

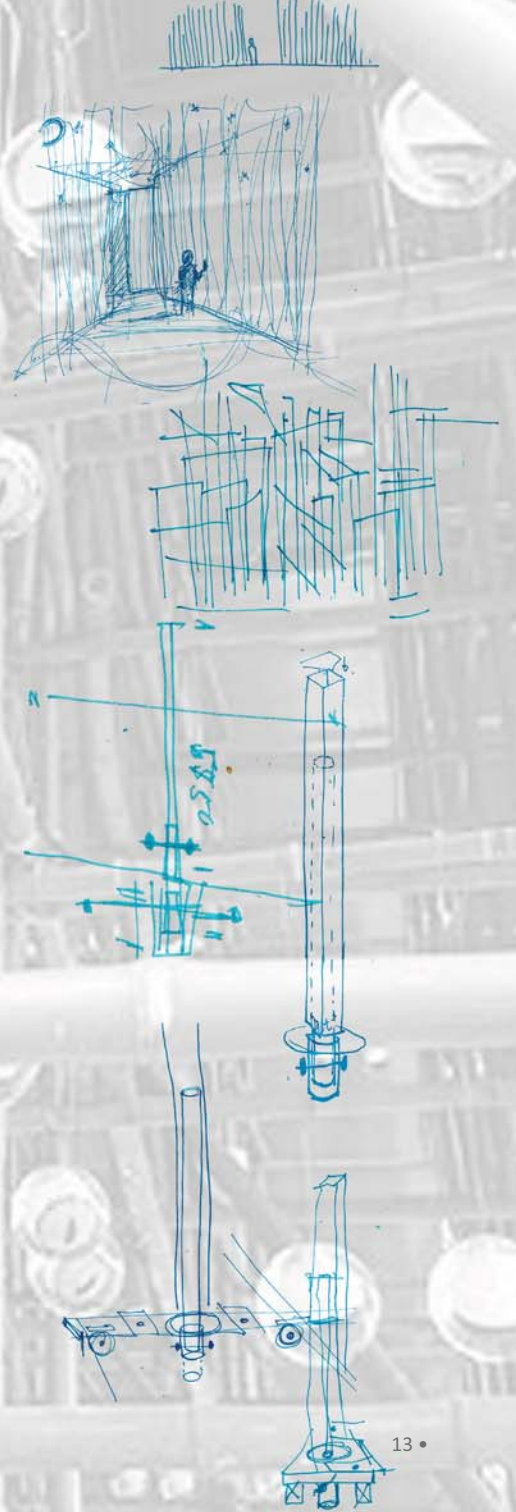
13. TECHNICAL RESOLUTION

'UNLESS'



Figure 13.65 Above: Diameter of *Bambusa Balcooa* (NMBA 2009); section through a bamboo culm (Von Vegesack and Kries 2000:205)

Figure 13.66 Right: The design process for working with bamboo



13.1 MATERIALS

The most commonly used materials in the film industry are timber frames, plastic foam, wood, stone, fibreglass, moulded glass, Styrofoam, plaster drywall, plywood and papier-mâché (Lo-Brotto 2002:139; Ward 1994:169)

Materials used in cinematic architecture need to have the following qualities:

- > it needs to accommodate the temporary nature of filmic structures, thus being sustainable, economical, re-usable or recyclable where possible. Unfortunately this is not currently a consideration in mainstream production design (Weavind 2009);

- > it needs to be as lightweight as possible for practical reasons;

- > materials need to be easy to work with, especially in the South African film industry.

Relating back to the sub-theme of environmental destruction in *The Lorax*, the approach was to find materials that are sustainable. Regarding the nature of film production, lightweight and cost effective materials were sought out.

Pre-constructed units such as flats and platforms are also discussed under materials.

13.1.1 BAMBOO

Bamboo is prop for life (Scheer 2004:10)

Bamboo in effect is actually a giant grass - ideal for use as a cinematic portrayal of the Grickle Grass, in juxtaposition with the character of 'You' - a small boy.

For the Grickle Grass Street the bamboo needs to be black in order to achieve the desired prison-like effect with lighting (Louw 2009). This can either be painted, as most paints work well

on bamboo (Pearce 2009) or if the bamboo is smoke impregnated, it can be used as is, for it will already have an almost black colour (Von Vegesack and Kries 2000).

Bamboo in South Africa

The majority of bamboo in Southern Africa is *Bambusa Balcooa*, brought to South Africa by Dutch traders in the 17th century.

Bambusa Balcooa is a clumping bamboo (Biomass 2008; Pearce 2009). Clumping bamboo is known as 'Bamboo That Behaves®' (Flemmons and Cunningham 2006:16), as opposed to running bamboo. It is non-invasive - meaning it never spreads further than 1.5 meters from the mother plant. Clumping bamboo is ideally suited to the South African environment as no sophisticated farming methods are needed. Yielding per hectare is in fact better if bamboo is left to its own devices, instead of watering and fertilising crops. Plantations of bamboo can be found near Nelspruit in Mpumalanga and will soon be started in Natal (Biomass 2008).

Therefore the species *Bambusa Balcooa* was selected for the production design of *The Lorax*, as it can be sourced locally. The Biomass Corporation produces bamboo for housing, laminates and roofing (Biomass 2008; Pearce 2009), so after the production has finished, the bamboo can be sent back to be reused.

Bamboo as Material

Bambusa Balcooa also accommodated the desired thickness and height of Grickle Grass elements. It grows up to 25 meters high, with

a maximum diameter of 150 mm (Bamboo-oz s.a.). This genus also has a long standing history as construction material in the East and is even used as scaffolding (Flemmons, Cunningham 2006:16; von Geysso 2009).

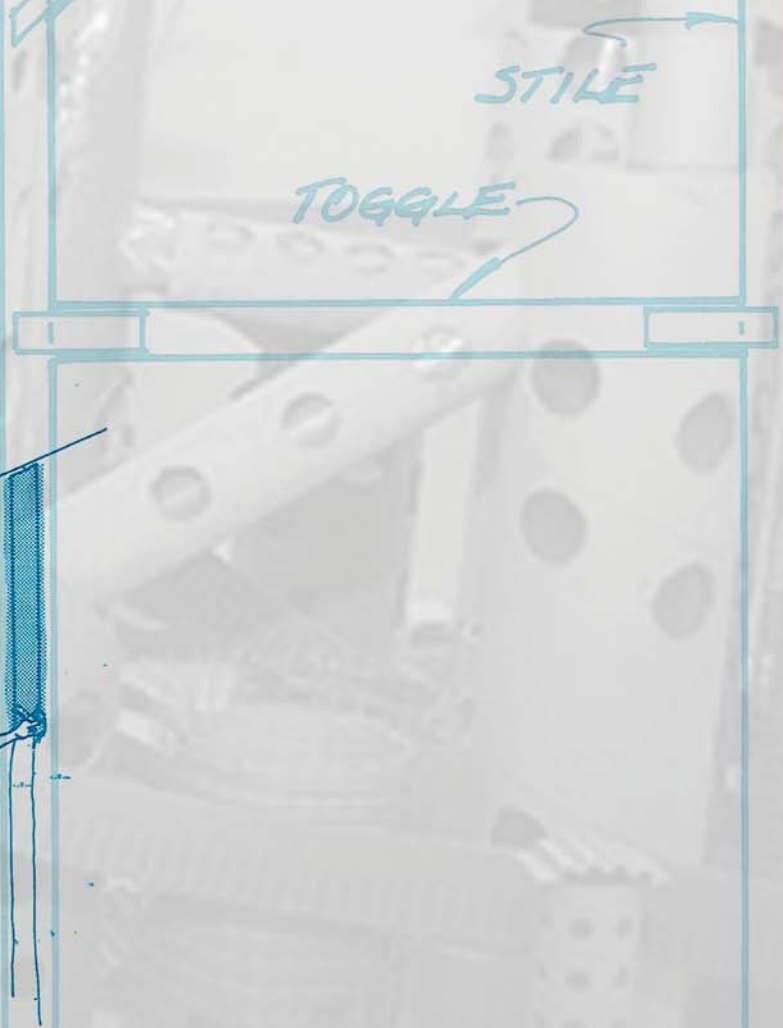
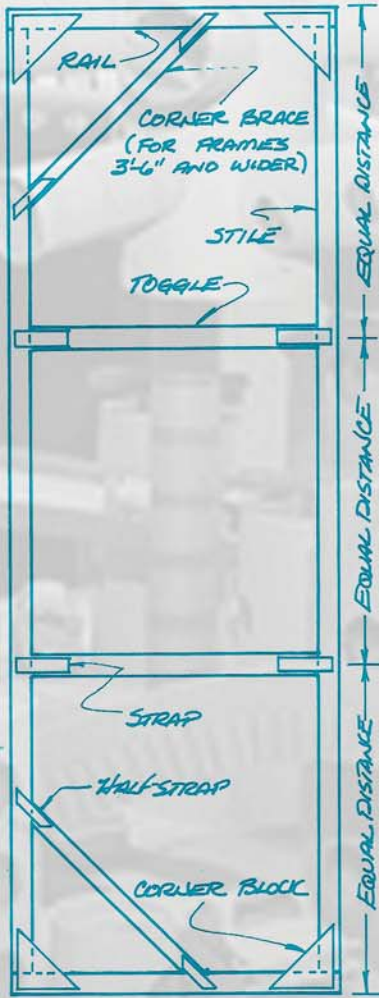
Bamboo is 'rapidly renewable'. It is the fastest growing plant on earth. 18 meters can be reached in a few months. It can be harvested annually and culms (what is called a 'trunk' in the case of a tree, is called the 'culm' of a bamboo) the regrow after harvesting (Biomass 2008; DeBoer and Bareis 2005:235; Janssen 1988:1).

Bamboo also has other desirable characteristics. It is extremely lightweight yet strong due to the hollow cylindrical shape. It has a high tensile and compressive strength (DeBoer and Bareis 2005:235, 240; Scheer 2004:16). Bamboo has "twice the compressive strength of concrete and roughly the same strength to weight ratio of steel in tension" (DeBoer and Bareis 2005:240). It is also a flexible material, allowing it to be stable even in earthquake conditions

Bamboo is easy to work with (Janssen 1988:2; Scheer 2004:10), but as bamboo culms split lengthwise easily, it should not be joined by nailing (DeBoer and Bareis 2005:237). Instead it should be pre-drilled (Scheer 2004:19-20).

