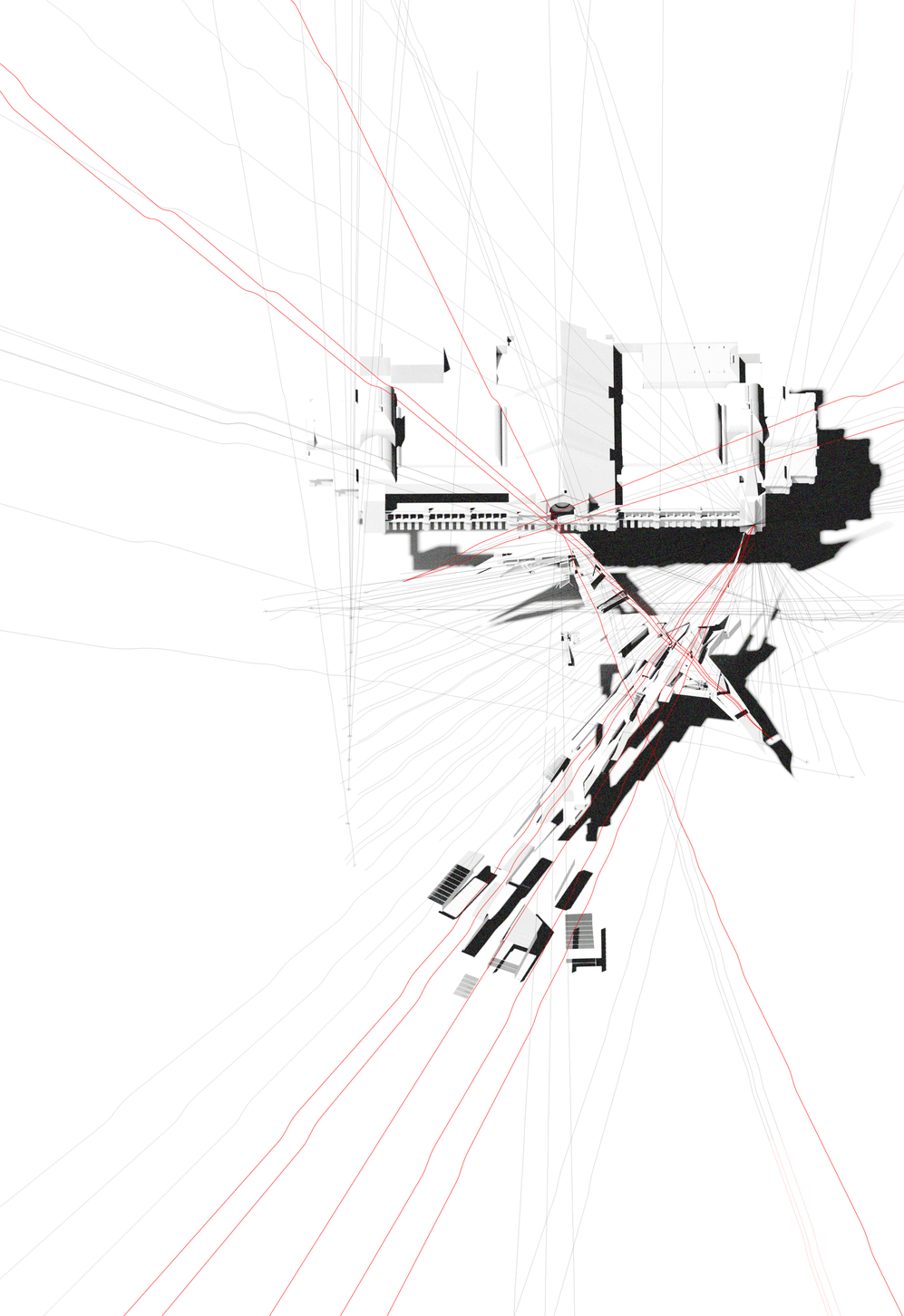

Sets in motion: Architecture & the spatial arts of cinema

Thomas Rowntree
w1831375

Architectural Productions 1
[6ARCH001W]

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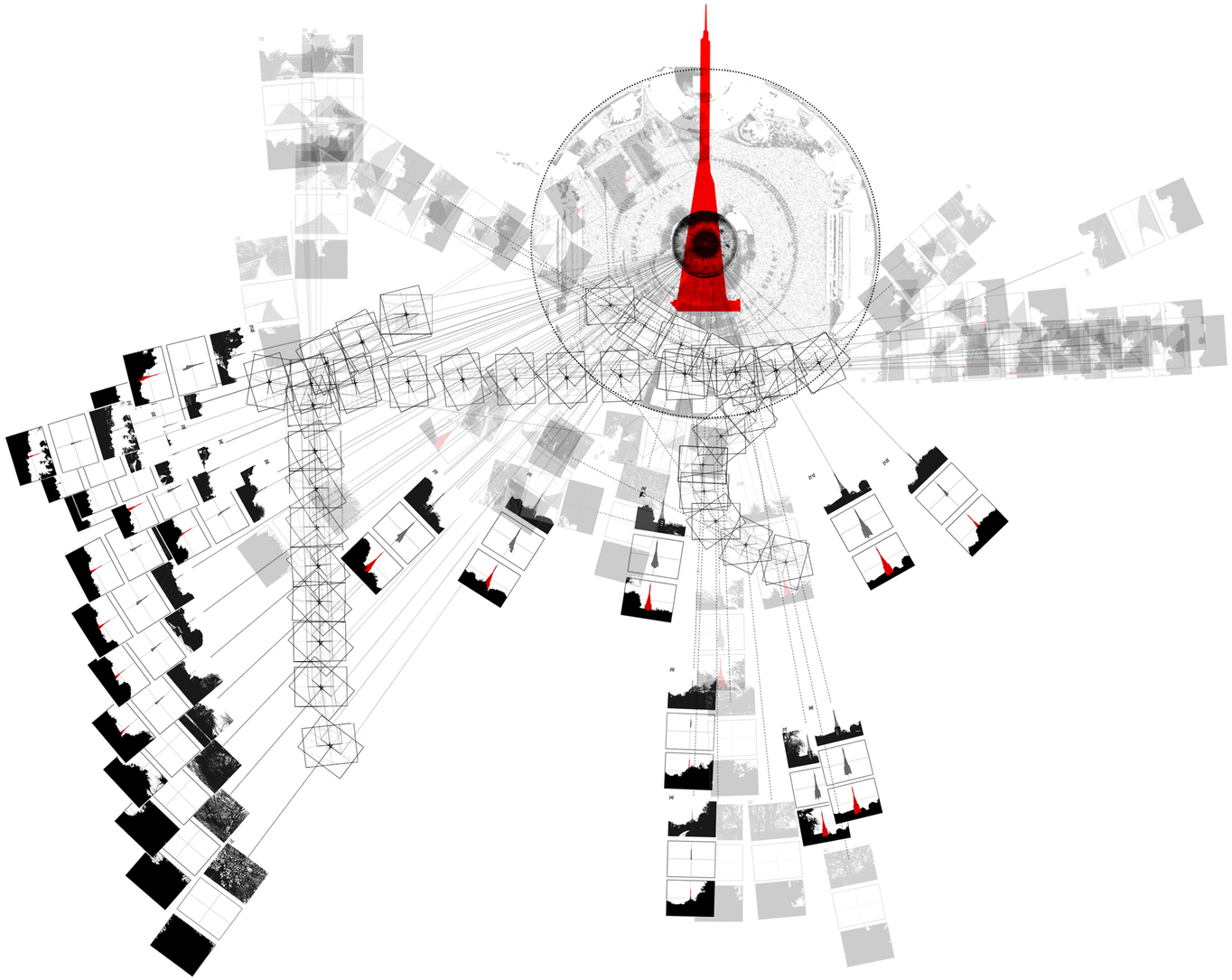
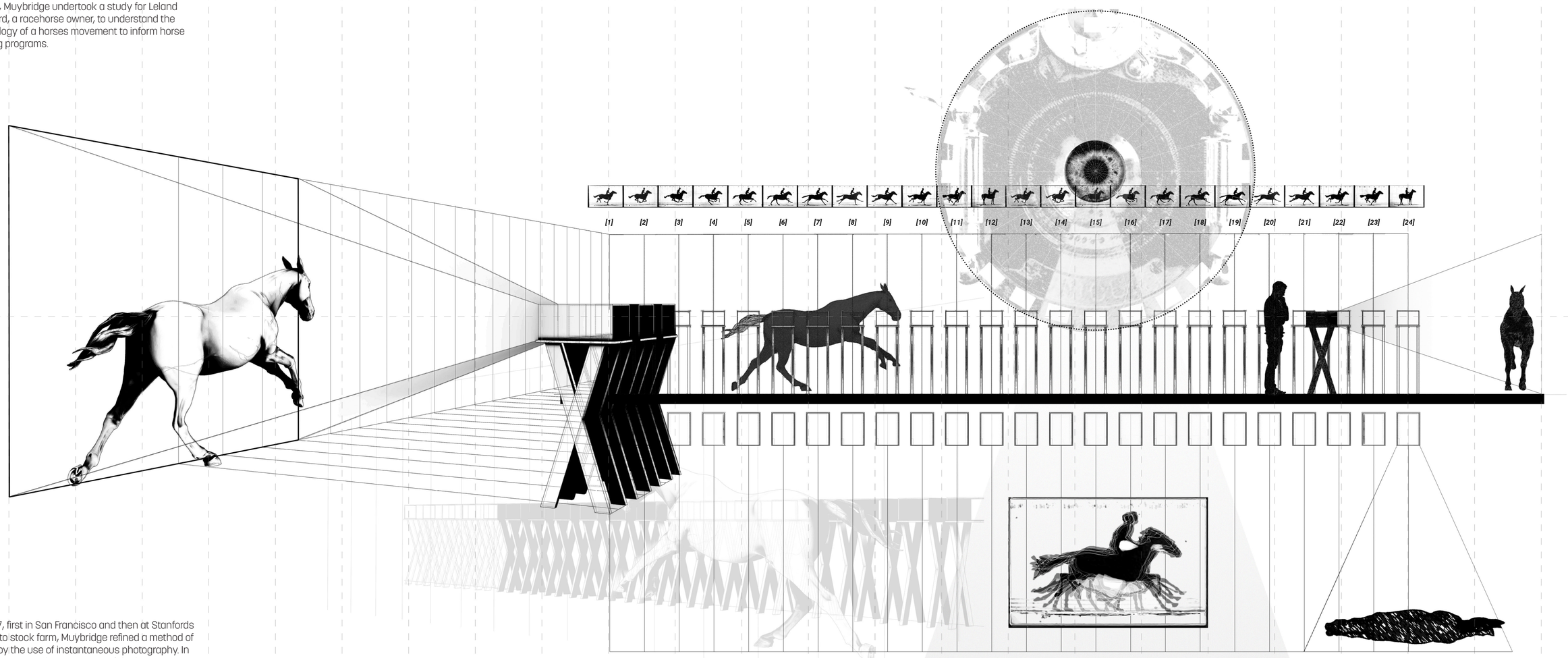


The Horse in Motion

Eadweard Muybridge

In 1872, Muybridge undertook a study for Leland Stanford, a racehorse owner, to understand the physiology of a horses movement to inform horse training programs.



By 1877, first in San Francisco and then at Stanfords Palo Alto stock farm, Muybridge refined a method of study by the use of instantaneous photography. In order to capture the movement of the horse, a series of cameras were set up and trip wires were used to trigger their shutters. As the horse galloped, it tripped the wires and caused a sequence of images to be captured. The published images, when laid out chronologically, created a stop-motion type animation and was the first ever moving image.

Study of motion

Chronophotographic gun & Kinetograph

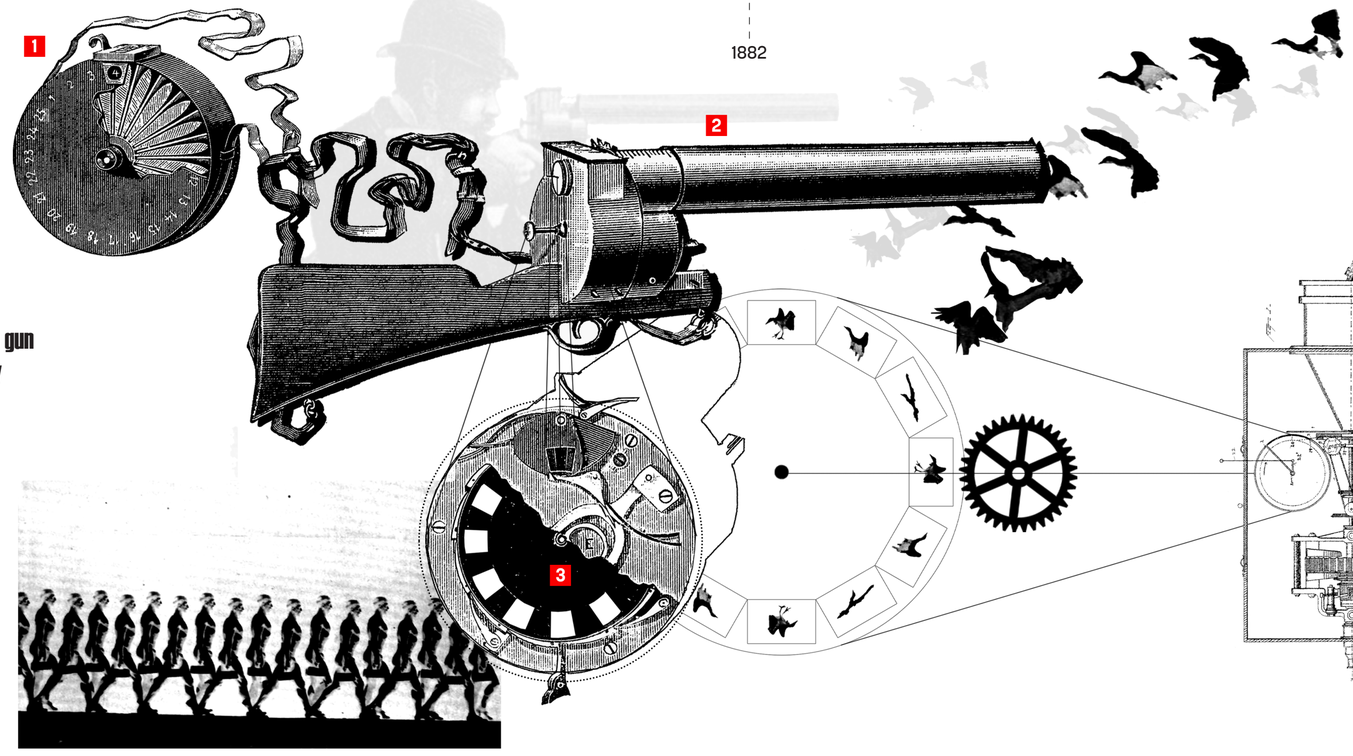
In 1882, Etienne-Jules Marey invented the technique chronophotography, that takes a sequence of successive images to show overlapping and kinetic motion. Like Muybridge, Marey explored the possibilities of studying motion through photography and used his device to research the anatomical movement of animals.

1. Box containing twenty-five sensitive plates
2. Device overview
3. View of the shutter and felt disk

Chronophotographic gun
Etienne-Jules Marey

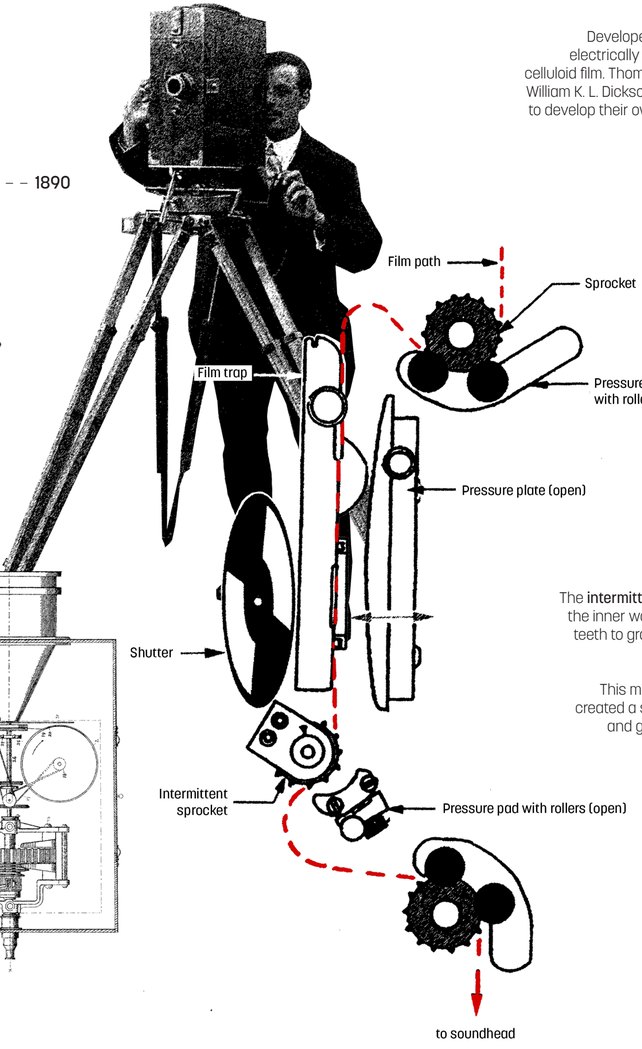
1882

1890



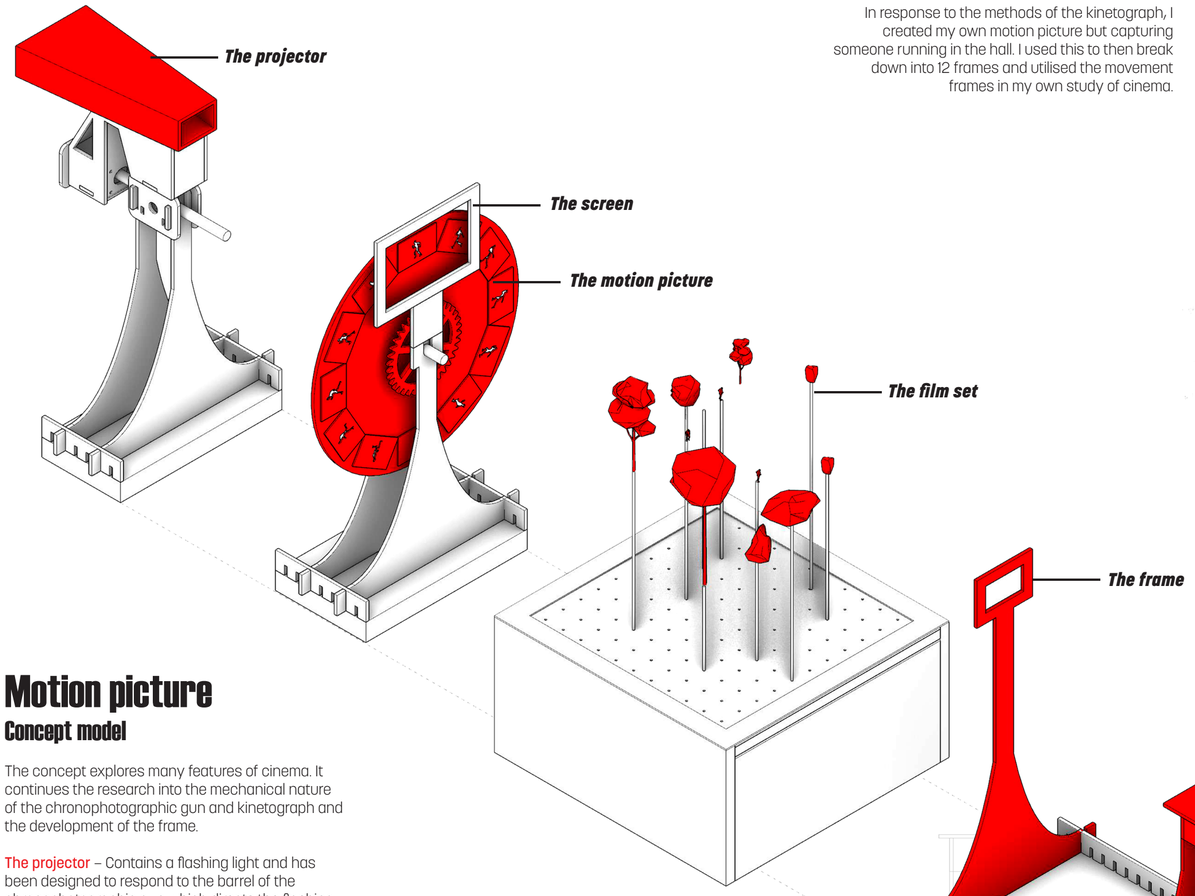
Kinetograph
William K. L. Dickson

Developed in 1890, the Kinetograph was an electrically powered camera that worked with celluloid film. Thomas Edison sought assistance from William K. L. Dickson and advice Etienne-Jules Marey to develop their own camera based on the design of the chronophotographic gun.



The **intermittent stop and go device** inspired by the inner workings of a pocket watch, allowed teeth to grab the celluloid sprocket holes and move the film to the next frame.

This meant a sequential series of images created a seamless moving image if the stop and go device was moving fast enough.



Motion picture

Concept model

The concept explores many features of cinema. It continues the research into the mechanical nature of the chronophotographic gun and kinetograph and the development of the frame.

The projector – Contains a flashing light and has been designed to respond to the barrel of the chronophotographic gun which directs the flashing light towards the individual movement frames.

The motion picture – This is a disk that contains all 12 frames created from our research of Muybridge and analysis of framing. We have designed a series of cogs that connect to a step motor and Arduino that drives the disk to spin. The quality of the motion picture depends on the speed of the spinning disk.

The screen – This is a piece of paper that contains the projection of the individual movement frames from the flashing light. As the disk spins, the flashing light acts as a intermittent stop and go machine to create a smooth motion picture.

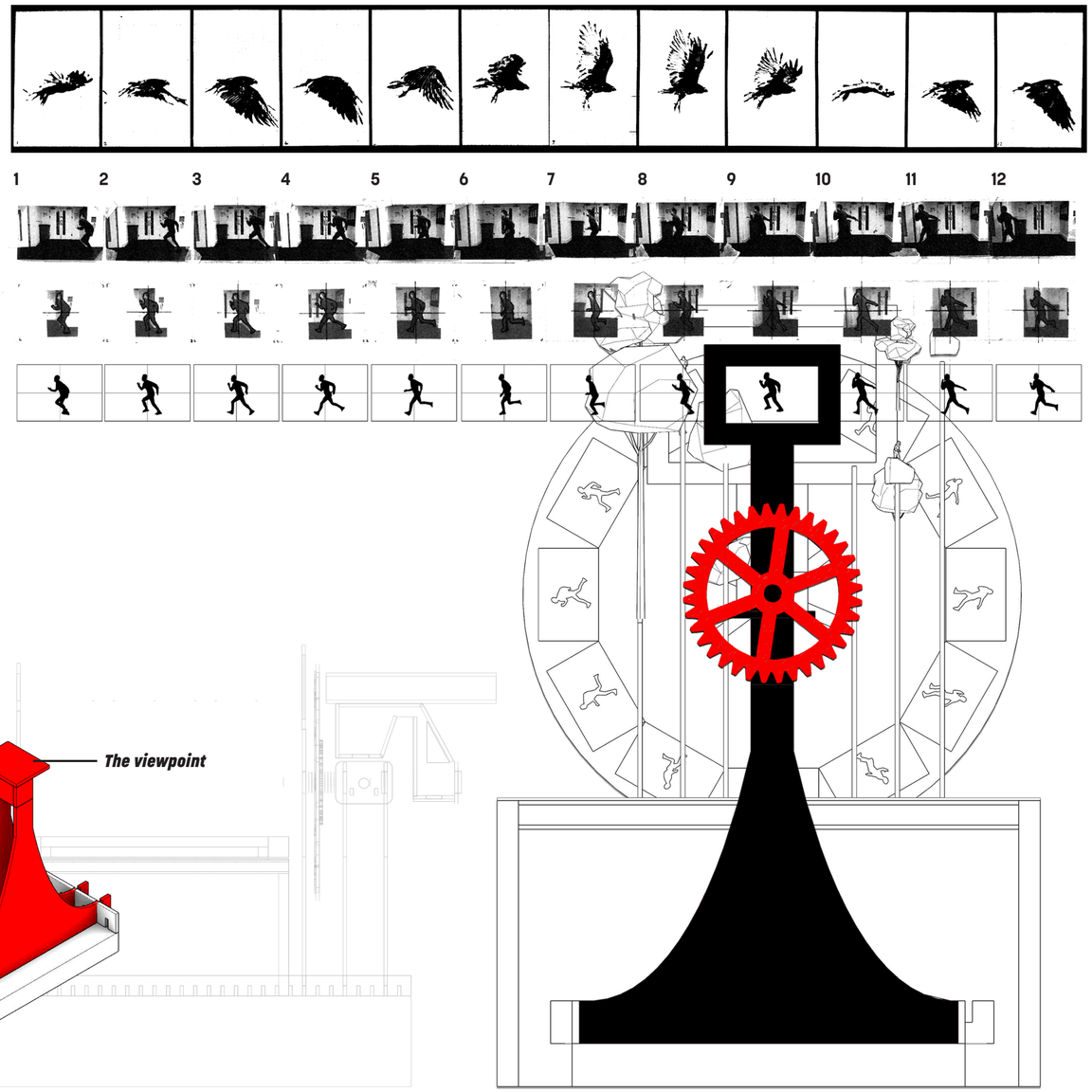
The film set – The film set explores the layering of 3D and 2D objects that are captured within the frame to create a scene in cinema.

The frame – The frame captures and frames 3D and 2D information to create a scene. The frame determines the scene and the composition of the motion picture.

The viewpoint – This is a chin rest for an individual to view the layering of the screen, motion picture and film set. This is set at the right distance at where the frame lines up perfectly with the screen.

In response to the methods of the kinetograph, I created my own motion picture but capturing someone running in the hall. I used this to then break down into 12 frames and utilised the movement frames in my own study of cinema.

[frames]



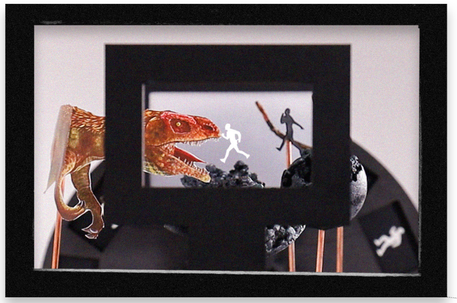
The [frame]

Concept model

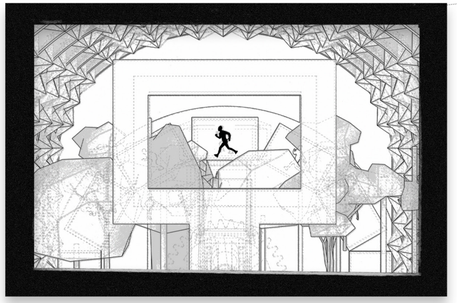
Through a series of prototyping and testing, the final concept model explores a multitude of features of cinema. This model helped me understand the significance of the frame and how key this is to capture layers of information in cinema. This drawing describes the combination of 2D and 3D components that come together in cinema to produce a scene captured by the frame. Without the frame, we have no ability to capture, compose and articulate narratives.

