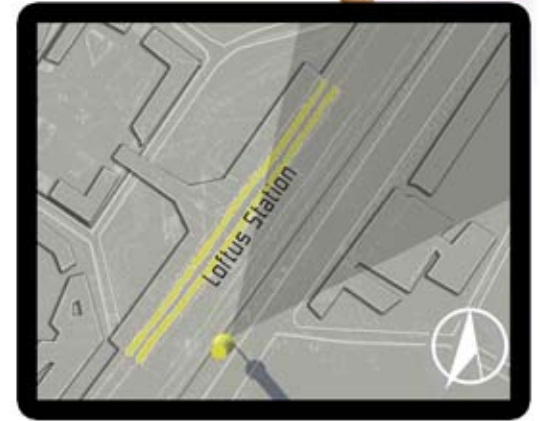




## The Story:

Scenario 1: Approaching Loftus Station from University road.

Walking on the sidewalk: "I experience big trees along the sidewalk in a long row in front of me. The canopy provides enough shade, together with slow driving traffic - a tranquil space to move through. As I progress forward a few students on bicycles pass me and approach the University entrance via a big piazza where many students are meeting and exchanging stories, perhaps even trading off exam papers for studies. But my focus shifts from the right across the street to right in front of me where a tall tower like structure is flashing a picture of a train, with a time of 14:30 and a name of Hartbees-spruit flashing - it must be for the train approaching the platform. Suddenly more people move in a rush toward the structure..... I must see what it is....."



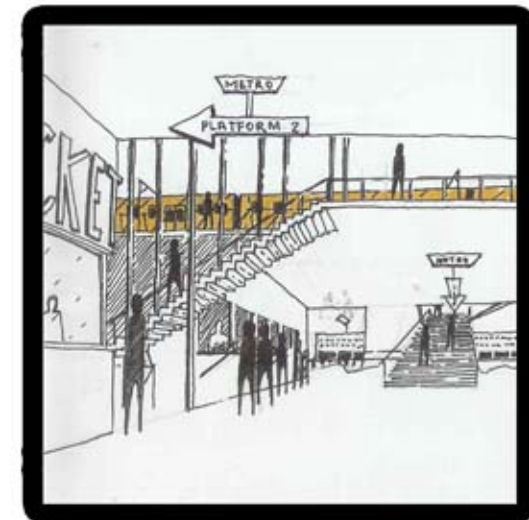


Scenario 2: Arriving at the entrance of the station from University road.

"The building is showing the train approaching the platform. Great! There is the ticket booth right in front of me, easy enough. The man behind the glass partition smiles friendly, I return the smile and walk towards him. There's a lot of activity inside here. Is that the new Loftus precinct that I can see from here? Yes, it must be, because I can see Loftus Versfeld Stadium!

Eventually the informal traders negotiating the prices of their apples return me back to reality. I query the ticket salesman about the next train to the CBD, I'm in luck because the next train leaves in 15 minutes. He informs me that the day pass ticket option can be used for the train as well as the Rapid Bus Rail - nifty!

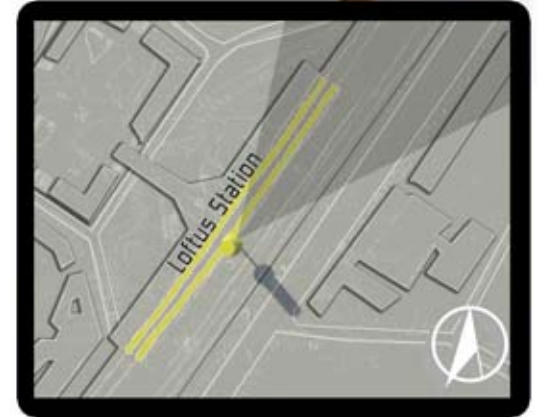
I thank him and naturally I follow my eyes toward the light penetrating through the roof above - I see stairs puncturing the roof and realize that these are the stairs I need to follow to get to the platform above. Once through the turnstiles - above me I see the familiar yellow movement of the train, the people around me hype me up, and I move quickly with the flow.....I'm excited to see what it looks like up there....."





Scenario 3: On platform 2 (CBD direction)

"Once up the stairs, the sheer movement of the masses toward the yellow train entices me toward them, there is a bustling of different characters and classes of people. In the distance there is a man selling peanuts, walking around and echoing the goodness of the protein. I spot another man sitting underneath the structure put up to protect awaiting passengers from the elements. The man is a blind beggar in a wheelchair singing gospel songs and hoping for enough change for day to day living. I always wonder to myself what had happened to such a person for him to be in this situation. I hit reality hard when a rude little boy bumped into me, and didn't bother to apologize. The vibrant array of people makes me feel a strange sense of belonging; I decide to get onto the train before it leaves without me. Once on the train I notice the huge station structure which spills out to the west....I'll have to come back to Loftus Station to see it again...."