When growing, bamboo plants of 25 meters only have shallow, hair-like roots keeping them in place, which is why the Grickle Grass elements of six meters only need a footing of 300mm, centred in a base plate of approximately one meter to be stable. Just to keep the elements from moving in the wind it will

3-6" AND WIDER!



EQUAL DISTANCE →



Figure 13.67 Top left: the standard parts of a flat (Raoul 1990: 24)

Figure 13.68 Top right: painting on a dutchman (Raoul 1990: 100)

Figure 13.69 Bottom left: The use of cardboard to construct a heterotopic cinematic city in the film *The Science of Sleep* (2006) (Flickr s.a.)

Figure 13.70 Bottom right: another heterotopic cinematic city in *The Cabinet of Dr. Caligari* (1919-1920) (IMDb 2009)

STRAP
HALF-STRAP

be connected on the top.

Other Advantages of Bamboo

> Bamboo can “...rehabilitate degraded or contaminated ground...” (Biomass 2008).

> Bamboo can be intercropped and contrary to popular belief, uses very little water (Biomass 2008).

> Apart from the culm, all other parts of the plant can be used - shoots for food and leaves for animal feed (Biomass 2008; DeBoer and Bareis 2005:248).

13.1.2 CARDBOARD

Cardboard is used to cover the bamboo, just for the Grickle Grass Maze and not the Grickle Grass Street, by folding it squarely around the bamboo. This is because the maze needs to appear more geometric with square elements to provide a visual distinction from the rest of the Grickle Grass (refer to scene storyboard no 5 to see the visual appearance needed for the two elements).

The brown colour of the cardboard is an added bonus, as it will not need to be painted. In order to waterproof the cardboard, as precautionary action in the event of rain, it is recommended that lignen from sugarcane biomass is used (IANS 2009). If this is not available the cardboard can be sprayed with silicone.

13.1.3 FLATS

For the Once-ler’s Lerkim the existing Sammy Marks Tower served as starting point. The tower has the desired height and approximate shape,

but the visual appearance had to change somewhat.

In order to be transformed into the Once-ler’s Lerkim the tower needs to be temporarily clad. After discussion with a structural engineer (Von Geyso 2009), it was deemed best to use canvas type structures on that could be hung from steel supports.

This provided the added benefit of using stock flats - frames covered with muslin (Raoul 1990:19) - that could afterwards be re-used by the adjacent State Theatre for theatre productions.

“...[S]tock scenery is designed with the specific goal of being able to keep it on hand and re-use it, thus gaining significant savings of time, money...personnel [and resources].” Stock scenery is used in film, television and theatre productions (Raoul 1990:19).

Stock scenery can be divided into flats, draperies, platforms with ramps and steps (Raoul 1990:19).

So the aim of the design for covering the tower is to use stock flats as much as possible. In odd areas plugs were specified. Plugs are fillers added to flats to complete a scenery wall - a plug is a flat that is nonstandard in size (Raoul 1990:42).

For the top of the Once-ler’s Lerkim profile flats of marineply was specified instead, due to the odd shapes that would be difficult to cover with muslin. A profile flat is “..[a]ny flat which has its edge altered to mock a given shape...” Instead of being covered by muslin, like standard flats, it is best if these pieces are covered by plywood (Raoul 1990:60-61).

Before use a flat frame is covered with medium-weight unbleached muslin (Raoul 1990:66).

13.1.4 MUSLIN

“Muslin is an undyed plain-weave fabric made with carded cotton yarns containing characteristic slubs, speck and impurities. Muslin for covering flats must be unbleached and not flame proofed when purchased” (Raoul 1990:69).

“Because muslin is unbleached and undyed, the cotton fibres have been subjected to a minimum of shrinkage, but when sized will, therefore, shrink on a flat frame, forming a tight ‘skin’ of cloth” (Raoul 1990:69).

Most muslin is classified as a medium weight fabric (Raoul 1990:69). The plain-weave fabric provides a cloth with good strength, that stretches easily and can even be used to cover spherical surfaces (Raoul 1990:69).

Synthetic white glue or aliphatic resin is used to attach muslin to flat frames (Raoul 1990:69).

Muslin is back-painted to make it opaque and prevents light from bleeding through and silhouetting the flat frame. Back-paint needs to be medium to dark grey (Raoul 1990:72).

The joints visible between two flats are covered by a dutchman. “A dutchman is the cloth strip which is affixed over a crack or cracks created when two flats...are joined.” It is made from left over strips of muslin (Raoul 1990:99).

“It is efficient to use the primer or base coat paint to attach a dutchman. Never glue a dutchman unless it is to be permanent. There is sufficient binder in the paint to hold the dutchman, even for most touring situations” (Raoul 1990:99).

For the chessboard pattern surrounding the Grickle Grass Maze, muslin that has been painted and back-painted with a ‘drop bottom’ chain pocket to keep it in place, can be used (Raoul

1990:123).

13.1.5 3FORM CHROMA

For the Once-ler's Lerkim walkway a dark turquoise translucent material is needed, in order to allow the light from the LED panel beneath to shine through.

3form Chroma was selected because the surface can be refinished to be used for the 'windmill' type structure in scene storyboard no. 25. After the production it can either be used by the State Theatre for theatre productions or go to 3form Reclaim which keeps end-of-life materials out of landfills (Matspec-Chroma 2008).

3form Chroma is manufactured from cast polymethyl methacrylate (PMMA) resin. It comes in rigid panels. The exact look of the walkway can also be produced for the finish without scenic paint effects as finishes can be customised (Matspec-Chroma 2008).

13.1.6 STYROFOAM

Styrofoam can be sculpted into the columns to the right of the Once-ler's Lerkim (LoBrotto 2002:140) and muslin can be layered over it to provide a textured finish.

Styrofoam is one of the most widely used materials in the film and television industry (Wilkie 1996:32).

13.1.7 DULLING SPRAY

Where needed during production, dulling spray can be applied. "When applied to a surface, a dulling spray deflects hot spots and glare due to lighting" (Brown 1996:151; LoBrotto 2002:177).

13.1.8 PLATFORMS

Casterboards and dollies are a great aid in shifting scenery (Raoul 1990:150). Therefore after the bamboo has been removed from the Grickle Grass Maze base platforms, it can be re-used in the State Theatre. A Grickle Grass platform can also be called a 'wagon' which is "a low platform on casters" (LoBrotto 2002:180).

Platforms need to be made from marine plywood in order to be waterproof (Von Geysso 2009).

13.2 SUSTAINABILITY

13.2.1 THE FILM INDUSTRY

A film itself can be said to be sustainable as the effort of one production is shown around the world to millions of people, first on film and then on dvd.

The actual production process is usually not as sustainable, as the film industry is currently still mostly ignoring sustainability (Weavind 2009).

Information on the film industry and sustainability is few and far in between. A few films claim to be carbon neutral, but usually this just involves actors planting trees. Looney Bins, a company in Los Angeles recycles film and TV sets and FaARI (Film and Entertainment Recycling Initiative) promotes recycling of other on location recyclables such as water bottles (California Integrated Waste management Board 2004; Film and Entertainment Recycling Initiative s.a.). Lately newly built film studios are constructed to be sustainable buildings. There has also been a green film premiere for the film *The Age of Stupid* (2008) (Carus 2009). No information could be found on production design and sustainability, except that some sets are retrofitted and re-used (Van

der Walt 2009)

International and national sustainability assessments such as LEED or the Green Star SA, rating systems cannot be used to assess structures of a temporal nature. This is a shortcoming that such assessment systems need to address. Alternatively a separate system needs to be created for temporal structures. Hopefully in future there can even be assessment systems for films - that can possibly determine the choices film audiences make when deciding which films to watch.

13.2.2 THE SUSTAINABILITY OF THE PRODUCTION FOR *THE LORAX*

The Lorax is about the dangers of avarice and its influence on the environment. More specifically, it is about a inventive character, comparable to a designer, the Once-ler, that destroys the environment. Therefore from the starting point the aim was to design a production that is as sustainable as possible. This was on the immediate level, but hopefully the message of *The Lorax* will have the greatest influence of the finished film production.

The Location

> The location chosen for filming, is underutilized, especially during the night, when most filming needs to take place.

> The State Theatre has a workshop space that is underutilized and will be used for the construction of the sets.

> A single set location, where possible, as in this production, is more sustainable than various sets.

The Design

> The aim was to design sequence set elements that can be changed into other sequence elements. This was achieved with the adaptability of the Grickle Grass Maze into the *Tolletjie Brei* (French Knitting) Building.

> Where this was not possible, sets could either be recycled or re-used by the State Theatre.

Materials

As discussed under materials and light sources, the following was used with sustainability in mind : bamboo, cardboard, flats, 3 from Chroma, platforms, and HMI's.

13.3 POST PRODUCTION

13.3.1 VISUAL EFFECTS (VFX)

Visual Effects is a subcategory of special effects, although technically 'special effects' refers to something that was in the original shot, whereas visual effects are when the original image is edited in some way during post production (Barnwall 2004:126; Rizzo 2005:321).

Rotoscoping

For the stars in dystopia, extra stars need to be added for a twinkling effect. Rotoscoping is a technique where the film image is projected and traced to create artwork for instance stars, lighting and ghosts. The image is rephotographed and optically combined with the other footage. A shot created from more than one visual element such as this, is called a 'composite shot' (Rickitt 2006:374).