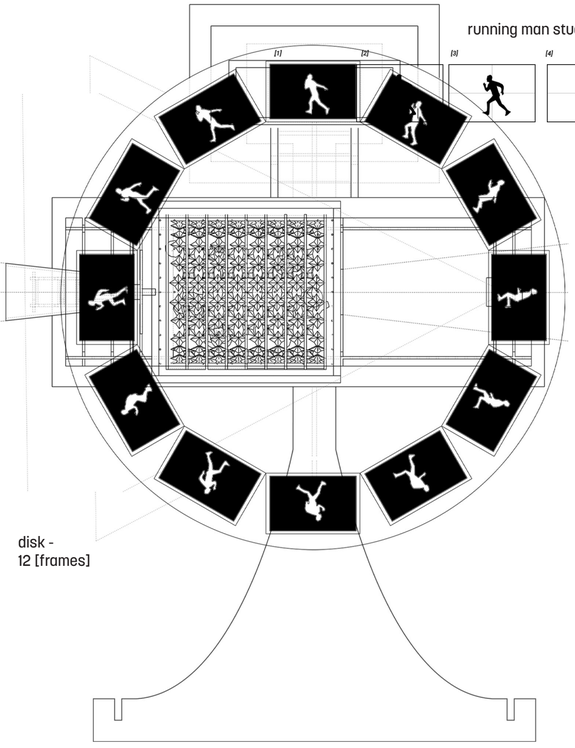
CONCEPT MODEL VIDEO [CLICK HERE]

perspective

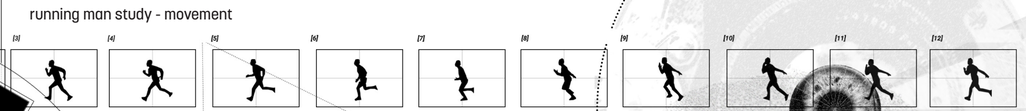


single point of view [framing]

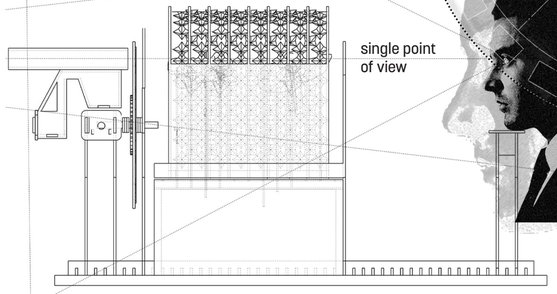




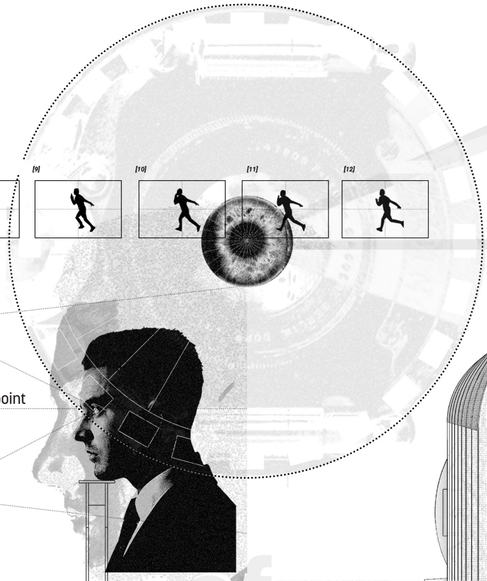
disk -
12 [frames]



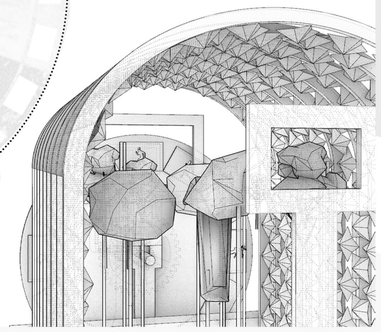
running man study - movement



the mechanics of cinema



single point
of view



illusion - layering
2d & 3d

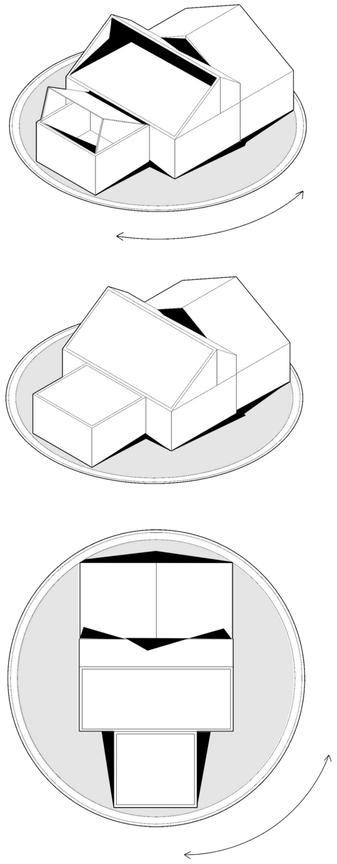
The drawing & model explores the impact of point of view and the development of the frame that captures a single point of view. This film set researches cineplastics in questioning scale, shadow, movement and layering of 3D information.

ANIMATED DRAWING [CLICK HERE]

The spatial art - film sets

Black Maria, 1892
First film studio

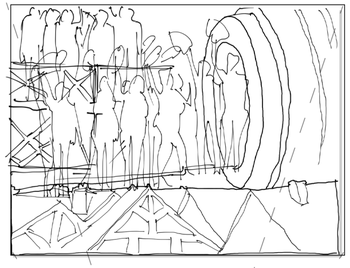
Studio roof opened for sunlight illumination - structured on a revolving pivot to be realigned with the sun. This was the studio of Thomas Edison where Dickson and Heise filmed over 75 motion pictures during 1894.



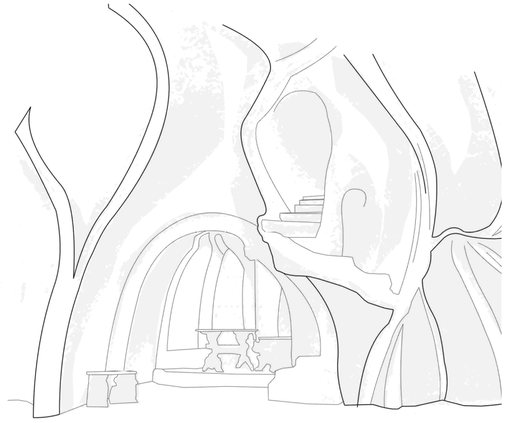
Trip to the Moon
George Melles, 1907

The eager participation of architects themselves in the enterprise. Ability to "construct" its own architecture in light and shade, scale and movement.

Sptial organisation of the studio - "the spatial art"

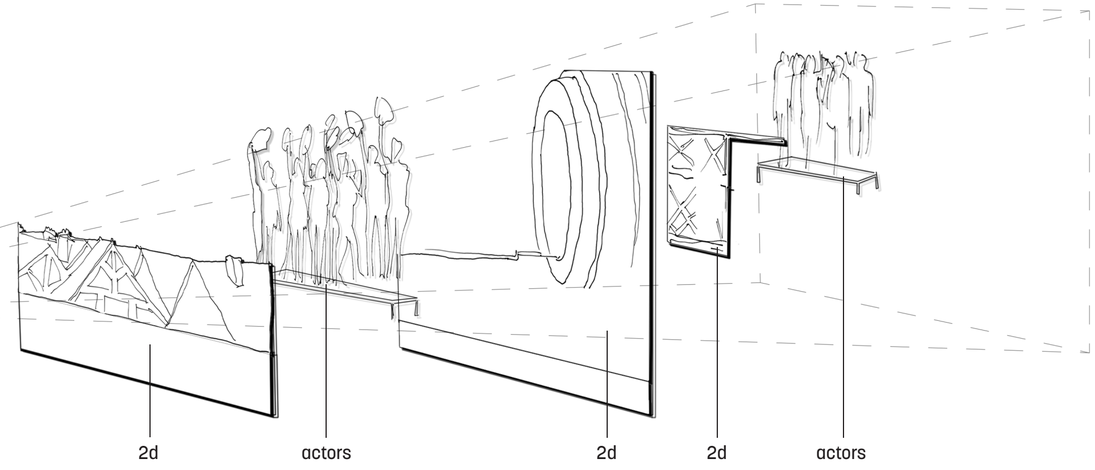


The Golem,
Hans Poelzig & Paul Wegener's, 1917



Paul Wegener saw the possibilities in the cinema to easily change the point of view, to divide the screen and to superimpose reality and fantasy.

3D set - a concept foreign to motion picture up to that time - which forced the camera eye to view it obliquetly. Unexpected shift in street and winding stairs.

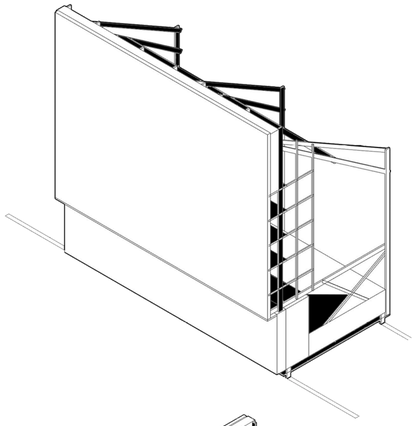


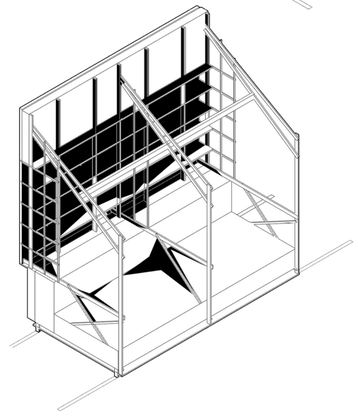
PLAYTIME
Jacques Tati, 1967

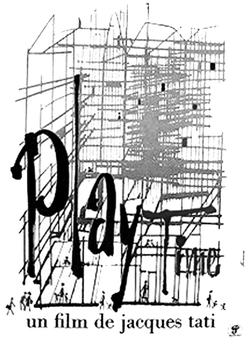
"Instant city"
Full city film set built to be moved and adjusted to fit the perspective of the camera frame.

Constructed using steel and glass at enormous expense.

Filmed in medium and wide shots.







Jacques Tati

Playtime

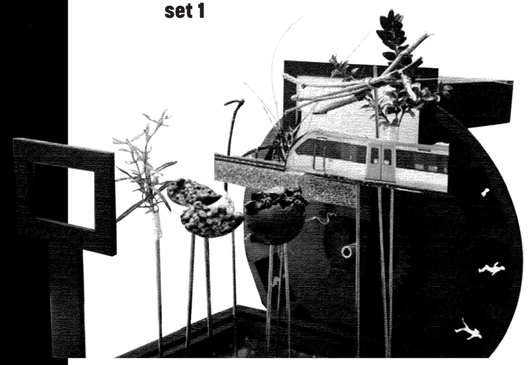
The film was shot at a 70mm zoom and the set was purpose built for this frame. The constructed buildings were placed and orientated to be captured by the camera and created the illusion of an existing city. Although the film was criticised for a lack of plot, the set has gone down in history due to its size and cost at the time. Jacque Tati explained that "there were no stars in the film, or rather, the set was the star, at least at the beginning of the film. So I opted for the buildings, facades that were modern but of high quality because it's not my business to criticise modern architecture" – it was only his job to film it.

[scene 1]

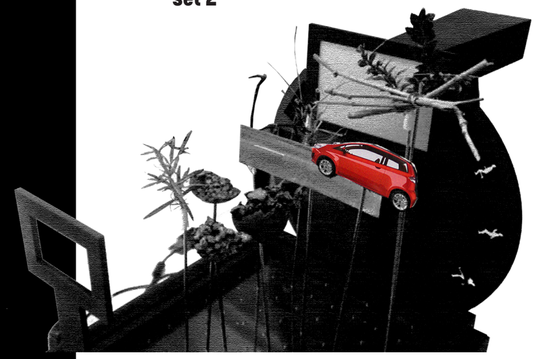
[scene 2]

[scene 3]

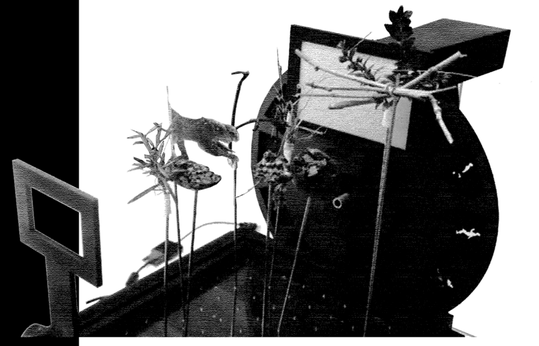
set 1



set 2



Set 3

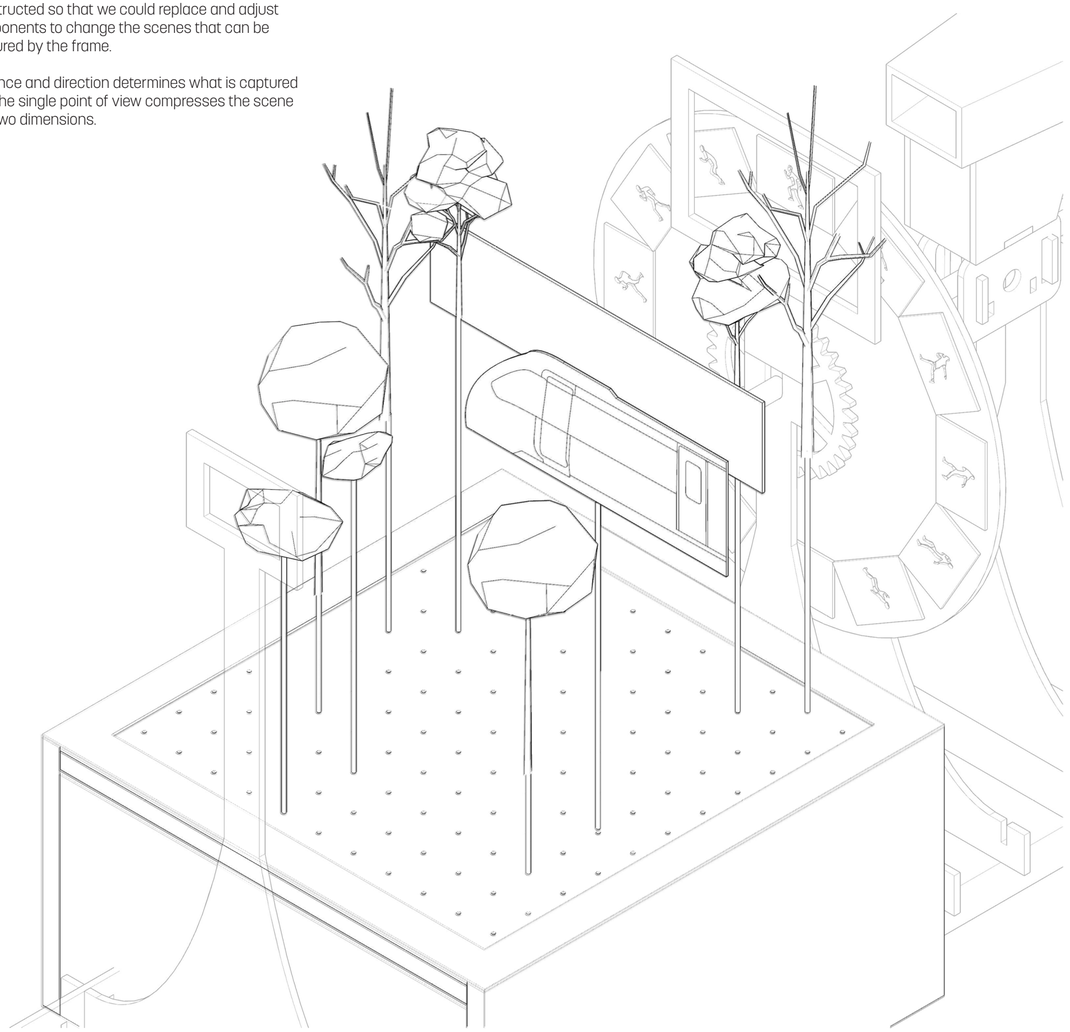


The film set

Layering of 2D & 3D information

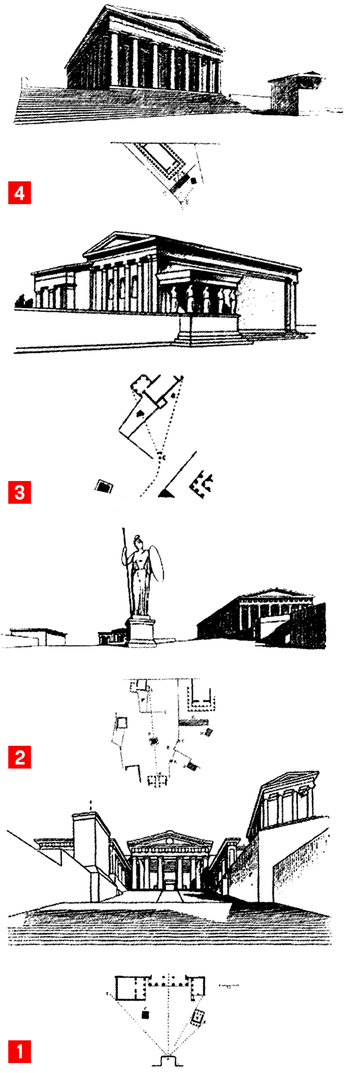
My exploration of film sets continues with the concept model produced early on. The model tests the layering of 2D and 3D information and was constructed so that we could replace and adjust components to change the scenes that can be captured by the frame.

Distance and direction determines what is captured and the single point of view compresses the scene into two dimensions.



A montage sequence

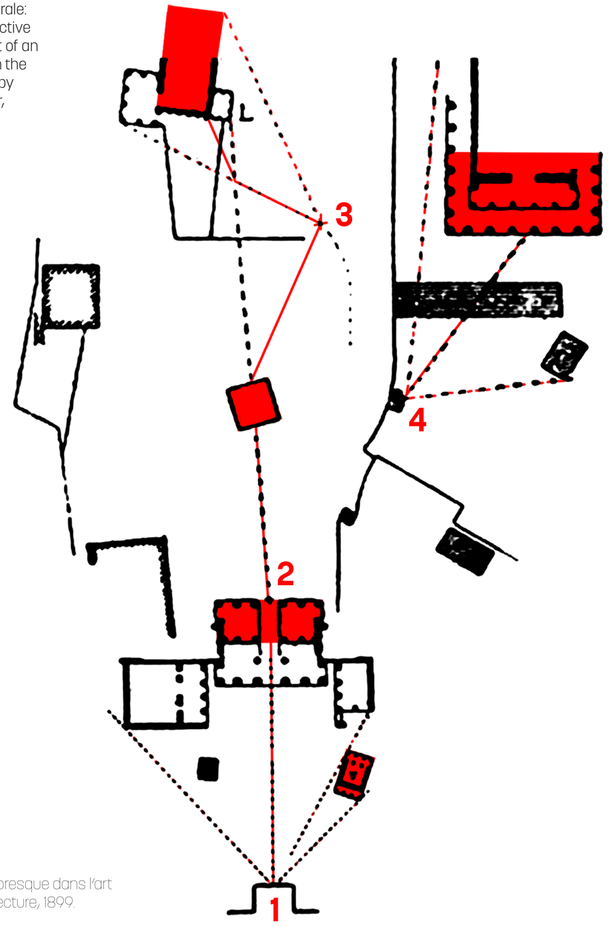
“the sequential juxtaposition of shots”



Sergei Eisenstein, former architect, “compares architectural composition itself to cinematic montage, an implicit ‘flux of form’.” (Vidler, 2002). He believes the rhythmic and harmonal positioning of architectural masses, in its assemble, follows the basis of cinematic montage.

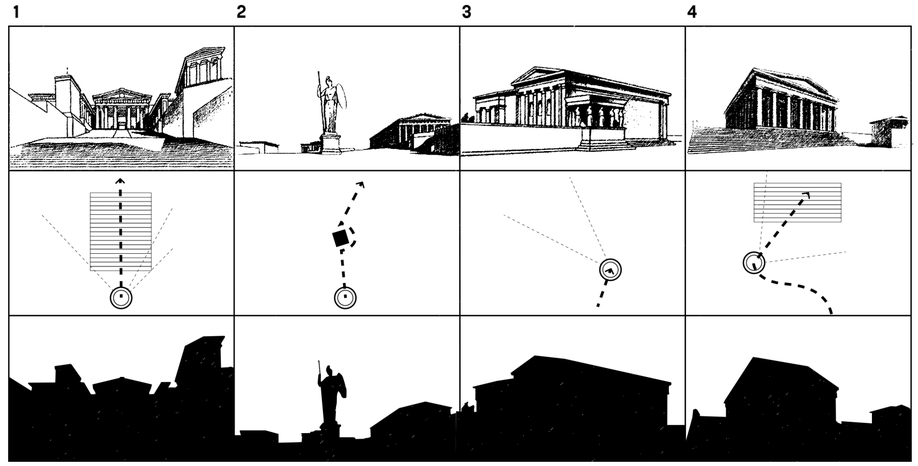
Eisenstein was an admirer of architectural aesthetics of Le Corbusier and his research of “promenade architecturale: the successive perspective views of the movement of an imaginary spectator on the Acropolis constructed by Auguste Choisy” (Vidler, 2002).

Eisenstein finds the architecture of the Acropolis as a “film shot effect” and so Eisenstein produced the “montage effect”, the method of capturing a sequential juxtaposition of shots – “it is hard to imagine a montage sequence of an architectural esemble more subtly composed, shot by shot, than the one which our legs create by walking among the buildings of the Acropolis.” (Vidler, 2002)



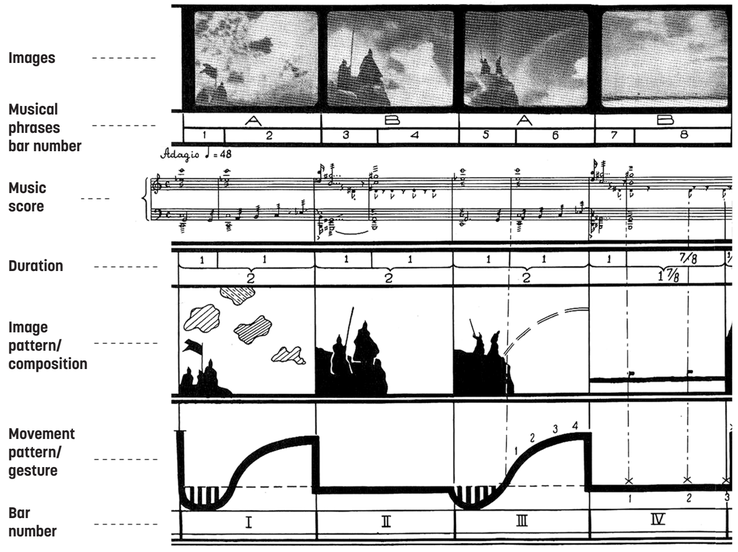
Auguste Choisy, “Le pittoresque dans l’art grec”, Histoire de l’architecture, 1899.

Acropolis analysis



Sergei Eisenstein

Montage effect - movie script



Architectural promenade

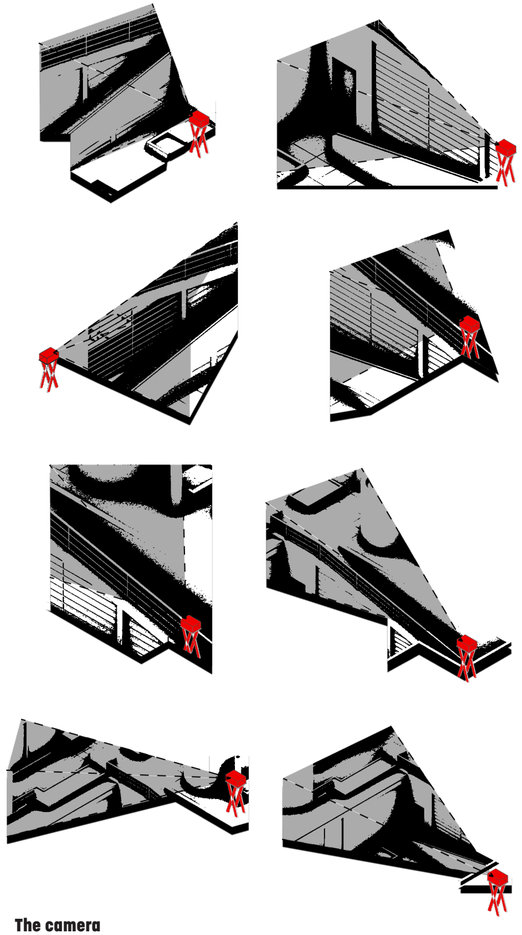
Le Corbusier

The architectural promenade is a term derived from the research of Le Corbusier and his idea of a controlled sequenced journey through space. The architecture becomes the device for this experience and the spectator takes a rhythmic dance through Corbusier's spaces.

Cinema

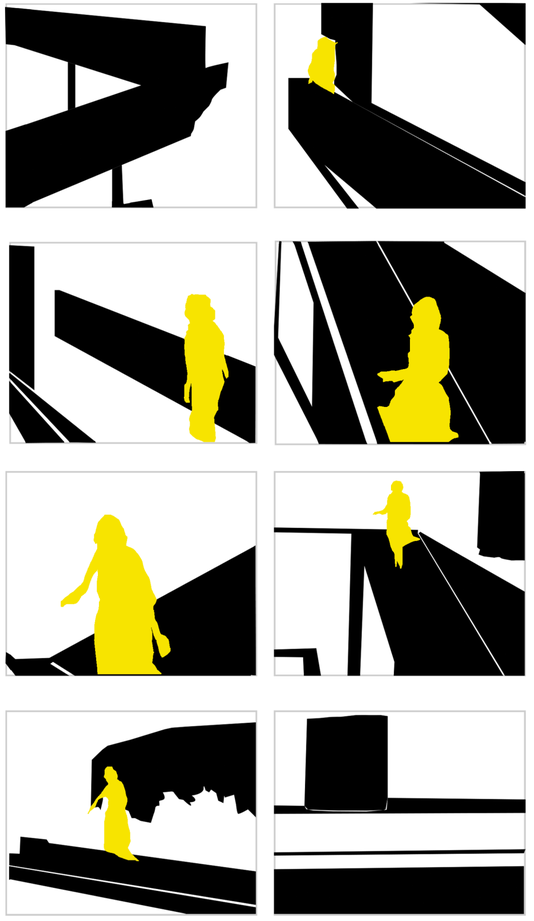
Architecture d'aujourd'hui. 1930 [Film]. Pierre Chenal. dir. USA: the journal Architecture d'aujourd'hui

In 1930, the sequential nature of Le Corbusier's work was captured by the director Pierre Chenal in the short film Architecture d'aujourd'hui. Villa Savoye was used to describe point of view, light distribution and showing of space within modern architecture. Cinema was the medium of study and through its editing and camera positioning the space and form of Villa Savoye was represented.