#### Scenario 4: Arriving at the station via train from CBD (South)

"7am... the train is almost to its full capacity, it's extremely cold today, but in here it's warm, so many people standing close to each other exchanging polite greetings. Four rows in front of me I see a beautiful young girl with her mom trying to memorize her last math formulas before school. Approaching Loftus Station once again, I am reminded about all the soccer games I've attended at Loftus, when seeing the stadium in full glory. The train is starting to reduce its speed and for the first time I can see this precinct sitting comfortably between the stadium and the station. I see a green urban park with children on bicycles on their way to school and joggers with their dogs out for their daily run before work when the platform suddenly comes into sight. I clear the window filled up with condensation formed from my breath to get a closer look. There are many people waiting - but then I see the structure again - it is an inviting structure with the huge horn-like fingers hovering above the platform. Finally the train stops, I'm nervous because it looks so busy - how will I know where to go? The little girl and her mom find their way through the crowded train to the door. I decide to follow them - it seems they know where they are going. But then I see that it is actually so easy to orientate myself with the well known landmark in front of me - Loftus - it should be easy to find my way to Eastwood street, I have a job interview there today at the local restaurant there. The doors open and I wait in anticipation to get out. The feeling is simply amazing...the finger-like structure welcomes me like a mother with open arms, who hasn't seen her child in ages. The movement of people on the various circulation routes seems almost like a well oiled machine. These transparent circulation routes make it easy for me to see where to go - so I go where the structure leads me. Right in front of me I take the stairs down to ground level...."

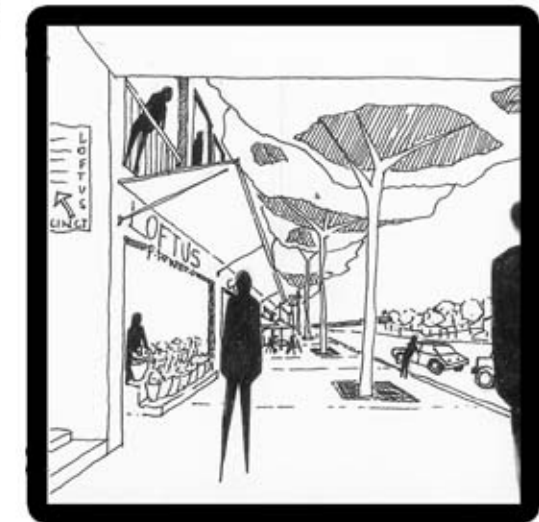


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### Scenario 5: Walking through the precinct from the station

"Normally I would have to walk around this huge block to get to Eastwood Street, but now I notice a big modal interchange in front of me - so I decide to follow the road under the bridge to get to the other side. It takes a while for me to collect myself after a taxi driver nearly ran me over - he better look where he is going - this is a pedestrian friendly area. I get a nod of approval from the traffic officer after I give the driver a piece of my mind. He fortunately apologized and drove away. Again I feel the comfort of the protection that the canopy of fever trees offer on the sidewalk. The florist is busy unpacking his flowers and the coffee shop is already open - the smell of coffee makes me crazy...but I'm in a hurry, so I carry on with my journey. It is so much more convenient now that the city block is open and developed for pedestrians to pass through directly to Kirkness Street passing Loftus Stadium and then right into the direction of Eastwood Street. A sense of familiarity comes to mind, that of the CBD - where I live...where people actually walk to their destinations and rule the street....this is wonderful!"

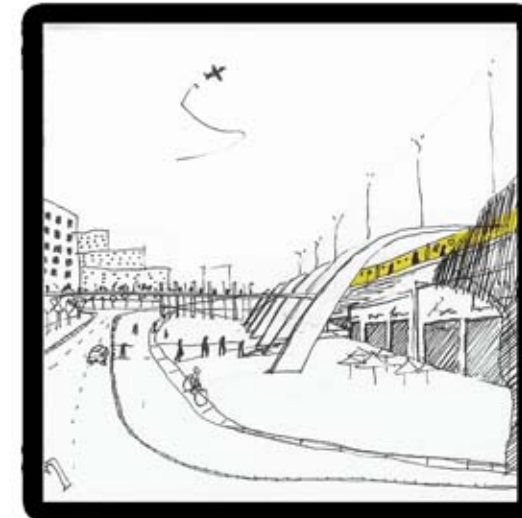
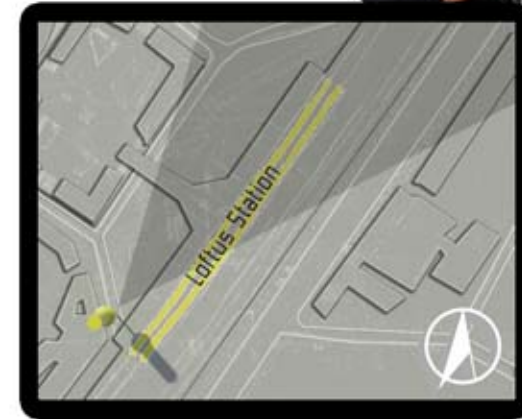


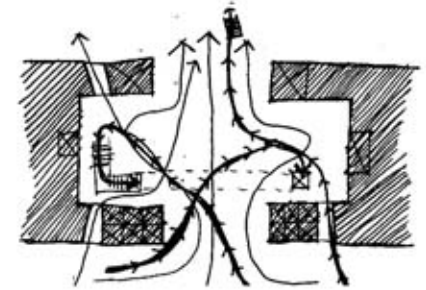


Scenario 6: A vehicle approaching the station from the underpass underneath the railway tracks.

