

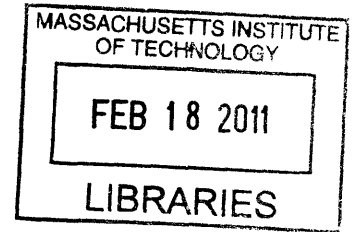
FUTURE OF THE PAST:

Augmented History, Preservation as a Catalyst for Transformation

by

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B.A.S., Architectural Studies (2006)
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ARCHIVES

Submitted to the Department of Architecture
in Partial Fulfillment of the Requirements for the Degree of

Masters of Architecture at the
Massachusetts Institute of Technology

February, 2011

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Augmented History,
Preservation as a Catalyst for Transformation

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Submitted to the Department of Architecture
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ABSTRACT

Preservation today focuses on the historicizing of events, and the objectifying of these historic artifacts, taking away its ability for further change. It becomes a single artifact, distancing itself from contemporary discourses. This thesis is about preservation, and the role of architecture in preserving historic sites. It is a thesis where its main objective is not of the final project, or artifact, but one which provokes a discourse, where we are confronted with the core meaning of preservation. This field of preservation has existed for

thousands of years, but we have not truly re-exam- page 7
ined the role of preservation. Preserving must mean
more than just to sanction off the site, killing any fur-
ther transformation, but to allow it to partake in the
contemporary discourse, and to give it a future. There
are many questions at hand; why do we preserve?
What do we preserve? How do we preserve? But in
the end, how can preservation become a catalyst for
further growth, is the question this thesis seeks to
answer through its design. We need to ask the ques-
tions; why do we preserve? What do we preserve?
How do we preserve? In the struggle to find answers
to these questions through architecture, it was in the
discourses which rose from each stand point that gave
this thesis meaning.

Thesis Advisor: Andrew M Scott
Title: Associate Professor of Architecture

ACKNOWLEDGEMENTS

First and foremost, I would I like to thank Andrew page 11

Scott, my advisor, for his patience and dedication to my thesis. It was perhaps an unlikely pairing of advisor and advisee, but it was one I will always cherish. Thank you Andrew, without you, this thesis would not have been what it became.

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To Chai, for always pushing me to want to do better, and for aspiring me to rock it like only you could. I am so lucky to have had you every step of the way. You made me want to be better, in every way possible. Thank you.

To Collin, for being my pillar through it all, for listening to my thesis every night, and for going through every thought, every process and every struggle, and for being the most patient person I have ever known.

To those who helped me into making this thesis possible, I cannot thank you enough. David Quinn, you single handedly made the extraordinary happen

with your genius and your kindness. Thank you for page 13

all your hours and days of help. And Sasa Zivkovic, you always manage to exceed all of my expectations. Thank you for your absolute dedication, I will always be thankful. Alex Hamilton Farley, you were truly a machine! I truly owe you much more than I can ever give back. And to Jessica and Toshi, thank you for your hours of help.

To my sister Sarara, for pushing me to make a thesis that mattered, and for helping me find one that actually had meaning. Thank you for all of your support. I could not have done this without you.

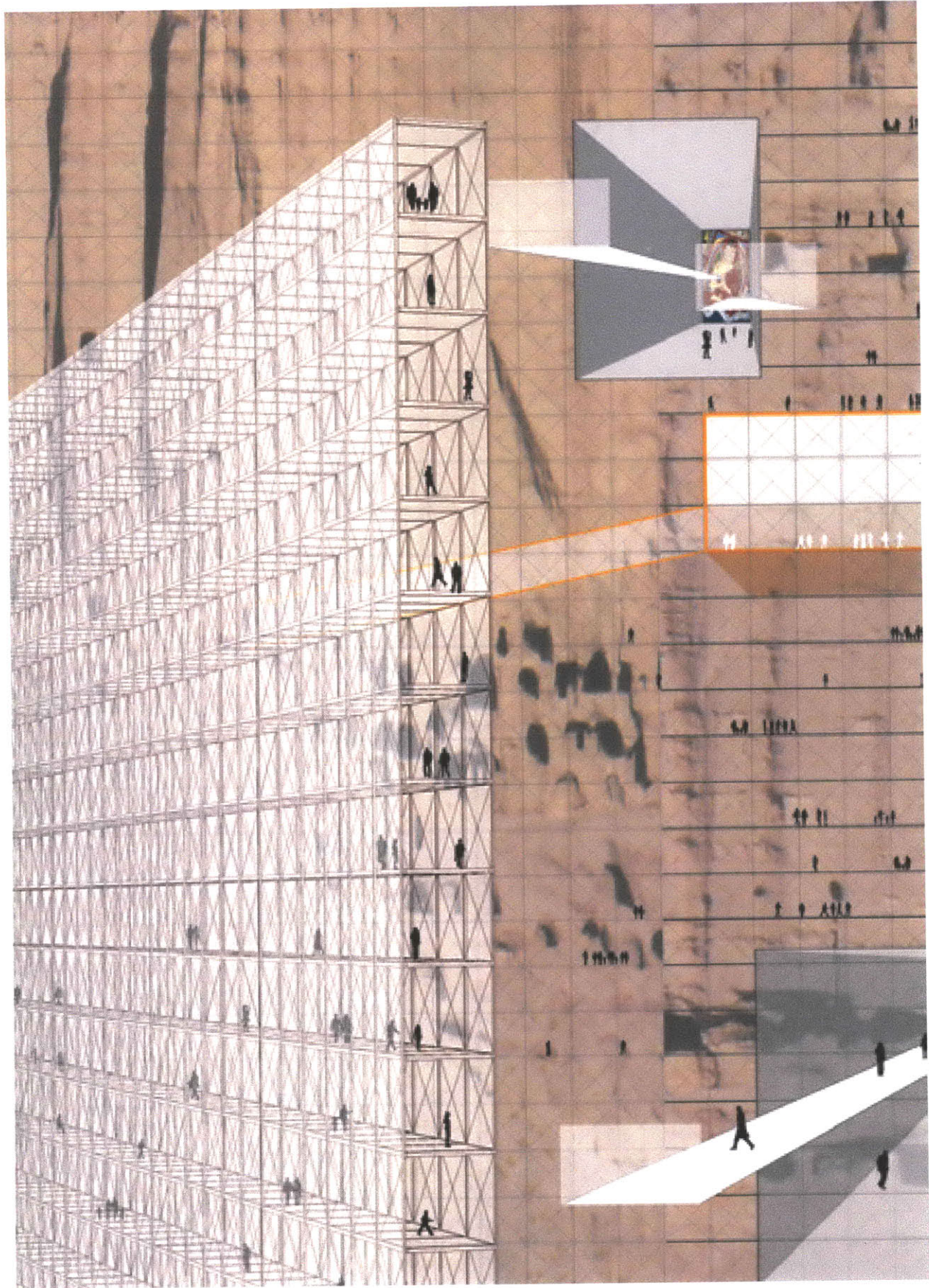
I also want to thank Nader Tehrani and Ana Miljacki for shaping me to who I am today. You have both taught me to love and re-love architecture over and over again. Nader, thank you for all of your support throughout my time here, and for showing me the different ways in which to obsess. Ana, thank you for teaching me how to tell stories, and for pushing me to go beyond my comfort zone. You will both be a part of my life, wherever I may go.

To my parents, I dedicate this to you both. Thank you for supporting me in this phenomenal long journey. None of this would have been possible without you. Thank you for letting me dream that impossible dream. This is for you.

FUTURE OF THE PAST:

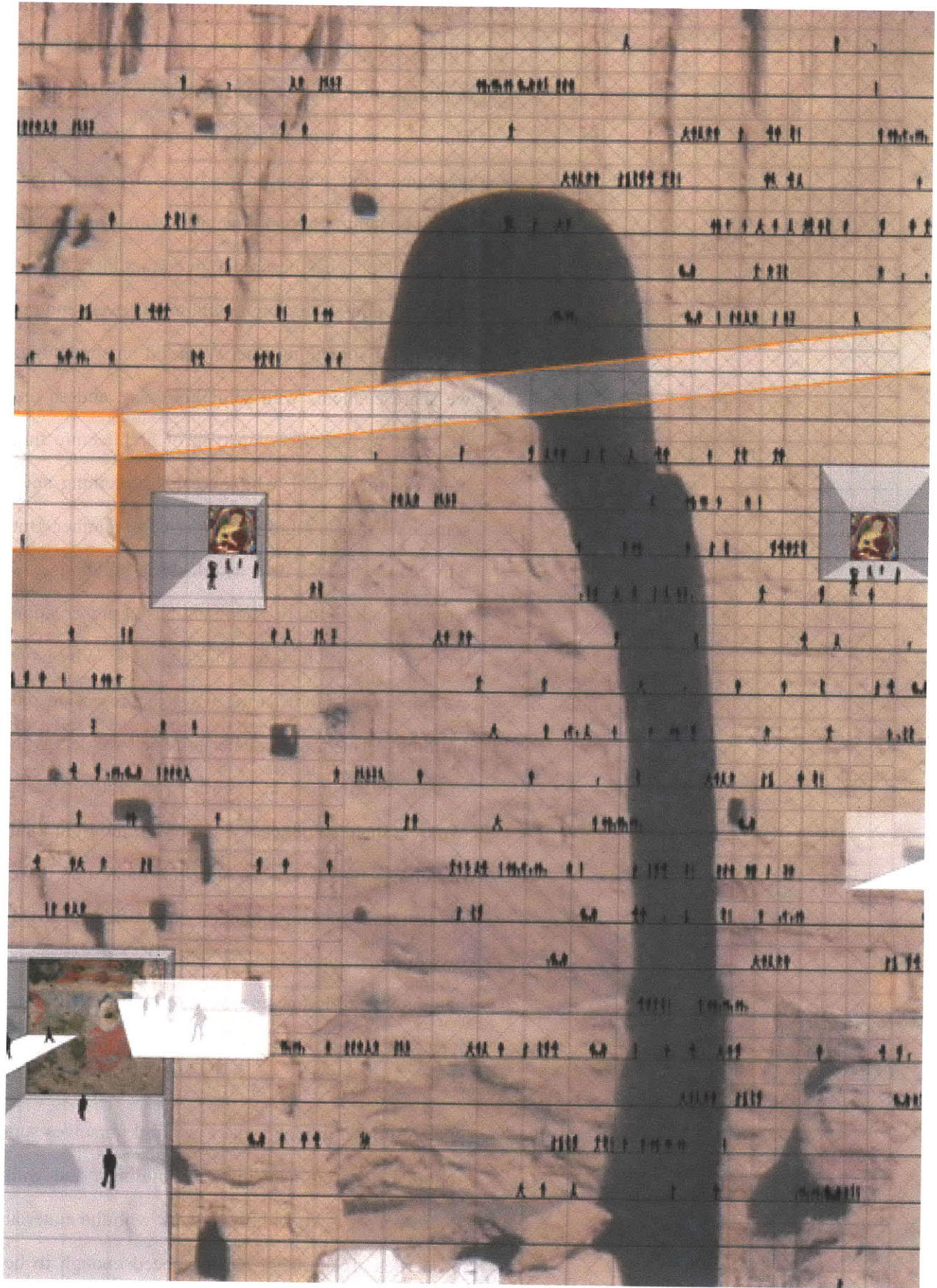
Augmented History,
Preservation as a Catalyst for History

INTRODUCTION



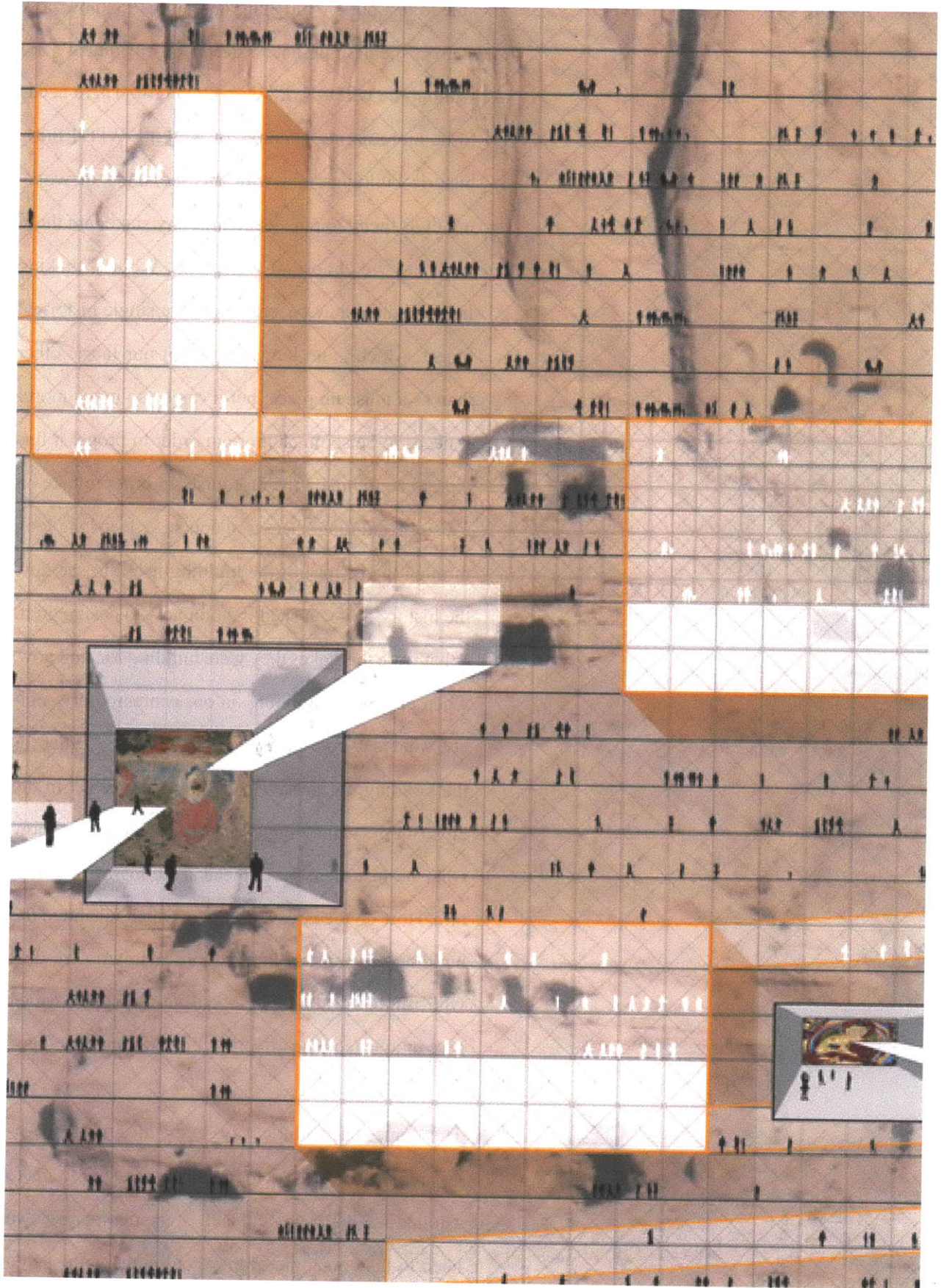
When we look around the field of architecture, and page 19 what is being built today, we see a lot of references to one another, and a lot of borrowed/copied styles. There is so much information we are able to take from magazines, internet and other types of publications, and so contemporary architecture is often referred to as Mash-Up. It has become a given that there are no ingenious new styles coming out today; everything is a hybrid of something else. We build on something; we share elements with something else, and so on, so forth. We see a certain type of architecture that collides into another, which creates something new, something that is a growth from one to another. But why then, when we deal with historic buildings, are we still stuck on the two main notions of preservation and restoration which have not changed? Why have we not started more daring ways of preserving old buildings? This timid manner in which we deal with historic buildings is in a sordid way, killing them. We treat them so delicately, but not in the right kind of delicacy, as if we were scared of them, that if we made the wrong move, history will erase itself. BUT by putting them in vacuum tight glass boxes, aged and ageless all in one, are we not slowly suffocating it as well?