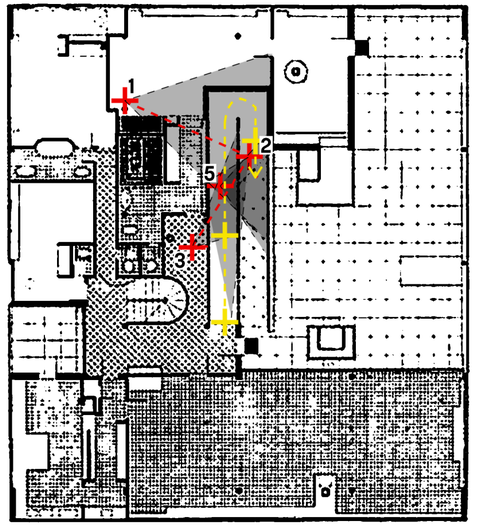
The camera

"A movement sequence which purpose is to emphasise the ease of crossing the space from a place to another and to emphasise the new function of the roof which is also a terrace"

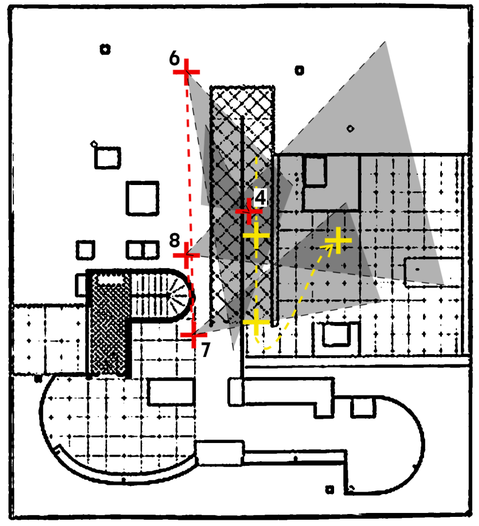


The form

First floor plan



Ground floor plan

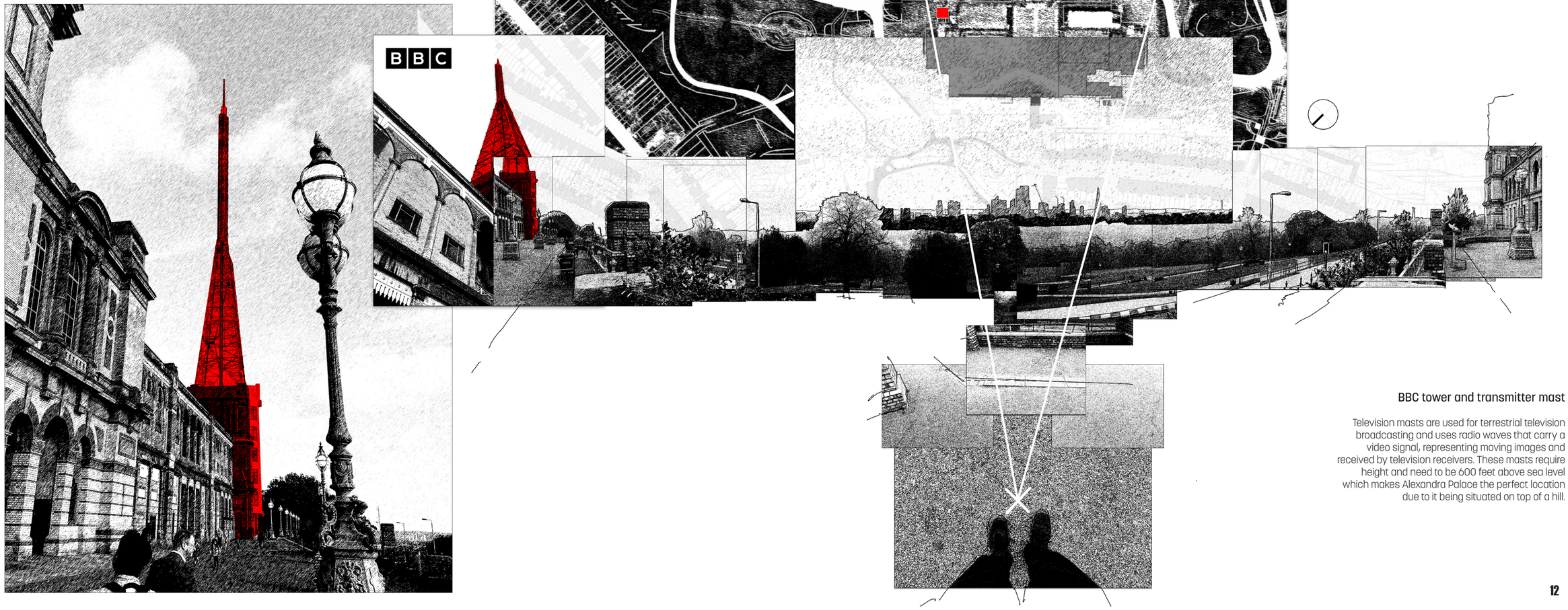


The plan

Alexandra Palace

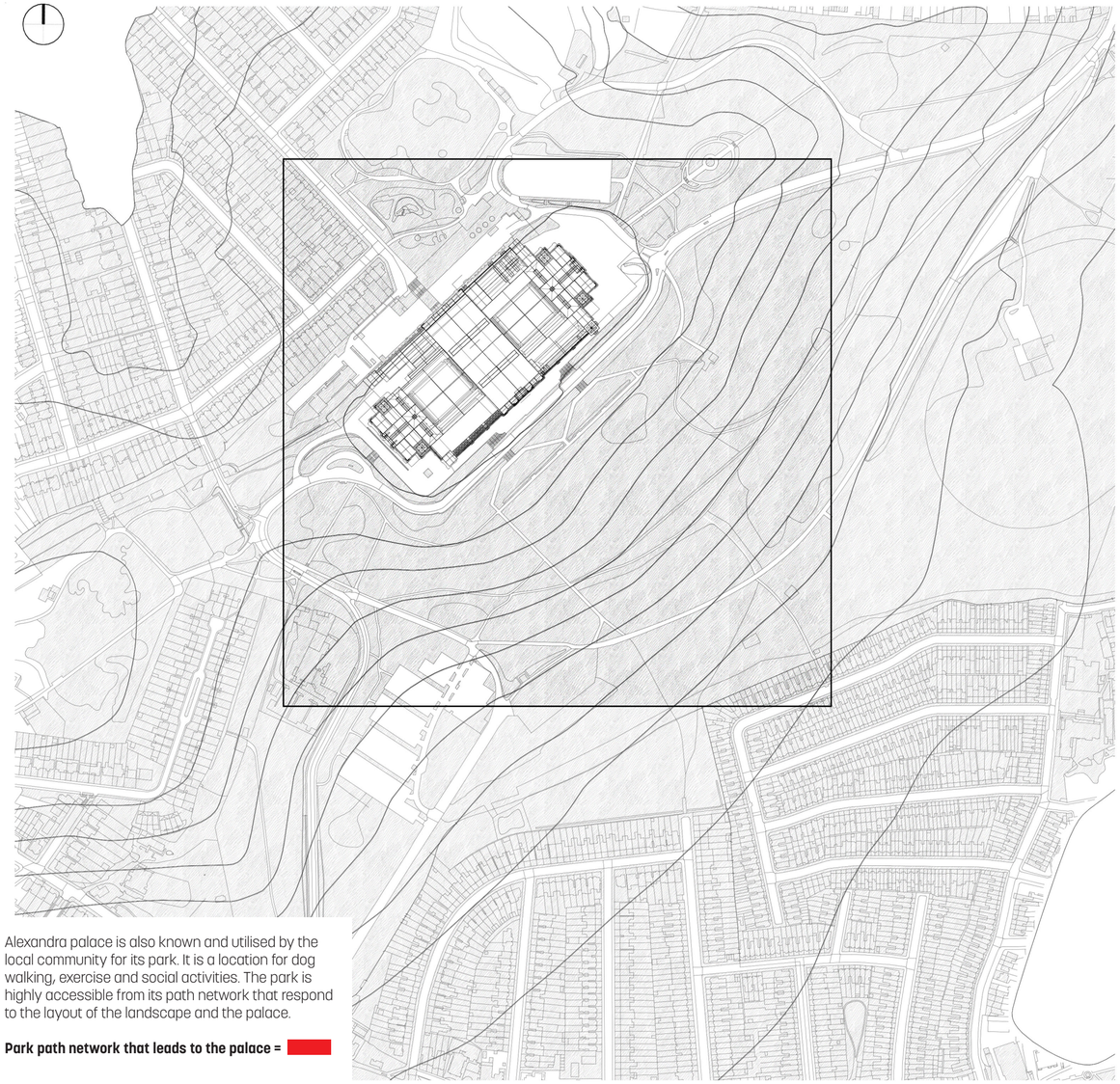
Picturesque nature of the landscape

The site, Alexandra palace is located in North London and is known for being the birthplace of television. Alexandra Palace, also known as Ally Pally, was confirmed as a new site for television production due to its ground height from sea level, 306 meters to be exact. In 1935, BBC leased the east area of the building to broadcast the first television transmission and continued to be a major production centre for BBC television till the late 1950s.



BBC tower and transmitter mast

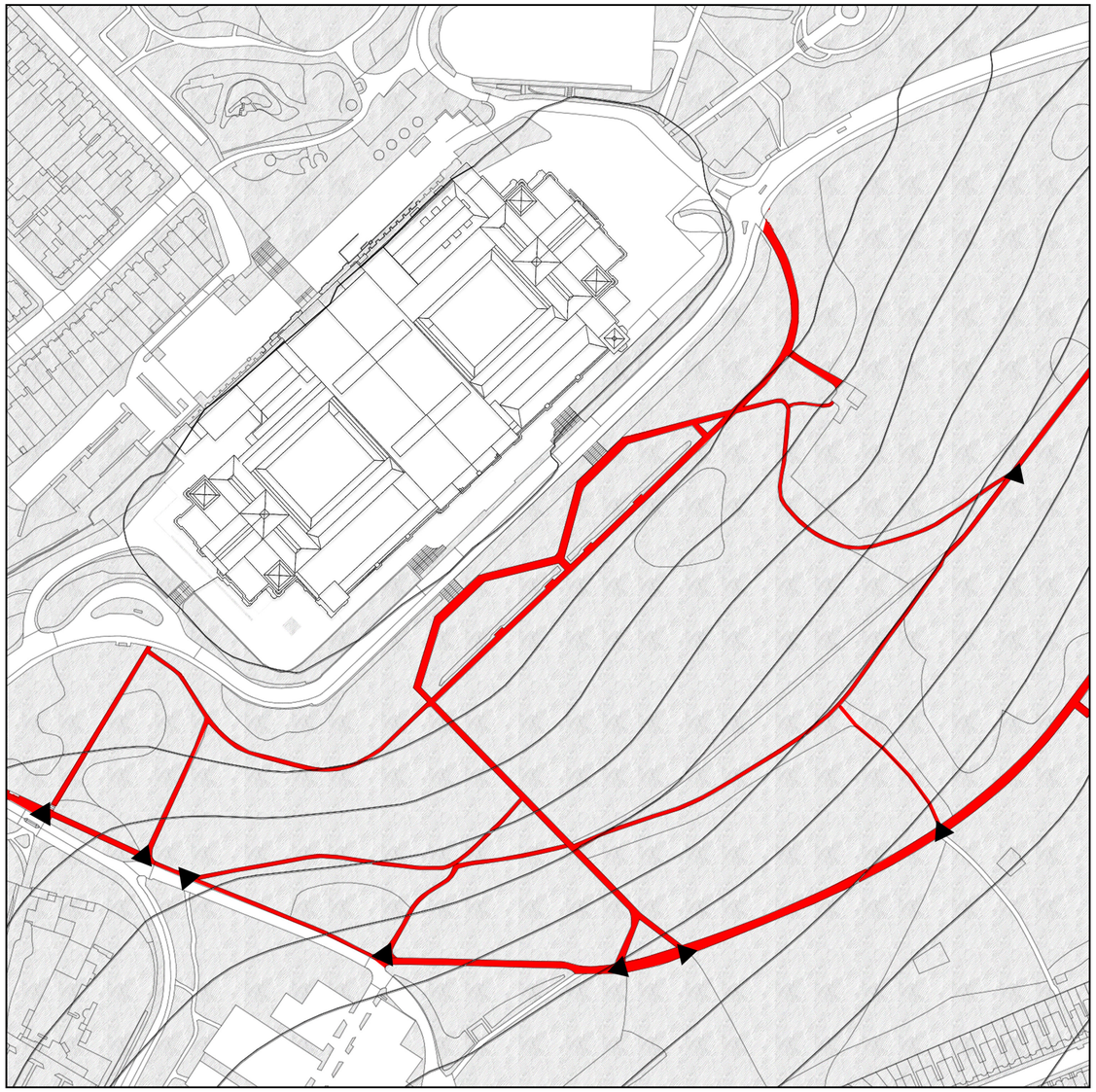
Television masts are used for terrestrial television broadcasting and uses radio waves that carry a video signal, representing moving images and received by television receivers. These masts require height and need to be 600 feet above sea level which makes Alexandra Palace the perfect location due to it being situated on top of a hill.



Alexandra palace is also known and utilised by the local community for its park. It is a location for dog walking, exercise and social activities. The park is highly accessible from its path network that respond to the layout of the landscape and the palace.

Park path network that leads to the palace =

1 10 50
5 20 100m



1 10 50
5 20 100m

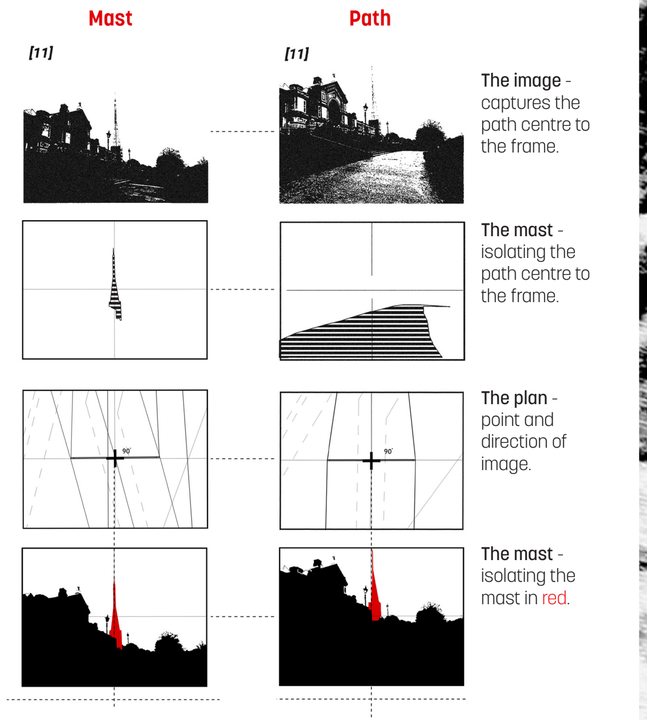
Vision through motion

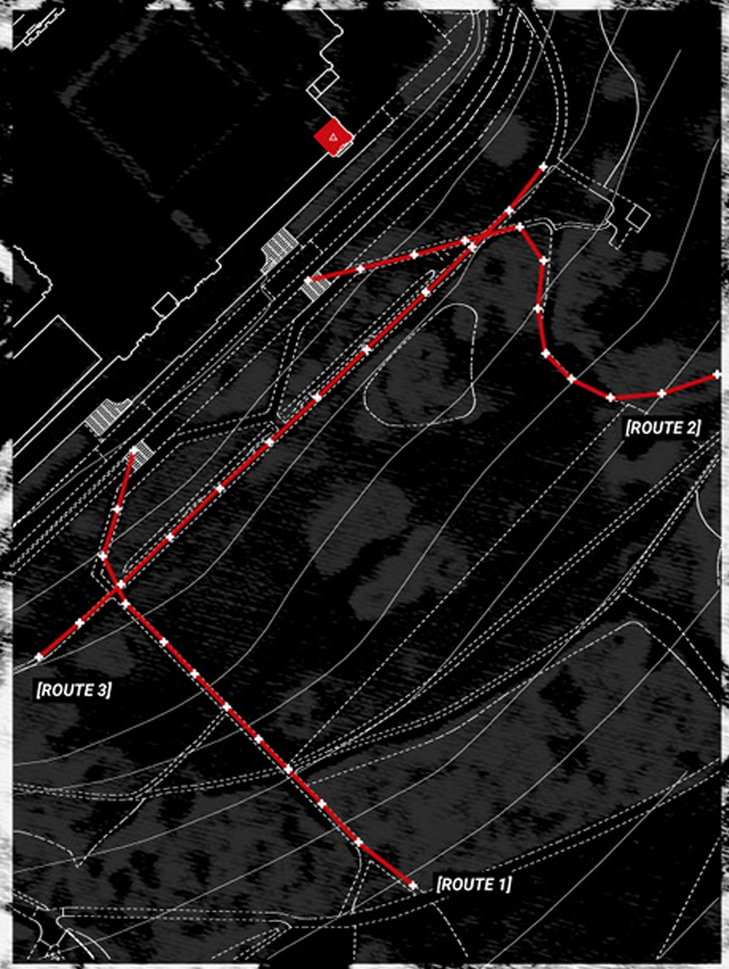
Route 1, 2 & 3

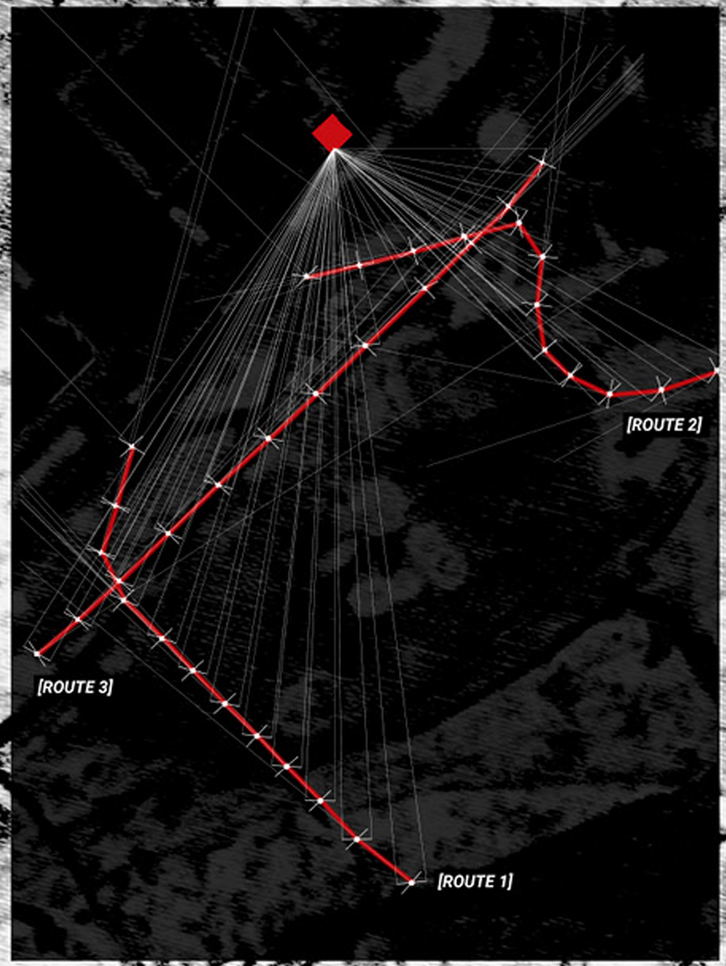
Erwin Panofsky - "Not only do bodies move in space, but the space itself does, approaching, receding, turning, dissolving and recrystallizing as it appears through the controlled locomotion and focusing of the camera and through the cutting and editing of the various shots" (Vidler, 2002).

Walter Benjamin - "As soon as we begin to find our bearings, the landscape vanishes at a stroke like the facade of a house as we enter it" (Vidler, 2002).

Path - language of the landscape
Mast - finding our bearings

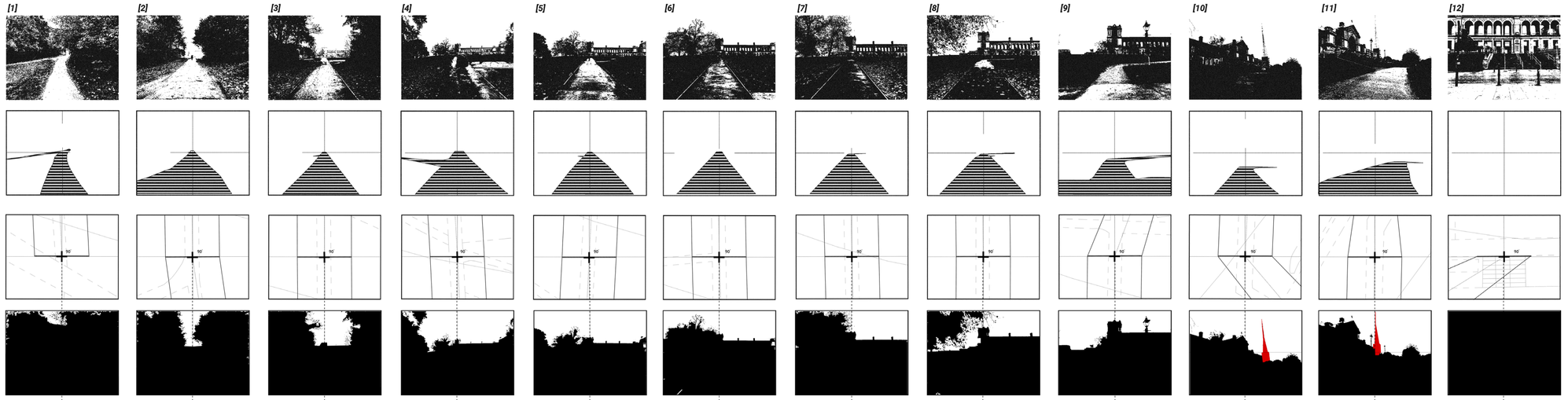




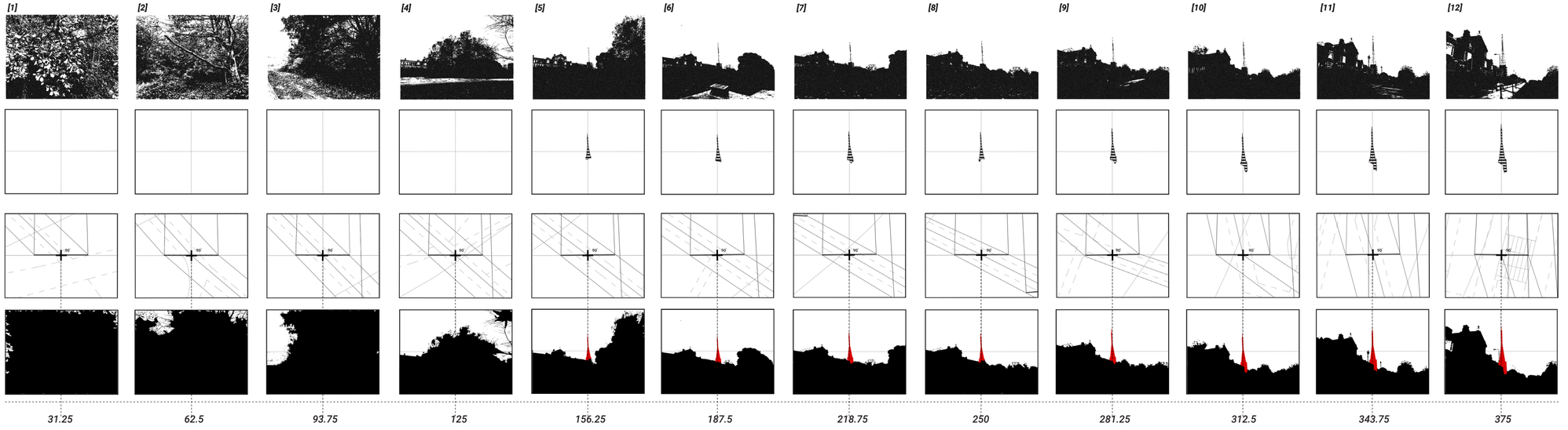


route 1 - mapping through point of view

[path]

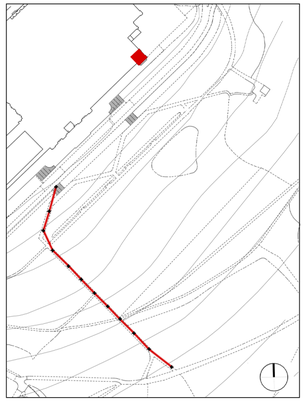


[mast]



route 1

mapping through point of view



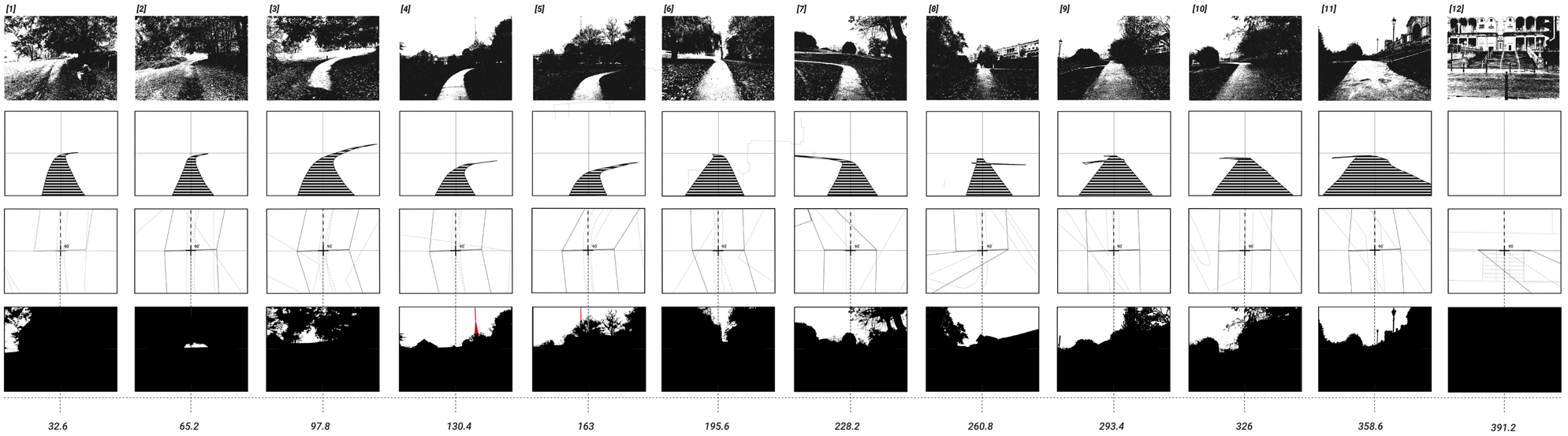
[route 1]
location plan

[path & mast]

direction of sight -
distraction vs landscape

route 2 - mapping through point of view

[path]



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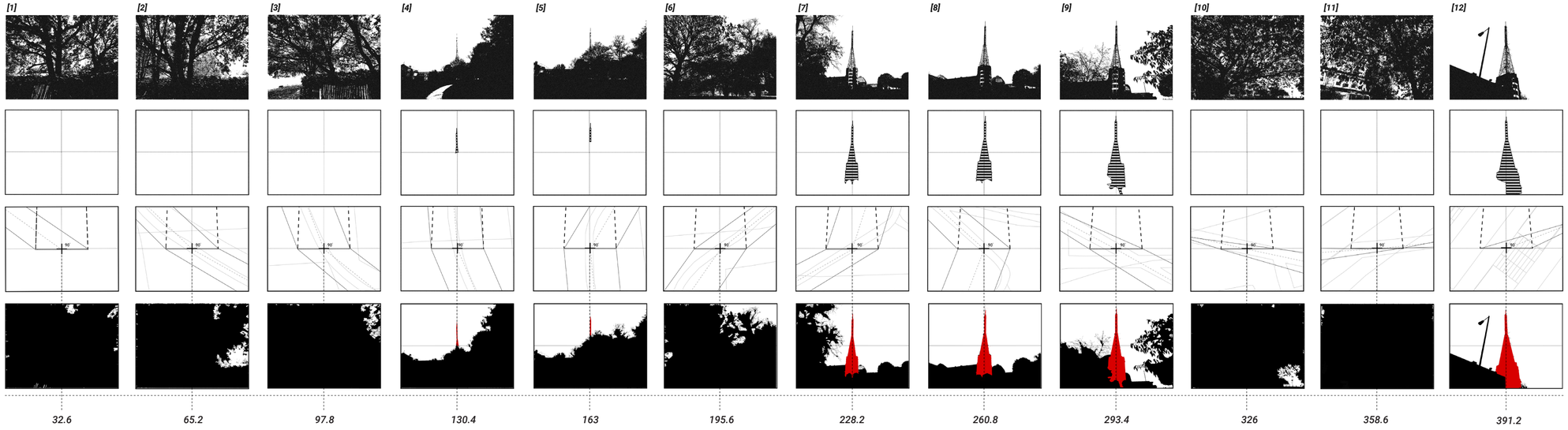
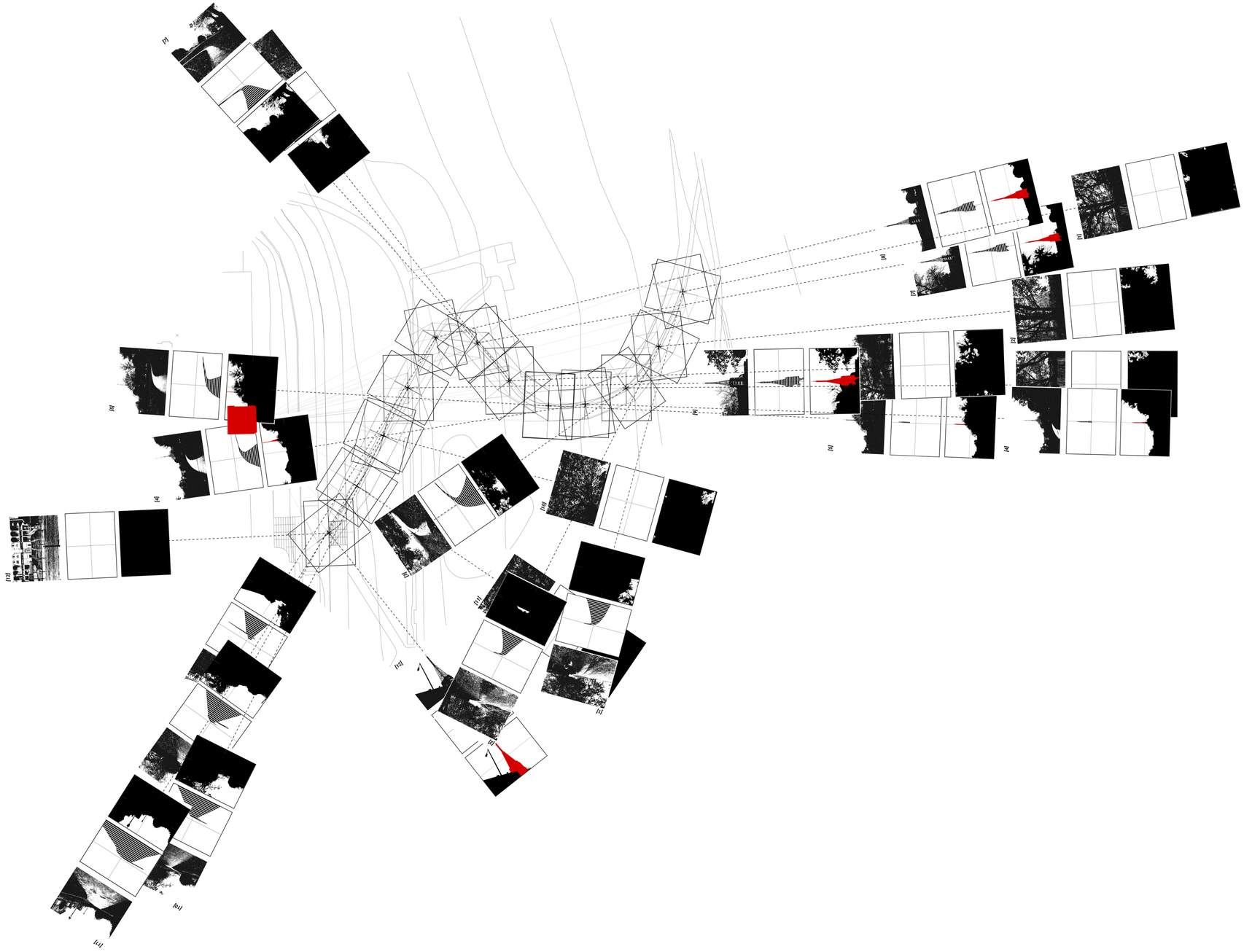