"I have to be in time for my appointment at nine - I simply have to convince these clients that the V860 will double their return on investment within the first year. The meeting is in Centurion and the train will be the quickest to use. I haven't been to the new Loftus Station: I hear it is very convenient. As I turn left into University road, with the big Admin building in front of me, I remember my student life...AH what a life! But here I am, 42, time really flies when you're a business man with a family to look after. Oh, I see there's a new slipway to the left that passes underneath the train tracks, with a green bicycle route next to it. This reminds me - I need to collect Kevin's bicycle from the shop for his birthday next week. Maybe we should come ride here one Saturday. I see signs underneath the slipway that say busses and taxi drop-off to the left and motorists keep to the right. Parking for the day is also to the left and I quickly change lanes to avoid an unnecessary traffic jam. As I exit the tunnel the new Loftus precinct is unveiled bit by bit from behind the lush growing trees. Platform structures to the right act as trading shelters at ground level. I also spot a bicycle rental and repair shop...this is very clever, now I don't have to attempt to fix the broken chain on my Raleigh. I could just rent a bike and then I'll only have to fit Kevin's new bicycle into the trunk of my new car. My eyes follow the platform structure to the middle, where the structure seems to jump up from the ground up into the air - this must be where I need to go. There's a crowd of people moving in this direction. The bridge in the far end also seems to originate from this point and vanish into the opposite building. The station structure is very large and reminds me of a skeleton.

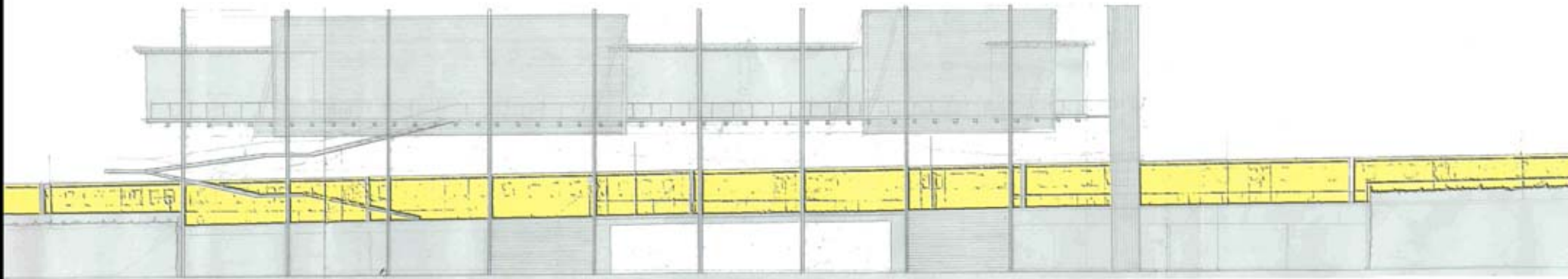
I can see many different staircases and ramps, this will reduce the time I'll need to figure out the quickest way to get to the train, I always get lost - and everyone knows that I don't ask for directions - I just can't!"