We are now in a place where we find ourselves surrounded by prominent historic buildings, and with the resources to know how to work with the material properties. Technology has advanced enough to be

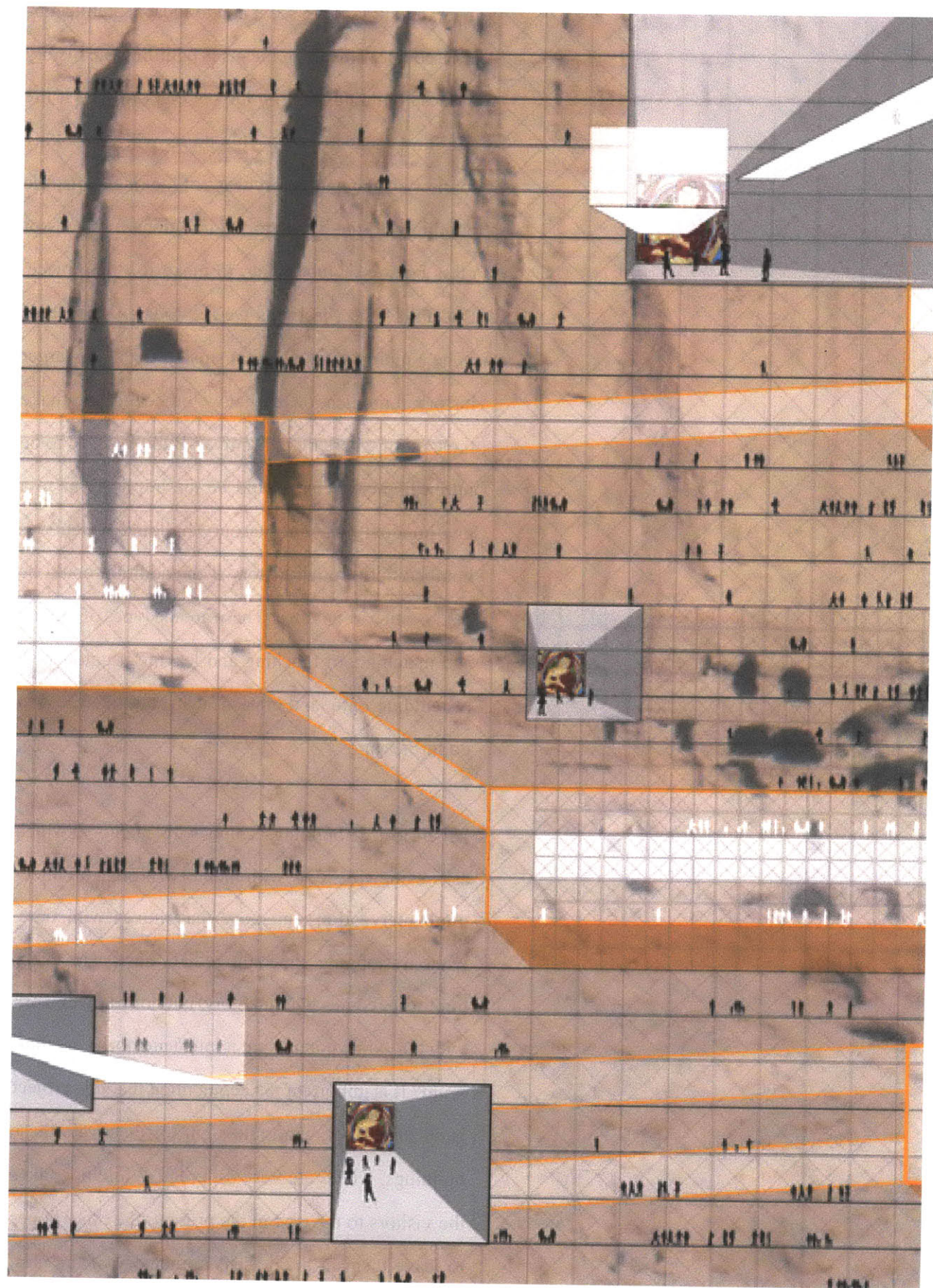


able to test out the old materials, for us to know how page 21
to treat them so as not to destroy them, but we are
without the will to work with them now. There needs
to be more daring attempts of working WITH these
historic buildings, not with this mentality of work-
ing FOR them; to put a contemporary stake into these
buildings we choose to work with. Without making
larger claims, they become merely a single historical
object, which is no longer a part of our fabric other
than as a museum piece; but it can be so much more!
It needs to be so much more in order to propel it fur-
ther, to continue on the discourse. In order to take on
a historic building, there is of course, a deep long look
through the history of the building itself, to see how
the history of it can shed light on how to design on it.
What were the stakes they were building for, and now,
when giving this building, in our contemporary soci-
ety, what is its role? This needs to be there in order for
the building not to have a Disney Land effect in the
city. But the real struggle for such projects is to know
what its historical pasts mean in terms of architec-
ture. How do the power struggles which inhabited the
building give spatial implications? How do we deal
with ruinous walls or bombed out structures which
give unique tectonic effects to the building envelope?

This comes back a little ways to the idea of the mash-
up architecture we see today. If we are able to make
astounding mash-up and call it contemporary, we
need to take on some of these buildings with such a



All historical buildings come with memory, which asks us how to work with memory through architectural interventions; memory that moves with time, without stopping time altogether. Each and every built form comes with memory, but how do you work with this while not making it into a memorial or a museum? It is important to keep in mind that this project is not trying to memorialize but to re-activate these buildings, which are very different. While one takes the visitors to the past in the present, the other hopes to leave them in the present in memory of the past.

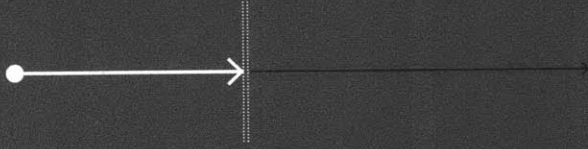


There must be a very delicate balance here that is not page 25 done in a matter of a paragraph or two, but through research of how such spaces are designed, what it means to make one or the other. How you hold on to the essence of the past, while not being enslaved to its every whim? How do you keep yourself in the present with momentum for the future when working with history? What is the right balance between the old and the new? These are some of the questions which will be raised through the process. To embrace the past, whether it is defeat or victory, but not being married to it...

After looking through many different historical buildings, those abandoned, those without a clear future, and those in need of a decision one way or another, I ended in Afghanistan, where their future is extremely unclear. It is a country with a very rich past, and a troubled future. Perhaps they need more than any architectural intervention, or they do not have the time to be thinking of what or why to preserve; their now is what is at stake, more than any past, however influential it may have been. But THIS is why I want to take on the endangered buildings in Afghanistan now. It is easy to put these things in the back shelf, for tomorrow, but what if tomorrow, there is no artifact to debate over? What if we were able to design a space that is able to reflect its history, its past, and shed light on a future of uncertainties even if it is a country in turmoil?

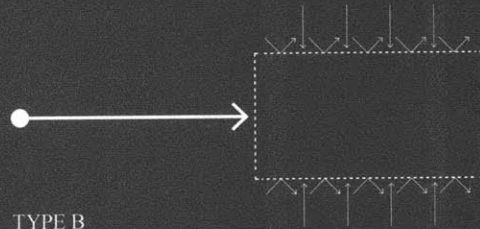
SITE
PRESERVATION
CULTURE

TYPES types of preservation



TYPE A

- * Demolishing the historic artifact & building a new building
- * Historic site as immaterial (erased) memory
- * Erasing traces of time (history), severing ties to the past



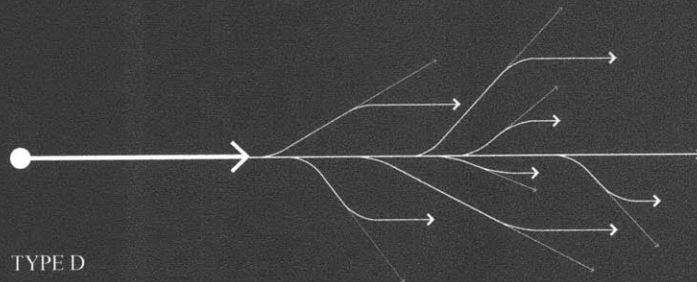
TYPE B

- * Containing the historic artifact, and preventing new interventions
- * Historic site as artifact, without future change
- * Stopping time



TYPE C

- * Preserving the historic artifact, adding architecture
- * Historic site as foundation for new program
- * Continuing time, prolonging its history

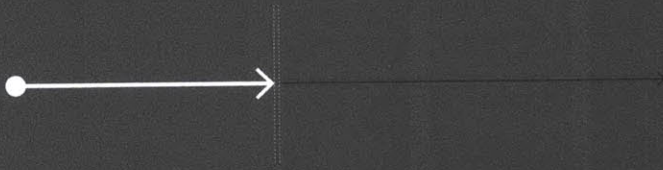


TYPE D

- * Preserving the historic artifact, using it to serve a new set of programs
- * Historic site as catalyst for diverse activity
- * Growing with time, spawning new directions in time

The Buddhas of Bamiyan have had an extremely iconic presence in our world dating back to the second century onwards, their tremendous scale of 58 meters and 38 meters, encompassing a cliff face of roughly 1500 meters have always brought wonderment to the world. However, in early 2000, radical groups in Afghanistan started a campaign, which sought to erase all references to non-Islamic forms in the Afghan society. Then, on March 2nd of 2001, and continuing on for several weeks afterwards, the Buddhas were dynamited by the Taliban, the act to which, the Minister stated as a purely religious issue, and not retaliation against the international community for economic sanctions. With the destruction of the Buddhas, a significant part of Buddhist history was destroyed by this act. This is not a thesis discussing the ethics of this destruction, but a further investigation into the post disaster interventions to be put forth on such a site as *this*. A Taliban Information Minister said, *“This work of destruction is not as simple as people might think. You can’t knock down the statues by shelling as both are carved into a cliff; they are firmly attached to the mountain.”* These words from the minister are perhaps the key idea to the thesis, where we are looking at the historic nature of the site not purely through the artifact’s value, but the site as a place of remembrance, a site that has gone through a disaster, but understanding the ways in which it can be revitalized once more.

bamiyan valley **CHRONOLOGY**



TYPE A

Demolishing the historic artifact and building a new building
Historic site as immaterial (erased) memory
Erasing traces of time (history), severing ties to the past

* Demolition of Babri Masjid



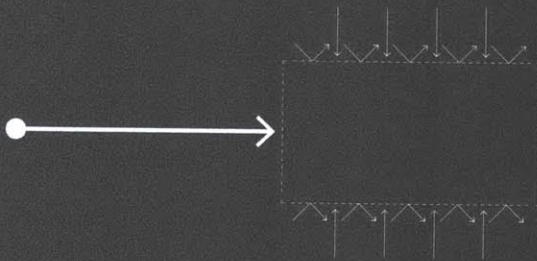
* Buddhas of Bamiyan



The Bamiyan cliff in its present condition needs page 31

to address several key issues, first of which is the preserving of the artifacts which may still be left within the cliff path, and the second, is with landslide problems, which has come to the forefront since the dynamiting of the niches, which have brought on extreme damages to the site. The rock face, since the bombing has become too weak in its large openings, and that, along with the heavy wind conditions in the Bamiyan region is causing the cliff face to erode faster than predicted. The way in which the site has been sanctioned off by UNESCO for preservation work has also caused major problems for the people of Bamiyan, since before the sanctioning of the site, (from the Western Buddha to the Eastern Buddha) 40% of the caves were occupied by Hazaras, making the caves into their homes, but since then, they have been replaced nearly 3 hours out of the town, which does not give them sufficient resources for them to live. Although it is true that we cannot divide post disaster interventions into separate categories, that theoretically, they are all three elements intertwined one in another, it helps in defining the problems and proposals into two main categories, cultural solutions, and a more social solution, where they both speak of the technical and architectural solutions. In order to understand the overall proposal or potential solution to this disaster, we need to take a deeper look into the two elements of the solution/problem, to derive at an overall solution.

bamiyan valley **CHRONOLOGY**



TYPE B

Containing the historic artifact, and preventing new interventions
Historic site as artifact, without future change
Stopping time

* Vyborg Library (Viipuri Library)



* Minaret of Jam



* Hiroshima Dome



* Venice, Historic Sites



The proposal is to understand the relationship page 33 between disaster prevention and the site, when the site is a well-known historic site, which already exists in a very fragile state from its long history. The questions I want to address are in how we touch an already vulnerable site, and how to we integrate between the historic and the new post/pre disaster interventions? How do these set of moves affect the surrounding context, and how do we find meaning from disasters? What has begun to catch my interest is in the idea that the post disaster reconstruction is the act that begins to put meaning to disasters. David Alexander writes on this topic in his essay “Nature’s Impartiality, Man’s Inhumanity”, where he leads the discussion of disasters not only in the realm of the disasters themselves, but how the society learns to put meaning to the disasters, which can only happen after the fact. The interesting idea that comes out of post-disaster reconstruction is in the fact that the society is able to choose what is to be reconstructed, or what is to be demolished. It is a way of thinking of the reconstruction process as a new beginning to the society, which now has the choice of suppressing the traumatic events of the disaster or to keep its memory alive in the area.

At the end of the day, this type of disaster raises two large issues; one which addresses itself to the question of the importance of history, and the delicate nature of preserving a historic site, understanding how we

bamiyan valley CHRONOLOGY



TYPE C

Preserving the historic artifact, and adding a newer architecture

Historic site as foundation for new program

Continuing time, prolonging its history

* St. Kolumba Museum -
Peter Zumthor



* Castelvecchio Museum -
Carlo Scarpa



* Kabul Palace



* Neues Museum -
David Chipperfield

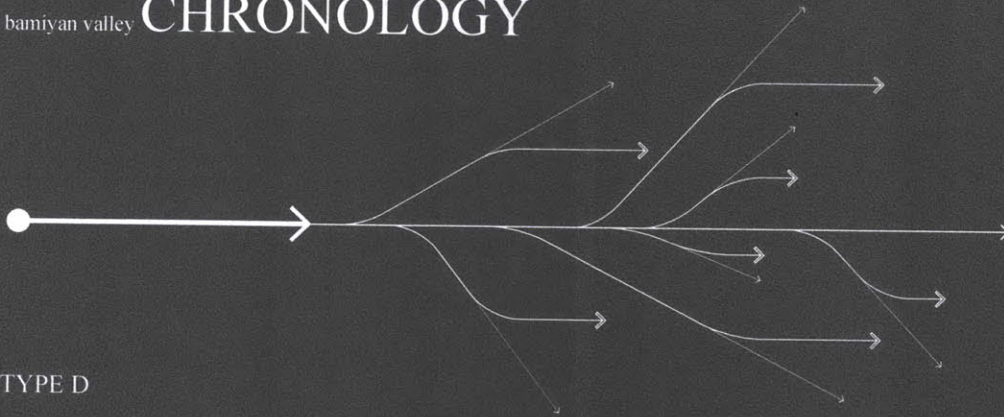


touch the past, where we intervene, and what methods page 35

we use to protect it from further damage. And the other issue is of a larger, more social question of the problem that arises from sanctioning sites as historic, and in protecting the site, clearing off all remnants of the present activities on the site. Both the issues raise independent questions of their own as well as questions they both share; how much of the present are we willing to destroy to give it a future, how much of the past are we willing to forego for a more promising present? How much of the future are we willing to compromise to save the past? The questions of the past, present and future do not form a simple answer, nor do they come to one singular answer at the end. Both of these issues are an investigation into the idea of the different types of touch, and how we go about developing the different methods in which we make contact with both the physical artifact of the historic site in danger, and how we contact the people of the area, where the act of preserving the site does not become a barrier between them and the site they have known for a long time, but acts as a more interactive mediator between the two.