route 2

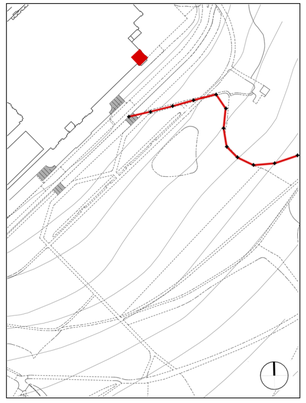
mapping through point of view



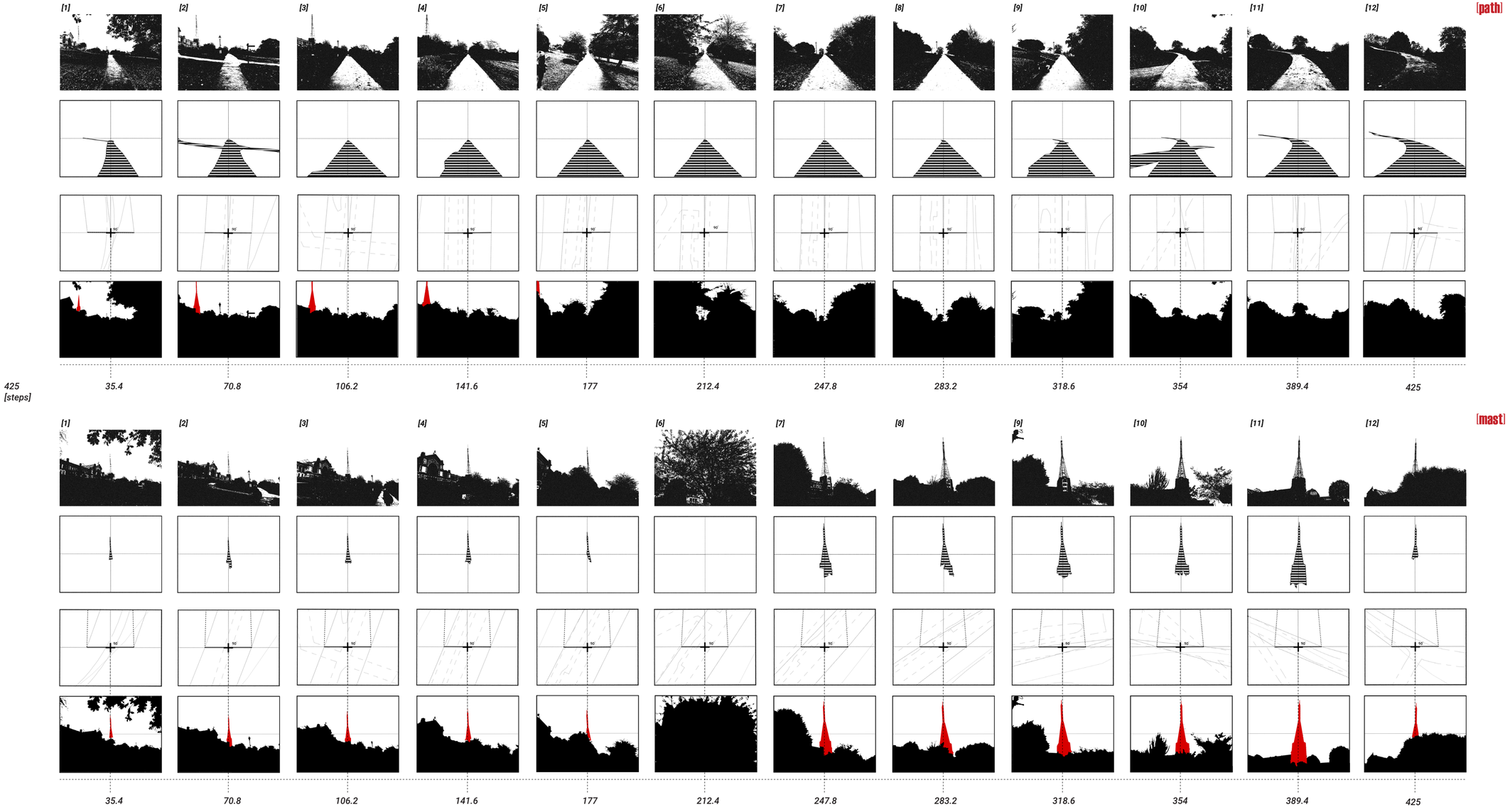
(route 2)
location plan

(path & mast)

direction of sight -
distraction vs landscape



route 3 - mapping through point of view

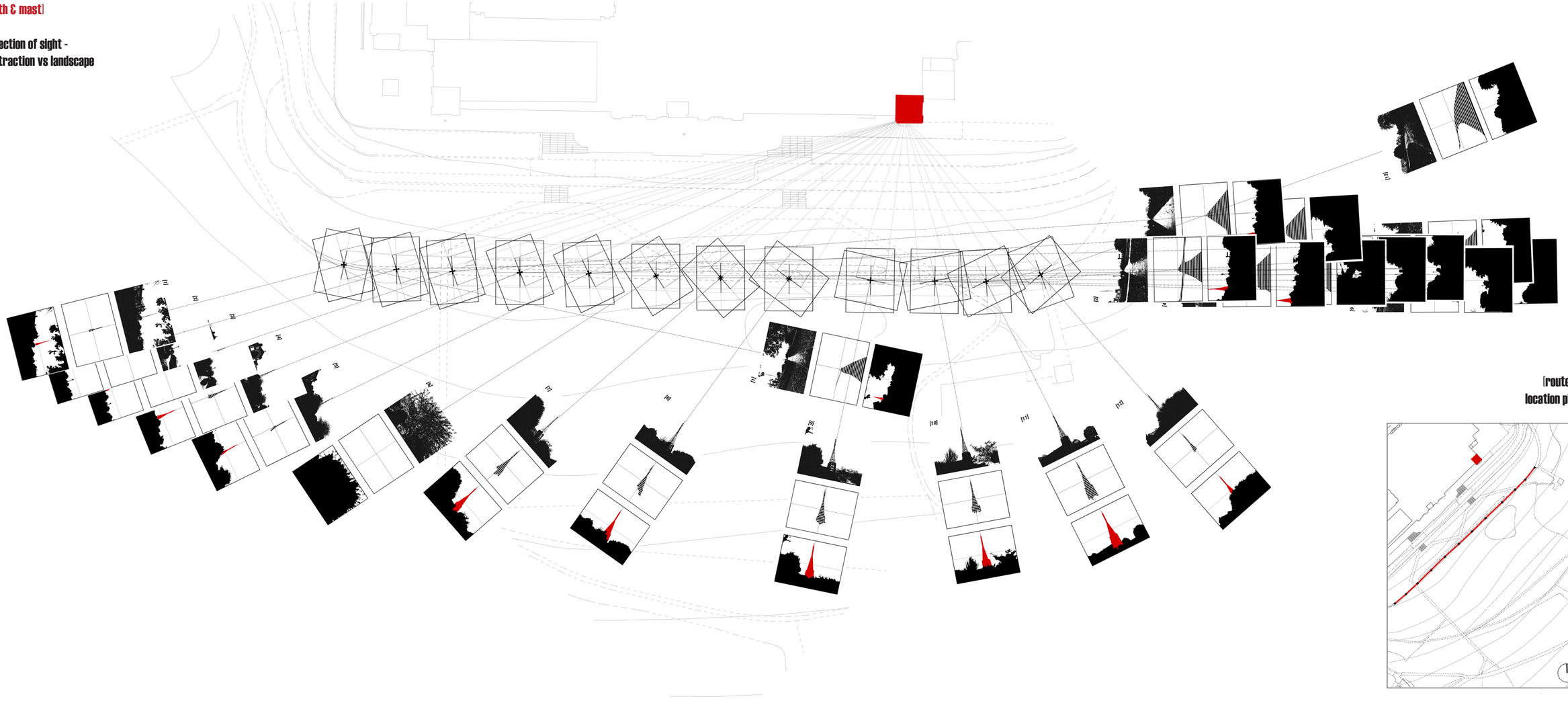


route 3

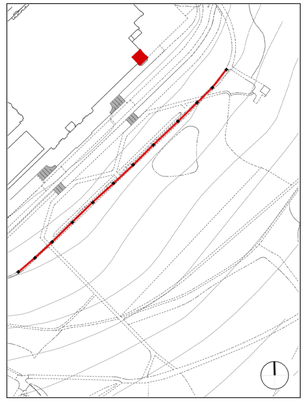
mapping through point of view

[path & mast]

direction of sight -
distraction vs landscape



[route 3]
location plan



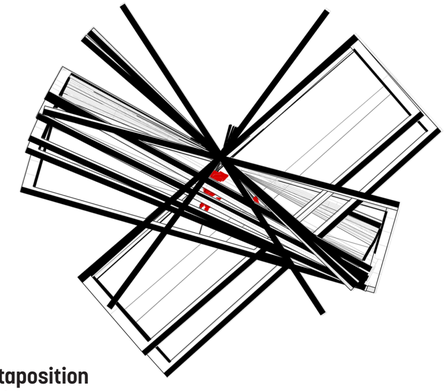
motion

[path & mast]

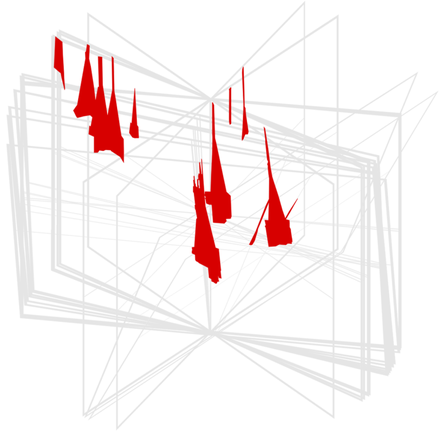
direction of sight -

distraction vs landscape

Through montage we can analyse the juxtaposition of points of view between the language of the landscape and finding our bearings. In our pursuit of finding our bearings, we look away from the landscape.

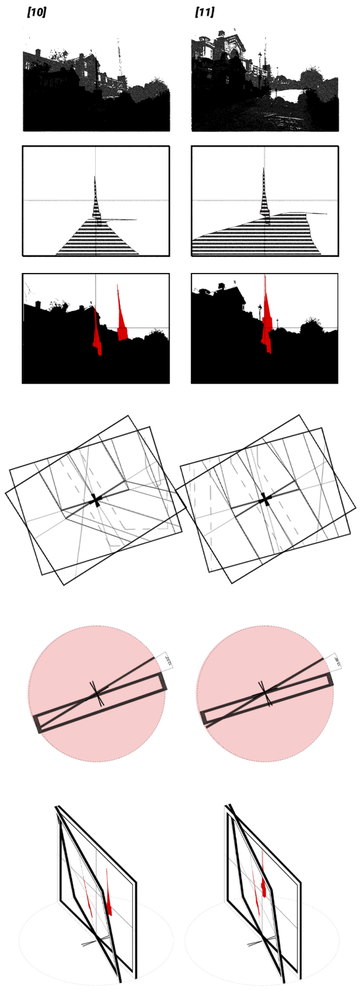


juxtaposition of views



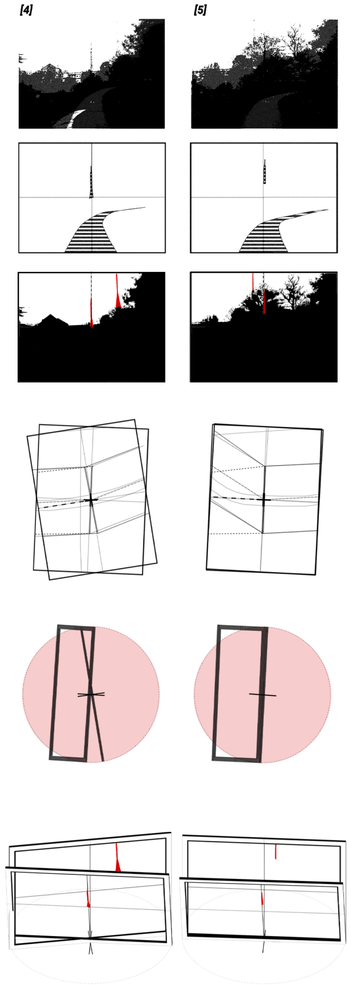
route 1

[path & mast frames combined]



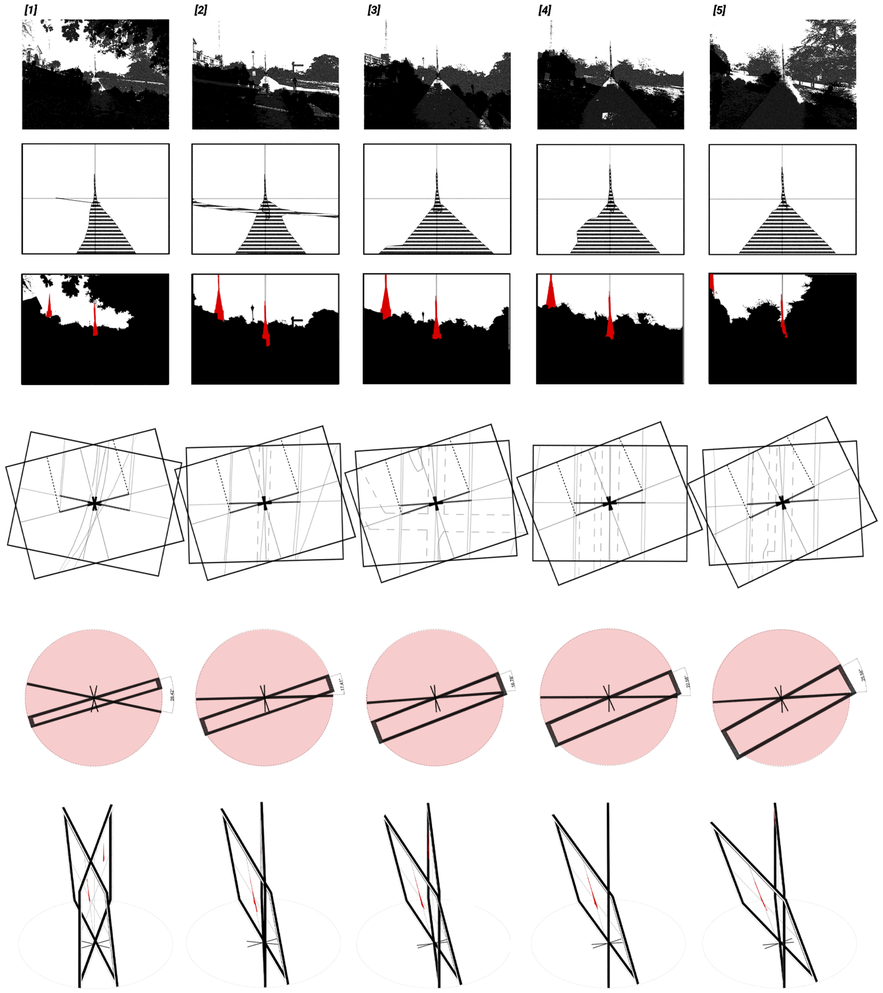
route 2

[path & mast frames combined]



route 3

[path & mast frames combined]



Sets in motion: The Independent filmmaker facility

Thomas Edison
1894, 'Boxing Cats'

Lumiere brothers.

Fast forward 100 years

Independent filmmakers
Small scale film production

Cinema grew into a big money making industry which therefore required vast numbers of film crew, huge budgets and large film studios. The big box office films therefore limited filmmakers ability to be creative, pushed low budget films away and reduced opportunities for practising filmmakers.

Problems independent filmmakers face:

- Small to no financial support – difficult to raise funds
- Lack of equipment
- Lack of studio space with high quality acoustics and lighting
- High theft rate

Film production process
Independent filmmakers process

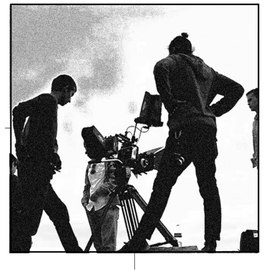
Due to the smaller funds and opportunity for independent film makers, planning and preparation is key. The process of producing a film requires delicate planning and shooting to maximise their budget .

1

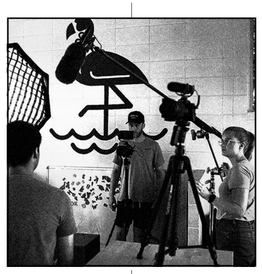
Write script
- Consider effects, backgrounds, makeup etc

2

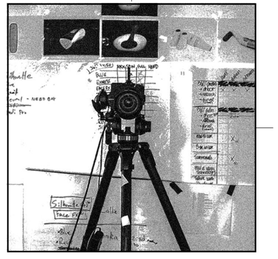
Sort budget
- Finance costs for cast, crew, equipment, space & post-production

3 

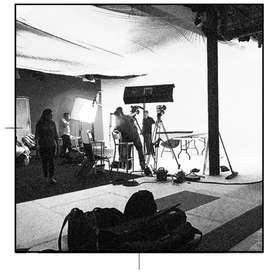
Hire crew
Cinematographer
Assistant director
1st assistant camera
Gaffer
Sound recordist
Production assisant

4 

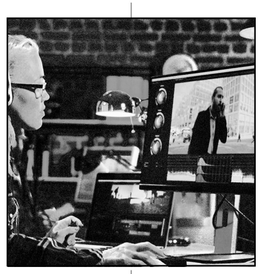
Get your cast
- Amount of actors needed

5 

Prep shoot days
- Prep amount of days and dates
- Length of shoot days
- Location
- Props

6 

Shoot
Maximise shoot days

7 

Post-production
- Film editing
- Special effects
- Sound production

8

Market at film festival
- Film festival events to market the films to investers
- Recieve funds
- Market

Types of independent filmmaking content

Short film/ feature film

Podcast

Talk show/ tv show

Vlogging

Miniature film sets

Independent filmmakers & their spacial needs

My project will host the entire film production process with its facilities. From planning and budgeting to marketing at a film festival, this will all happen on the site. These spaces need to be linked and easily accessible. This diagram demonstrates how each space of the program could be linked and how the type of spaces could interact. I envision there to be multiple film studios that are linked with a central community space. Although the spaces will be closely situated, there will be more public and private spaces to provide different opportunities of light, views and privacy. It is key for certain spaces to be more closely located than others.

Film studios

audio studios

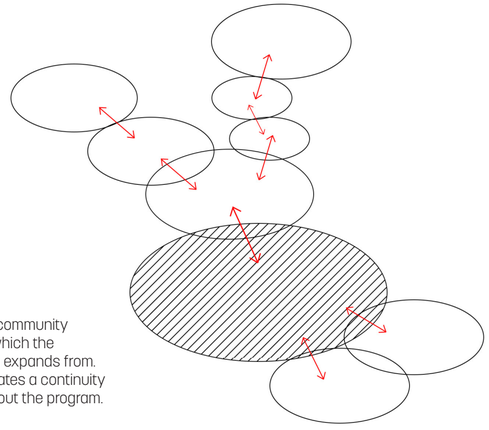
Post production & co production offices

Chill out space

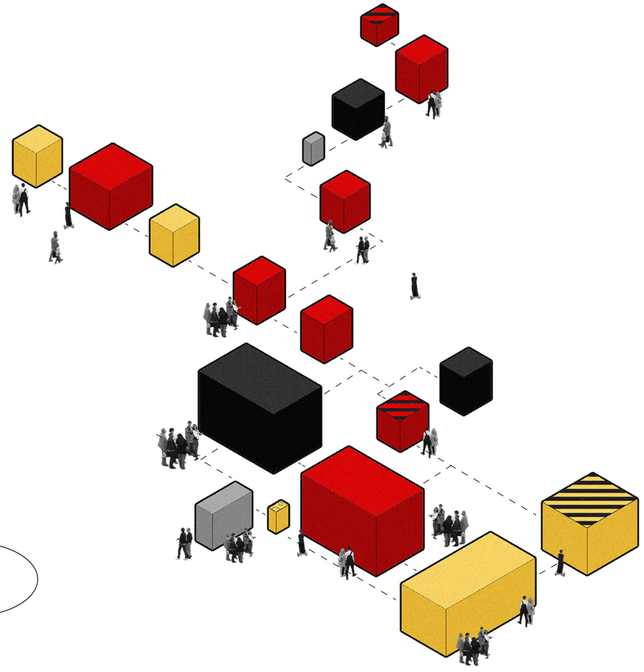
Cafeteria

W/C

Equipment + prop storage



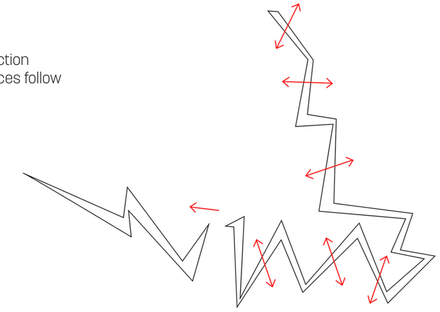
Central community space which the program expands from. This creates a continuity throughout the program.



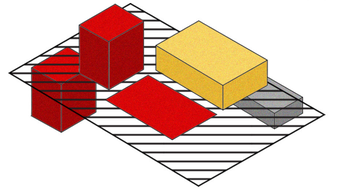
DEVELOPMENT DRAWINGS [CLICK HERE]

Design decisions

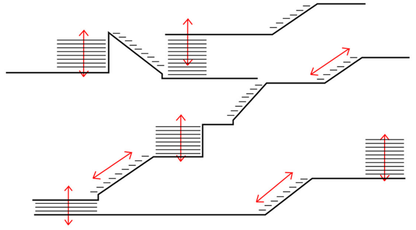
Horizontal continuity
- Easy access
- Journey of film production
- Access axis that spaces follow



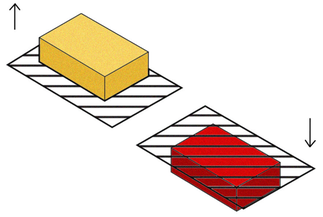
Public & private
- Fully public co-working spaces and more private offices



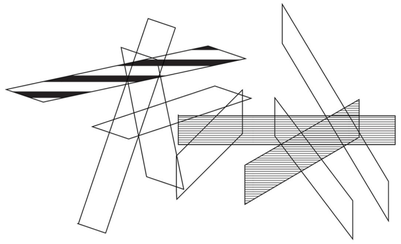
Vertical continuity
- Level changes
- Views across planes
- Step terraces



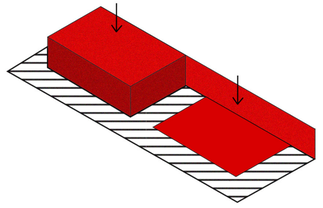
Overground & underground
- Studios to be underground to be able to control acoustics & lighting

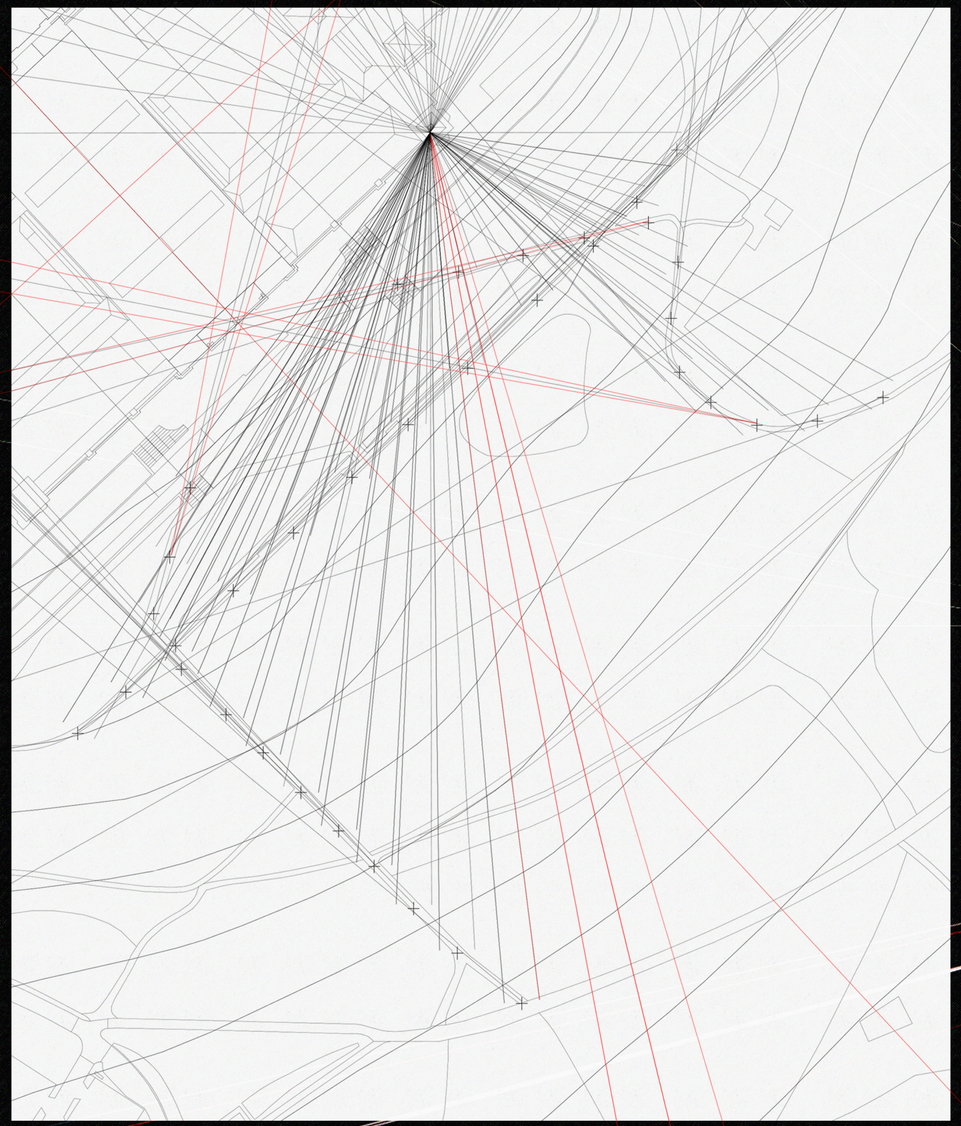


Shifting planes
- Section & floor planes
- Geometry [shifting]
- Points of view



Indoor & outdoor filming
- Change of filming space for different filming scenes & environments