13.3.2 SOUND

The Lorax will be filmed without sound, thus the following will be necessary:

MOS

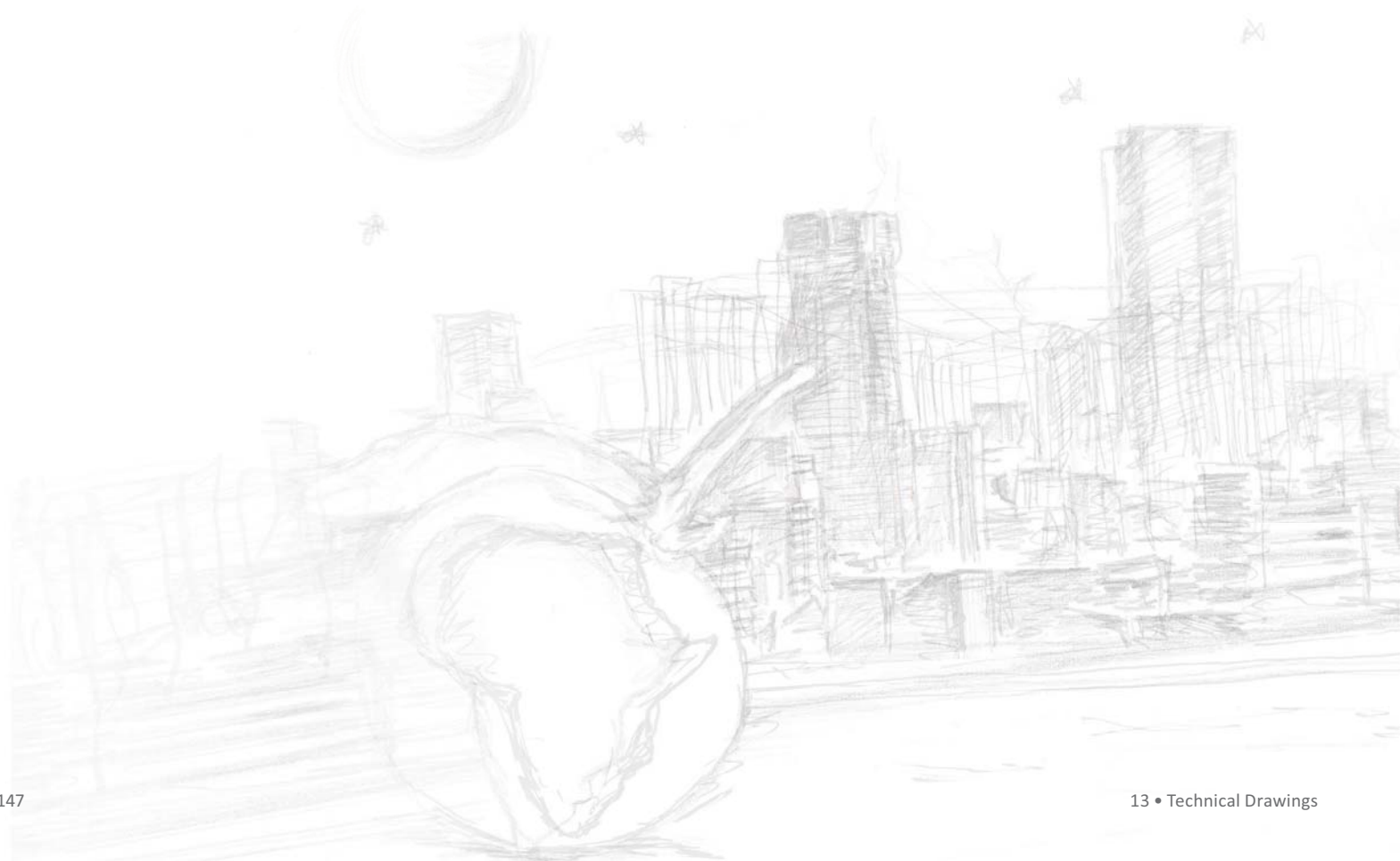
'MOS' is a shot where the image is filmed without the sound track. It stands for 'Minus Optical Stripe' (Campbell 2002: 230). Sound is then added in post production. This is the suggested way for filming *The Lorax*, as a voice over will be used for most of the film.

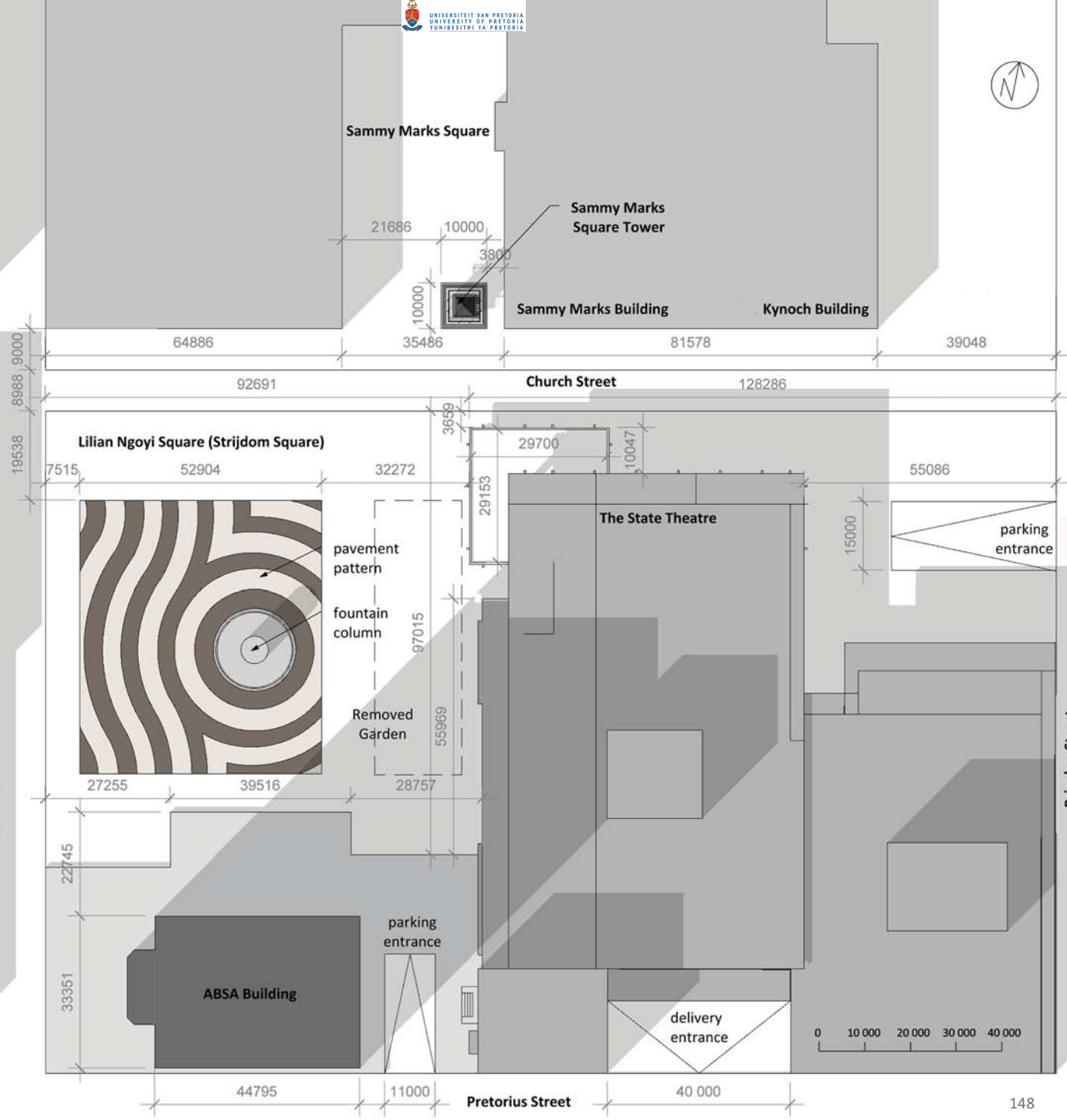
Foleying

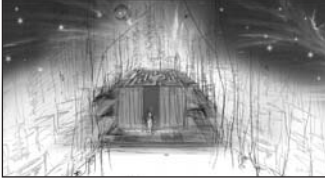
Foleying is "The recording of synchronized sound effects to match silent images. Most noises heard in a film are created during a Foley session rather than being recorded during original filming" and is done by a Foley artist (Rickett 2006:371). This will be used to create walking sounds, the Once-ler throwing the money down his Snuvv etc.

Figure 13.71 FaERI recycling bins on set (FaERI s.a.)









dystopia > **S**cene no 5, Sequence 3
PLAN

Sammy Marks Square

21686

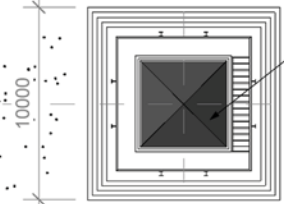
10000

3800



Sammy Marks Square Tower

Sammy Marks Building



Grickle Grass
100 dia *Bambusa Balcooa* painted matte black,
in varying height of 10m, 13m, 15m and 17m

CAMERA START @ 8000mm
ST 30 Super Technocrane



32mm marine plywood
caster boards

'YOU' STARTING POINT

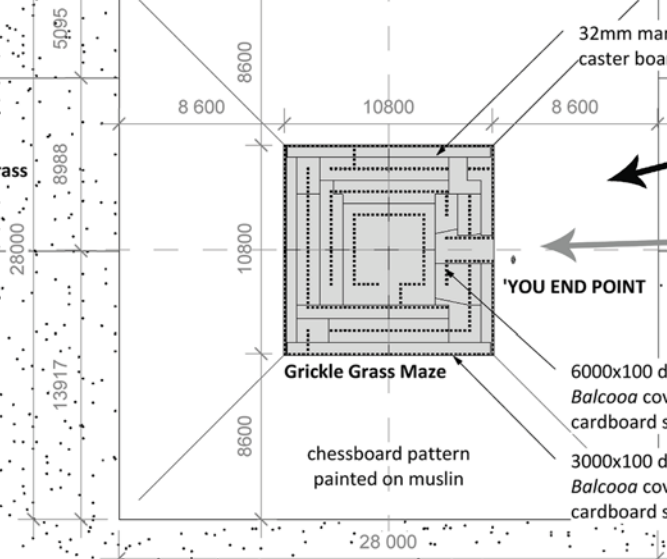
CAMERA END @ 6000mm

Church Street

Grickle Grass

'YOU' STARTING POINT

Grickle Grass



'YOU' END POINT

Grickle Grass Maze

6000x100 dia central *Bambusa Balcooa* covered with 4mm corrugated cardboard sprayed with silicone