The design proposal I am interested in pursuing is a piece of architecture which not only deals with the prevention of landslides, through pure infrastructural interventions but which also serves as a more public interface to the site through architecture. The questions I am interested in are two folds: How do we

bamiyan valley **CHRONOLOGY**



TYPE D

Preserving the historic artifact, and using it to serve a new set of programs
Historic site as catalyst for diverse activities
Growing with time, spawning new directions in time

* Teatro Marcello



* Tate Modern - Herzog & DeMeuron



* Mercat de Santa Catarina - EMBT



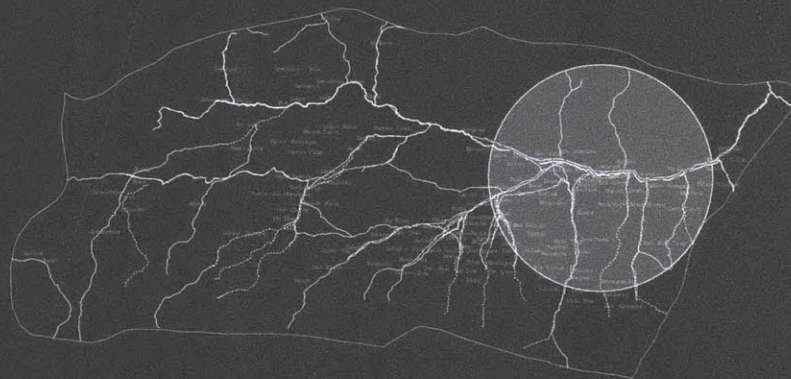
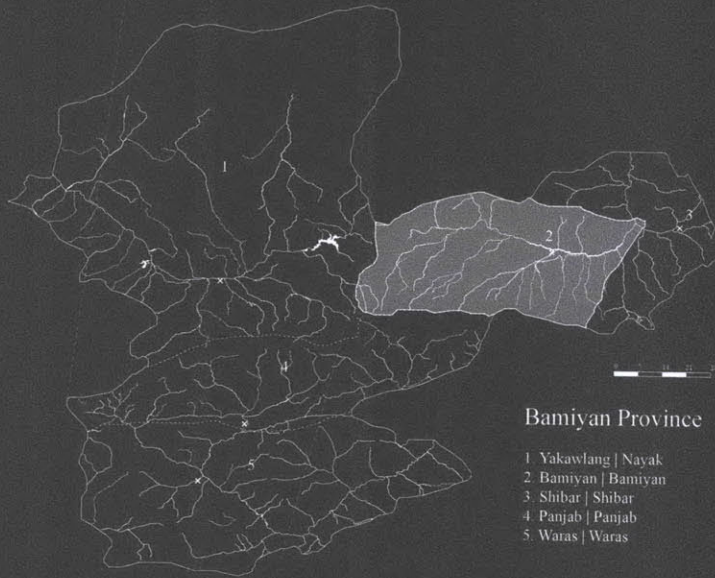
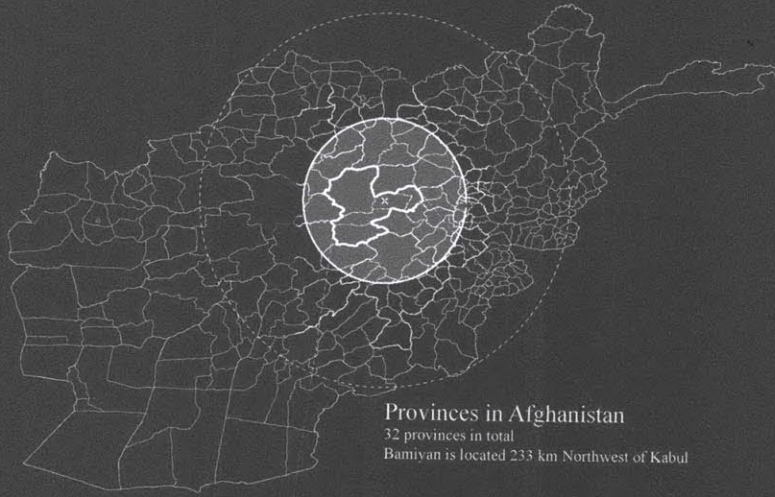
deal with landslide preventions on a site like Bamiyan page 37

Valley, which holds tremendous amounts of historical artifacts, where we are limited in what we can and cannot touch? How do we go between the extremely delicate natures of a site in crisis with extremely large interventions, which must be put into place? How do we preserve this site from landslides without isolating it from the public, and without making it a completely untouchable museum? Is there a way of working through the post reconstruction of a this type of disaster site which spans through the past, present and future, which balances the cultural and social issues which have come forth? The thesis is divided into three sections; the understanding of the site, a discourse of preservation, and the social and cultural issues which are present and also the proposals and solutions to the two elements. This is in hopes of finding the bridge that will bring the broken site into the present that will take on the needs of the Hazara culture of today.

SITE

Bamiyan Valley

SITE analysis



Bamiyan Province

Bamiyan Province in Afghanistan is one of the page 41 thirty-four provinces, located North West of Kabul, with a population of about 62,000. It is located at an altitude of nearly 2,800 meters, where the majority of the population is Hazaras. This is where the early Buddhist monasteries were built, with many of the famous statues of Buddha carved alongside the cliffs. This is where the largest carving of the Buddha used to be, before it was dynamited in 2001. Historically, Bamiyan lay on the Silk Road, which lies in the Hindu Kush mountain region, where it served to link the market of China with Western Asia. Ever since the 2nd century, this was the place for many monasteries built within their cliffs. The Buddhas were made in the 6th century by the Kushans; the first statue in 507, and the second later in 554, which measure 55 and 37 meters respectively. The main bodies of the statues were carved directly from the sandstone cliff, where the details were modeled in mud and mixed with straw, which were then coated with stucco for finishing. The lower parts of the statues' arms were constructed from the same mud-straw mix while supported on wooden armatures. It is believed that the upper parts of their faces were made from great wooden masks or casts. Due to its location, Bamiyan has always been in the middle of many changes in leadership. The city of Bamiyan was first a part of the Buddhist Kushan Empire in the early centuries of the Christian era, but after the Kushan Empire fell to the Sassanids, Bamiyan became a part of the Kushansha, vassals to

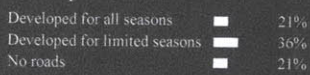
SITE analysis

GEOGRAPHY

Topography type



Transportation



Living conditions



EDUCATION

Primary School 20

Secondary School 4

University 1

BAMIYAN UNIVERSITY

* Faculty of Agriculture

* Faculty of Education

303 Students

Built in 1996

Destroyed in 1998 by the Taliban

Rebuilt in 2002

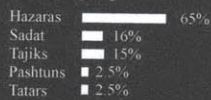
POPULATION

Population

Bamiyan Province : 343,892
Bamiyan District : 70,028

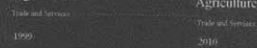
55,513 Households

Demographics

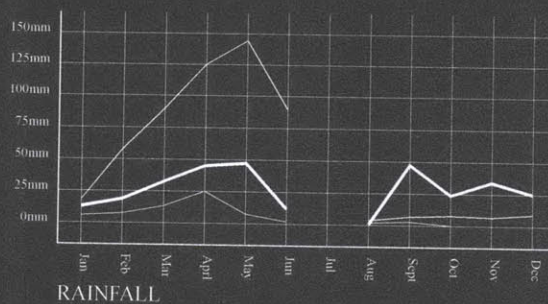
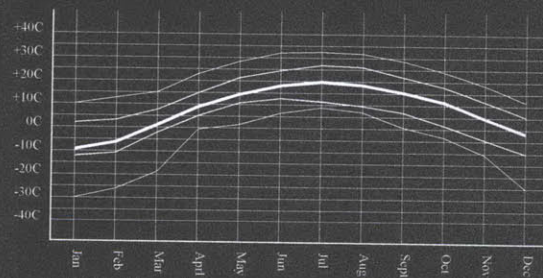


Income

Tourism Agriculture

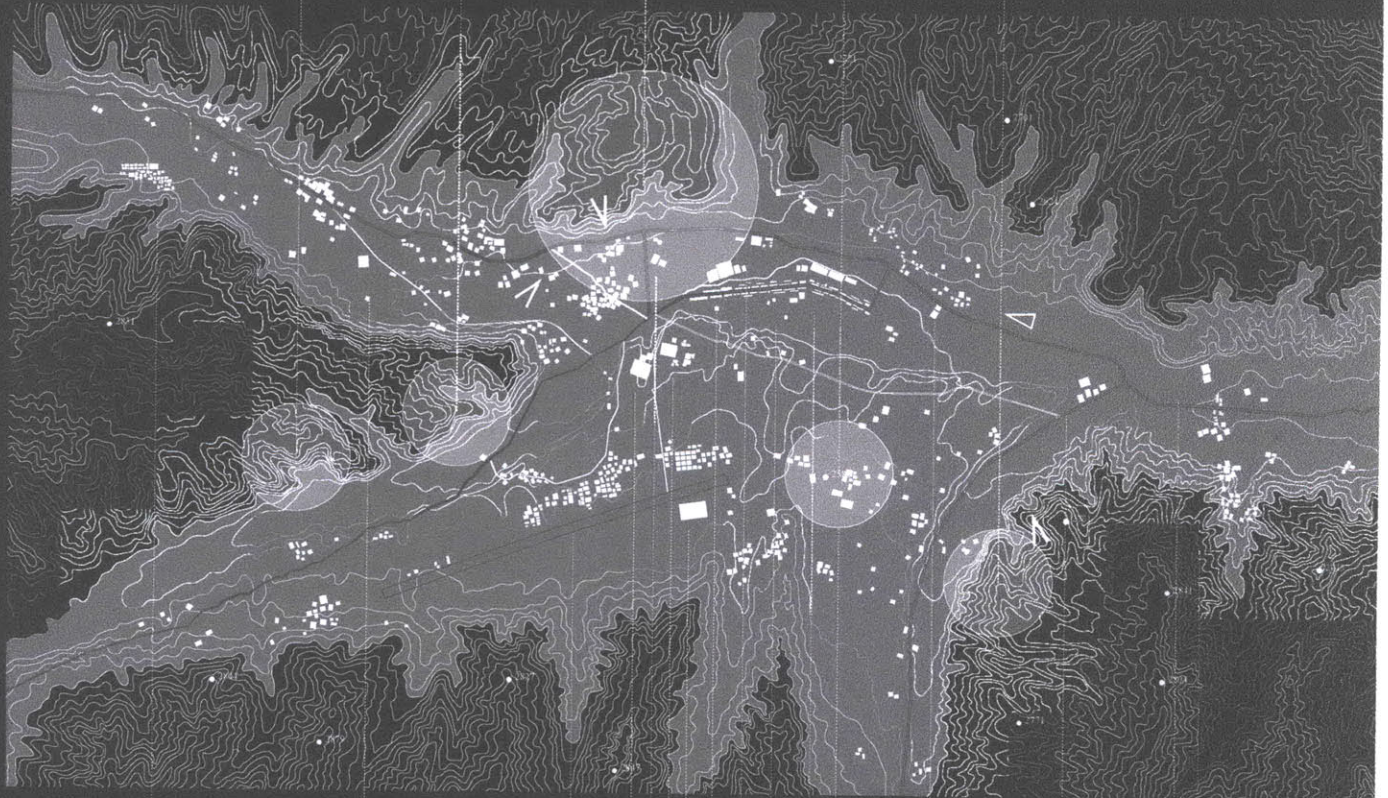


CLIMATE



the Sassanids. After that, the Hephthalites conquered Bamiyan in the 5th century, but soon after, their Khanate was destroyed by the Sassanids and Turks in 565, which made Bamiyan the capital of the small Kushano-Hephthalite kingdom until 870, at which point it was conquered by the Saffarids, then by the Ghaznavids in the 11th century. Through the changing of hands, and having it be the center of religious and economic routes, Bamiyan has always had a very rich land with a lot of historical artifacts, which has helped the region with its tourism. It was a place of pilgrimage and nearly 2000 tourists came through Bamiyan for the Buddha. However, since the bombing of the statues, Bamiyan has suffered a drop in tourism, which was the main source of income for most of its inhabitants. In an effort to save the rest of the site, the remaining Buddhist artifacts were included on the World Monuments Watch list by the World Monuments Fund, and the area has been on the list of the UNESCO Heritage Sites.

current condition of BAMIYAN VALLEY

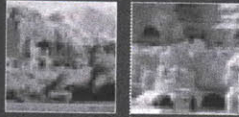


Kalai Ghamai Caves

- Pulak Valley caves
- Located 3km southwest from the Cliff
- Decorative artifacts from 10th century

Qoul-i-Akram

- Pulak Valley caves
- Located 2km southwest from the Cliff
- Decorative artifacts from 10th century



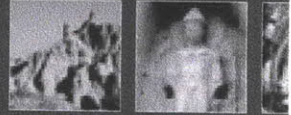
Bamiyan Cliff

- 4000 meter high cliff
- Located in the north side of the valley
- 100 columns from 5th to 6th century
- 12000 smaller caves along the cliff



Kakrak Valley

- situated 3 km southwest of the Cliff
- 5m above of the Bala
- 1000 of painted caves
- 5000 of painted caves
- 5000 of painted caves
- 5000 of painted caves



Shahr-i-Chaughula

- Painted model
- Made from the Qul-i-Akram
- 100 to 1500 years old



Housing Development Area

Bamiyan Elementary School

Housing Development Area

Bamiyan Province Government Office

Bamiyan Cliff

Bamiyan City Hall

Bamiyan Regional Airport

Ministry of Agriculture

Bamiyan Hotel

Main Shopping District

Ministry of Culture

Bamiyan Highschool

Bamiyan Elementary School

Ministry of Agriculture

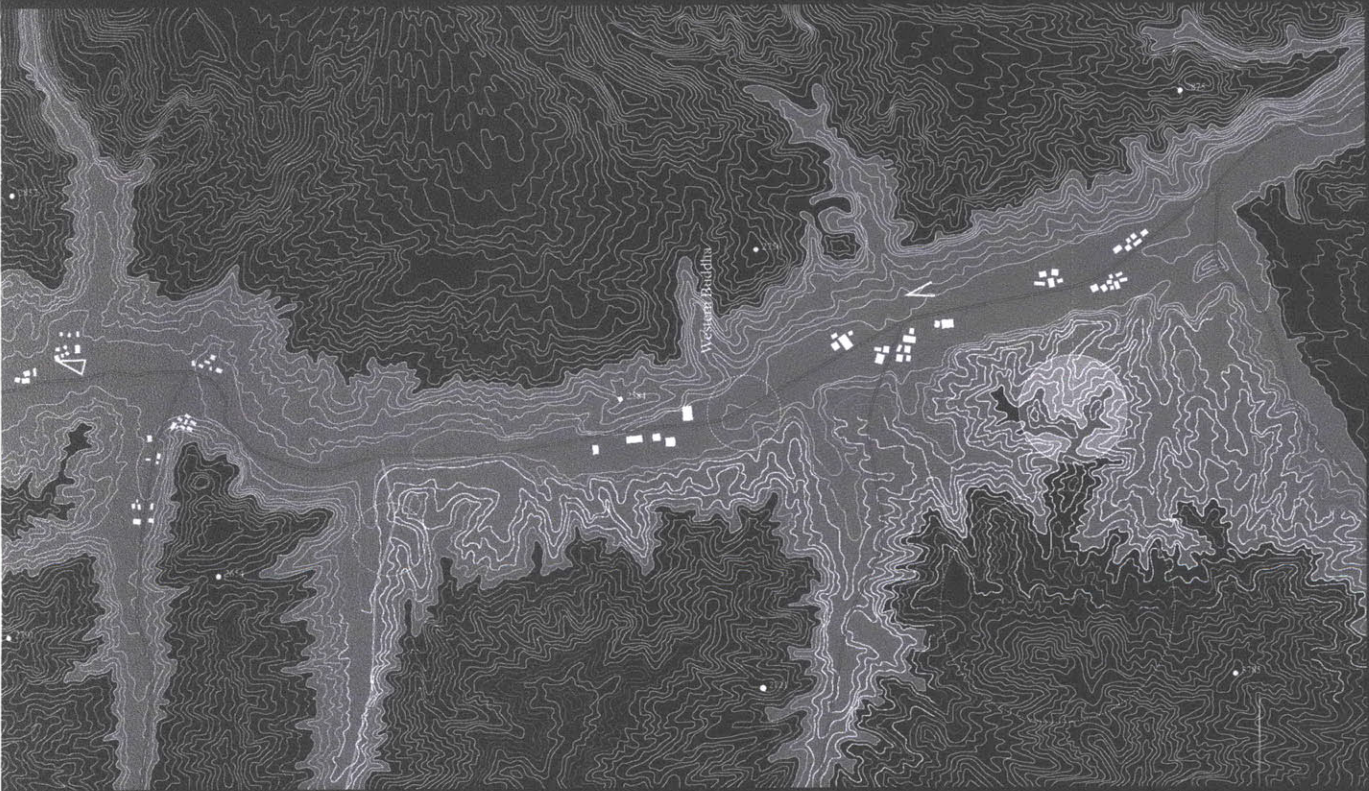
Bamiyan University

Multi Family Housing Units



Shahr-i Zuhak

- * 15km east of Haman in 2011
- * 5000 years old
- * Located in the Old Silk Road
- * Early Islamic mosques
- * Excavated back in 60s and 70s century
- * Artifacts from the Sassanid & Ghazni dynasties