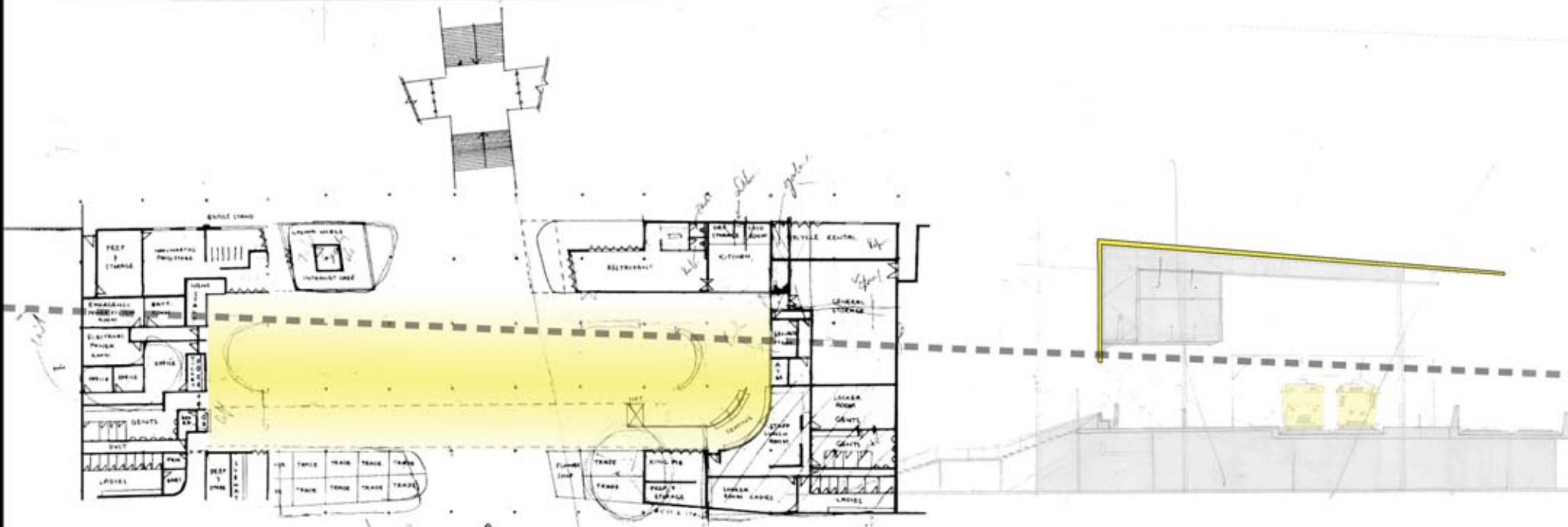


Stage 7. Exploration of 3 dimensional form

- Accommodating western sun treatment through screen structure
- Structure signifies movement and rhythm of the train
- Exploration of the underground shopping area instead of transition tunnel
- Exploration of Western facade treatment
- Structure is open ensuring natural daylight and ventilation
- View of platform is open - exposing movement of train and passengers



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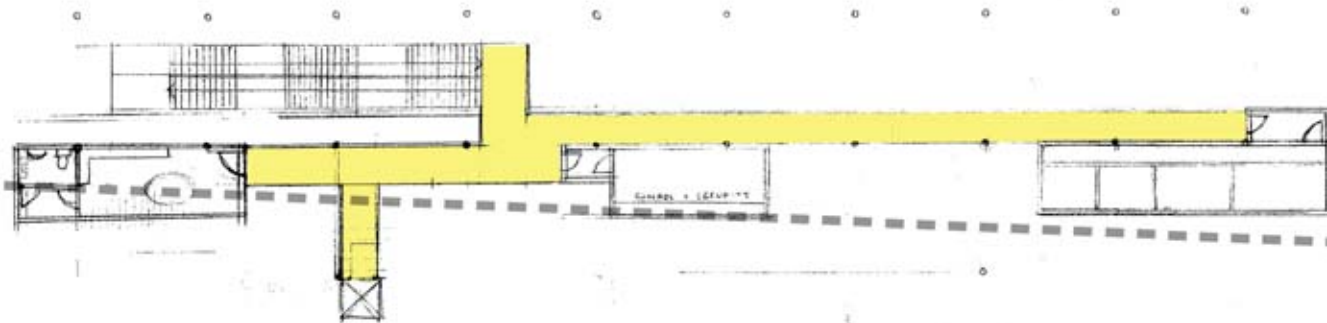
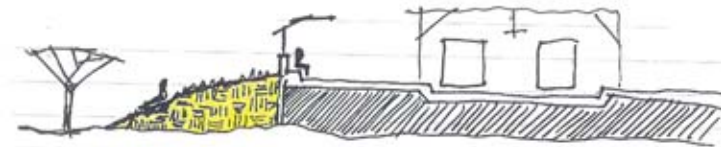
Stage 7 continued...

- Establishment of design policy:
  - That which belongs to the ground: under the railway (shopping)
  - And that which belongs to the sky: platform level
- Treatment of functions and activities in these respective areas
  - That which belongs to the ground: robust, concrete, 'hidden'
  - That which belongs to the sky: lightweight, steel, free structure