3000x100 dia edge *Bambusa Balcooa* covered in 4mm corrugated cardboard sprayed with silicone

chessboard pattern painted on muslin

State Theatre Balcony

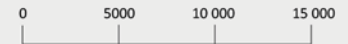
Lilian Ngoyi Square (Strijdom Square)

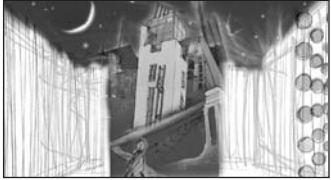
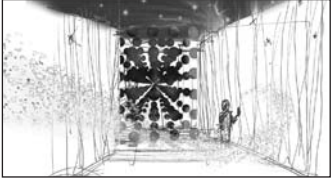
Grickle Grass

The State Theatre

← camera movement

← character movement





dystopia > **S**cene no 6, Sequence 3
PLAN

Sammy Marks Square

Sammy Marks Square Tower Steps

Sammy Marks Building

32mm marine plywood covered in aged muslin

Surrounding 'Ruins'

The Once-ler's House

Grickle Grass

.100 dia *Bambusa Balcooa* painted matte black in varying height of 10m, 13m, 15m and 17m

25 mm 3form Chroma with custom made applied colour coating of transparent turquoise, aged black

'YOU' END POINT

LED 'Caligari' Ramp

Aged Styrofoam 'Tuscan' Pillars

Grickle Grass

Church Street

Open Grickle Grass Maze

6000x100 central dia *Bambusa Balcooa* covered in 4mm corrugated cardboard sprayed with silicone

3000x100 edge dia *Bambusa Balcooa* covered in 4mm corrugated cardboard sprayed with silicone

'YOU' STARTING POINT

'Unless'

CAMERA POSITION A @ 2000mm

32mm marine plywood caster boards

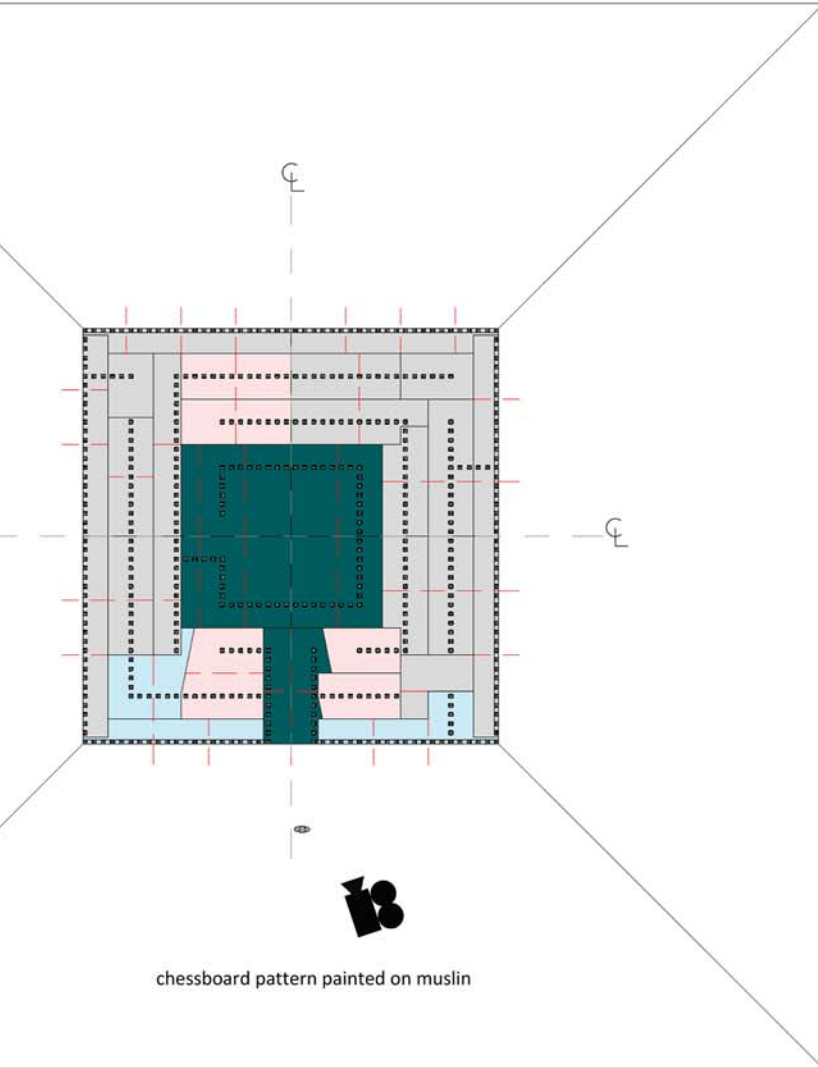
Lilian Ngoyi Square (Strijdom Square)