LEGEND

- Residential Buildings
- Public Program

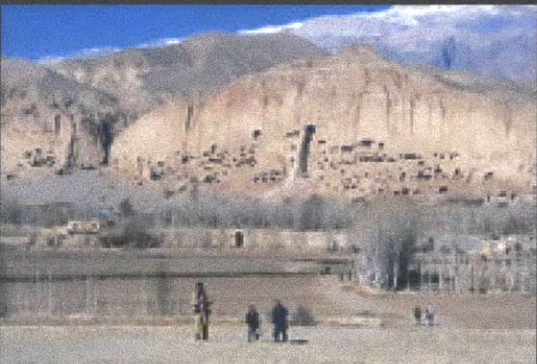
current condition of **BAMIYAN VALLEY**



The destruction of the Buddha cannot be easily summed up into a single page, for this act represents a deep historical and struggle within the people of Afghanistan. What I need to point out is that the Taliban destroyed the past monuments to protect the present. The demolition of the Buddha by the Taliban in 2001 was not against history, or culture, but of the religion. They destroyed the Buddha, because the Buddhist statues stood for something against Islam. Before the 2001 destruction of the monuments, there were talks back and forth between protecting the monuments to destroying them. In 1999, the Taliban lead states that the Buddha will not be destroyed by protected, but soon later, they said that the statues were against Islam and that for this reason, Taliban regime can justify the destruction as being in accordance with Islamic law. But in the end, in March 2001, the statues were destroyed by dynamite over several weeks.

There are many traces of such actions in the past, to destroy the remnant of a culture, which represents a threat to the new dominance. We have seen it happen in the 16th century in the New World civilizations; it happened in Caesar's Rome, and in the dynasties of Egypt and China. This starts to ask the opposing set of questions as ones brought up earlier when talking about preservation, "at what cost do we protect the

current condition of **BAMIYAN VALLEY**



present, the future?" Since 2002, the Provincial page 49

Reconstruction (PRT) was introduced to the area, which in an effort by the United States government to bring support to the reconstruction efforts in unstable states. Their three main objectives are, to improve security, to extend the authority of the Afghan central government, and also to facilitate reconstruction. The PRT in Bamiyan are led by the New Zealand troops.

The first of agendas is in the preservation of the historic artifacts, which were destroyed by the bombing of the Buddhas. Although not a natural disaster, the scale of this act can be comparable to some natural disasters, and the impact this had on the world was significant. This is where the question of what we choose to preserve, reconstruct or erase become very important to this project. There are several different camps, which have formed regarding this question, where some wish to reconstruct the Buddhas, bringing back what once was, and another side of the camp, which believes that the destruction itself is a part of history, which cannot be easily erased.

bamiyan valley CHRONOLOGY

500 B.C.	Achaemenids rule, part of the Persian Empire, under Darius
490 B.C.	***
480 B.C.	***
330 B.C.	Alexander the Great's rule
320 B.C.	Seleucus Nicator ceded the Hindu Kush region to the rising Maurya dynasty of Chandragupta
250 B.C.	Ashoka dispatched the eminent monk Maharakkita as a Buddhist missionary to the area before Graeco-Bactria declared its independence in the northern Hindu Kush
200 B.C.	Kushans Rule were patrons of the arts and religion, responsible for the introduction of Buddhist art in the Bactrian style, influenced by Hellenistic art and the Sasanians
180 B.C.	***
150 B.C.	***
80 B.C.	***
0 A.D.	***
50 A.D.	***
100 A.D.	Silk Road passed through, contributed to the diffusion of Buddhism from India in the region
150 A.D.	***
200 A.D.	***
250 A.D.	***
300 A.D.	Cave temples of Surkh Kotal and Haibak were built in the northern Hindu Kush area
350 A.D.	Sasanians control of area
400 A.D.	Kapisa - Begram, Shotorak, and Paitava monasteries were built to the south of Hindu Kush
450 A.D.	Buddhism had layed its firm roots, and the name BAMIYAN began to appear
500 A.D.	Central Asian nomads ruling the area
550 A.D.	***
600 A.D.	Chinese monk Xuan Zang travelled to Bamiyan to pay homage to Buddha wrote "Buddhist Records of the Western World"
650 A.D.	Coalition of Sasanians and Western Turks took power
700 A.D.	Silla monk Hui Chao travels to Bamiyan, and write "Memoir of a Pilgrimage to the Five Regions of India"
750 A.D.	King of Bamiyan surrendered to Islamic forces under Mazahim Bistan
800 A.D.	Reign of the second caliph of the Abbasid caliphate, al-Mansur
850 A.D.	***
900 A.D.	***
1000 A.D.	Under rule of Sultan Mahmud of Chazna, Islamic art and architecture were introduced
1050 A.D.	***
1100 A.D.	***
1150 A.D.	The town of Bamiyan was designed on the model of the Khorassan region of Iran
1200 A.D.	Under the rule of the Ghurids, the development included the fortified settlements of Shar-i Ghulghulah, Shar-i Zuhak and Shar-i Khoshak
1250 A.D.	***
1300 A.D.	The army of Genghis Khan ruined the town of Bamiyan and looted the Buddhist monasteries
1350 A.D.	***
1400 A.D.	***
1450 A.D.	***
1500 A.D.	***
1550 A.D.	***
1600 A.D.	The Mughal emperor Aurangzeb ordered his army to shoot off the legs of the large Buddha
1650 A.D.	William Moorcroft and George Trebeck travel to Bamiyan
1700 A.D.	Thomas Hyde writes "Veterum Persarum et Parthorum et Medorum Religions Historia"
1750 A.D.	William Moorcroft and George Trebeck write report "Travels in the Himalayan provinces of Hindustan and the Punjab"
1800 A.D.	Francis Wilford writes "On Mount Caucasus"
1850 A.D.	Sir Alexander Burnes, Dr. Gerard and J.M. Honingberger arrive to Bamiyan
1900 A.D.	Caves have been abandoned, but inhabited as temporary shelters for domestic animals
1950 A.D.	Area used by the military for shelter
2000 A.D.	Two colossal Buddhas dynamited by the Taliban
2050 A.D.	***

The detonations of March 2001, apart from causing the collapse of the statues, produced a deterioration of the stability conditions, mainly in the shallower part of the niches. In the Eastern Giant Buddha niche, apart from the collapsed statue, three minor rock-falls occurred in higher portions of the site. Also, the blasting produced a degradation of the backside of the niche's highest right part, where stairs are located inside the cliff and the section between the stairs and the niche is quite narrow. This part is presently the most critical for future stability. The left side as a consequence of the existing buttress did not suffer substantially. Only in the upper part a rock fall occurred and some instability are now evident.

In the Great Buddha, the major effect was the collapse of statue and the consequent instability of the backside of the niche. A small rock fall occurred on the top of the niche, to the left side. Probably, the large thickness of section between the stairs going up into the cliff and the niche, did not allow a large propagation of the effects of blasting. A large discontinuity is present in the corridor behind the head of the statue.

site TRANSFORMATION



phase 1



phase 2



phase 3



phase 4

The following active processes have been identified page 53
in the area:

- Water infiltration from the upper part of the cliff;
- Gully erosion from rainfall and snowmelt in the upper part of the cliff;
- Accumulation of debris materials at the toe;
- Occurrence of mud flow, in the upper part, probably when the sandstone saturates;
- Toppling of some isolated blocks;
- Sliding in the large portion of the slope, mainly when discontinuities from the top are reaching the lower highly fractured sandstone formation;
- Progressive opening of discontinuities in the more external part of the cliff;
- Weathering of siltstone levels.

The second agenda is in the disaster prevention of the site from landslides, which was described earlier. Although this may not seem the primary concern of this project, (where the bombing of the Buddhas would be the obvious front runner) the landslide is putting the cliff in a very vulnerable state, and with the added agitation from the bombing, the niches which were partly reinforced through the large Buddhas are now more prone to landslide problems. There are many cracks being formed along the edge of the niche openings, and pieces of clay sand being eroded away. There have been numerous

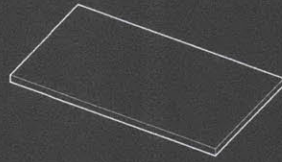
interventions to the preservation of the site, both page 55 historically and in present time, where they have filled the niches with scaffolding to keep them from caving into themselves, and other actions to brace the weakest points from caving in. They have mostly been temporary interventions, without the idea of permanent preservation acts, but as the analysis of the site describes, in order to keep the whole cliff face from collapsing, there will need to be major infrastructure built into the system, allowing it to be self-sustainable. How massive does the intervention have to be in order to keep the site alive, or how small can the elements be to keep the cliff face in its place? This idea of touch becomes extremely important here, where it is not simply an idea of the aesthetics of the intervention, whether it be visible or not, but a technical problem, where we need to understand first off, WHERE we are able to touch the cliff, and second of all, HOW we are to touch the site. There will be points where we are able to penetrate deep into the cliff, stabilizing the intervention, but other points where we will be limited to how much we are able to touch the cliff.

PRESERVATION

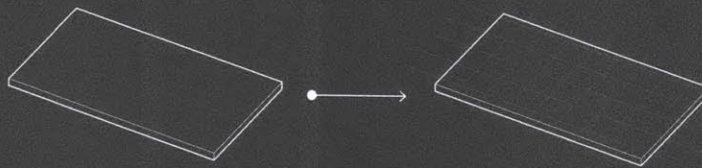
METHODS of preservation

SURVEILLANCE

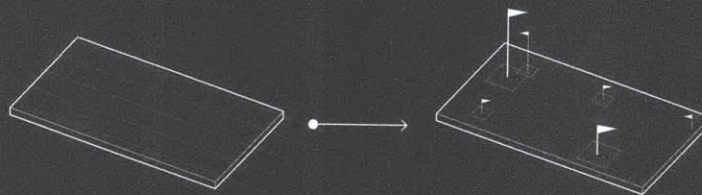
* DOCUMENTING/
MAPPING



* TRANSECTING



* MARKING



Although the discipline of preservation will be page 59 discussed in the following sections of culture and societal issues, I want to lay out the issues in the vast discipline of preservation that I am most interested in addressing throughout the design process of this thesis.

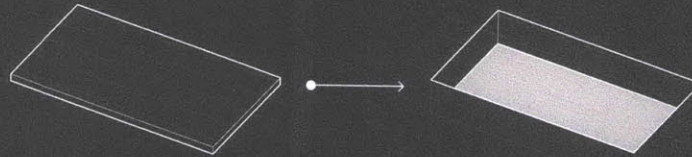
As laid out in the abstract as well in the introduction, I am interested in preservation as a means of tracing historic activities. The way preservationists record the sites through the act of surveying is the starting point from where all the studies spawned. This idea of traversing time through the unearthing of layer and layers of history, where we as the public are able to place ourselves in history from the gathering of this data, is where the beauty of preservation lies. The idea of historicizing events, where the understanding that everything could be treated equally, where events are objectively seen as a larger part of continual change, is where this thesis places itself in the discipline of preservation.

Preservation tends to stop time from ceasing to exist in harmony with the present, and this idea needs to be rethought. The goal of preservation should not be to restore the artifact to the original state, where it denies the time that acts on the artifact. These types of preservation projects distance the public from the artifact to the point

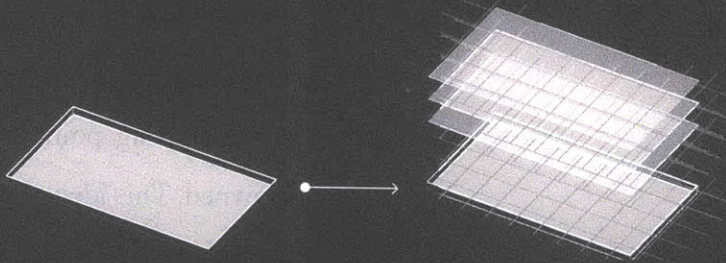
METHODS of preservation

EXCAVATION

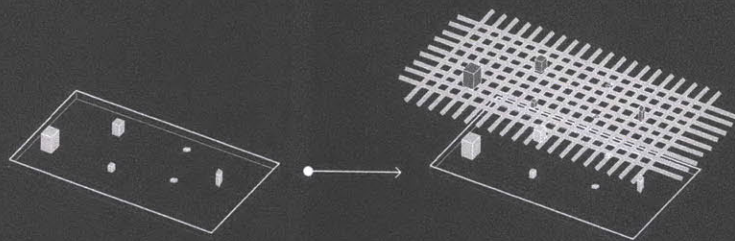
* DIGGING



* SINGLE CONTEXT RECORDING



* SIEVING/FLOATING



Archaeological preservation

- * gathering of artifacts
- * mapping of historic conditions

Landscape & Architectural preservation

- * preserving the gathered examined artifacts
- * correcting/fixing damages to artifacts for future preservation

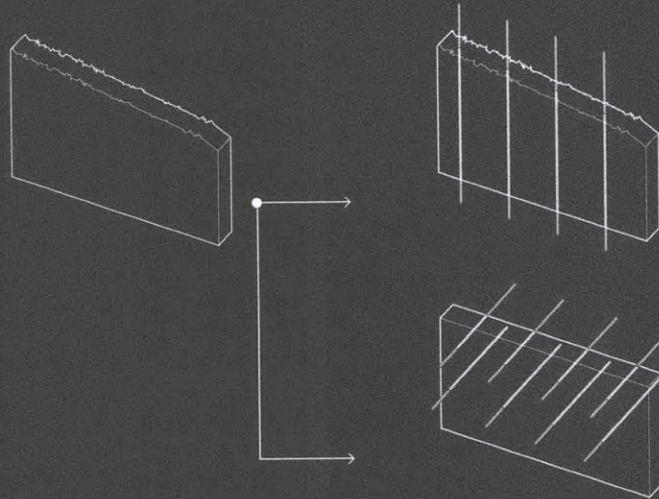
where the only interaction between the public and the artifact are through a few narrow points of view. page 61

Instead, the thesis of the project is to showcase transformation by showing its continual evolution, which will allow the public a closer connection to time, and the site. In doing so, preservation becomes a more proactive action rather than a disconnected one belonging to a very closed field of preservationists. Preservation needs to display the growth and transformation of the site rather than to stop them, because without this, the site becomes an artifact, void of any attachment to its surrounding. No site is ever static, where this idea of “original” state does not exist, but it is a process which originated back which continues to change through time. Throughout the process, there were continual questions towards preservation, always asking myself what does preservation means today, why do we preserve, what do we preserve, and for who we preserve the sites.