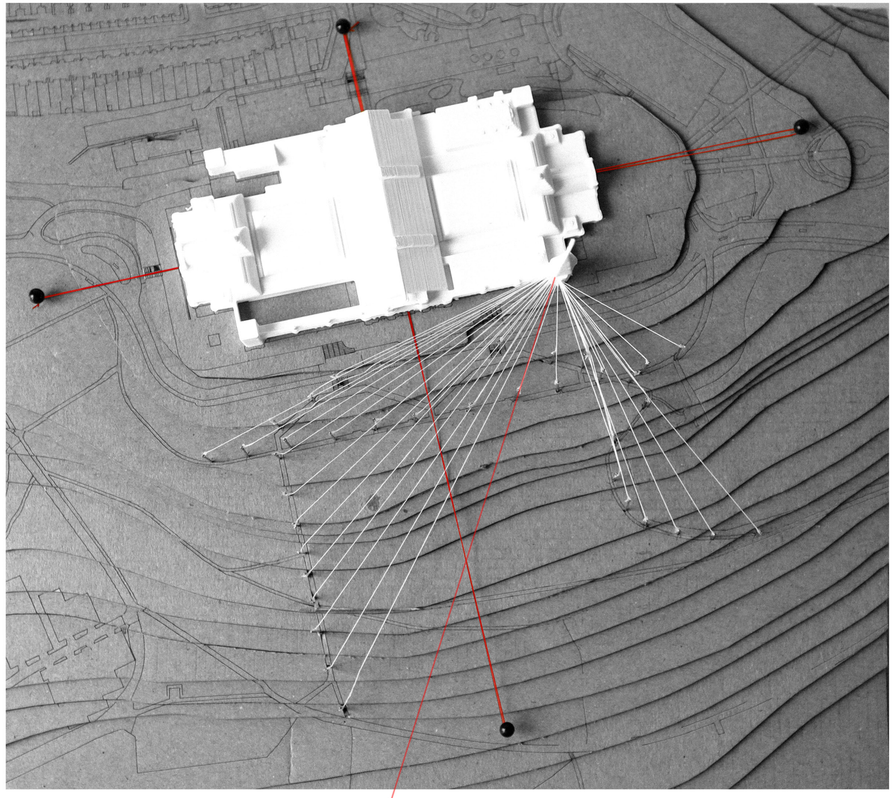


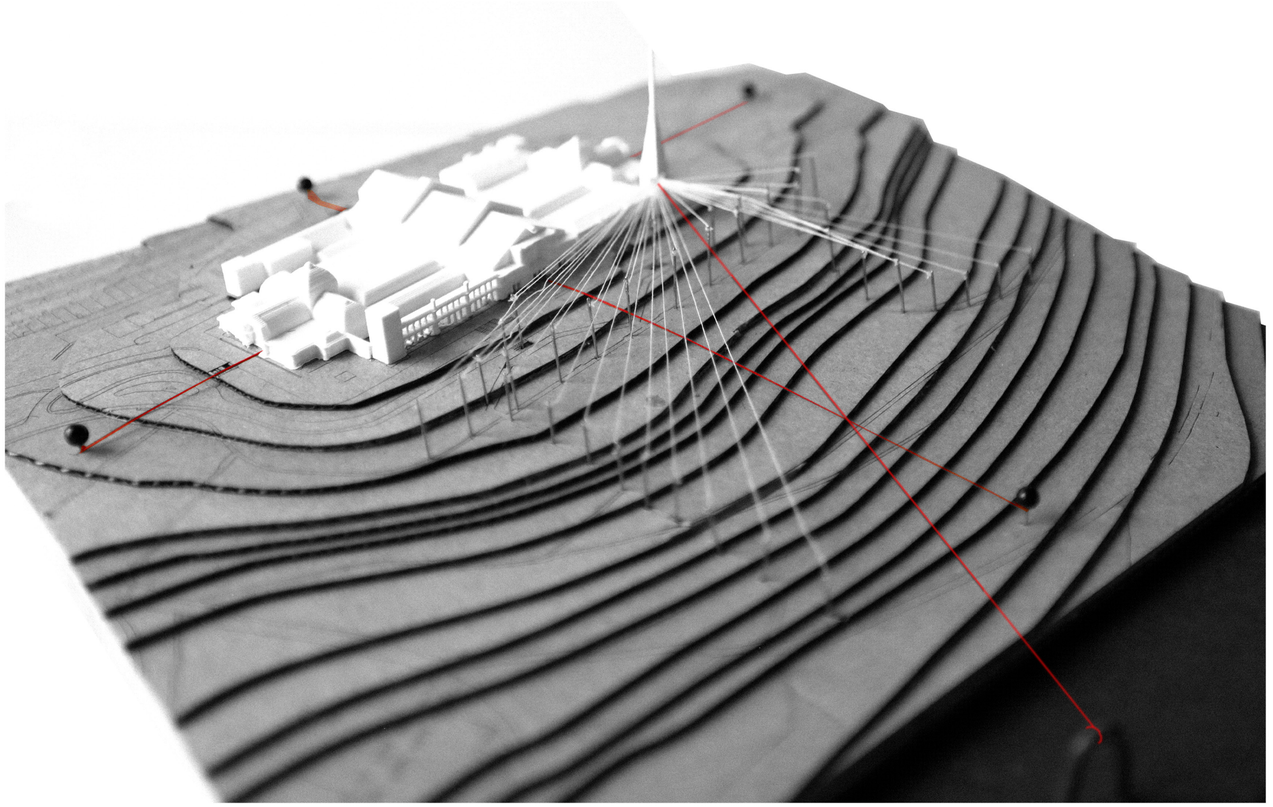
drawing system

drawing system=

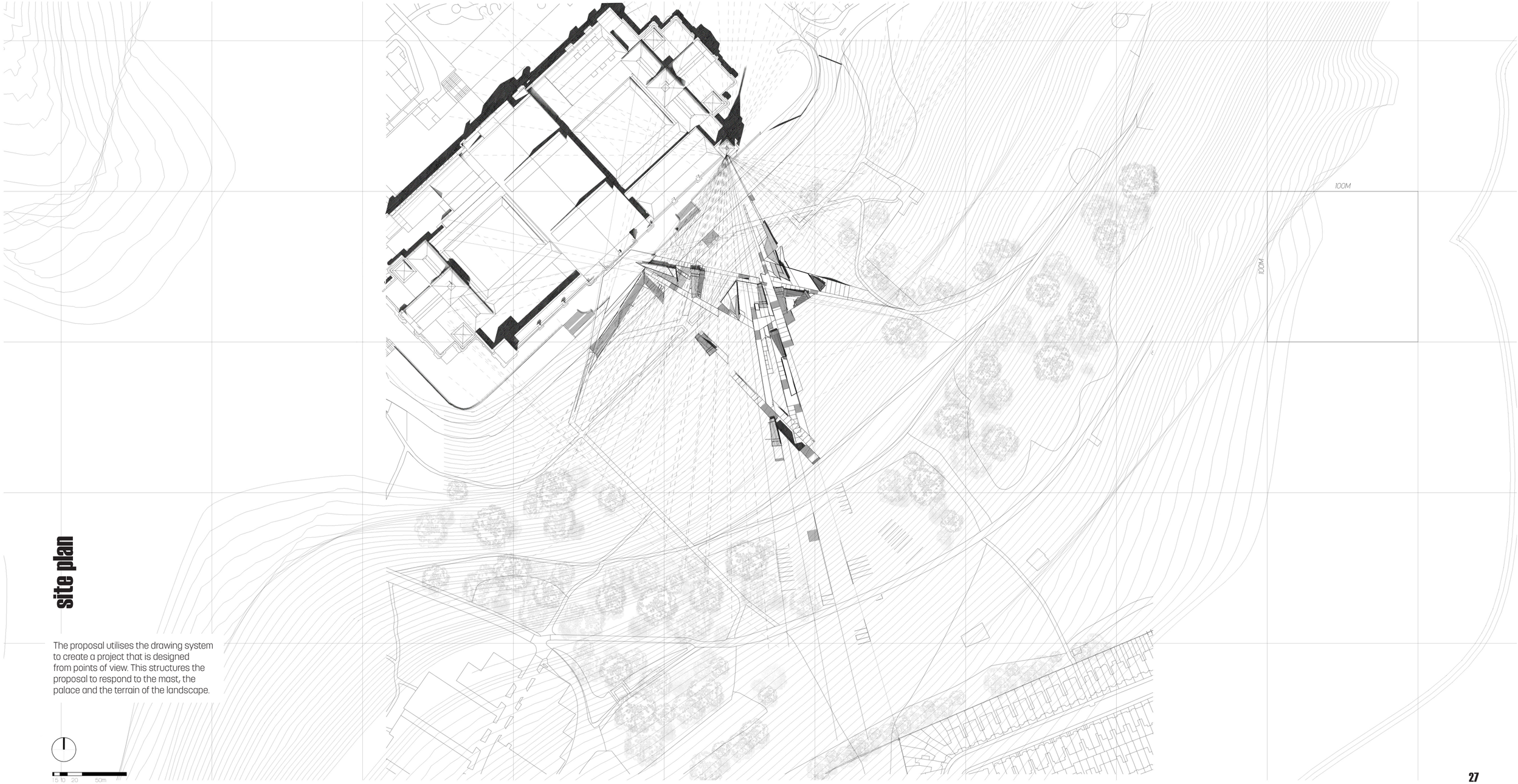
The drawing system structures my proposal to have a relationship with the local landscape [the park], the Alexandra Palace and the city [crystal palace mast].

- alexandra palace to crystal palace - mast beacon
- 3 view points to the palace
- alexandra palace axis



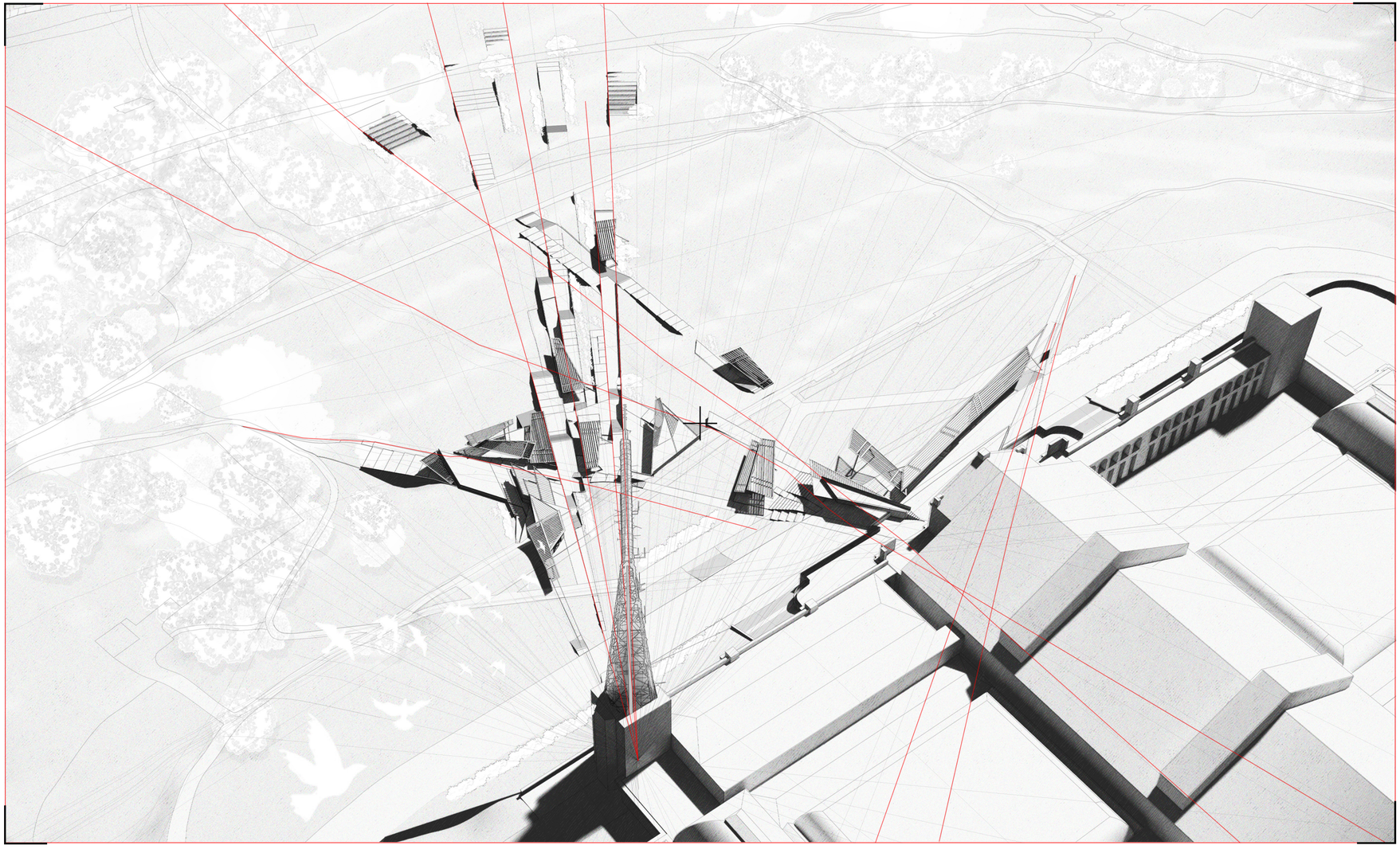


This model demonstrates the drawing system created from the vision through motion mapping of Alexandra Palace. The mast will become a beacon for the proposal and respond to the axis of Alexandra palace.

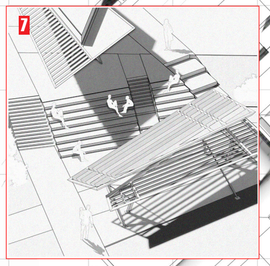


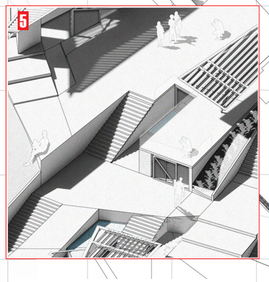
site plan

The proposal utilises the drawing system to create a project that is designed from points of view. This structures the proposal to respond to the mast, the palace and the terrain of the landscape.



The beacon.

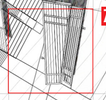


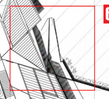


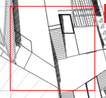
There are multiple points of access to the film studios from the landscape due to the step terrace design. This also creates platforms to view the landscape and panorama of the city.

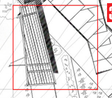
These terraces can act as filming platforms for indepdendent filmamkers that can utilise the panorama as a backdrop.

landscape plan

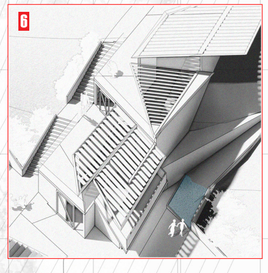


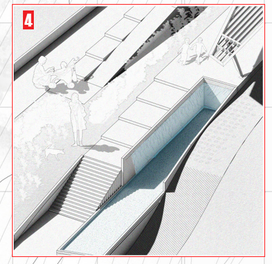


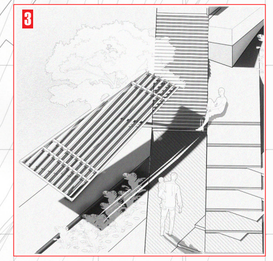


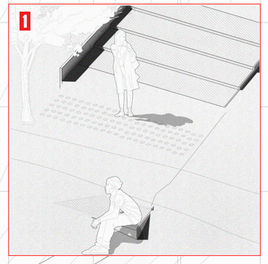


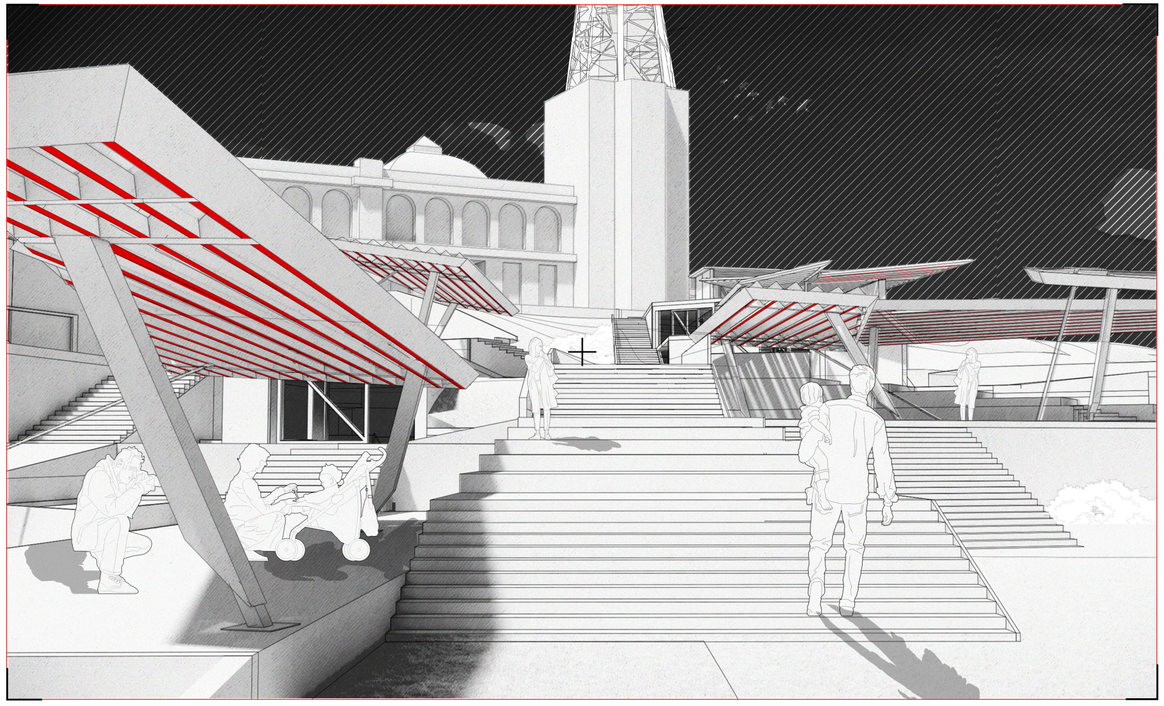
The series of steps that make their way up the landscape has been designed to create pockets of gardens, paving and water. The stairs become more solid the closer it gets to the step terraces and act as points for views that look up and down the landscape.



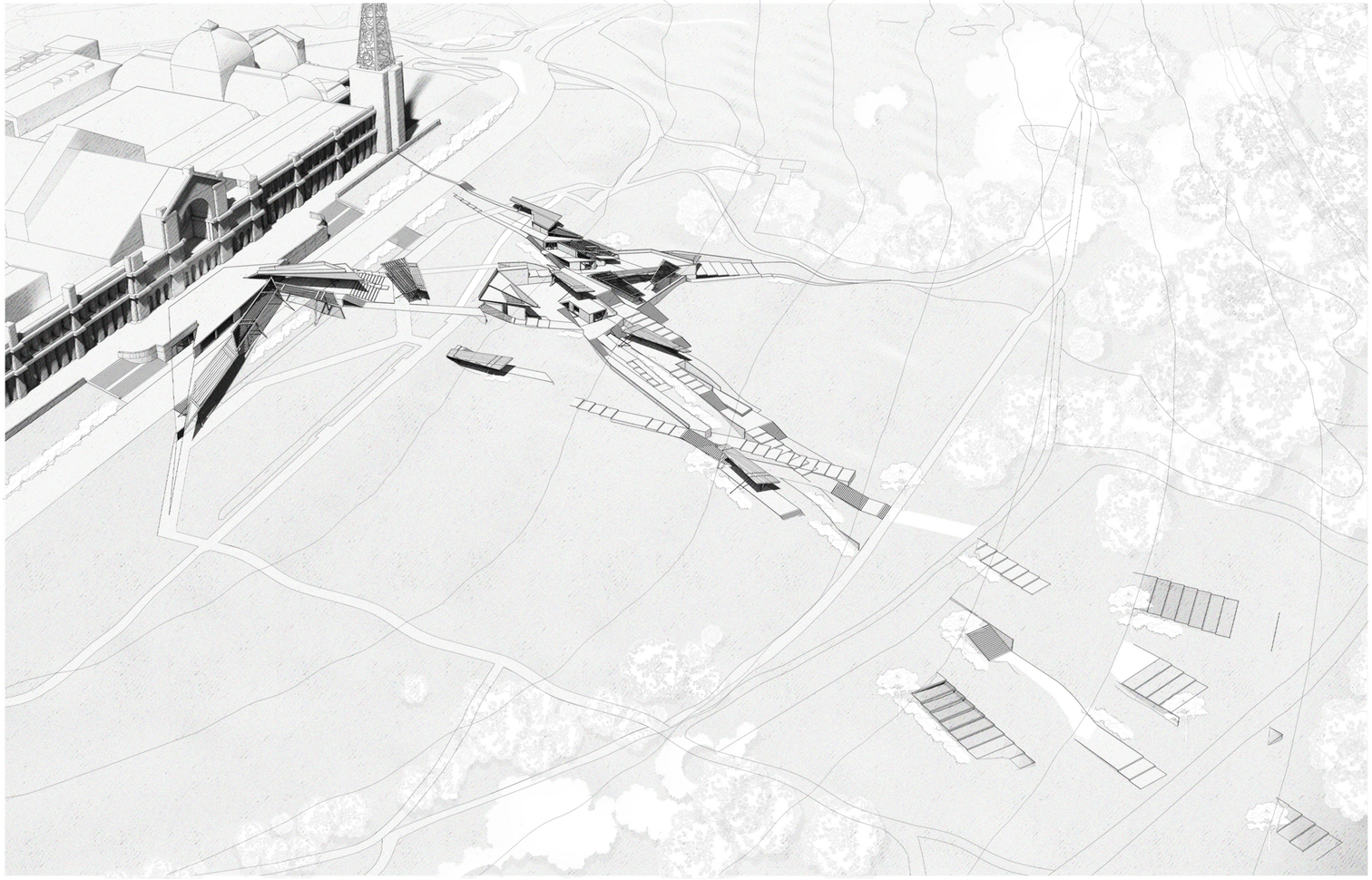


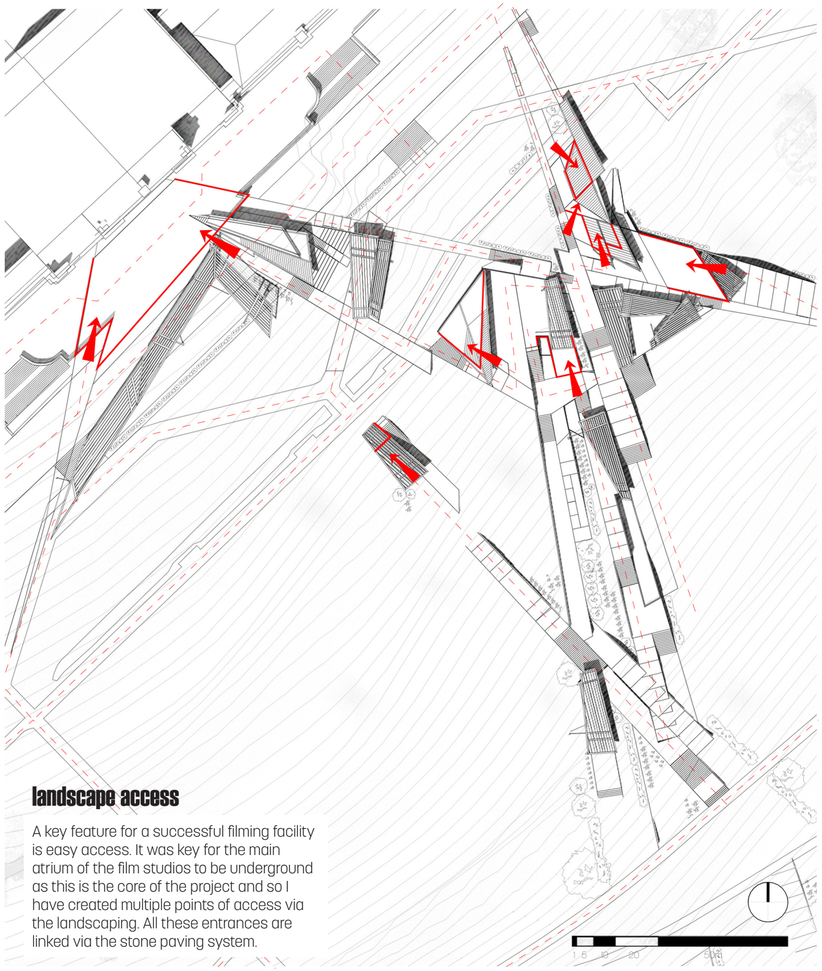






Picturesque composition.





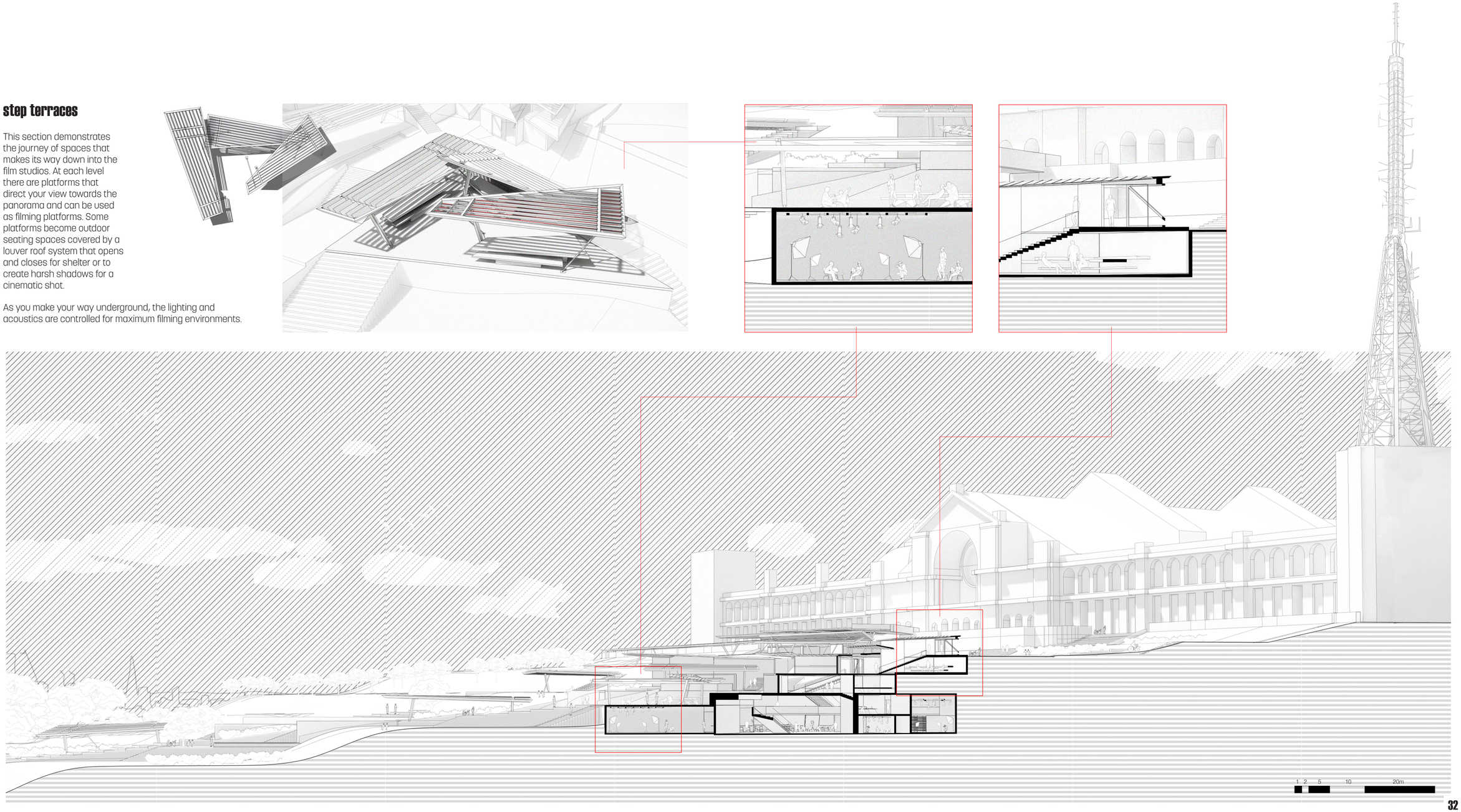
landscape access

A key feature for a successful filming facility is easy access. It was key for the main atrium of the film studios to be underground as this is the core of the project and so I have created multiple points of access via the landscaping. All these entrances are linked via the stone paving system.

step terraces

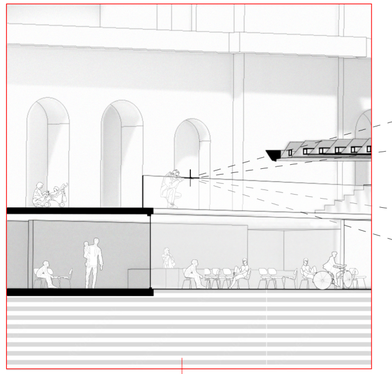
This section demonstrates the journey of spaces that makes its way down into the film studios. At each level there are platforms that direct your view towards the panorama and can be used as filming platforms. Some platforms become outdoor seating spaces covered by a louver roof system that opens and closes for shelter or to create harsh shadows for a cinematic shot.