CAMERA POSITION B @ 13000mm

State Theatre Balcony

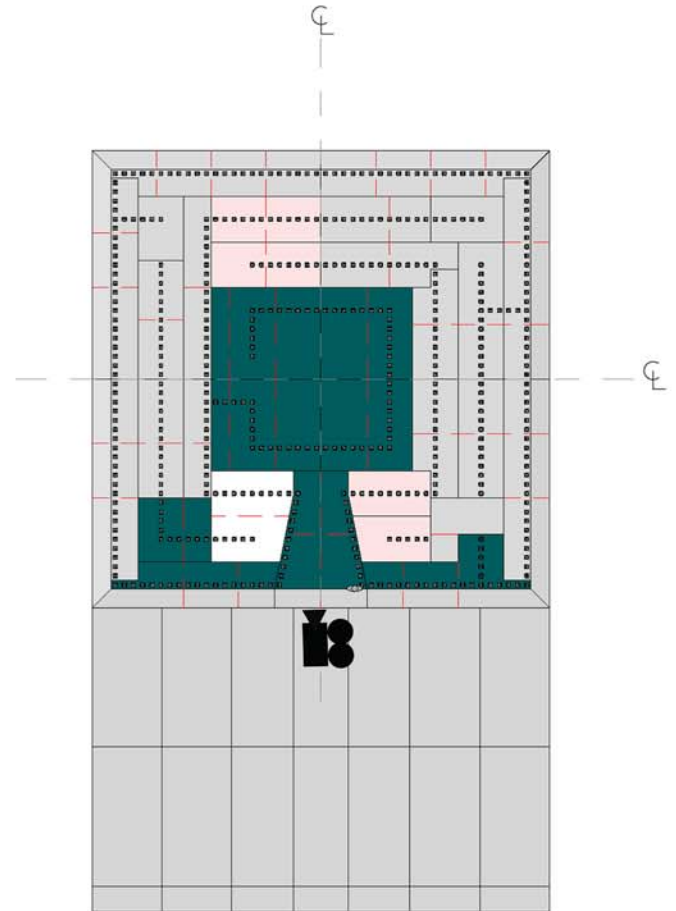
← character movement





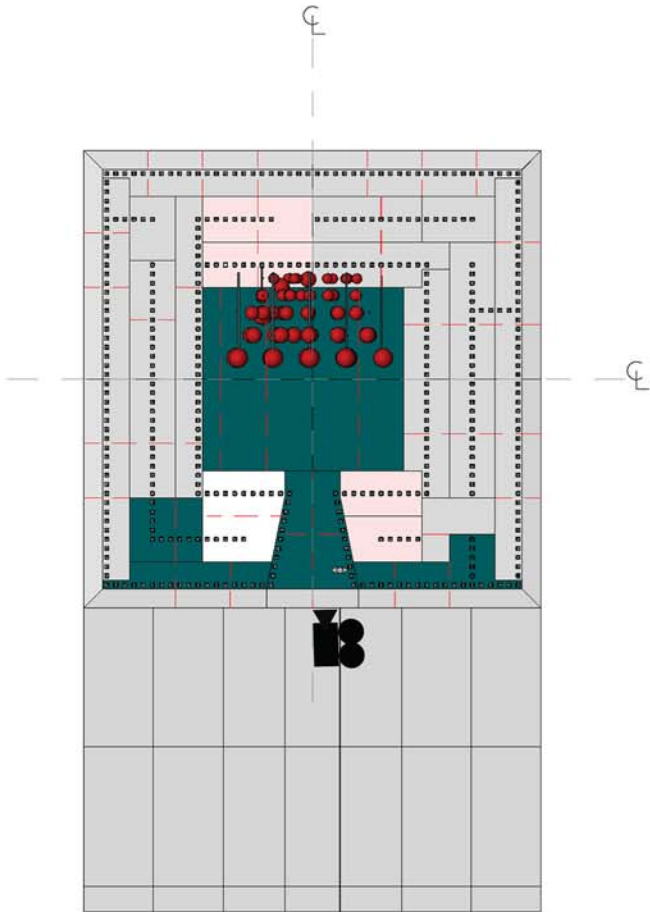
Dystopia Scene 5 Sequence 3a

CAMERA POSITION @ 13000mm

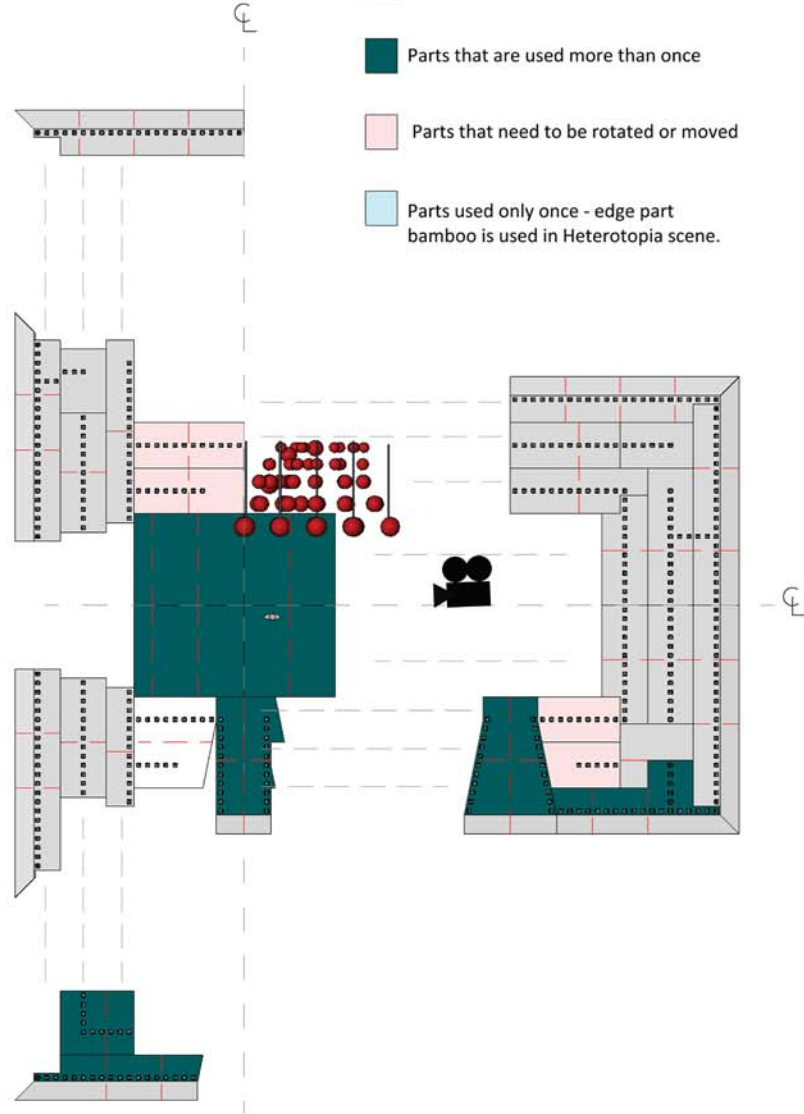


Dystopia Scene 5 Sequence 3b

- Constant Parts
- Parts that are used more than once
- Parts that need to be rotated or moved
- Parts used only once - edge part bamboo is used in Heterotopia scene.

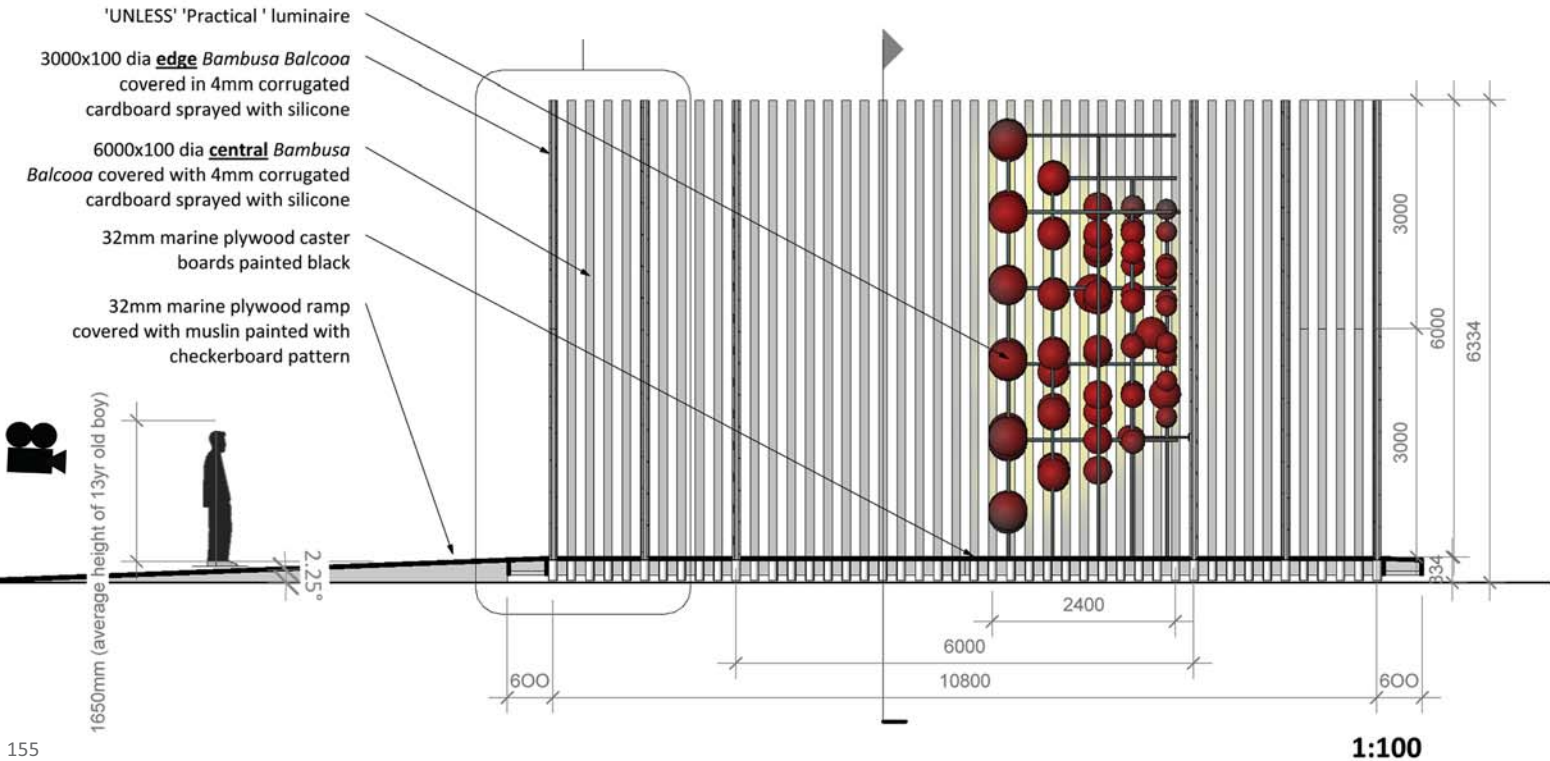
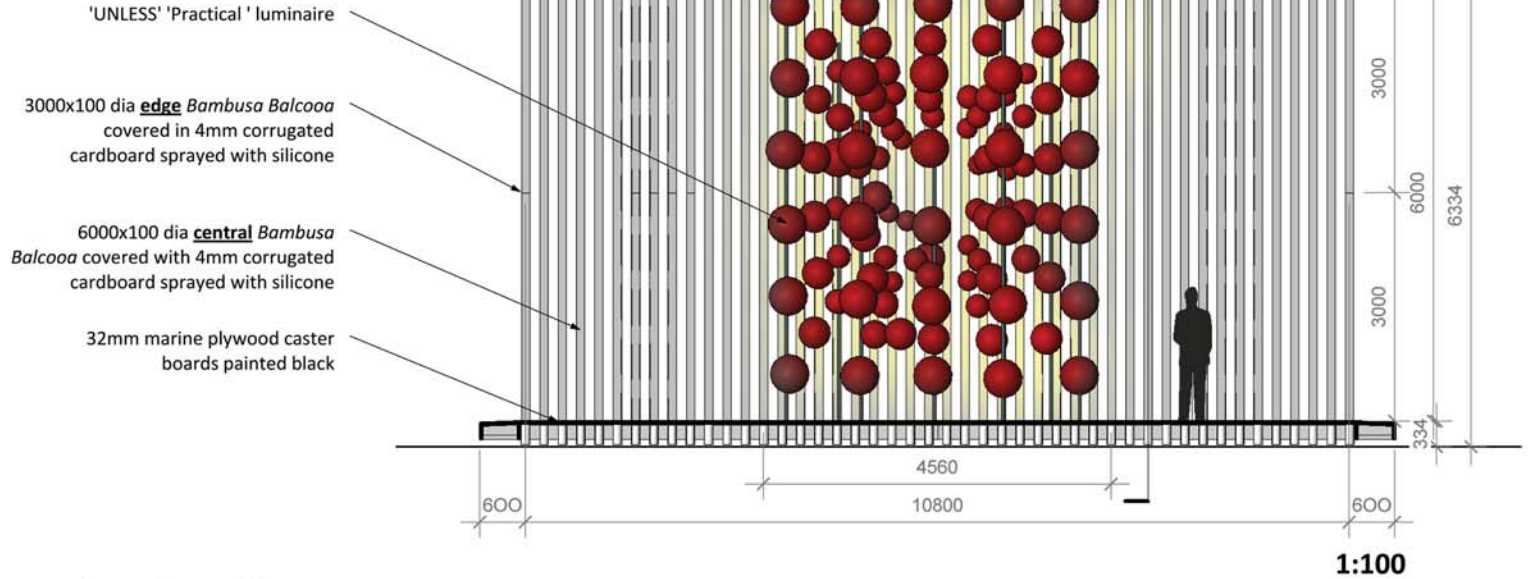