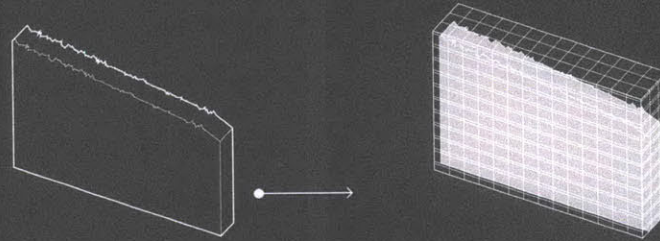
METHODS of preservation

REINFORCEMENT

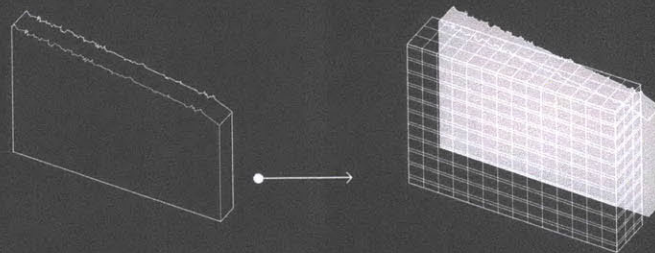
* ANCHORING



* BRACING



* SCAFFOLDING



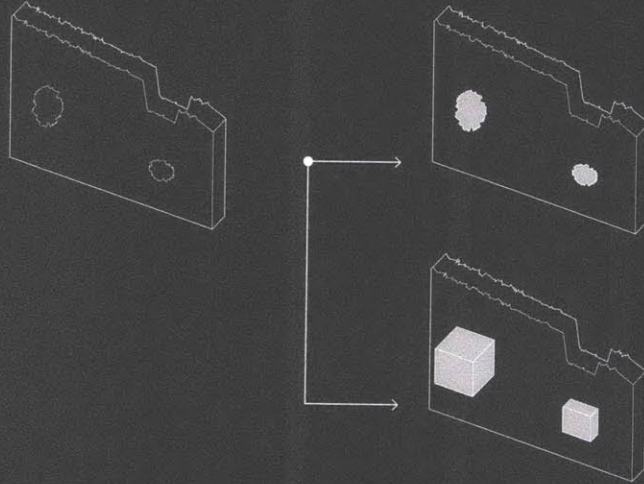
Preservation & Addition Projects

- * after the artifact has been preserved, they need additions for further use
- * for ruins to give function, they need repairing and refurbishing of parts

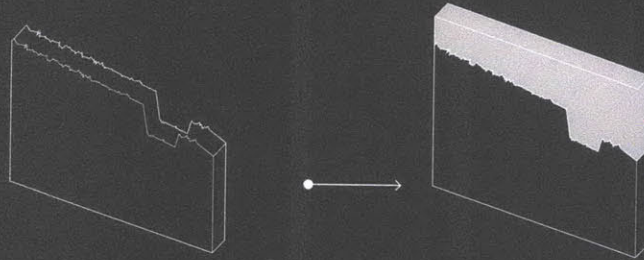
METHODS of preservation

REPAIRING

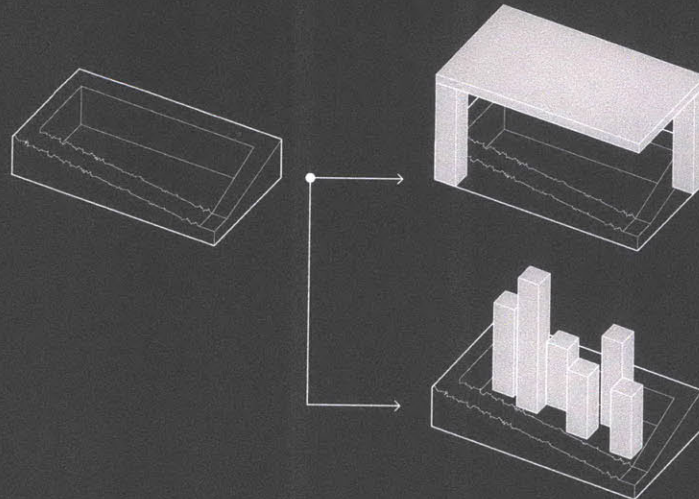
* FILLING DAMAGES



* EXTENTIONS

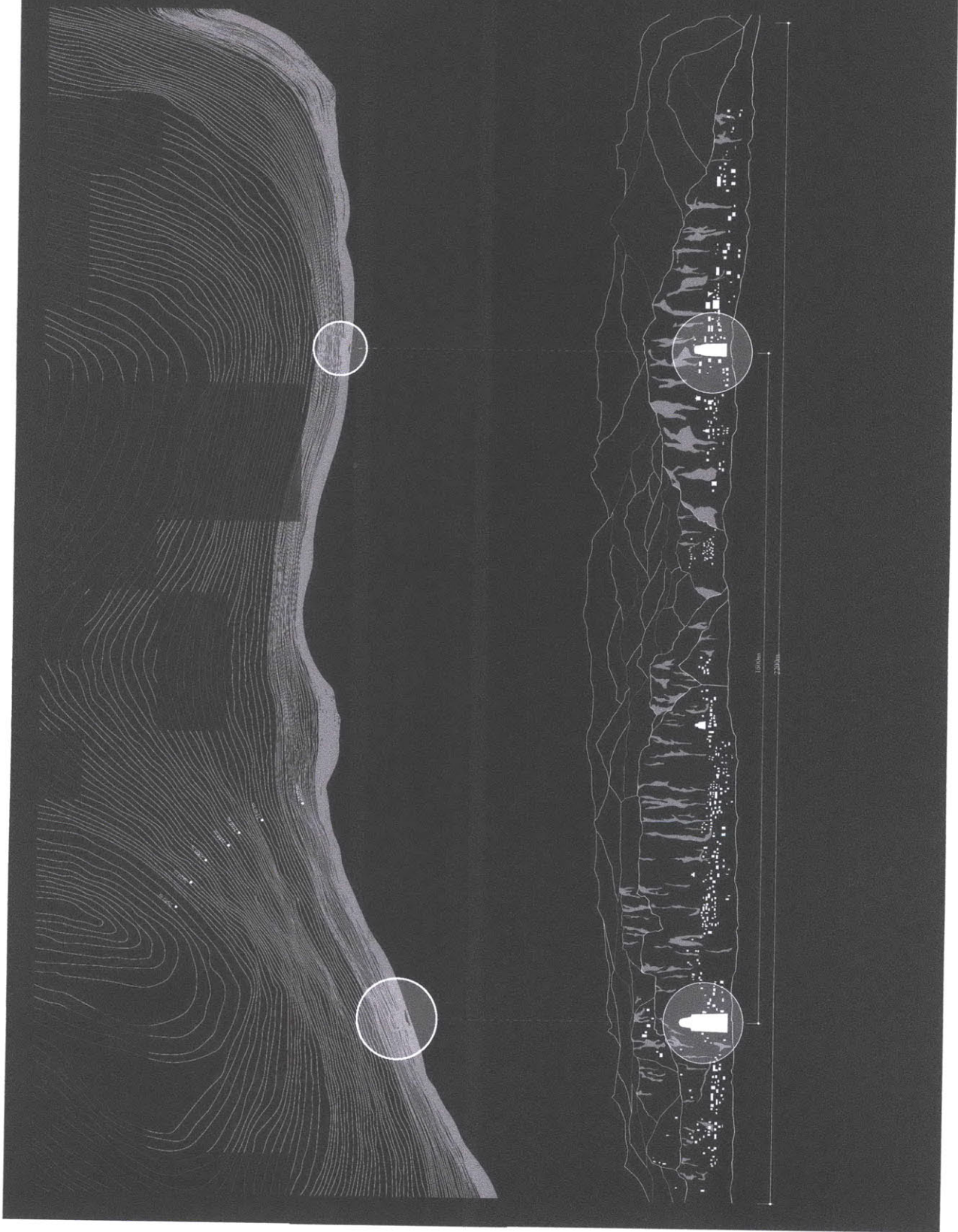


* ADDITION



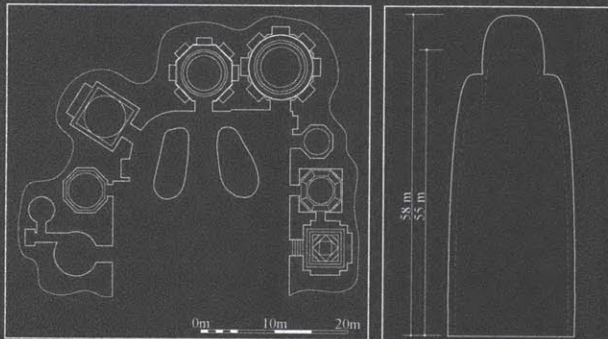
CULTURE

bamiyan valley **CHRONOLOGY**



Although preservation does bring with it extremely technical problem-solving issues, there is first a question of cultural and social issues that must be addressed with such a site. The social aspects of the process of preservation will be described in detail in the subsequent section, but at the end, do we necessarily need all of this exactitude to design a memorial for a place of such religious and historical meaning? How does the line between the technicalities of preservation and the more emotional and cultural aspects get drawn? This is as much the discourse as any other, especially for a site which was created through religion, and one which was destroyed for its religious value, and one which now struggles to understand in which direction it needs to head. There is a debate as to the process of preservation this site should head, whether it is to purely preserve the site as is, or to reconstruct the site before the bombing. In reconstructing, we would in the end be erasing the act of the destruction of the Buddhas, while if we were to preserve the site as is we are acknowledging the idea of the absence of the artifact. There is a void, and of course, there is an incredible amount of the sense of loss there, but this is not purely a negative quality. Is it, when looking back further into its history, a segment of the site; in loss, we become aware of what was lost? Perhaps this is a passive way of looking at this situation, but recreating is not an answer to the

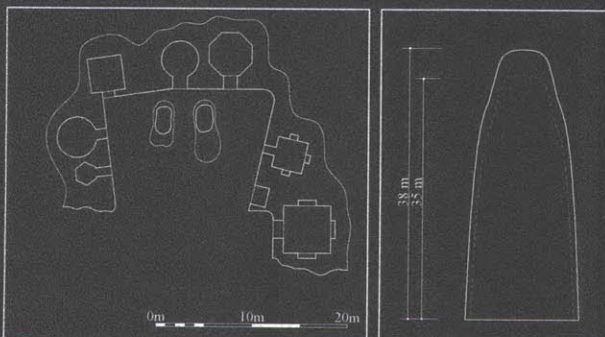
bamiyan valley CHRONOLOGY



WESTERN BUDDHA

The niche of the statue was decorated with frescoes, the oldest of which can be seen on the lateral surfaces. There is also a series of five medallions with two female and one male figure in each, surrounded by winged demons reminiscent of Gandharan iconography, and the series of five Buddhas resembling those of Ajanta seated under the sacred fig tree. The two octagonal shaped niches are chapels, where one is decorated with high-reliefs and another has a lantern ceiling. The niche and some of the chapels were decorated with paintings of bodhisattvas, apsaras, royal personages and so on, depicted in a style which shows a mixture of Iranian, Indian and Chinese elements.

Around the statue are two ambulatories, one on the ground consisting of 11 chapels and the other at the level of the head, which is illuminated by apertures into the niche. In the lower part of the niche, there were sitting Buddhas painted in lines of threes, which comes up to the level just above the shoulder of the Buddha. Above in the rock face is a large cave with an architrave and an ornamental ceiling decorated with a series of hexagons in star-form linked together with geometrical ornaments of triangles and lozenges.



EASTERN BUDDHA

The niche was decorated on the inside with frescoes, in parts still clearly visible. They formed a vast composition centred around a lunar, or solar, deity surrounded by two rows of figures. There are strong indications that the frescoes were of Iranian origin and were probably executed in the fifth or sixth century AD. The frescoes in the eastern Buddha show a mixture of Indian, Iranian and Chinese elements. The niche was decorated on the inside with frescoes, in parts still clearly visible. They formed a vast composition centred around a lunar, or solar, deity surrounded by two rows of figures - bodhisattvas, donors, and so on.

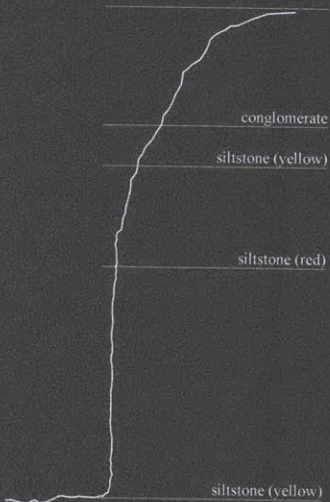
There are strong indications that the frescoes, which resemble those found at Kizil and Kumtura in Chinese Turkestan, were of Iranian origin. The caves around the small Buddha form four complexes. The assembly room of complex A has squinches which were decorated with several rows of tiny Buddhas executed in Sasanian style while, by the entrance, another fresco shows the Buddha, bare-chested and wearing a dhoti. An octagonal sanctuary in complex D was also lavishly decorated, with both frescoes and bas-reliefs; a series of medallions painted on clay decorated the ceiling of its anteroom showing classical Sasanian motifs, such as the head of a wild boar, or two birds holding a pearl necklace.

problem, it only masks the reality. The beauty of this page 69

site is in its ability to transform over time, and that is the aspect, which should be embraced, and not only on the loss of the monument.

But what is important here is to think through historic sites as an entity which is in constant transformation, where it does not need to be fixed in one single time frame, which does not and cannot accommodate for growth. We tend to look at some of these very iconic site solely for the present day iconicity, but it is very important to remember that what we see today is but a fragment of its history. There is the past to these sites when there were no great artifacts yet, and a future, where they could become something else entirely. The design proposal then is to allow the tracing of history to become evident, whether it is of a positive past, or of a negative past, there needs to be a way that records history, and a way which can record the future development of the site. The Bamiyan region has an extremely rich history, with many different leaders, religions and cultures which have all come in and out, and it is a place where the differences came to a reconciliation, and at times, when reconciliation could not happen, the Buddhas were bombed, and to try to recreate what was bombed is a regressive process, and not a progressive one. The design cannot be a static one, where the solution is the one and only way to keep the site alive, but a more transformative one, where we can be educated by what has

bamiyan **GEOLOGICAL ANALYSIS**



CONGLOMERATE

A conglomerate is a rock consisting of individual clasts within a finer-grained matrix that have become cemented together.

The conglomerate is composed of:

- * quartz
- * calcite
- * mica
- * feldspar group minerals
- * clay minerals
- * heavy minerals

Conglomerate exhibits a permanent cohesion due to the carbonate cement in the matrix

Vp = 2.2 - 2.5 km s-1
Poisson ration = 0.300 - 0.400

The uniaxial compressive strength of siltstone is 30 MPa

In situ density for siltstone is 17.65 kW m-3

SILTSTONE

Siltstone is a sedimentary rock which has a grainsize in the silt range, finer than sandstone and coarser than claystones.

The siltstone is composed of:

- * quartz
- * calcite
- * mica
- * clay minerals
- * heavy minerals

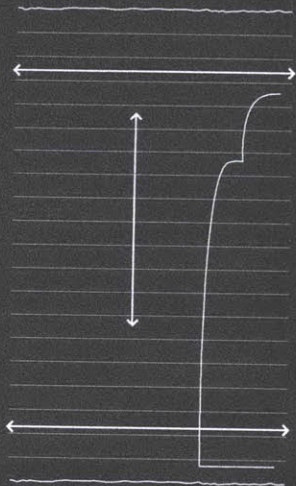
Siltstone easily loses the cohesion when saturated because it is a desiccated mud.

After many cycles of wetting and drying, the siltstone along the cliff has become weakened.