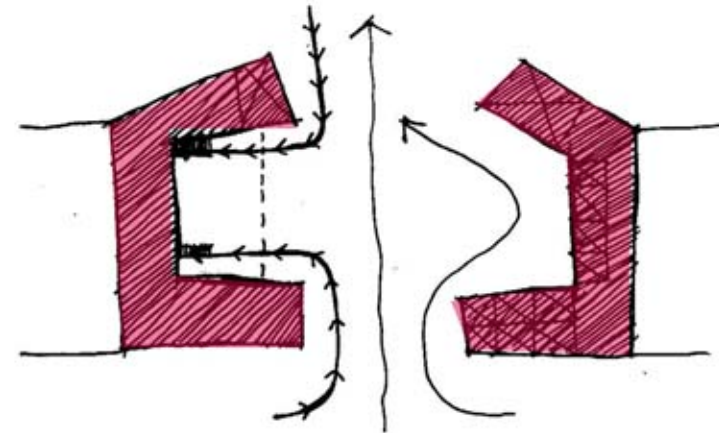
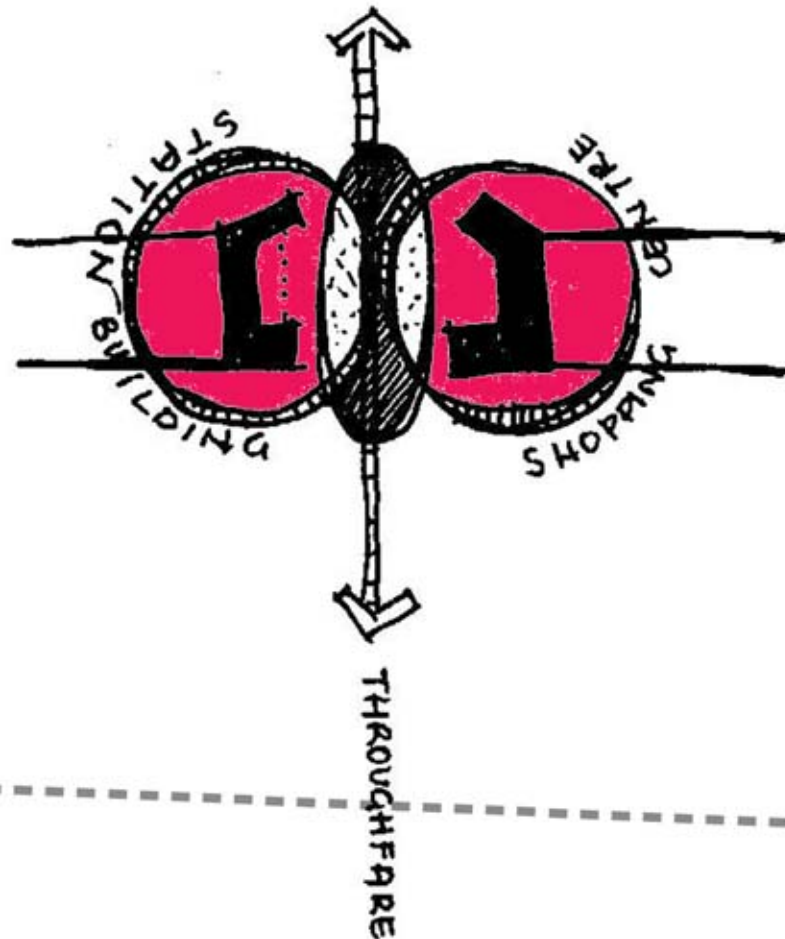


**"We may also point out that 'thing' and 'character' (in the sense here used) are dimensions of the earth, whereas 'order' and 'light' are determined by the sky. Time, finally, is the dimension of constancy and change, and makes space and character parts of a living reality, which at any moment is given as a particular place, as a genius loci" (Norberg-Schulz, 1980:32).**

- Staff program on Mezzanine level above platform, once again circulation is exposed
- Program on mezzanine level: Security, Station control, admin offices and services
- Mezzanine level: Important functions held here. At the point where the building has substance is where the functions that operate the station are situated
- Circulation remains symmetrical assisting with the legibility of the structure.
- Program on platform level: ticket check, security and seating
- Outskirts of platform (belonging to the ground) evolves into embankment defining boundaries for the structure



Stage 8. The second turning point in the design process was when the Metrorail design guidelines were obtained and studied. Program adjustment and facility re-evaluation concluded after full understanding of the client requirements.



Metrorail requirements:

- Function as independent entity
- Not in favour of commerce within 100m of station building
- Classification of station as a flagship station of medium size (25000-30000 commuters daily by 2025) with a 2% growth per annum
- Stairs to platform to be 3.5m wide
- Maximum safety in terms of design
- Clear opening to entrance of concourse, must accommodate peak volume of 5min period: 7m width of clear entrance
- Internal Hall area: Spatial requirement for queuing: 120m<sup>2</sup>
- Depth required on approach side of turnstiles: minimum 6m
- SNP lifts: 1lift per platform, situated in view of security points.  
Lifts are for SNP's and staff only.
- Four main flanks in station building:
  1. Administration Flank,
  2. Commuter service Flank,
  3. Security Flank,
  4. Plant room Flank



## 1. Administration flank (customer service centre)

- Ticket sales office with 4 ticket sales points: 16m<sup>2</sup>
- Default ticket sales point with security office overlooking turnstiles located directly opposite this point: 8m<sup>2</sup>
- Battery room - back-up power for turnstiles: ducting to turnstiles and control room: 8m<sup>2</sup>. Requires venting
- Station control room: control of turnstiles, PA announcements, telephone systems: 7m<sup>2</sup>
- Entrance to ticket office: secure cubicle with electronically operated gate as anti-room to ticket office: 3m<sup>2</sup>
- Cash up room which is a secure cubicle: 2m<sup>2</sup>
- Strong room with concrete roof, cash drop in safe, office safe: 2m<sup>2</sup>
- Locker room: 10m<sup>2</sup>
- Kitchenette: 20m<sup>2</sup>
- Staff room adjacent to kitchenette for discussions and briefing: 15m<sup>2</sup>
- Senior clerk's office: 6m<sup>2</sup>
- Admin store: 12m<sup>2</sup>
- Staff toilet: 1wc and separate 1whb: 7.5m<sup>2</sup>