Dystopia Scene 6 Sequence 3



Dystopia Scene 7 Sequence 4

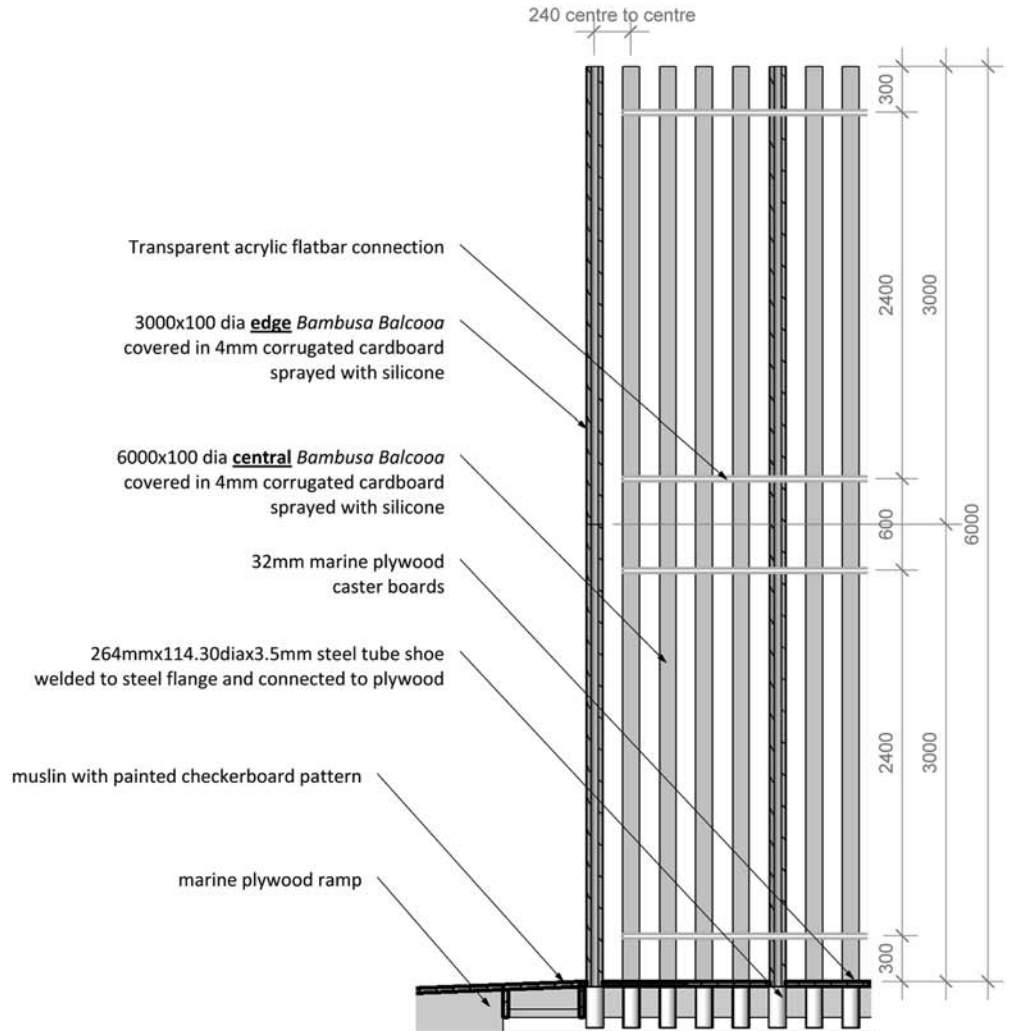


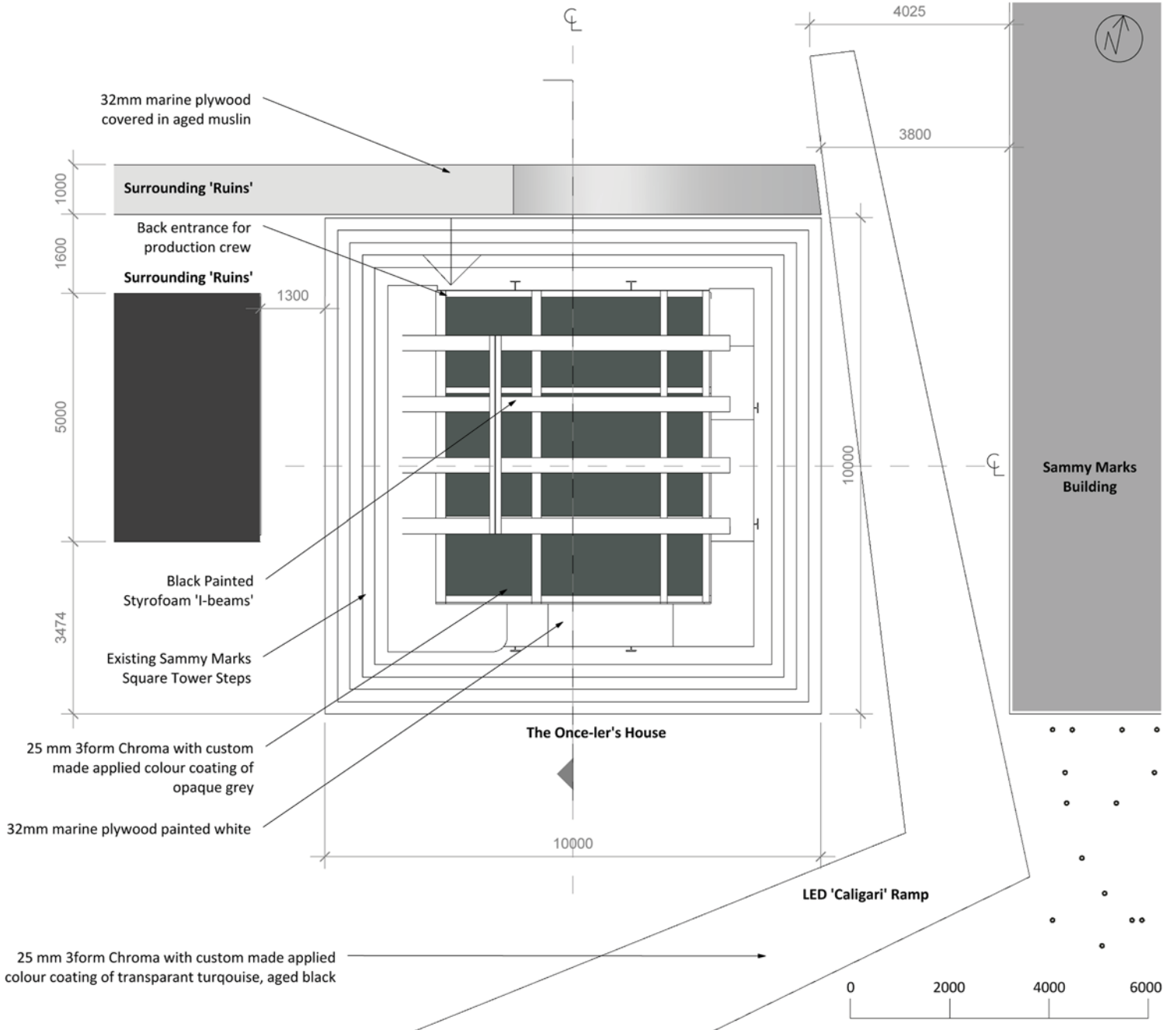


dystopia >

Scene no 6, Sequence 3 MAZE AND 'UNLESS' SECTIONS

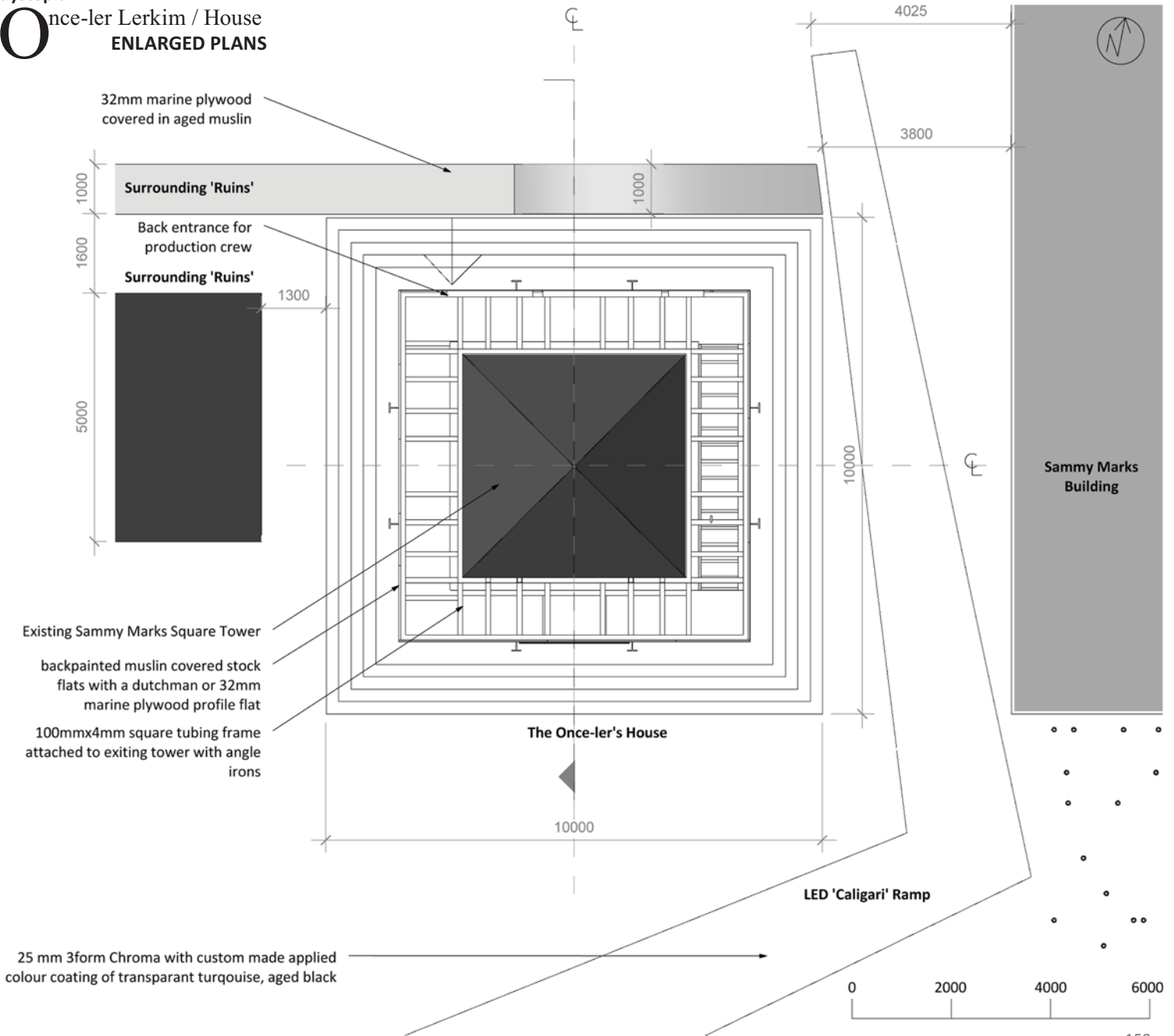
Spacing allows camera to be at a angle of approximate 40degrees without acrylic flatbar being visible