Vp = 1.7-2.0 km s-1
Poisson ration = 0.150 - 0.200

The uniaxial compressive strength of siltstone is 34 MPa

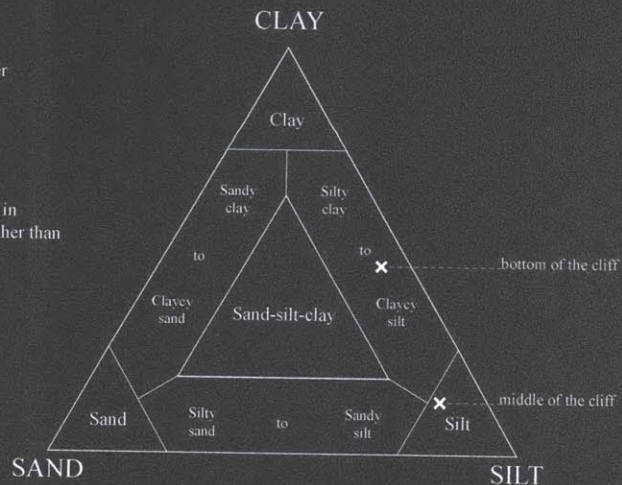
In situ density for siltstone is 22.35 kW m-3



the conglomerates are stronger parallel to sedimentary flux

the conglomerates are weaker in the perpendicular direction rather than parallel to the layering

siltstones are weaker than the conglomerates parallel to sedimentary flux



happened, what is to happen and what is happening page 71

at the present time. This is seen in the ways, in which the caves along the cliff have been utilized, where it was originally built as monasteries for the Buddhist monks, and with time, it became housing for the people of Bamiyan Valley, then later occupied by the military, and now, it has been sanctioned off for the preservationists. This ability to transform is an element that cannot be forgotten for such a site, and through the design proposal for the preservation of the site, there needs to be awareness towards the temporal versus the permanent. Whatever we design should not necessarily be a hesitant temporary structure, but one, which is both temporary and light, and also something that addresses the needs of the people at the present time. There needs to be a mark along the ever-growing historic site of the present day.

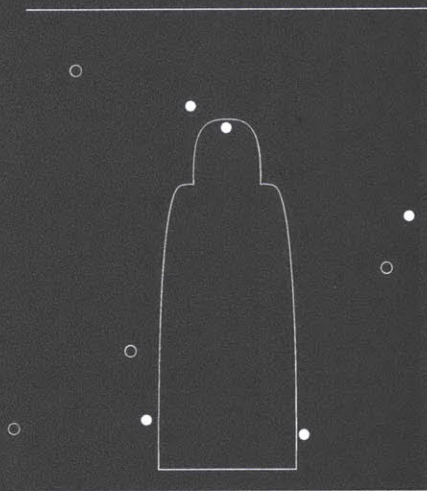
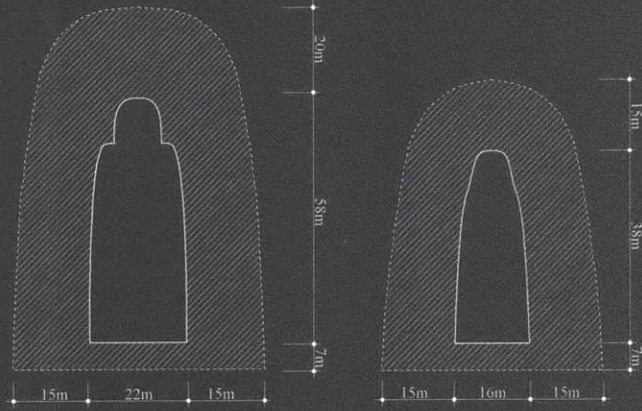
In thinking through these issues, it forces us to address the fundamental ideas of preservation, and what their roles are in our society today. This is very much a global cultural question of preservation, which is not solely a specific question towards the discipline of preservation and restoration. It is interesting and bewildering to realize that although we all believe we know preservation, it is also true that we all have a very different definition of what preservation means. For some, it is to preserve the artifacts of the past, while for others it is to preserve the site to allow it to keep growing. There is no direct right or wrong in the

bamiyan valley PRESERVATION WORK

GEOMORPHOLOGICAL SETTING

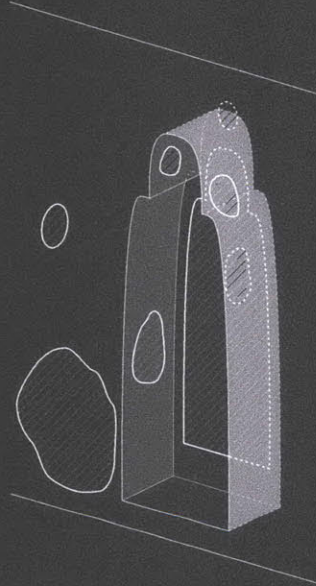
The following active processes have occurred in the area:

- * Water infiltration from the upper part of the cliff
- * Gully erosion in the upper part of the cliff from rainfall and snowmelt
- * Progressive opening of cracks in the outer parts of the cliff
- * Weathering of siltstone strata
- * Toppling of large external portions, as well as of isolated blocks
- * Occurrence of mud flows in the upper part, probably when the siltstone is saturated
- * Sliding in a portion of the slope mainly where cracks from the top reach the lower siltstone formation, making it highly fractured and easily affected by weathering
- * Accumulation of debris at the toe

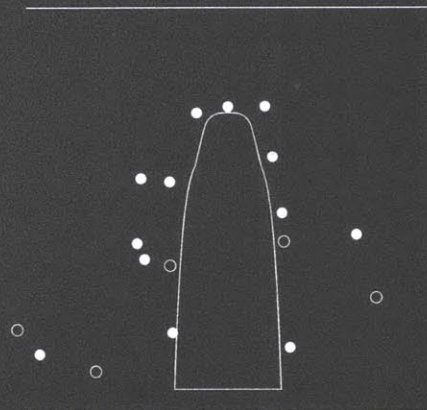


Discontinuity trends around the Buddha

- SILTSTONE
- CONGLOMERATE

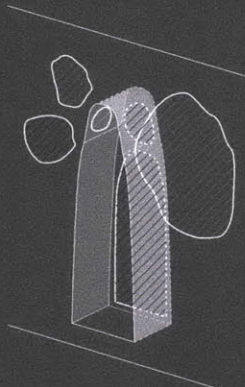


Most critical rockfall prone areas in the Western niche



Discontinuity trends around the Buddha

- SILTSTONE
- CONGLOMERATE



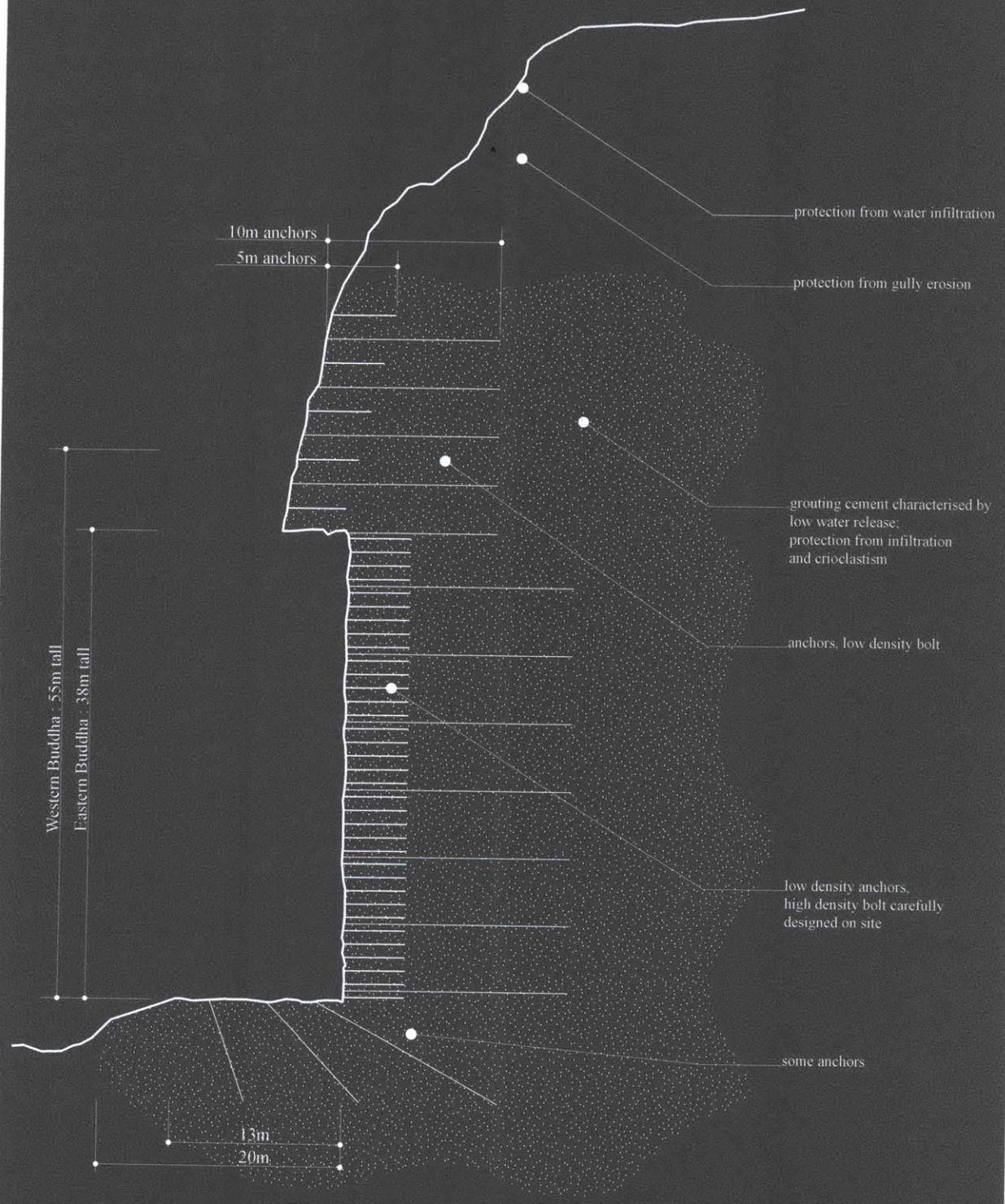
Most critical rockfall prone areas in the Eastern niche

way preservation projects are carried through, but in page 73

this case, it cannot be a preservation process, which is solely about the saving of the past. Whatever design is to be implemented on the site, it must not be about a retrospective act, but a more proactive act, which is able to propel the site, along with this people into a future that is willing and embracing of change. The Bamiyan region has gone through tremendous change over history; they have had different rulers, different religions, and for this reason, house many different ethnicities in the region. Change is a part of this area, and this is not to be taken lightly, for treating this site as a typical preservation site, where time must stop in order for the historic site to persevere means killing off the transformative nature of their livelihood, which has been a part of the site for centuries.

The different methods of preservation must be taken into consideration both for their technical results and also for the message it will be sending to the people of Bamiyan. Using scaffolding as a primary way of preserving the delicate nature of a vulnerable historic site is seen throughout the world in many preservation projects. There is a very symbolic and practical reason for scaffolds to be synonymous to preservation sites, for their structural lightness, their ability to create reinforcement, and for their temporal nature. Although the base of the proposal comes from the scaffold, limits were pushed to see how far the scaffold could deform while still keeping its

bamiyan valley **CURRENT NICHE CONDITION**



integrity. There were two main issues which arose page 75

form the scaffold; the first was that the scaffold was not malleable enough for such phenomena as flash floods, and the second was in its rigid sixties Russian constructivist aesthetic of such a large scaled scaffold along the whole face of the cliff. Measures were taken to make the construction lighter, and structure which was able to adapt to the movement of the cliff face. This started a new series of thoughts for the design of the proposal, where the proposal was no longer about a temporal structure to keep it braced in its place, but a structure, which was dynamic enough to transform with the site in its many deformations. Preservation was not only a tool of keeping the cliff face from falling through reinforcements and bracings, but a way to make the deformation, or the transformation of the site a safer act. This is where the idea of implementing nets in front of areas of highest vulnerability started to take place. Cords strung from one tower to the next created the framework for the nets to be put in, where they were not necessarily a permanent part of the project, but a temporary one, where the primary concern is to make the caves and the cliff safe.

The idea of the nets and the lightening of the structure worked with the deformation of the austere Russian constructivist aesthetic of the scaffold as well. One may perhaps say that aesthetics is not of great importance here, since this would only be a temporary

bamiyan valley **CHRONOLOGY**

PREVIOUS preservation work



Repairing/preserving the broken leg and arm of the west Buddha. The missing or damaged pieces of the Buddha were reconstructed with similar materials. They also tried to implement reinforcement efforts, so it was not purely a cosmetic effort to repair the damages.



Repair efforts after the bombing, in 2004, where the niches were filled with scaffolding to brace the vulnerable state.



Repair efforts after the bombing, in 2004, where the niches were filled with scaffolding to brace the vulnerable state.



Latest efforts to salvage the niches, with cross bracing to keep the walls of the niches from falling down.



The smaller caves were also reinforced, since they have gone through a fair amount of wear from the trafficking of the Taliban, and the armies.



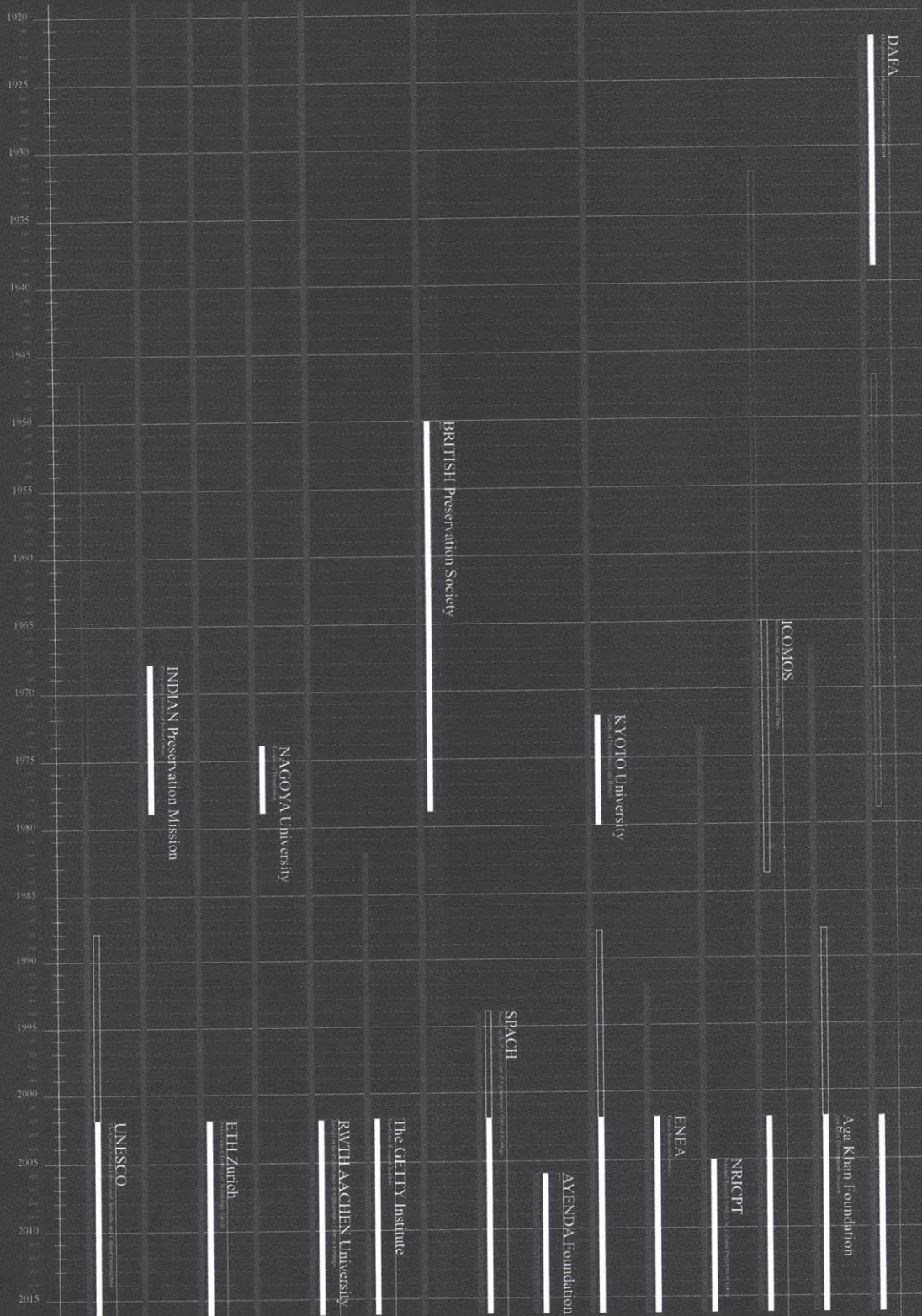
The niches are held together with wire cables at points of massive vulnerability, in an effort to keep the large pieces from falling over, which would most likely result in the collapse of the niche.

event, but it is extremely important not to put distance page 77

between the cliff face and the community. There are many pieces of Russian architecture with the austerity of the constructivist social housing that can be found through Afghanistan, and there should be no reminders of that time with these scaffolds. Especially an entire wall of scaffolds, which go up sixty meters, would be much too daunting and non inclusive of the human scale. Scale was of great importance for this project, to deal with the site in all three scales; one of Bamiyan Valley, where it gives us the indication that the site is only small portion of the enormous scale of the entire site, the second of the cliff face, and the architectural scale of the towers and the nets, and third scale is of the moment the architecture touches the cliff face.