## 2. Commuter services flank

- Provide for SNP's (special needs person)
- Female: 3 whb and 3 wc of approx 10m<sup>2</sup>
- Male: 2 whb, 2 urinals and 2 wc's of approx 10m<sup>2</sup>
- SNP: 1 whb and 1wc of approx 3.5m<sup>2</sup>
- Cleaning store: 9m<sup>2</sup>

## 3. Security Flank (situated in full view of turnstiles)

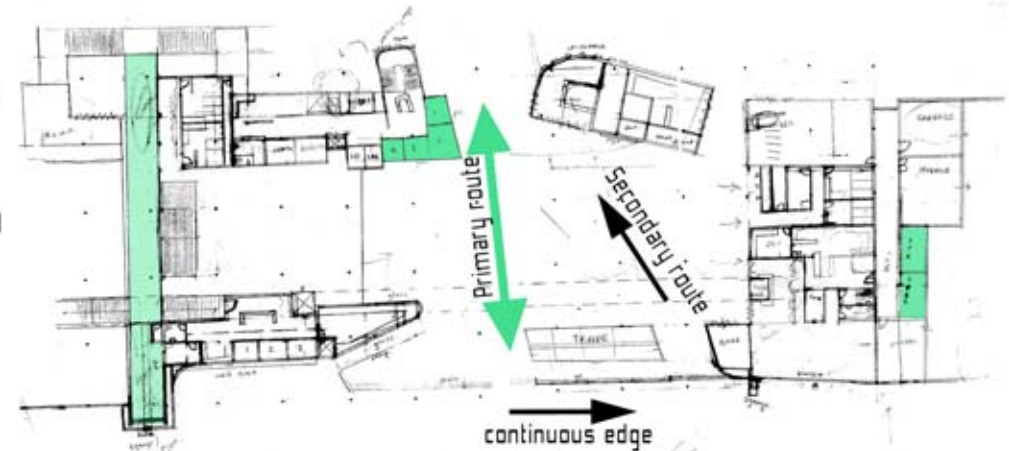
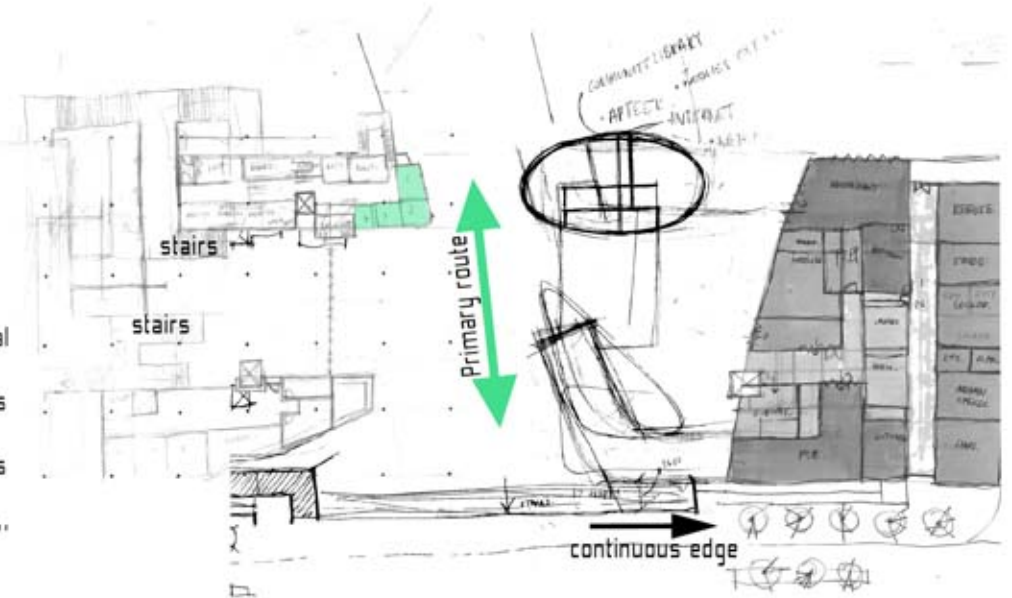
- Security offices on operational side of station: 7.5m<sup>2</sup>
- Supervisor office: 7.5m<sup>2</sup>
- CCTV Surveillance room: 7.5m<sup>2</sup>
- Charge office: 10m<sup>2</sup>
- Holding cell (3): 4m<sup>2</sup> each
- Strong room for storing of equipment with concrete roof
- Kitchenette: 9m<sup>2</sup>

## 4. Plant rooms:

- Emergency Power system room: 10m<sup>2</sup>
- Electrical Power room: 10m<sup>2</sup>

Stage 9. Primary route through the two separate forms which is the station building and commercial zone separates and feeds the independent entities simultaneously.