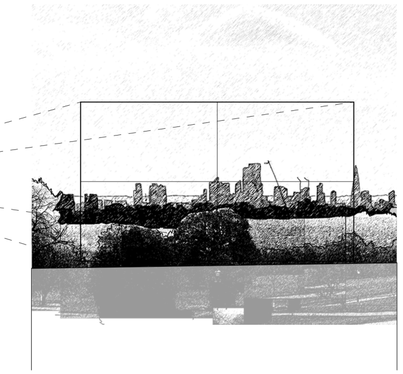
As you make your way underground, the lighting and acoustics are controlled for maximum filming environments.

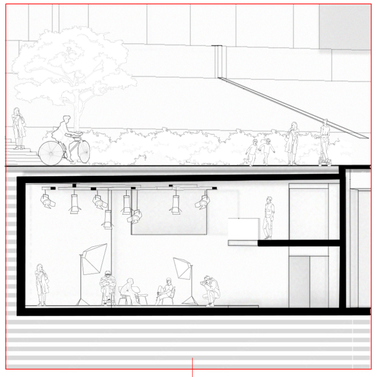


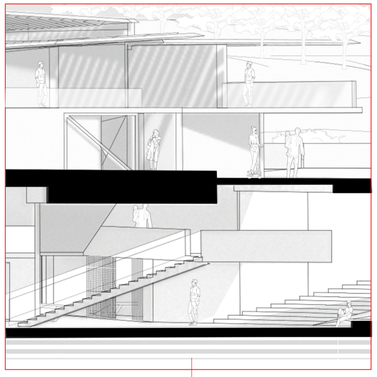
I have utilised the Alexandra Palace terrace as an opportunity for a community space to enjoy the views over the panorama. This is the highest point of the project and has main access roads running past. Due to this being a main access road, I have altered the road layout to make it pedestrianised so the space can extend slightly into the road and can facilitate part of the road as outdoor seating space.

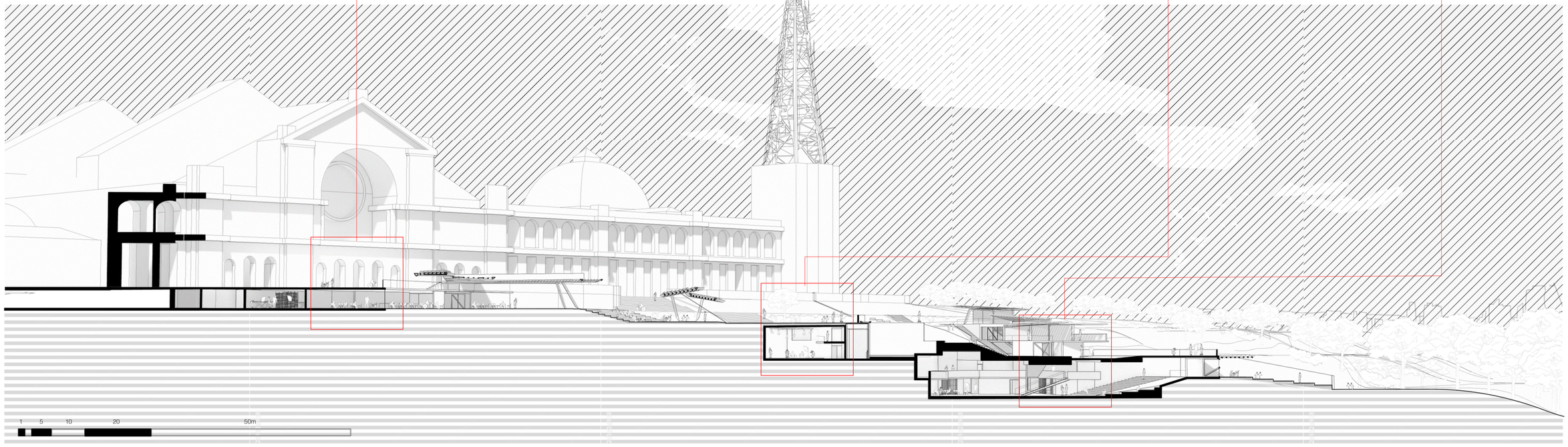
As the section demonstrates, there is a terrace system that allows for linked indoor and outdoor spaces to be accessed from multiple levels. This terrace system is built into the landscape to maintain the views over the panorama without disturbance.





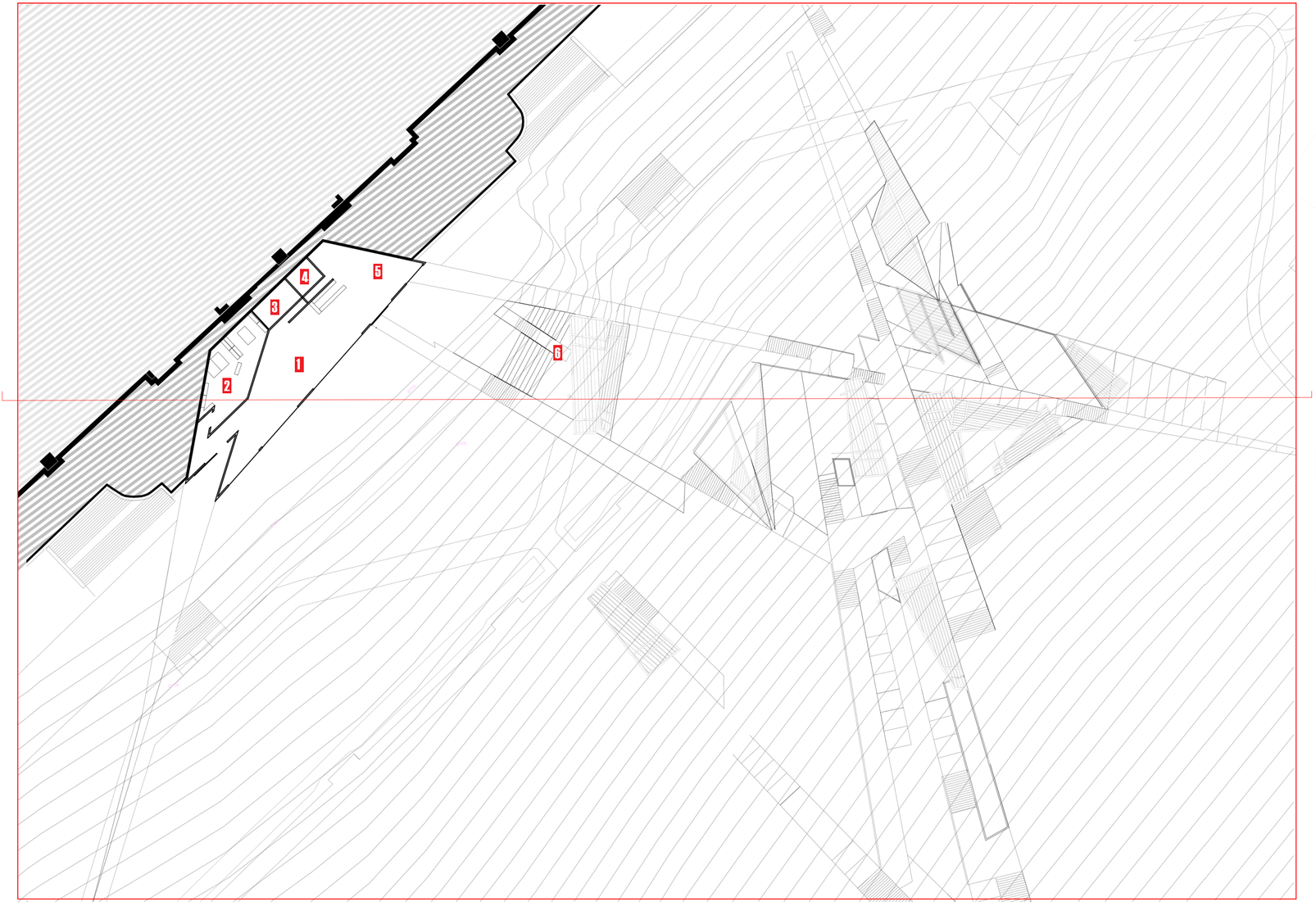






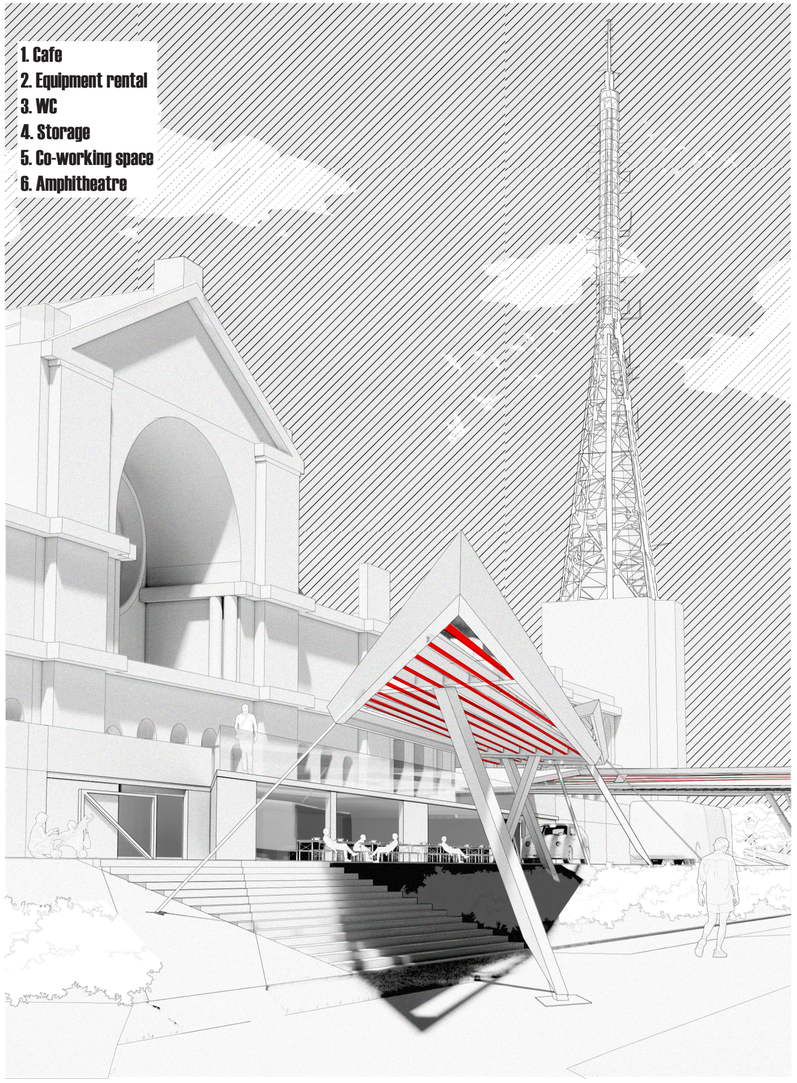
[section bb]

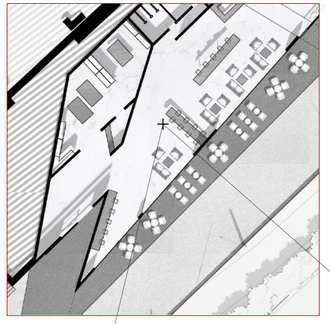
[first floor plan]



1 5 10 20m

1. Cafe
2. Equipment rental
3. WC
4. Storage
5. Co-working space
6. Amphitheatre





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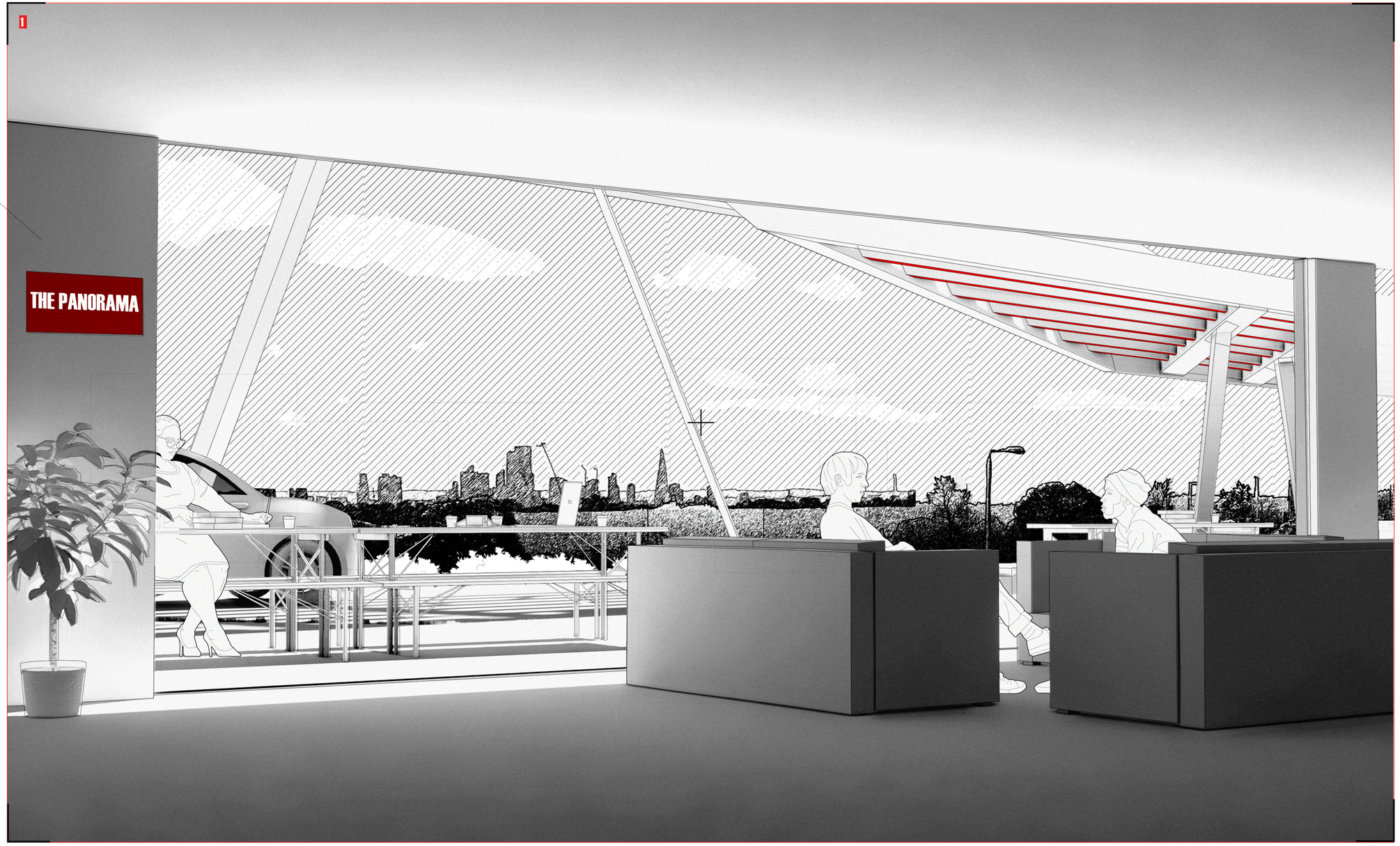
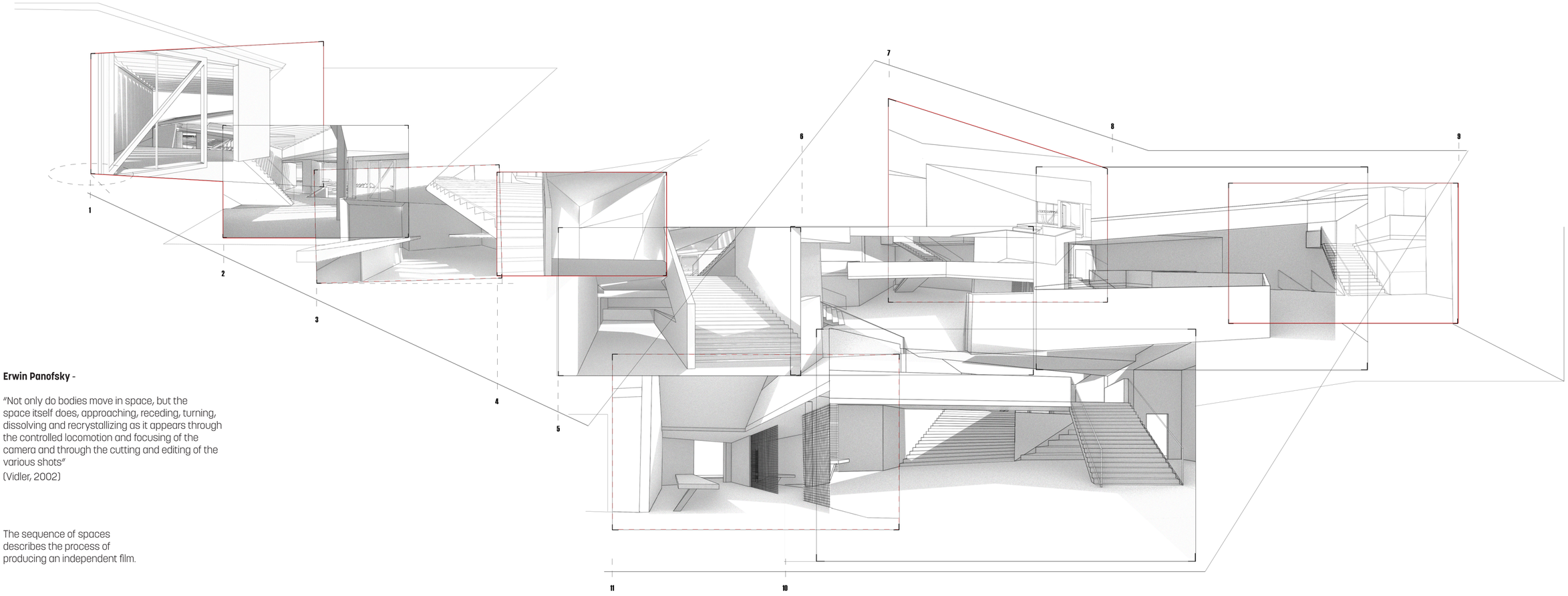


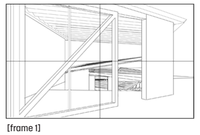
The community space accessible via the Alexandra Palace main road is orientated towards the panorama for key views over the park and city. Located here is a café, film equipment rental, storage and co-working space with a pedestrianised road for outdoor seating.



Erwin Panofsky -

"Not only do bodies move in space, but the space itself does, approaching, receding, turning, dissolving and recrystallizing as it appears through the controlled locomotion and focusing of the camera and through the cutting and editing of the various shots"
(Vidler, 2002)

The sequence of spaces describes the process of producing an independent film.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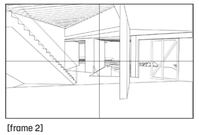
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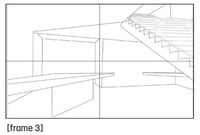
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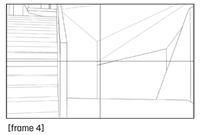
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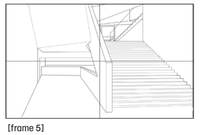
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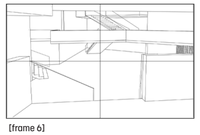
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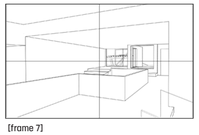
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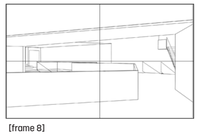
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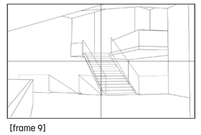
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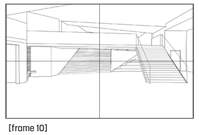
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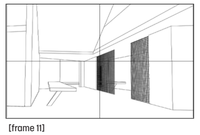
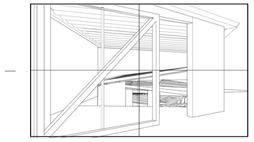

[frame 11]

[ground floor plan]

1 5 10 20m

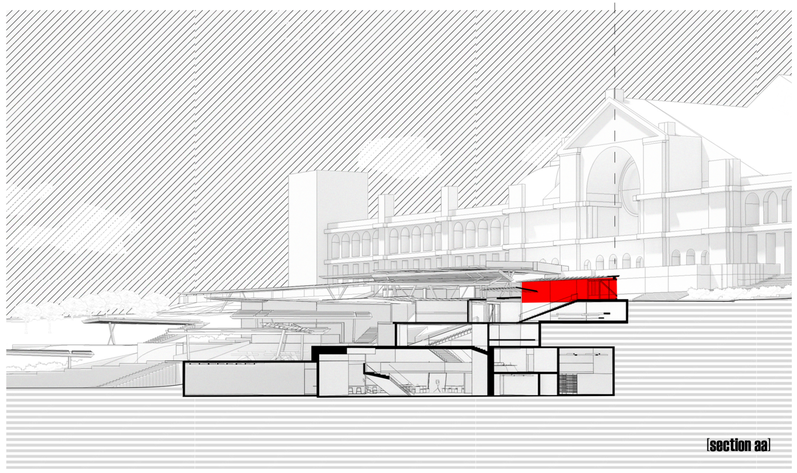
6. Amphitheatre

[frame 1]



Bernard Tschumi -

"The question becomes whether one can organise architectural drawings as a movement sequence" (Tschumi, 2012)



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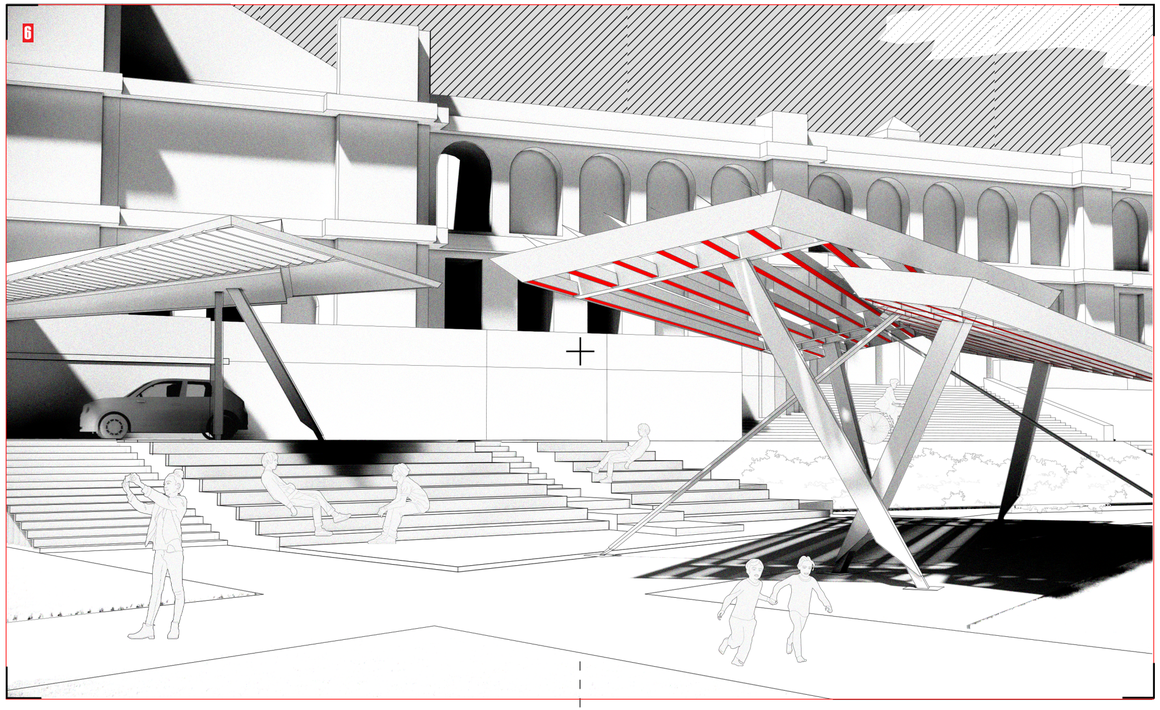
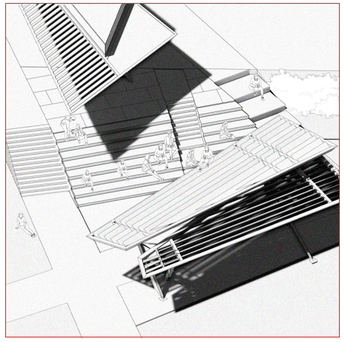
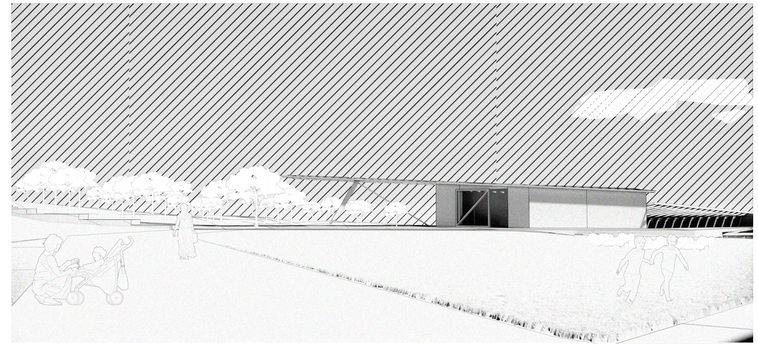
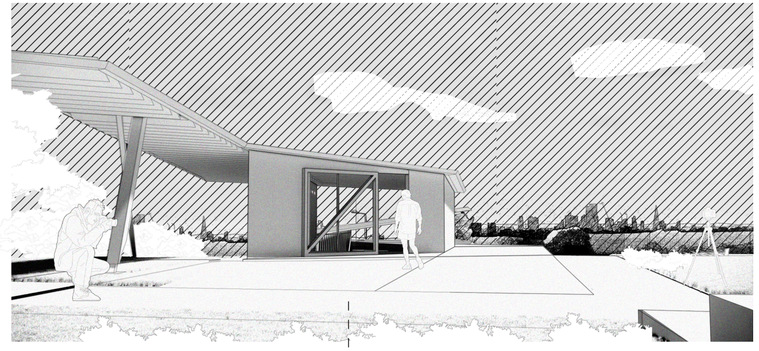






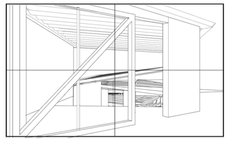


My proposal aims to facilitate every stage of the independent film making production process. This process ends with a film festival where people gather to view the final films with the hope of receiving funds and publicity.