In a way, the first two scales deal with more of the cultural and the social aspects of the project, while the last scale, of how the intervention touches the cliff face is more of a technical issue. The enormous scope of the valley leads the project's design more from any object driven design into a more linear design, which is to say that this is not the type of site where one singular object can hold its own weight without being drowned in the sheer scale of its surroundings. This helped in enforcing the choice for a netlike string structure where this type of preservation method could be used not only for this particular cliff face, but could also be used in other parts of the cliff

preservation INSTITUTIONS in bamiyan



face. The implementation of the sensors were also page 79
in dialogue with the size of the site, where it is not
about reinforcing one part or another, but what is
more important than that is to understand how these
cliff faces were moving and deforming over time,
which would educate the community more for future
hazardous conditions.

SOCIAL problems

The bombing of the Buddhas not only caused physical
damage to the site, but brought on social issues as
well, which can be said for most disasters. However,
unlike many of the natural disaster vacating of land,
which were once homes to people, the problem
came through the sanctioning of the cliff face, which
forced roughly 100 residents to leave their homes,
which were made within the caves along the cliff.
This really raises the question of how much of the
present condition we are willing to alter and modify
to preserve history; do we prioritize history to the
present day conditions? This is an interesting issue
to face on such historic sites, because it is not an
avoidable one, there are many other historic sites
which deal with this phenomena. There is not a right
or a wrong solution to such a problem, but one where
the answer has a direct implication on the people of
the area. This is a difficult case to address, perhaps
because the discipline of preservation is usually kept

preservation INSTITUTIONS in bamiyan

DAFA

- * DAFA was established at the request of the Afghan government to ensure archaeological research in Afghanistan.
- * The mission of DAFA is to develop the knowledge of the rich history of Afghanistan in the framework of Franco-Afghan archaeological operations and training, protection, restoration and development of Afghanistan's history.
- * In the past, they have put a lot of effort in the documentation of the cliffs themselves, having been the first European archaeological team to head to Bamiyan. There are maps as old as 1925 of the Bamiyan cliffs, and drawings of the Buddhas themselves.
- * DAFA is currently undertaking documentation of the city of Bamiyan, which has no current documentation. The archaeological research on this aspect of the settlement of the Hindu Kush to central pre-Islamic times is of their utmost importance. This is the program that was launched a few years ago funded by the Foreign Affairs Office.

ICOMOS

- * ICOMOS is a professional association that works for the conservation and protection of cultural heritage places around the world.
- * Its objective is to bring together conservation specialists from all over the world and serve as a forum for professional dialogue and exchange, and to collect and evaluate information on conservation principles, techniques and policies.
- * They work in co-operation with national and international authorities on the establishment of documentation centres which specialize in conservation.
- * ICOMOS has a large library base which allows the preserved findings to be readily available world wide, to further the knowledge of Bamiyan. They are not solely interested in the artifacts themselves, but of the city, and the geological conditions of the site.

ENEA

- * ENEA is an Italian research institute which is working with the transfer of innovative technologies.
- * They have been funding a research group lead by Claudio Margottini since the mid 90's to research the geological conditions at Bamiyan Valley, to ensure their safety for the massive research that is happening on the site.
- * This is a particular group which (although they have substantial knowledge of its artifacts) is not interested in the archaeology of the site, but rather in the potential this site has with a massive landslide attack.
- * They have come in to work on the giant niches in implementing support into the now hollow niche to avoid a collapse all together.

AYENDA

- * Ayenda Foundation is a non-profit public charity organization. The purpose is to support projects that enhance the welfare, education, health, shelter, safety, artistic and athletic abilities of Afghans.
- * Although not focused on specifics of preservation, they have been working to ensure the well being of the community, and the research that is going on in the area.

SPACH

- * SPACH is a focal point for scholars and institutions, providing up to date knowledge and advice on the cultural heritage scene in Afghanistan.
- * They are also focusing its attention on assisting the Museum in organizational and managerial issues and providing computer and language training in the Museum to enable the staff to take full advantage of restoration, conservation and inventory training provided by foreign specialists.
- * Since the looting of the Museum in the mid 90's, they have put tremendous effort in recovering the lost artifacts of the Kabul Museum.
- * They have also been keeping updated photographic documentation of endangered preservation sites around Afghanistan as well as video documentation and drawings, which ensures the longevity of these sites, that even if they may be damaged due to the war, there will be sufficient documentation to these sites.

GETTY

- * The Getty Conservation Institute is working with SPACH and ICOMOS to understand a better way to organize the conservation site, as well as working the archaeological findings in the caves.
- * They are dealing with many of the conservation techniques for the frescoes being preserved within the niches.

AACHEN U

- * Since the release of the Taliban rule on the site, Aachen University's preservation group has been undergoing major documentation of the remains of the area. There are teams working within the niches, documenting the caves, and also of the cliff itself.
- * They are highly involved with the Bamiyan Development Group, which is trying to revive the Bamiyan area as it was before the bombings.
- * They have been a key figure in the safeguarding of the artifacts, and in preserving the remaining frescoes on the cave walls.

ETH

- * A group from ETH, from the faculty of Geodesy and Photogrammetry have been working on the reconstruction of the Buddhas through 3D reconstruction.
- * Their work is done using three different types of imagery in parallel: first a set of images acquired on the Internet, second, metric images acquired earlier in the 1970's, and a set of touristic images to extrapolate information which finally lead to a digital reconstruction of the destroyed Buddhas.
- * Through this research, the Buddhas can be studied digitally even though the original may no exist anymore, and with these reconstructions, there can be a better understanding of how to conserve the site, so that there are no further damages to the cliffs.
- * The ENEA group have worked with them in analyzing the geological data for their soil borings on the site.

UNESCO

- * UNESCO inscribed the site on their World Heritage List in 2002, and since then, have sanctioned the site for preservation for the remaining artifacts, the natural landscape and of the niches.

in the dark, where we appreciate the final artifact that page 81

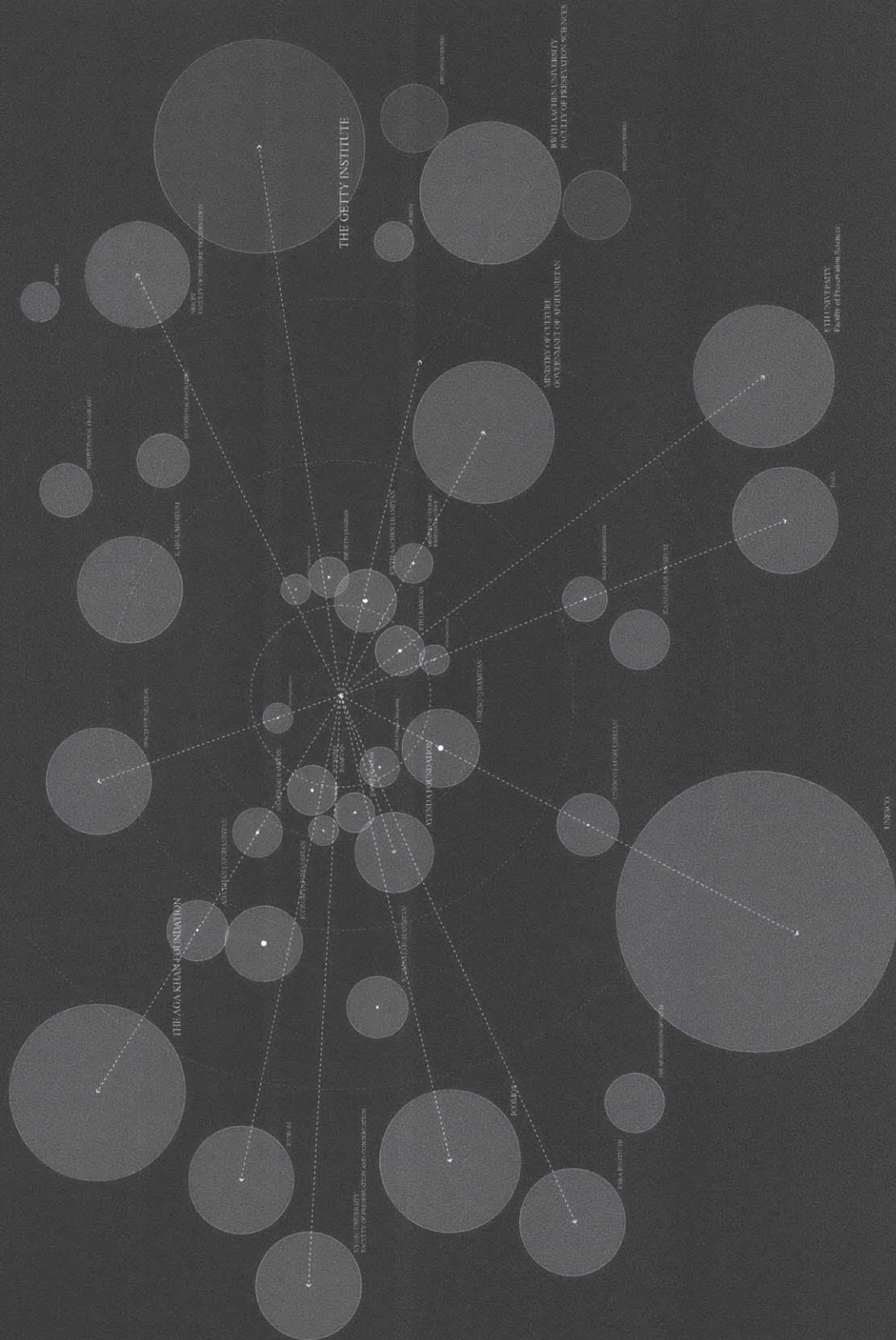
comes out, but we are fairly unaware of the process in which we arrive at the final outcome of the problem. A preservation of such a large site, especially now that the preservation is not only of the artifacts but of a far larger scope of the entire cliff face, brings with it teams of preservationists and offices which are fairly intensive. Currently, there are roughly 18 teams of preservation institutes on the site, which are working on preserving the artifacts, and site itself. This is the reason why the residents have been forced to move to a location, which is roughly three hours away from the Bamiyan town. Although the government has made sure they have the sufficient housing units for them to live in, it is located in an extremely windy environment, which is more an area of survival than of a healthy living environment. They are now a two-hour walking distance from the nearest well, and as mentioned earlier, three hours from the Bamiyan Bazaar, where many of the residents buy and sell to maintain their lifestyle. There is a feeling of animosity within those displaced towards the preservation institutes, which is understandable, but the proposal is to lessen that feeling, and to incorporate the displaced into the proposal, to think of the preservation not only as a technical and specialized work for the cliff, but in providing shelter for the residents within the framework.

How do we set forth in allowing the preservation

bamiyan valley

PROGRAM

analysis in bamiyan cliff



work hand in hand with the daily lives of those in page 83

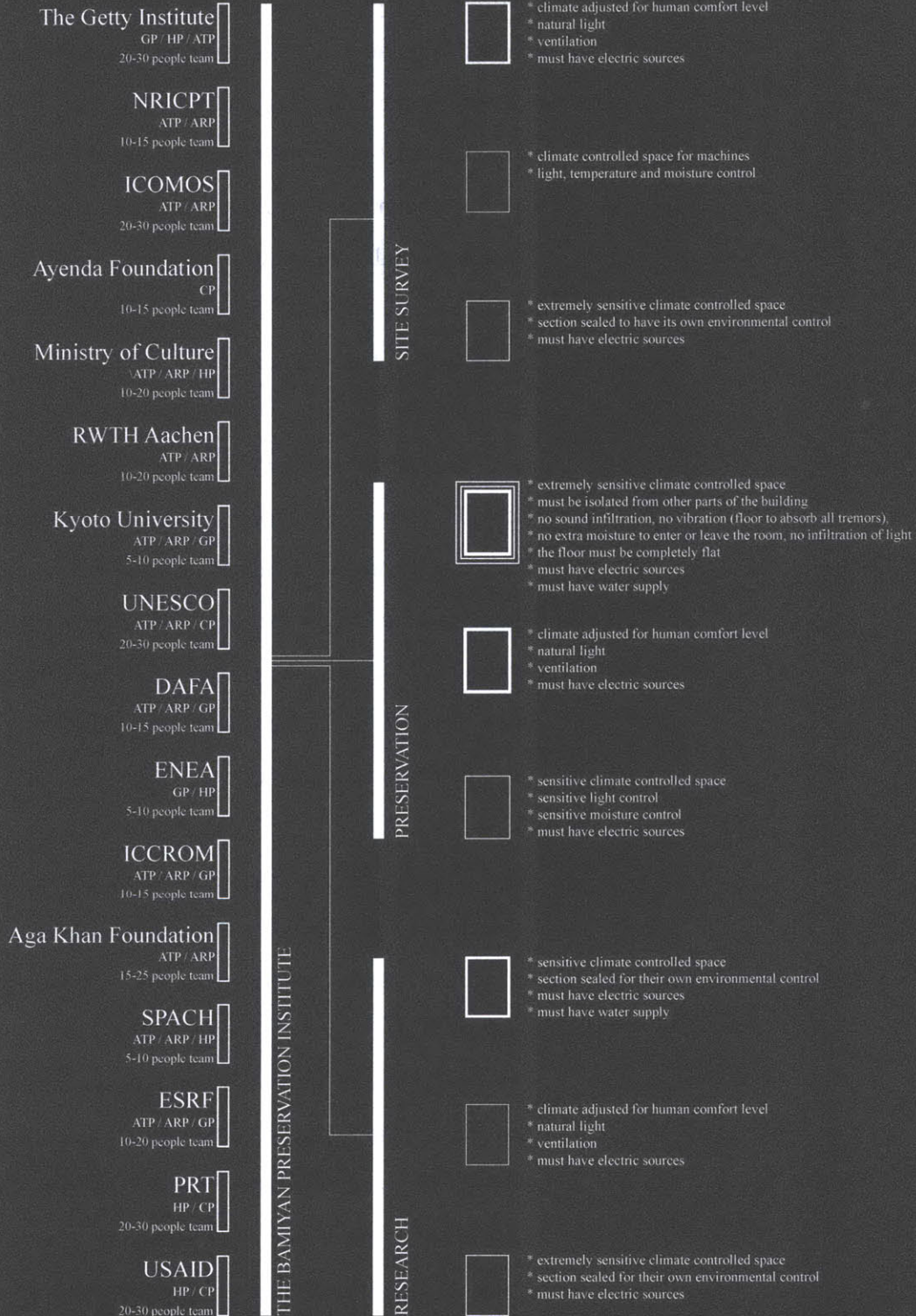
the valley? It is an interesting proposition to have the past regenerate itself while the present keeps moving onwards. There are questions of whether it actually indeed is possible to have two continuous timelines moving at the same time. Preservation tends to put a stop of most of the daily livelihood of the affected community, in whatever scale it may be, or so it has been historically. In trying to propose a solution to preserving a vulnerable site without displacing the inhabitants of the cliff face is challenging but key in this particular site, where there are enough imposters, and disruptions to the community's day-to-day activities. There are many agencies in Bamiyan which are trying to rebuild the broken community, but this will not be put into full use of the heart of the community, which is the Bamiyan cliff is no longer their own, but sanctioned for the examination and probing from outside forces.