- The ticket office becomes the first point of reference to be seen from every point in the building - the destination of the station building
- Secondary routes all lead to the ticket office creating focus points
- Trading is used to create a continuous edge along University road entrance. To prohibit obstruction of strategic vistas, translucent material is allocated to the trading structure.
- Only one entrance to platform via turnstiles, in direct view of staircases leading to respective platforms on the level above
- Staircase locations are determined by the railway standards. Exit points of stairways not to be within 3m of the respective railway tracks and therefore have a limited space to exit on to. This limitation automatically ruled out the possibility of escalators.
- Circulation axis on intermediate floor level punctures through the building allowing natural daylight to penetrate at the same time creating surveillance.
- Circulation options are comprehensible to the user
- Services such as plant rooms and toilet ducts are placed on the outer limits of this internal building for easy maintenance out of the public eye.
- Anchor tenants such as the restaurant and pub are strategically placed promoting active edges, passive surveillance and movement in between these anchors.
- A diverse range of shops are chosen to cater for time-pressed users and timeconsuming users, concurrently providing for different varieties of people utilizing the station.



Drawbacks:

- Division of primary route causes division of main mass movement along main spine.
- Too little natural light penetrating the building due to width of railway and platforms, in spite of double volumes created to allow additional natural daylight into the building
- Form needs exploration
- Internal circulation and public facilities placement not conforming to legibility policies formulated in the theoretical discourse.
- Deliveries and service yard problematic.

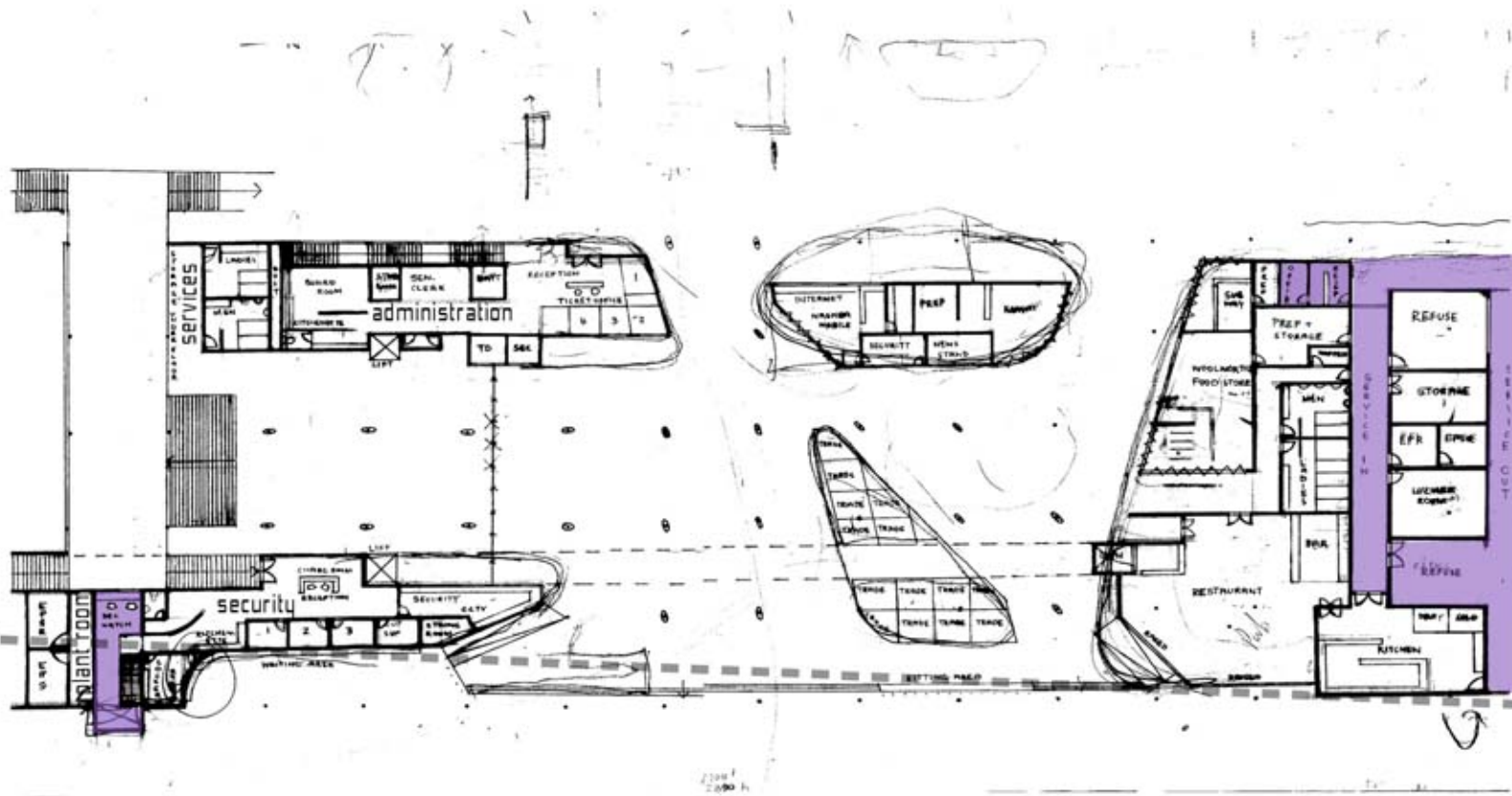


Stage 10. Realigning and scaling of secondary routes

- Merging of internal staircases improving ease of movement alleviating congestion at peak times
- Placement of security view point on intermediate circulation level within security flank expanding the surveillance area.
- Exploration of service and delivery quarters at commercial zone, including placement of management offices