STEP 8
Market at film festival

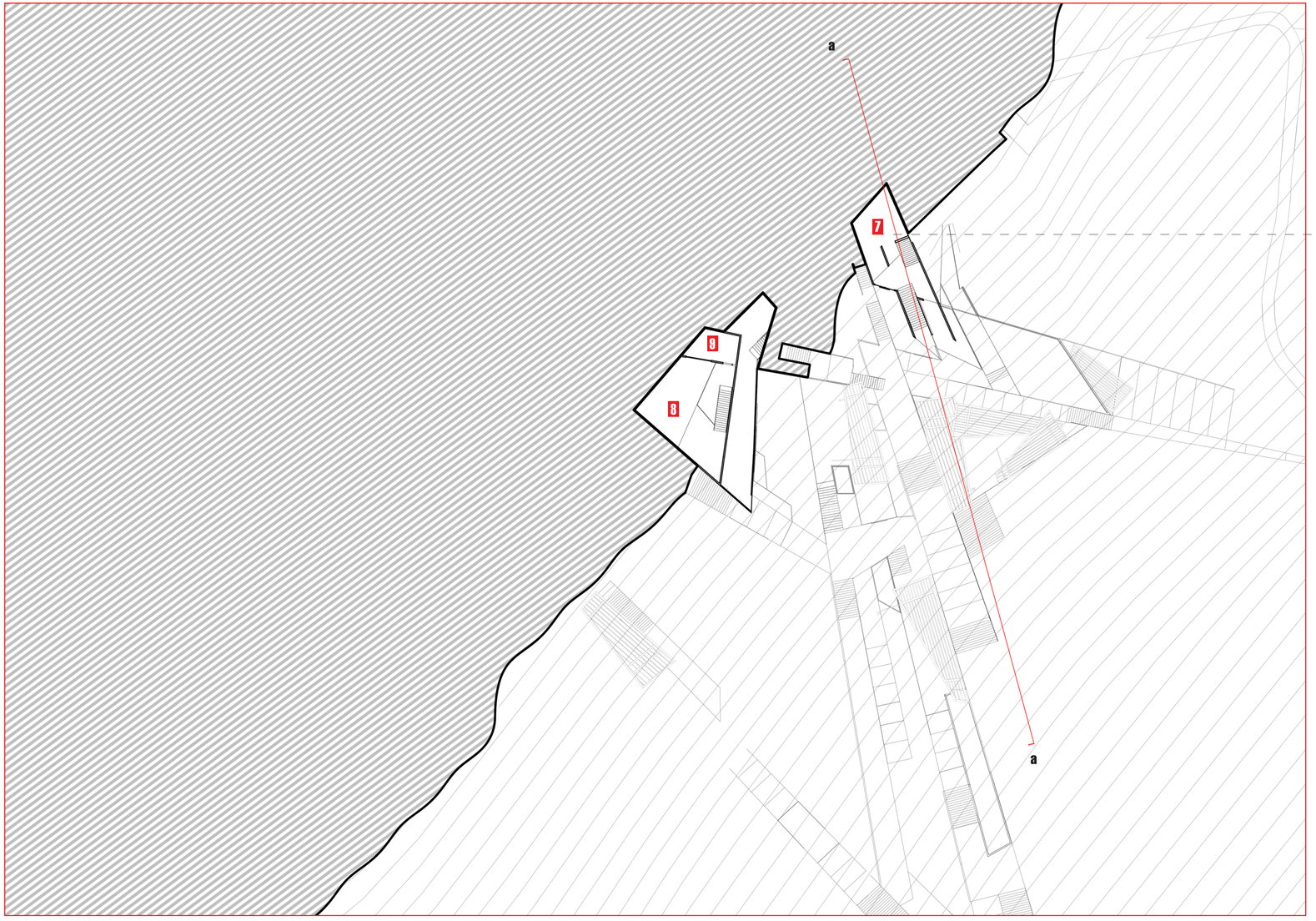
The film festivals will take place at the outdoor amphitheatre. During the day, the amphitheatre becomes a seating space and a feature of the park. During a film festival, a projector can be installed and projected onto a screen that drops down from the roof structure.

begin sequence



[frame 1]

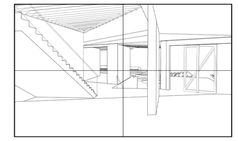
[basement 1 floor plan]

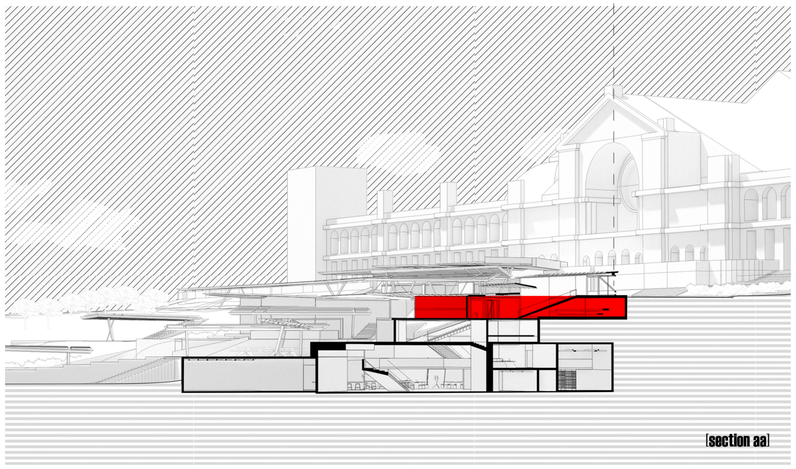


1 5 10 20m

7. Co-working space
8. Film studio 1
9. Post-production office

[frame 2]





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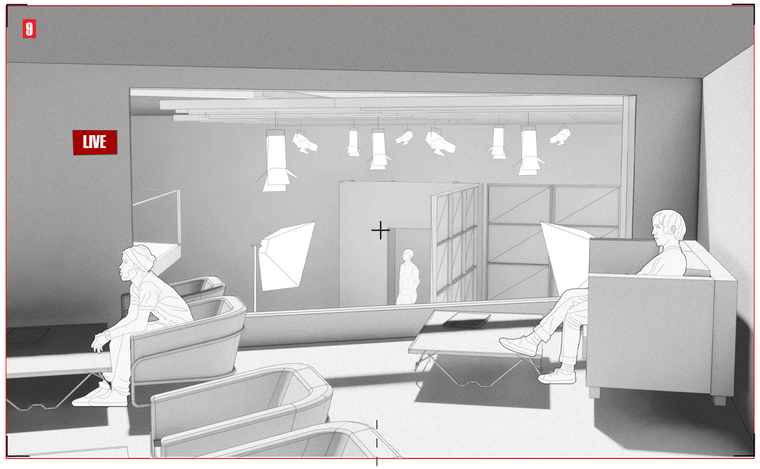

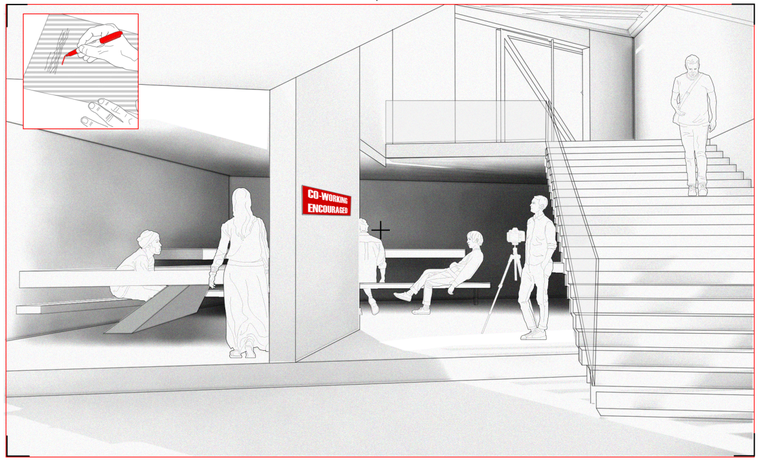

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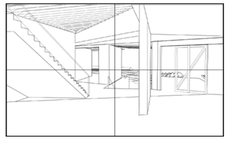
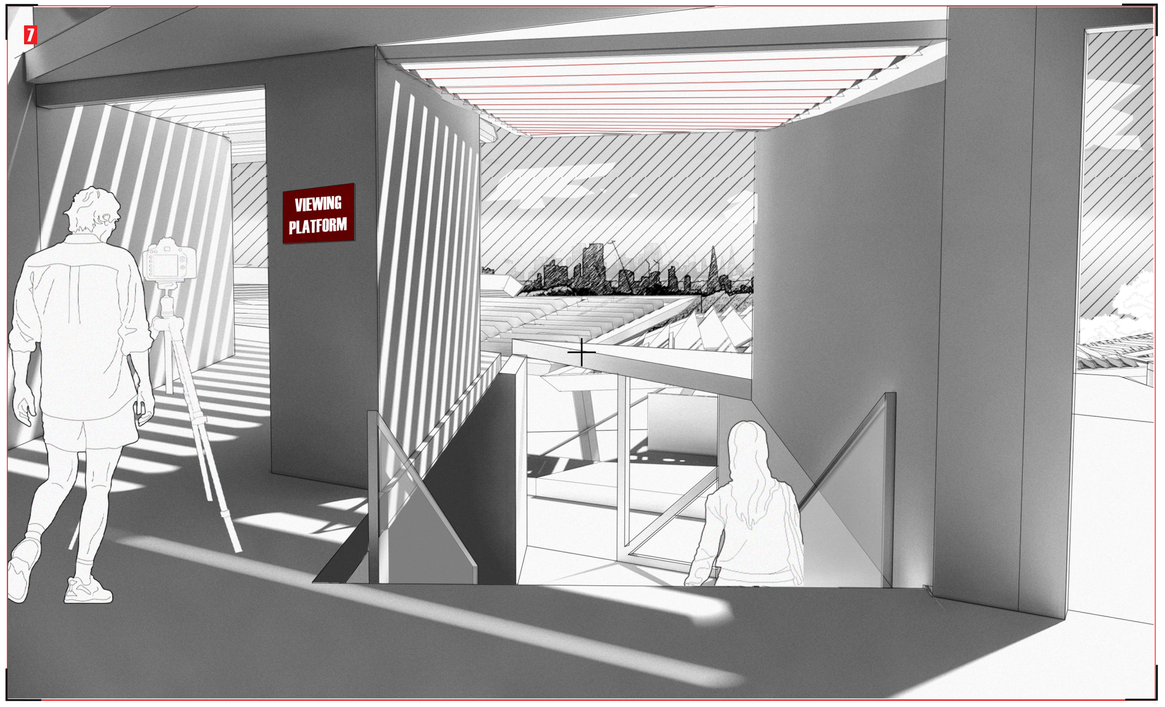


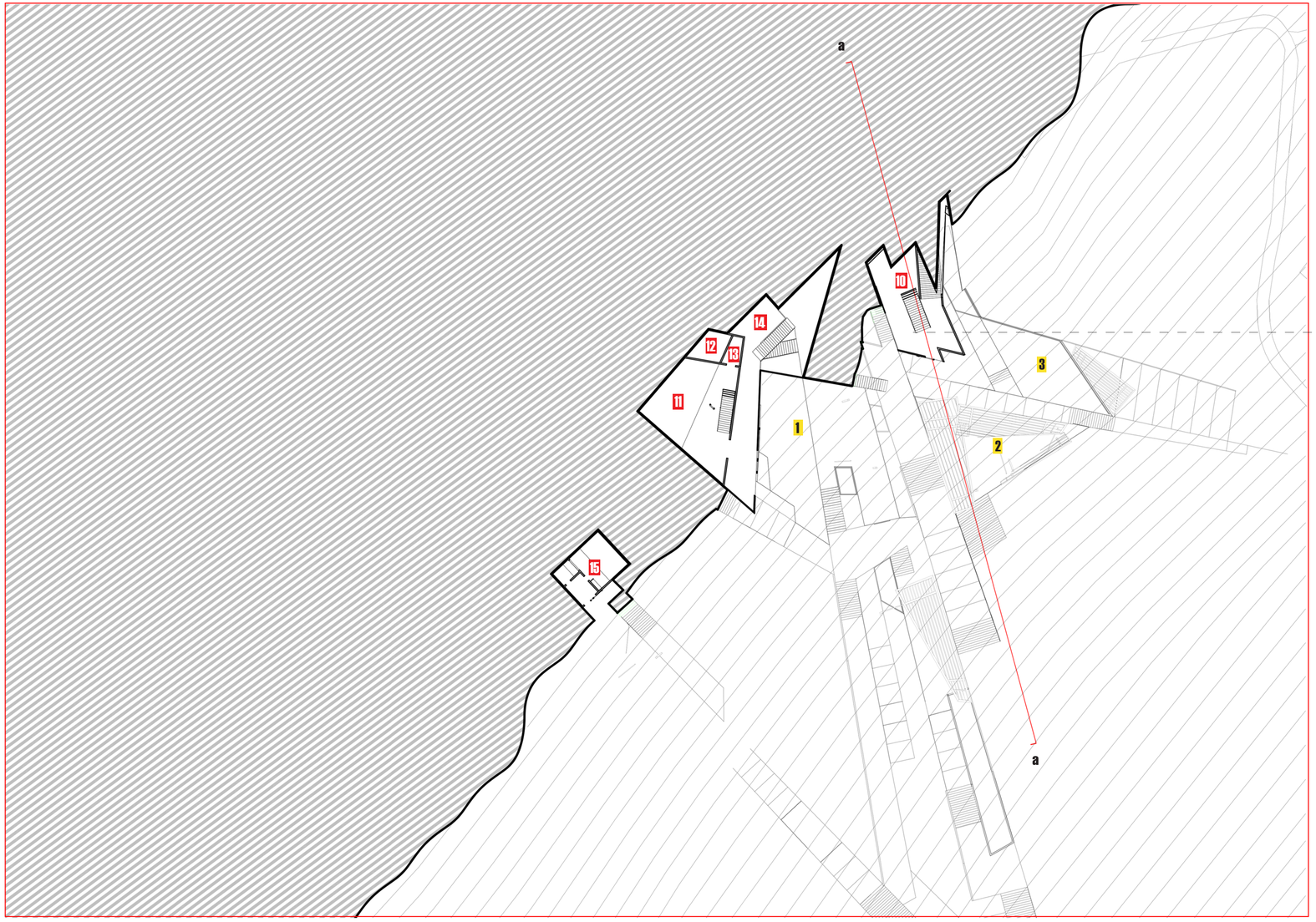
co-working

STEP 1 & 2
Write script
Budget

The sequence of spaces begins with co-working spaces where script writing and budgeting can take place. These spaces extend out and directs your view towards the panorama.



[basement 2 floor plan]



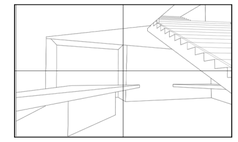
1 5 10 20m

10. Co-working space
11. Film studio 1
12. Office
13. Storage
14. Co-working space
15. Audio studio

Outdoor

1. Filming platform
2. Filming platform
3. Filming platform

[frame 3]



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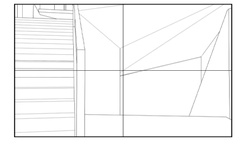

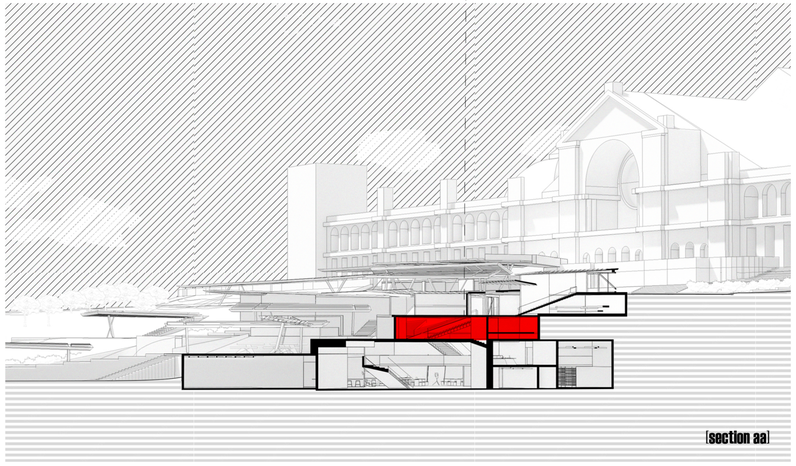

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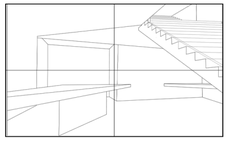

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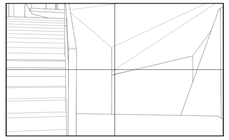
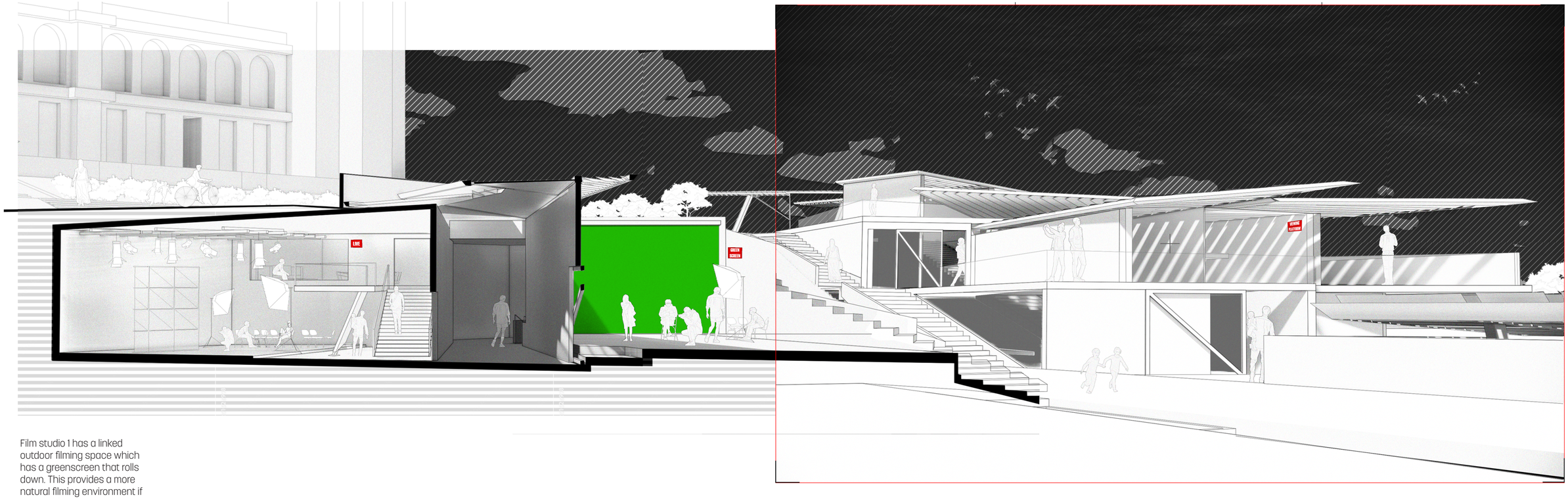


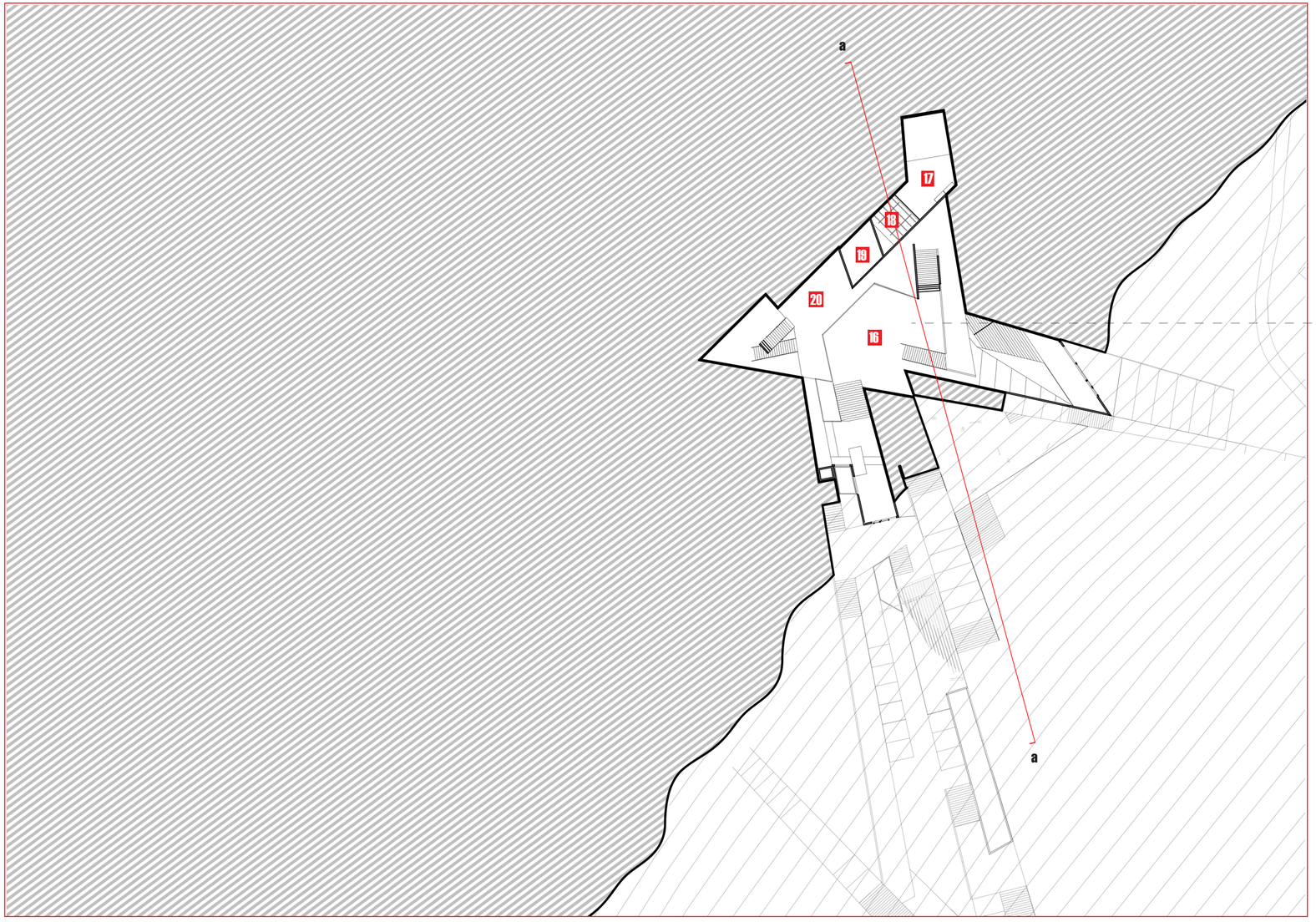
STEP 1 & 2
Write script
Budget

co-working



Film studio 1 has a linked outdoor filming space which has a greenscreen that rolls down. This provides a more natural filming environment if required for a scene.

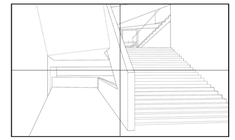
[basement 3 floor plan]



1 5 10 20m

16. Atrium
17. Film studio 2
18. Film studio 3
19. Post-production office
20. Co-working space

[frame 5]



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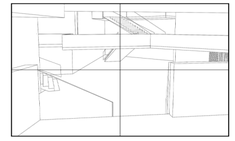

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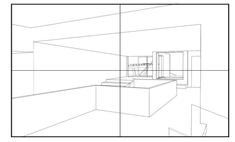

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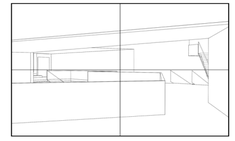

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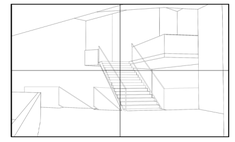
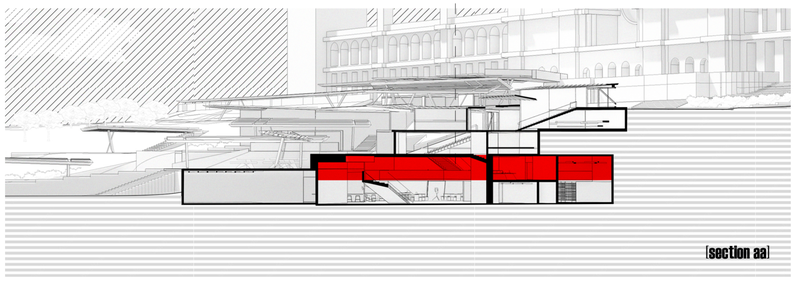
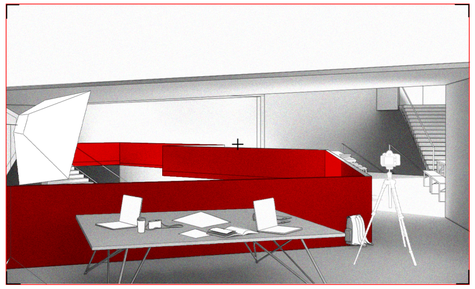




[section aa]

studio hub

As you make your way down into basement 3, you enter the main atrium with an access route that wraps around and peers into the lower space. Here are a series of co working spaces and private post production offices. This atrium has multiple points of access from upper and lower levels and acts as the core hub for the studios.



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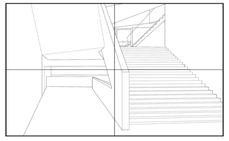

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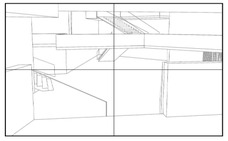

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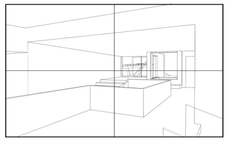

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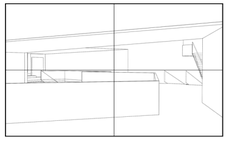

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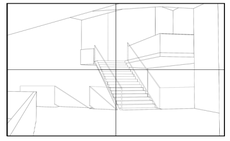
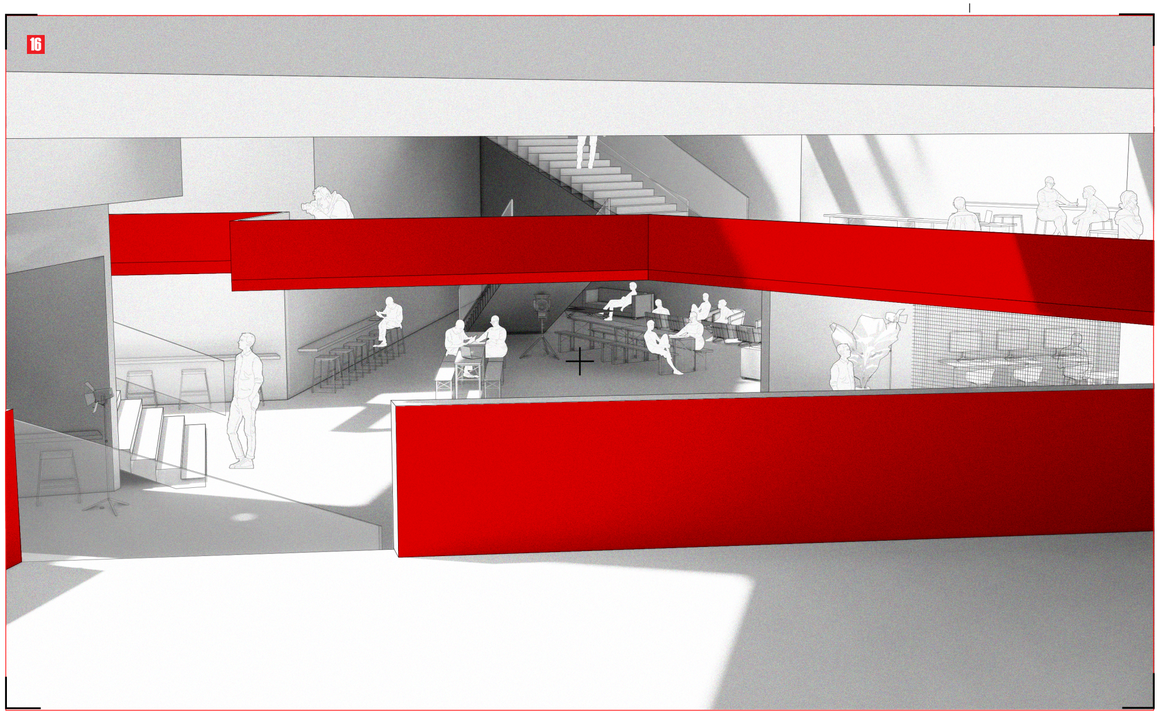
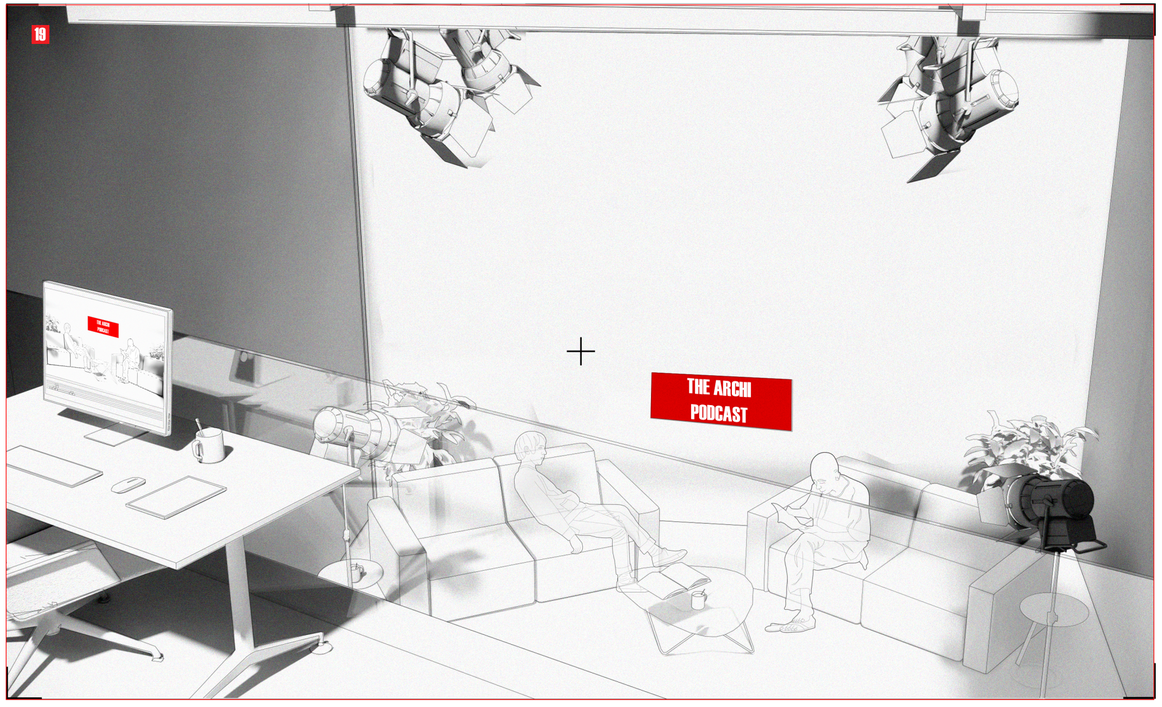