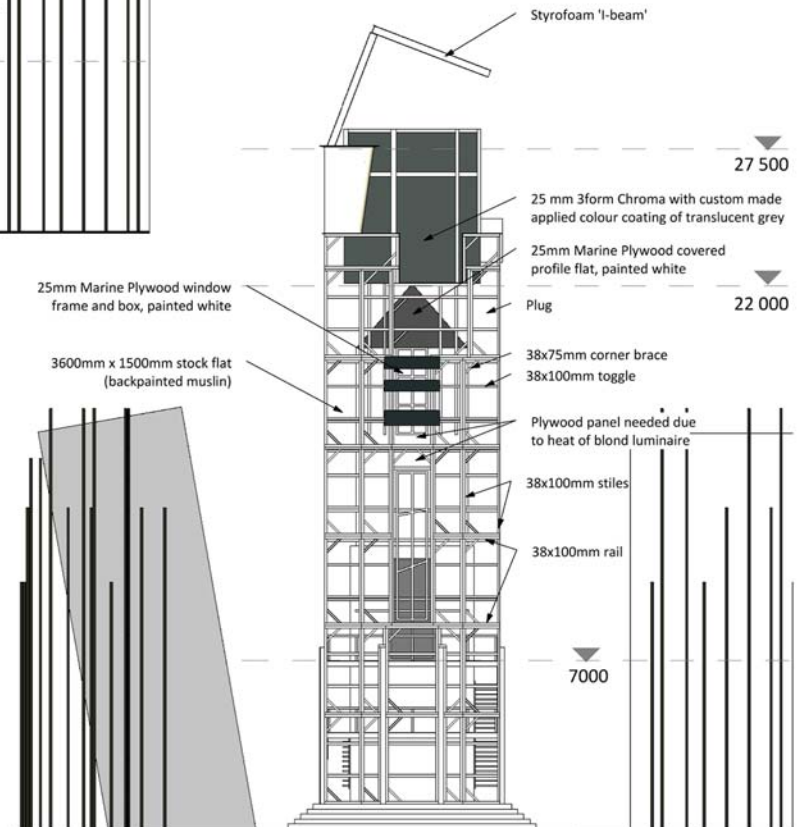
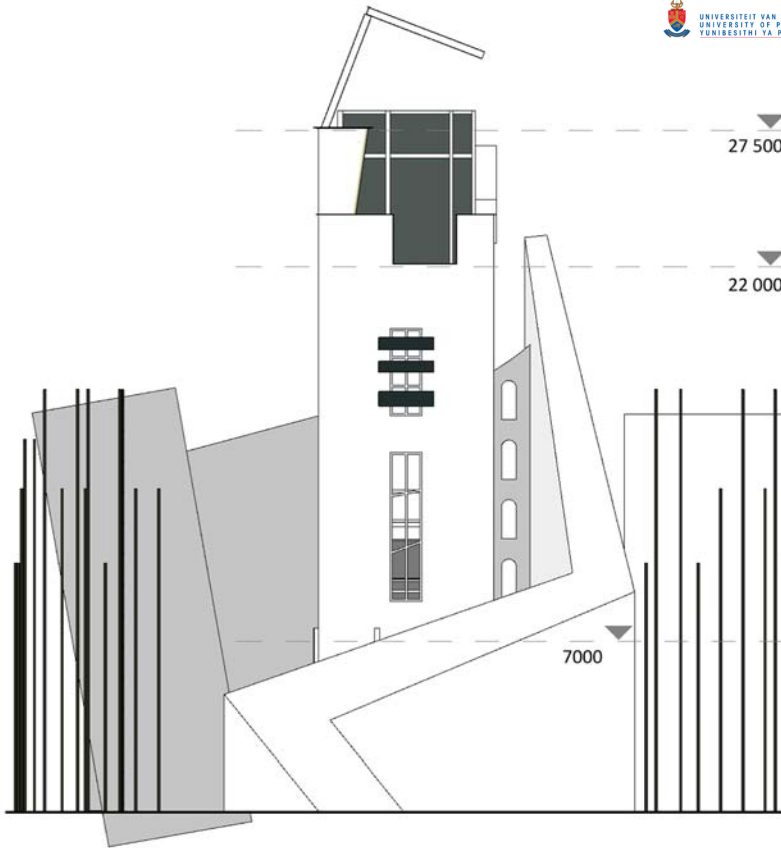


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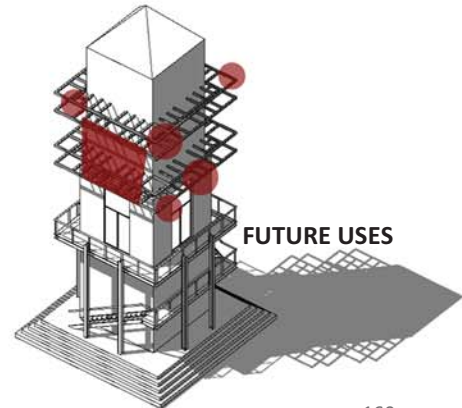
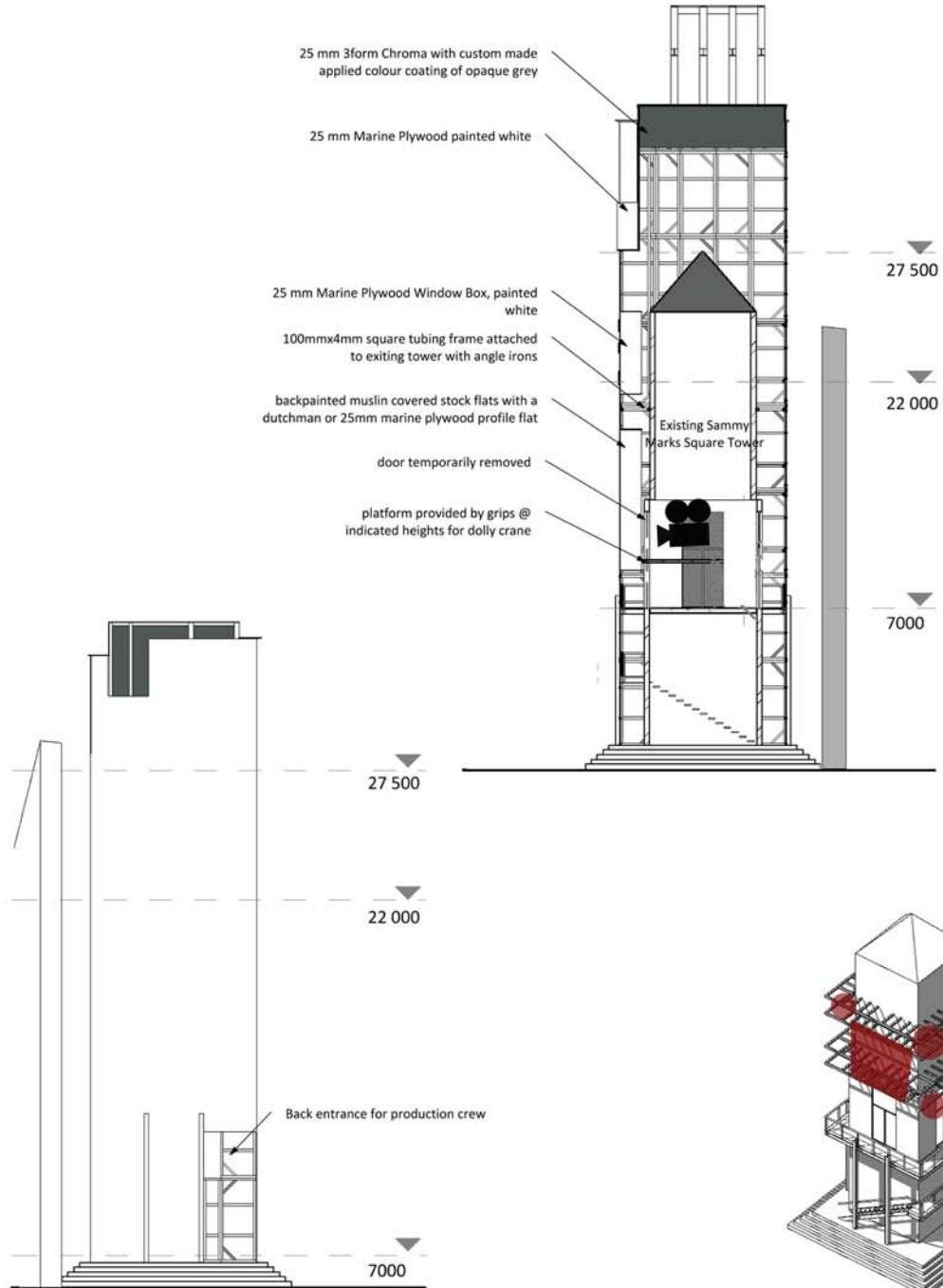
Once-ler Lerkim / House
ENLARGED PLANS