Drawbacks:

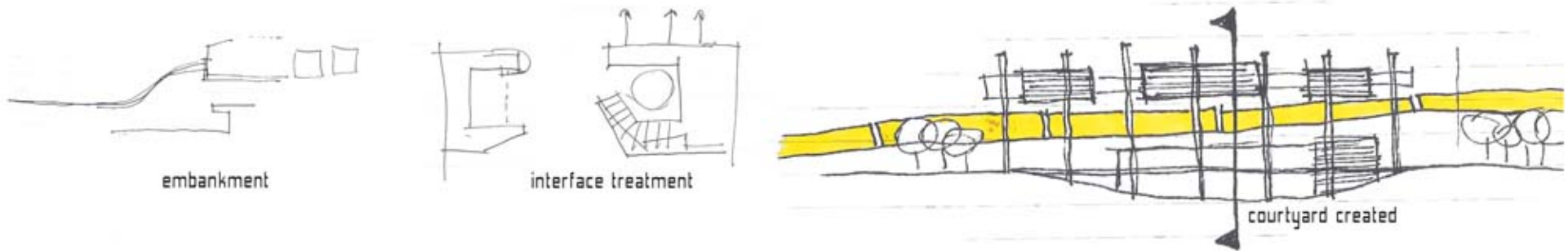
- Natural daylight not adequate
- Trader stalls need simplified form
- Public facilities are isolated and hidden from view
- Service yard is in the line of site and unattractive
- Entrance to Administration flank is problematic - should not be in main axis of movement
- Management offices restricts valuable shop front space



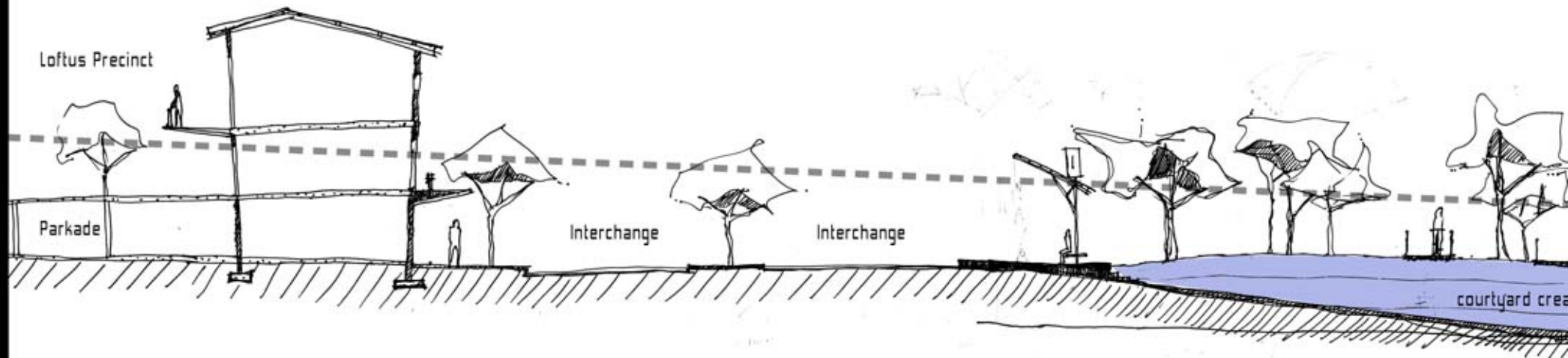


Stage 11

- Decision to lower level of station building to obtain a higher floor to ceiling height of 6.5m resulting in optimum natural daylight into building
- Allowance of appropriate intermediate circulation route elevation above ground level. Resulting in enough height to place public facilities underneath the above mentioned circulation level. This places the public facilities in communal area in line of site, providing necessary surveillance.
- Building courtyard introduced by this accentuating of the axis from station to Loftus Precinct, where flea markets and events can occur. The courtyard gives the building the sense of arrival it lacked before.
- This courtyard provides spill out spaces for the restaurants and shops on the edge of the building.
- Terraced seating is provided facilitated by the slope progressing to the modal interchange in the direction of Loftus Precinct.
- Main feed restricted to the primary route provided by limiting secondary routes through the building dividing the masses.



06:17





Drawbacks:

- Building edge lacks interface between inside and outside
- Western facade of building problematic due to hot afternoon sun
- Roof structure ignoring University road due to slope