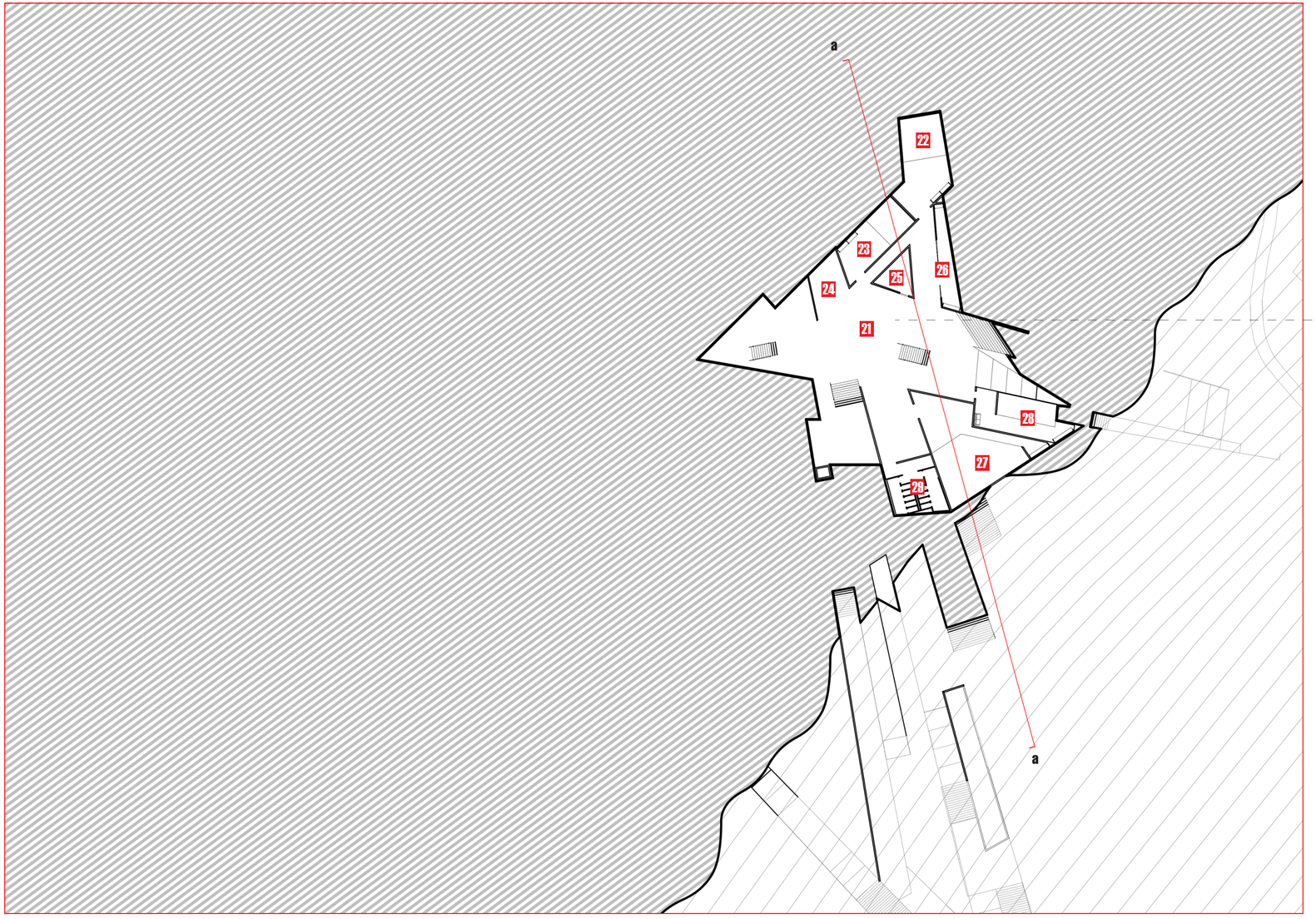
co-working

STEP 3, 4 & 5
Hire crew
Get your cast
Prep shoot days





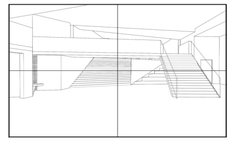
[basement 4 floor plan]



1 5 10 20m

21. Co-working atrium
22. Film studio 2
23. Film studio 3
24. Post-production office
25. Audio studio
26. Storage
27. Film studio 4
28. Green screen studio
29. WC

[frame 10]



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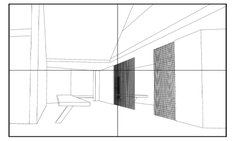
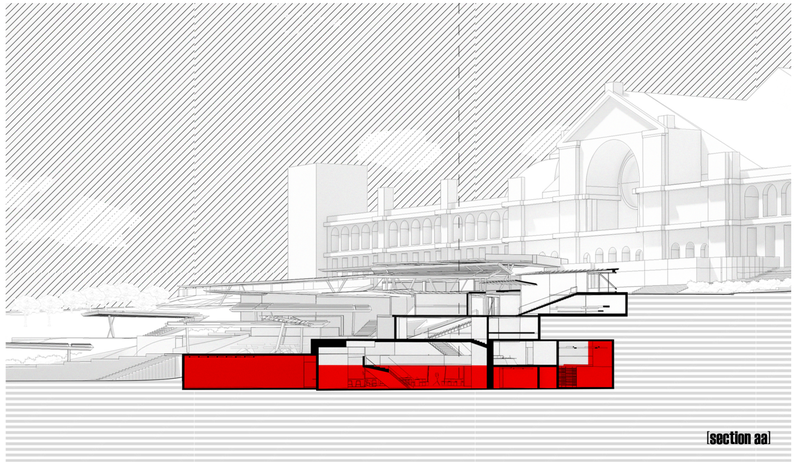


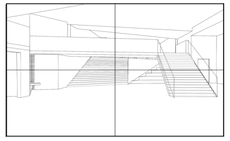


[section aa]

Leading off the atrium at basement 4 level are 3 film studios and a green screen studio. All are double height and have maximum lighting and acoustic environments due to them being fully enclosed underground. After shooting and editing, the independent films can then be displayed at a film festival event at the outdoor amphitheatre.

STEP 6 & 7
Shoot
Post-production

[frame 10]



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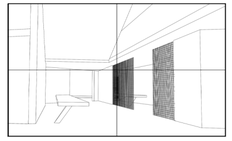
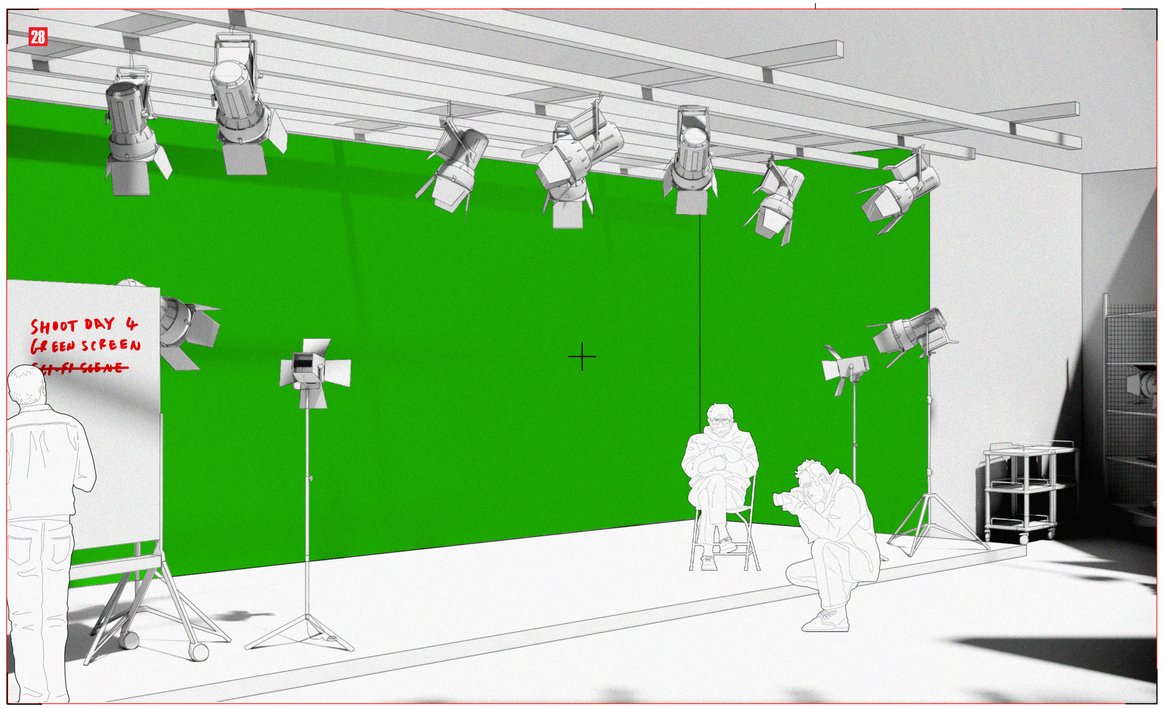
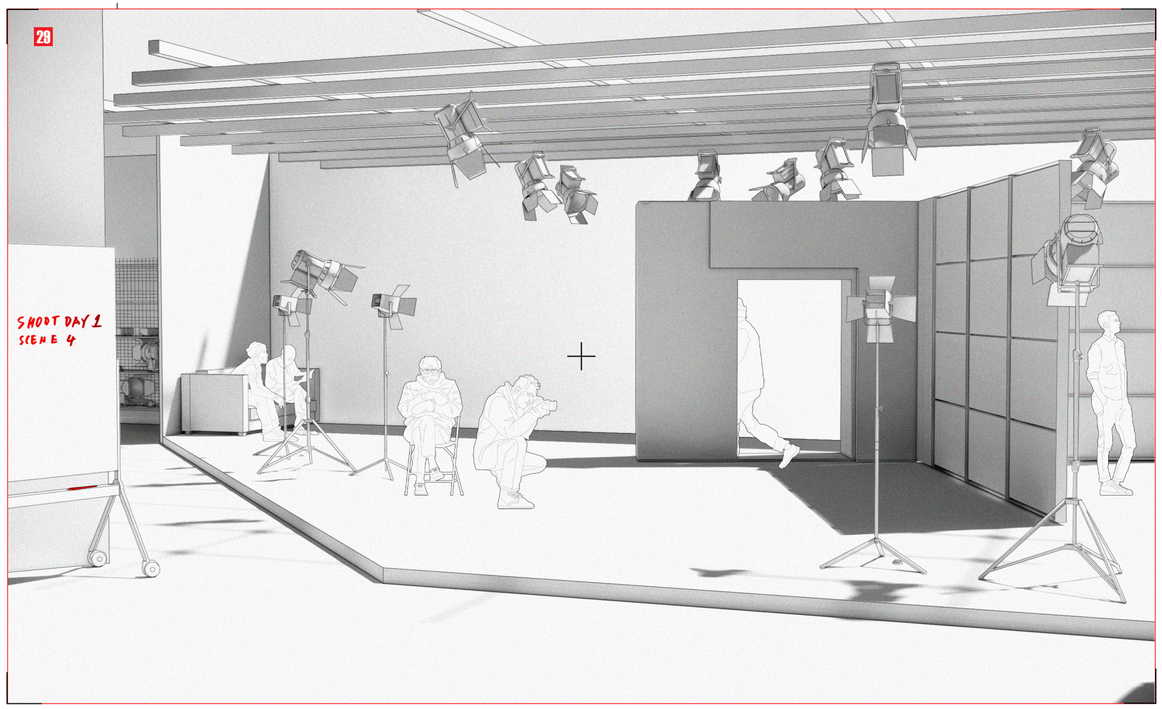
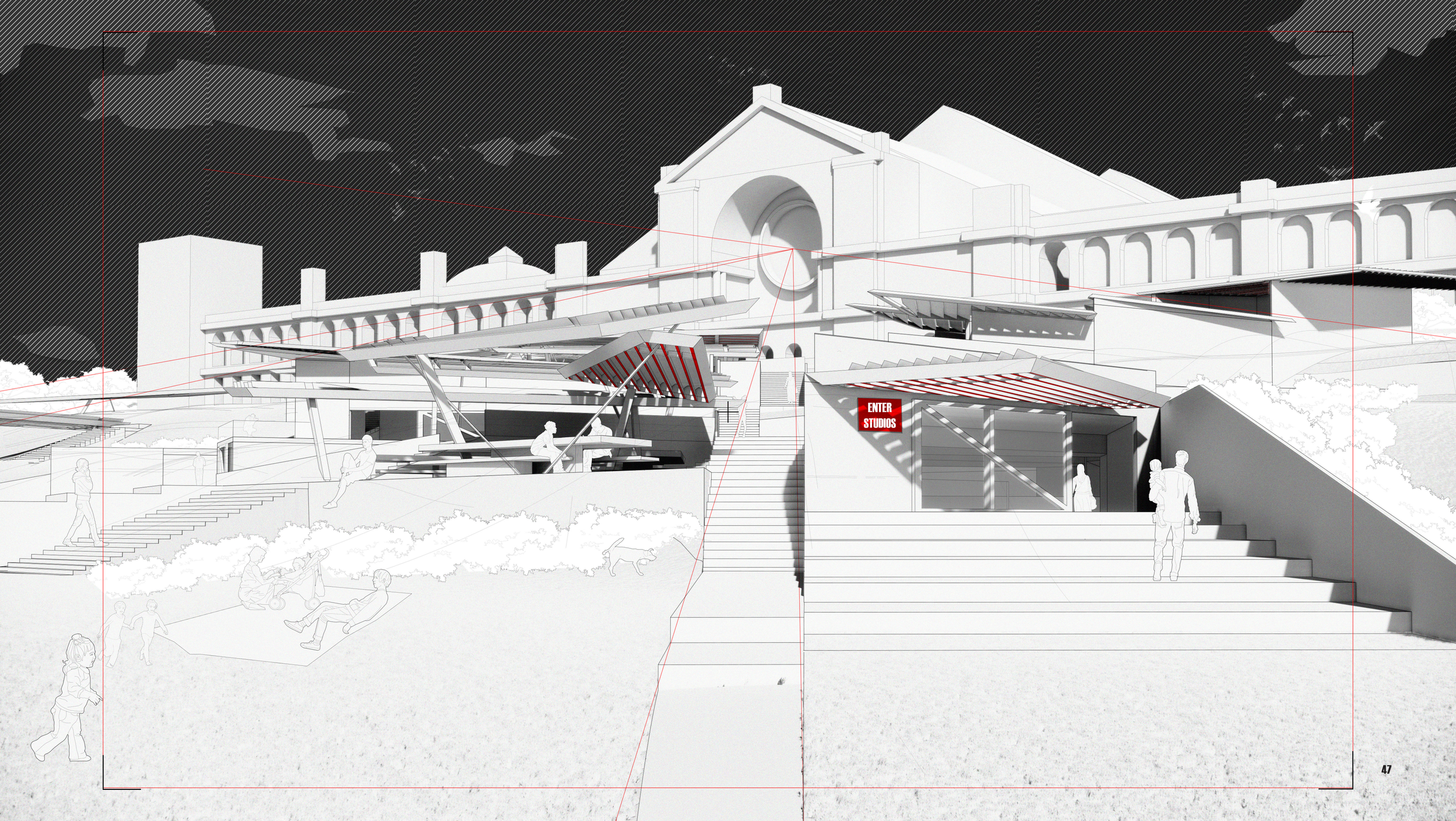
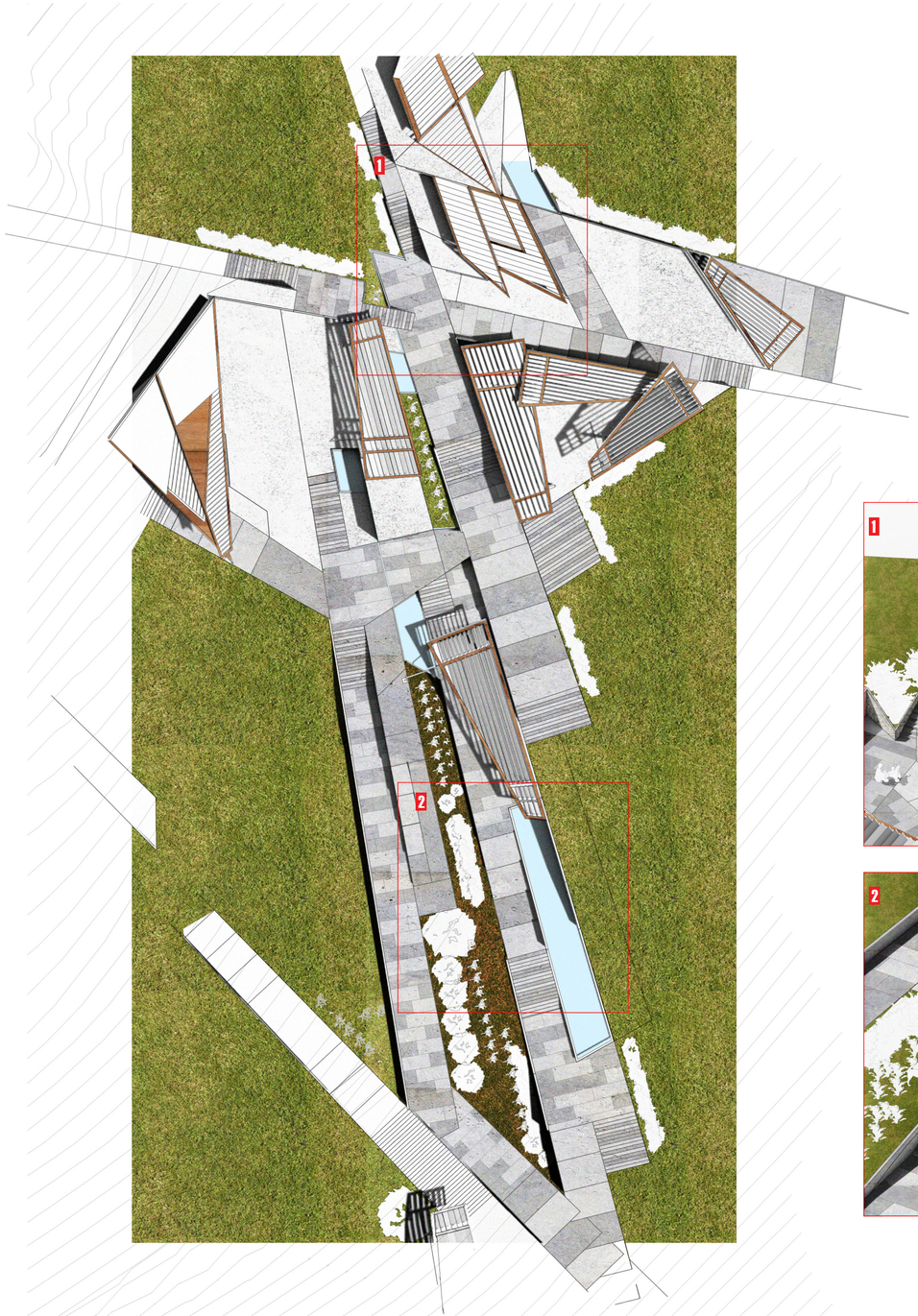




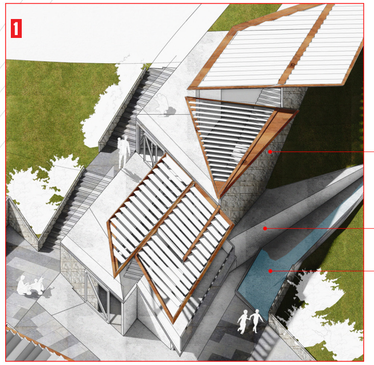



ENTER
STUDIOS



materiality

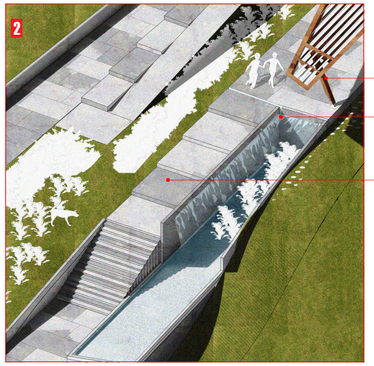
I have chosen stone to be the dominant material in the project as it is a natural material that compliments the stone of Alexandra Palace and responds to the landscape of the park. Coarse stone will be used as the building extends out of the landscape and elements that sit above the landscape will be white stone. Stone paving and stairs create pockets for planting, seating and pools of water that collects water that drains down the slope of the landscape.



Coarse stone

White stone

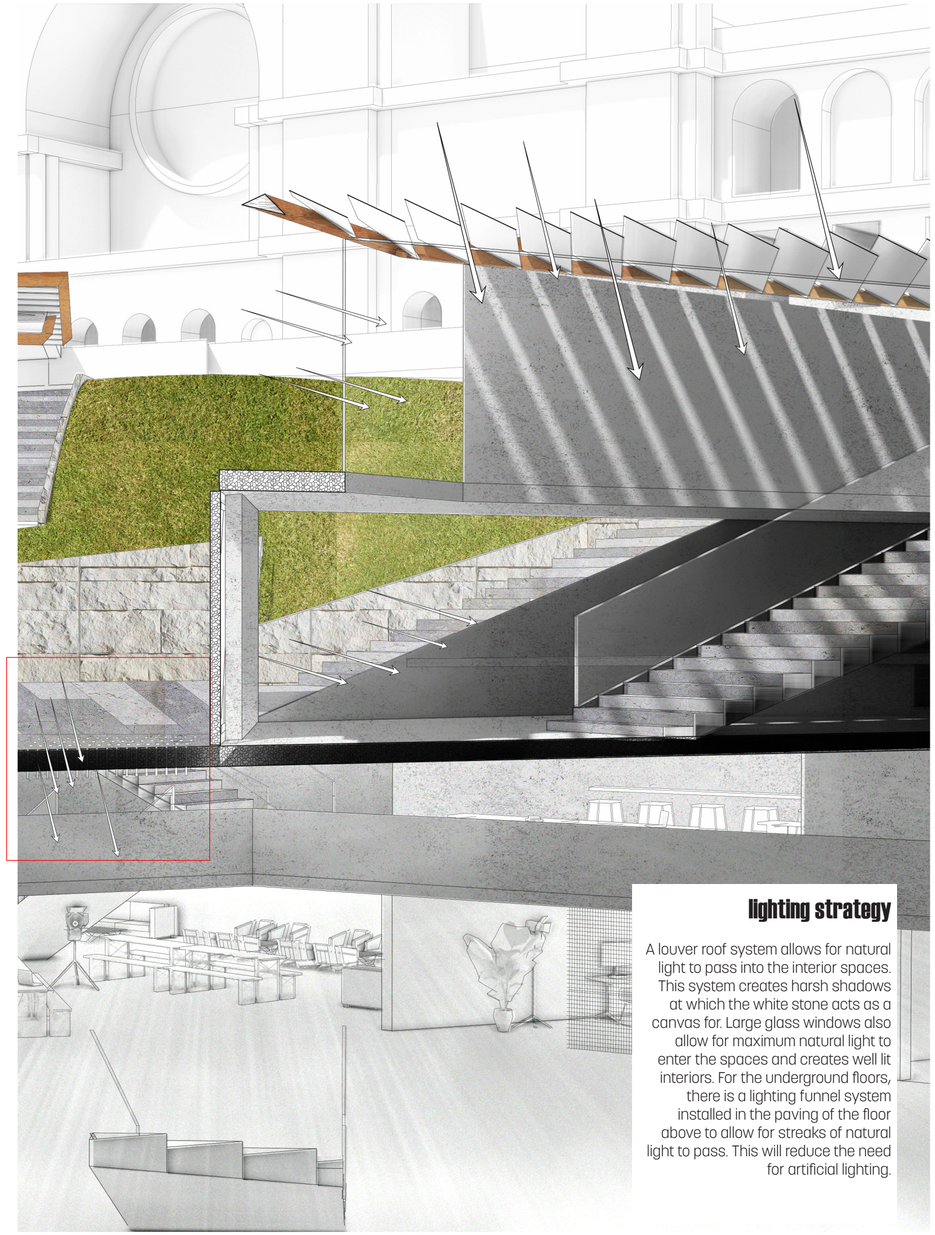
Water pool collecting rain water running down the park slope.



Glulam timber

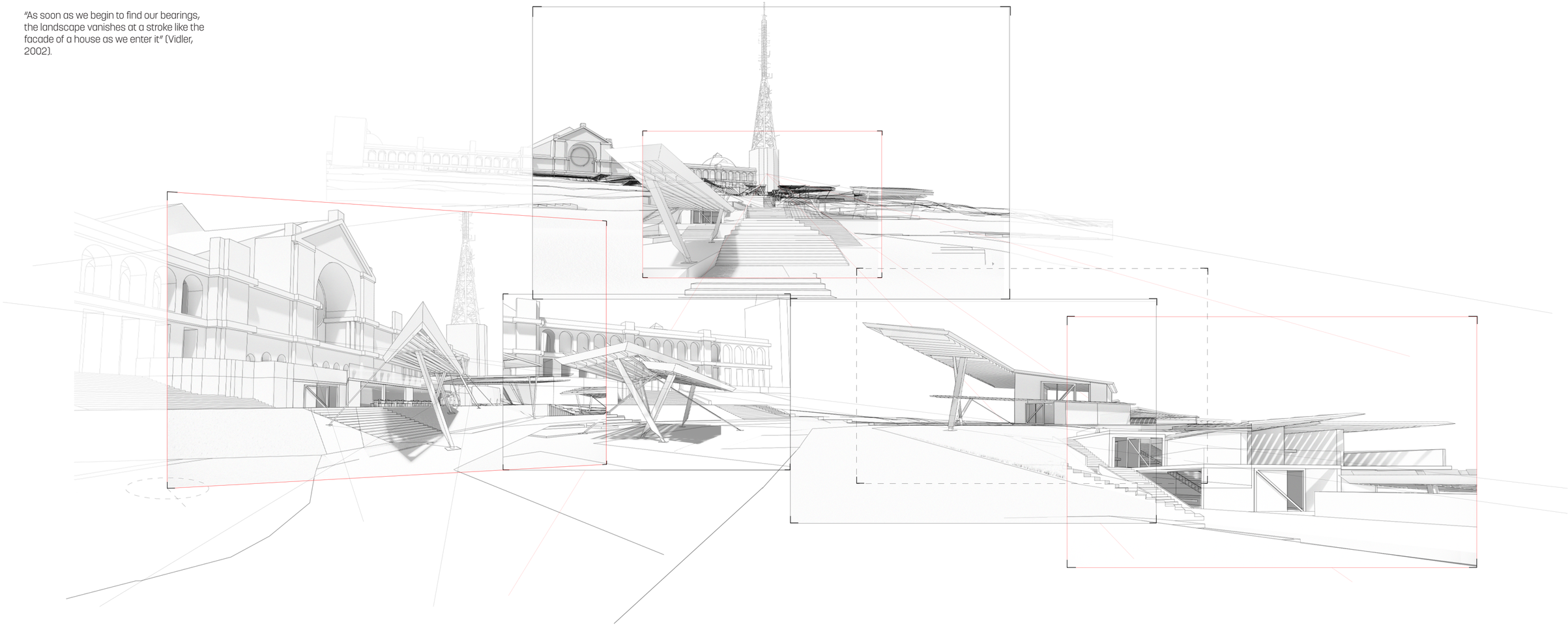
Water pool collecting rain water running down the park slope.

Stone paving



lighting strategy

A louver roof system allows for natural light to pass into the interior spaces. This system creates harsh shadows at which the white stone acts as a canvas for. Large glass windows also allow for maximum natural light to enter the spaces and creates well lit interiors. For the underground floors, there is a lighting funnel system installed in the paving of the floor above to allow for streaks of natural light to pass. This will reduce the need for artificial lighting.

Walter Benjamin -

"As soon as we begin to find our bearings, the landscape vanishes at a stroke like the facade of a house as we enter it" (Vidler, 2002).