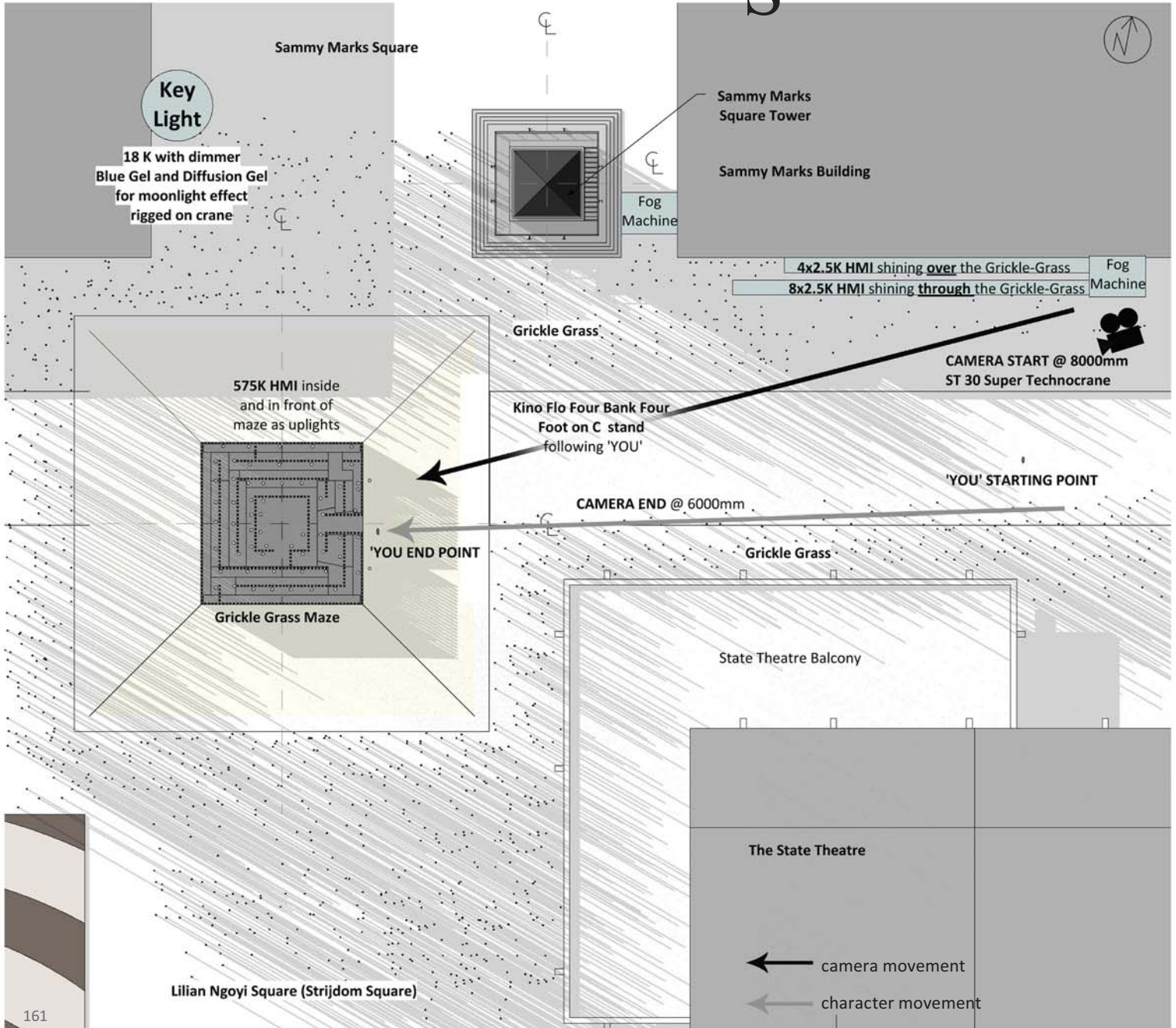
dystopia > **O**nce-ler Lerkim/House
ELEVATIONS & SECTION

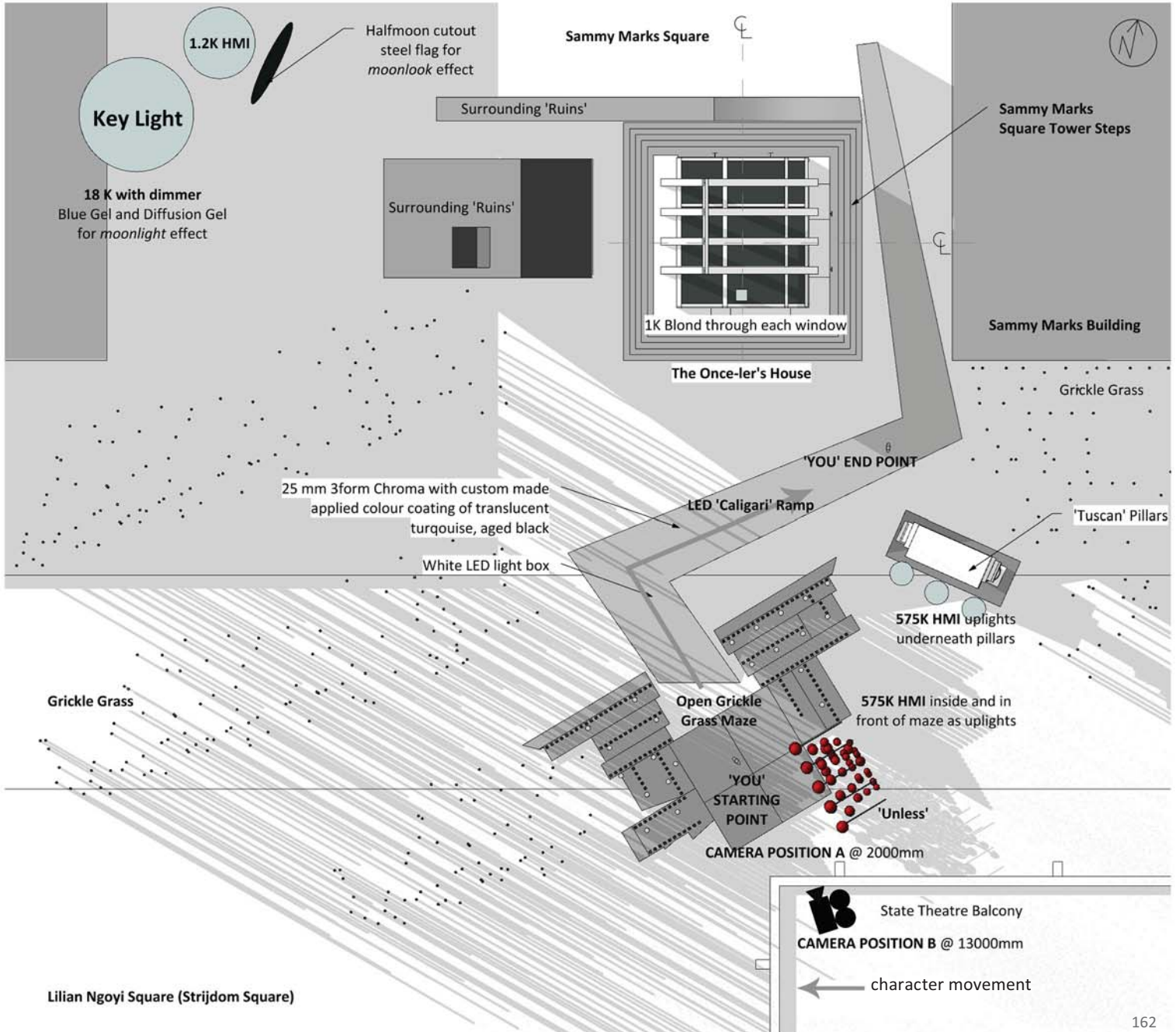


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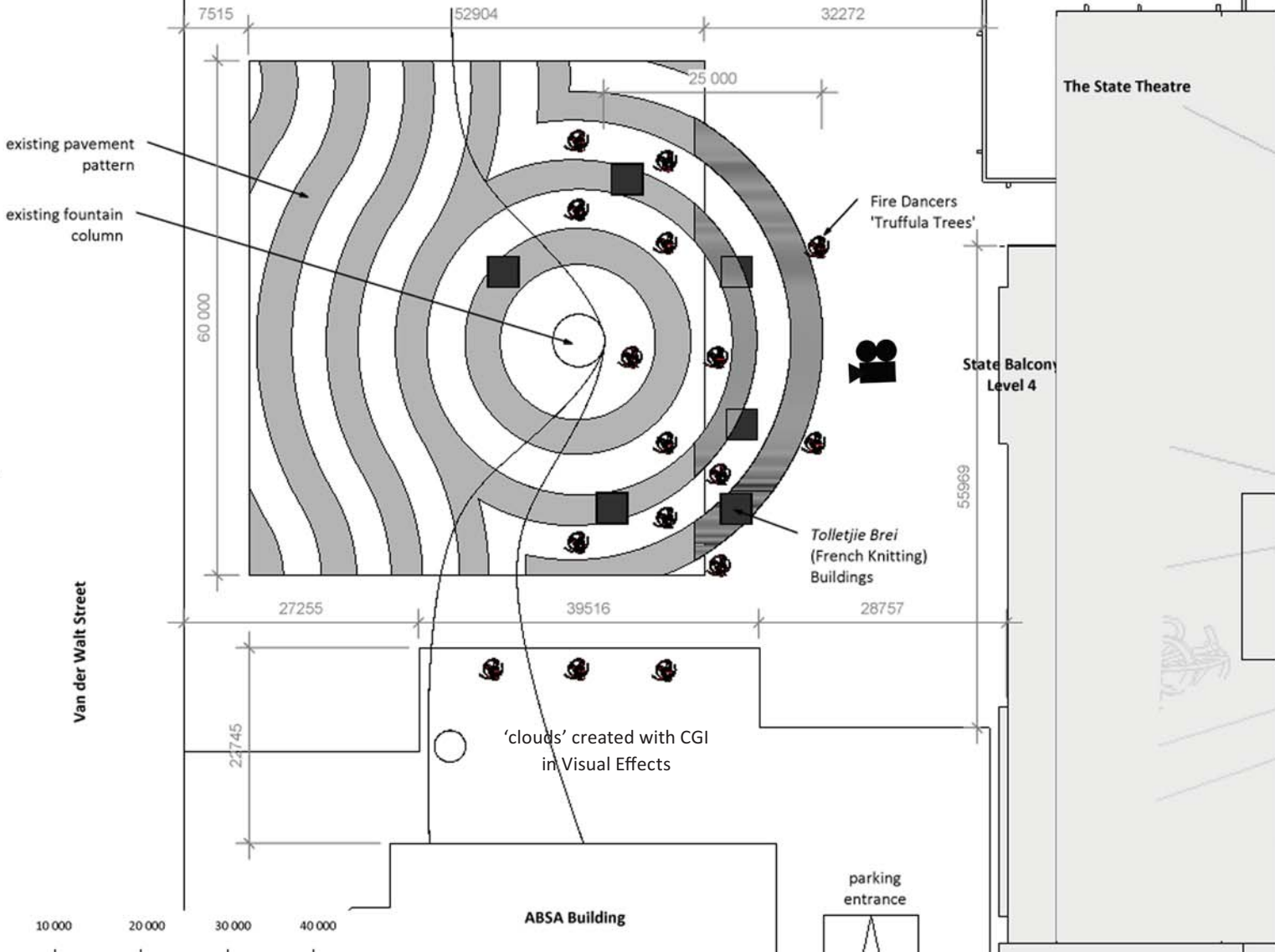
dystopia > **S**cenos no 5&6, Sequence 3 LIGHTING PLOTS







Lilian Ngoyi Square (Strijdom Square)



The State Theatre

State Balcony
Level 4

Fire Dancers
'Truffula Trees'

Tolletjie Brei
(French Knitting)
Buildings

'clouds' created with CGI
in Visual Effects

parking
entrance

ABSA Building

Van der Walt Street

heterotopia > **S**cene no 24, Sequence 6
PLAN