The element which is missing, as said earlier is the awareness of the role of preservation in the world of cultural history, and this needs to be addressed further. Technology has been advancing, allowing preservationists to have a better understanding of the site conditions, and a better way of intervening with the site, and with history, but this has not been translated to the public. The public is still only aware of the final historic artifact, without a clear understanding of the process it has gone through

PRESERVATION INSTITUTIONS programmatic analysis

CLOSED PROGRAM

HP - Hazard prevention | ATP - Artifact preservation | ARP - Archaeological preservation | GP - Geological preservation | CP - Community preservation



to be what is it. But by designing a preservation page 85
institute that not only preserves, but also educates
the public, where the institute could be a more open
and interactive process than a closed process, this
would allow the engagement of the public, erasing
(perhaps not completely) the animosity of outside
forces coming into their space. In an article on the
GIS system, the author explains the importance of the
education of the technology to the public, so that the
data can be used for further implementation, and used
as a more proactive set of data. The problem with not
understanding these systems of technology is that
when this is the case, it can only be used for that exact
particular use, but if there is a better understanding of
how it can be manipulated and used for other uses,
it allows for growth within the community, where it
does not die simply after the preservation work has
been completed.

The divide between the needs of the site, and the
needs of the people are divergent and difficult to come
to an easy compromise, but what I am proposing
is to incorporate the preservation institution with
and education centre for the people of Bamiyan,
and through the framework of these architectural
foundations, to leave space for residential
manipulations to take place. Not to necessarily build
housing units, but to build the structural elements
for the residential units to embed themselves in. The
design consists of two large parts, one which is the

PRESERVATION INSTITUTIONS programmatic analysis

RESEARCH

ARCHIVING

PHYSICAL ARTIFACTS

- Study of artifacts
- Categorization of artifacts
- Researching of artifacts
- Storage Space for artifacts



room for study of artifacts
sorting room, where each piece is examined



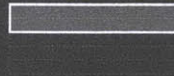
working area with computers and printers



storage space for artifacts

LIBRARY

- Public library
- Specialized library
- Digital data library
- Information sharing center
- Conference area



room for study of artifacts
sorting room, where each piece is examined



working area with computers and printers



storage space for artifacts

PUBLICATION



room for study of artifacts
sorting room, where each piece is examined



working area with computers and printers



storage space for artifacts

PUBLIC EDUCATION



room for study of artifacts
sorting room, where each piece is examined



working area with computers and printers



storage space for artifacts

lower face of the cliff, which suffers the most of the weakening of the site, and the second is the designs of the preservation institution, which is a private and public entity, which functions as a real institution, but is designed in a way that is able to share its information with the public, where it becomes in part a signal tower for the public, displaying the findings of the site to the people. These towers would be the connectors between the mesh which have embedded sensors in them, so that the information gathered through the site, can be transferred back to the towers for further analysis. The towers, in the way they are designed will accommodate the basic foundation and framework for housing units, which will allow for the former residents of the caves to relocate themselves back into the city center.

Perhaps this is an extremely naïve look into the future interchangeability of programs on the site, where the reality of such a mixing of different programs and groups of people are much more complex than simply cohabiting a single space. However, the idea is to create a fluctuating second skin in front of the cliff face, which houses transformation of Bamiyan in unison with the hazard prevention being implemented along the face of the cliff. This simultaneous movement of both the present day growth along with the work along the cliff face is what is at stake. It is, as mentioned several times before erasing all barriers

PRESERVATION INSTITUTIONS programmatic analysis

PRESERVATION

CHEMICAL ANALYSIS

SPECTROSCOPY

Ultra violet / Visible Spectroscopy (UV/VIS)

Infrared Spectroscopy (FTIR)

LC/Mass Spectrometry (LC/MS)

GC/Mass Spectrometry (GC/MS)



500 sq m



400 sq m



100 sq m

space for working with the machines

working space without the machines

room for the storage of specimens

X-RAY

X-ray Fluorescence Spectroscopy (XRF)

X-ray Diffractometry (XRD)

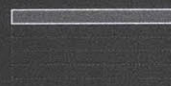
X-ray Crystallography



300 sq m



200 sq m



100 sq m

space for working with the machines

working space without the machines

room for the storage of specimens

CHROMATOGRAPHY

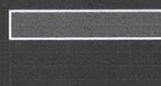
Gas Chromatography (GC)

Liquid Chromatography (LC)

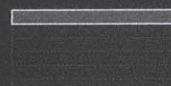
High Performance Liquid Chromatography (HPLC)



300 sq m



200 sq m



100 sq m

space for working with the machines

working space without the machines

room for the storage of specimens

MICROSCOPY

Electron Microprobe (EPMA)

Environ. Scanning Electron Microscopy (ESEM)

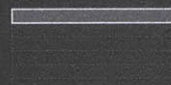
Polarizing Light Microscopy



400 sq m



300 sq m



100 sq m

space for working with the machines

working space without the machines

room for the storage of specimens

THERMAL METHODS

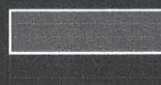
Differential Scanning Calorimetry (DSC)

Thermogravimetry (TG)

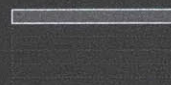
Thermomechanical Analysis (TMA)



500 sq m



300 sq m



100 sq m

space for working with the machines

working space without the machines

room for the storage of specimens

OTHER METHODS

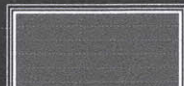
Porosimetric and Salts Analysis

Accelerated weathering tests

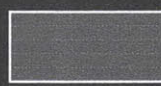
Spectrophotometric colour measurement

Petrographic monitoring facility

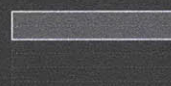
Microclimatic monitoring



600 sq m



500 sq m



200 sq m

space for working with the machines

working space without the machines

room for the storage of specimens

between the act of preservation and the people, page 89

where the hope here is that hazard prevention is not a specialized field all on its own, where without the help of the third party, the community waits helpless, but a more proactive method where they learn the acts of preservation through these institutions. The design works in two ways to make this possible; first to create the second skin, where the programs are mixed into one single space, where all the paths intersect with each other, and the second, with the sensors, which are not sensing for pure data collection by the instructions but also alerts the community itself through the LEDS which signify if there are any dangers along the site. This serves as the display of living with a constantly transforming artifact, one that will not be subjected to a permanent halt in its changes.

There are many times when institutions come into a site to preserve it and to prevent it from further hazards, but the information of how to do so is not translated to the actual people who are living in the community. But by making the cliff face itself a tracery of changes with several types of sensors embedded in it, which all sense different types of changes to the site condition, the community becomes the decision makers for further hazard prevention. If there is deformation along one part of the cliff, they will be able to fix the problem at hand to give it a more stable living condition for both the site and for the inhabitants. Perhaps a project whose end goal is

PRESERVATION INSTITUTIONS programmatic analysis

SITE SURVEY

DATA COLLECTION

(PHYSICAL DATA)

ARCHAEOLOGICAL SURVEY

On site data gathering

On site data recording

Extraction of archaeological artifact

Extraction of archaeological soil samples

Archaeological digging and featuring



room for uploading and downloading the data found on the site



room for storing the machine used for the surveys



room for storing physical samples gathered on the surveys

GEOPHYSICAL SURVEY

Magnetometers

Electrical resistance meters

Ground-penetrating radar (GPR)

Electromagnetic conductivity meters

Data processing and imaging



room for uploading and downloading the data found on the site



room for storing the machine used for the surveys



room for storing physical samples gathered on the surveys

DATA COLLECTION

(DIGITAL DATA)

GIS (Geographical Information System)

GPS (Global Positioning System)



room for uploading and downloading the data found on the site



room for storing the machine used for the surveys



room for storing physical samples gathered on the surveys

REMOTE SENSING



room for uploading and downloading the data found on the site



room for storing the machine used for the surveys



room for storing physical samples gathered on the surveys

AERIAL PHOTOGRAPHY



room for uploading and downloading the data found on the site



room for storing the machine used for the surveys



room for storing physical samples gathered on the surveys

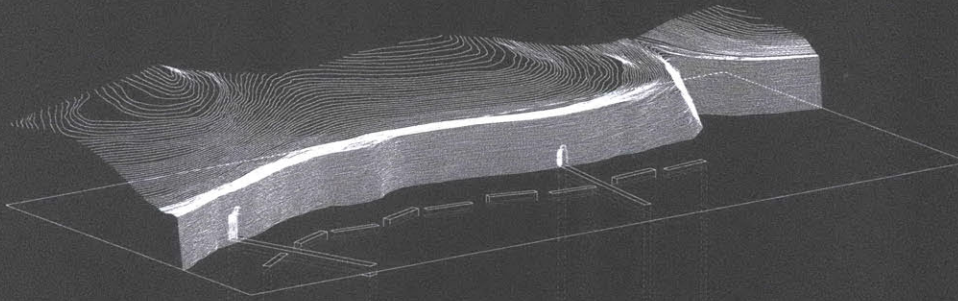
to have nothing but the sensors along the cliff face page 91
may seem passive, but its intensions are quite the
contrary; its aim is to proactively preserve the way
of life for the community with the artifact itself, and
to grow and transform with it. This is perhaps the end
goal, where preservation is not only a single act of
intervention, but to educate the community on how to
live with a historic artifact.

This is a thesis of ideas, one that was not an attempt
to find that one 'correct' solution, but in the process
realizing that it was in the process, this ever-changing
transformation of thoughts, where the solutions
began to show themselves. Preservation of a historic
site has layers upon layers to it that is inconceivable
at times, where there is no amount of digging, which
will amount to a solution to satisfy all the different
criteria. Perhaps this is what makes preservation of a
historic site so meaningful; to realize that the solution
came from discourses upon discourses of what the
best solution to the problem may be, and in the end,
having to personally rethink from the ground up, what
the meaning of preservation really is. There is a point
in the treatment of a vulnerable historic site, where
one must step back and look at the site not only as a
historic artifact, but also as the historic and present
day community, which holds with it its own culture.
The solution then becomes the bridging of the present
with the past, and the past with the future; from the
scale of the artifact to the scale of the community.

PROCESS

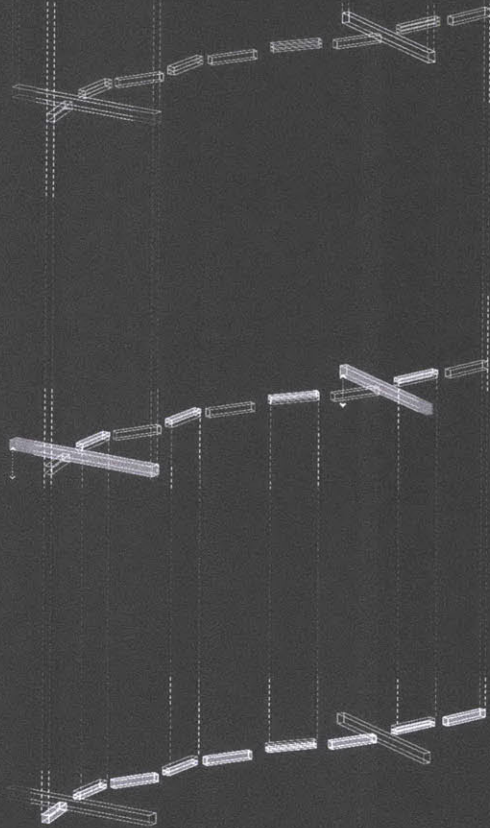
SUBMERGING

into the ground | preserving the site untouched



The two larger troughs house the museums of the Eastern and Western Buddhas. The entrances into the niches are done through these troughs. The visitors would enter the niches from below, into the niches. Also, by keeping the main buildings underground, the scale of the niches themselves appear larger than life.

The buildings kept above ground are meant as a more public preservation institution. Buildings which are used to educate the public with what is developing in the Bamiyan area.



The smaller buildings underground house the offices for the preservation institutions, working on the site. Some can act as individual units for the various institutions, while others are larger, which act as collaborating facilities. While some are offices, other are laboratories, with other more specific program.

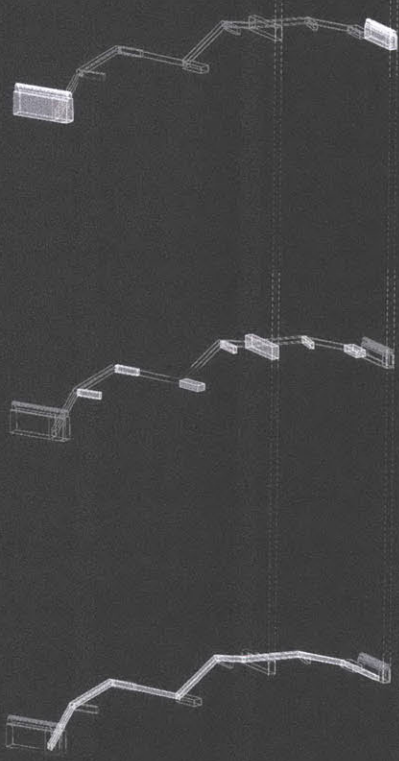
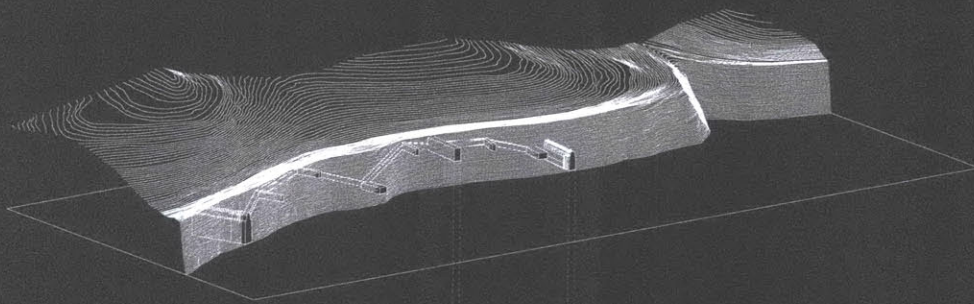
Although the final design gives the most comprehensive design with all the parts put together, it was in the process where the most powerful ideas came into being. If preservation is indeed about erasing the distance between the public and the site through a transformative process, then it is interesting to note the amount of transformation the project itself has gone through to get to that final design. The array of different designs which came through during this process was all a representation of my understanding of preservation at different times throughout thesis.

First, there was the idea of architecture as a means of preservation, where the architecture itself was preserving the site. The preservation was embedded into the site, and the two coexisted within the cliff face. In each iteration, different methods of preservation were through, whether it was insertions into the rock face, or the braiding of the pathways, they were strengthening the cliff from inside out. But, when stepping back, this was still keeping in with the idea that preservation was denying the site from further growth by keeping it the way it was historically. The architecture would always be an object, where instead of having one artifact, there would essentially be two, and this was not speaking to the historic site as one of transformation.

Second, the idea of using the language of preservation to design the project became more prominent,

bamiyan valley **CHRONOLOGY**

INSERTING into the caves | preserving from inside out



The two niches for this scheme will be filled in, and extruded into the cave side, which will house the museum of the Buddhas. By pushing these niches back, it also serves as reinforcement for the cliff. The extrusions push the light from the outside into the caves.

The smaller parts of the project are preservation institutions, where some house individual institutions with their laboratories, and where others could be used for meetings between institutions.

There will be a bridge which will connect the different components, which will also have public spaces for meeting rooms. These will also serve as portals, looking into the institutions and the larger museums.

where scaffolding was looked at with great effort. page 97

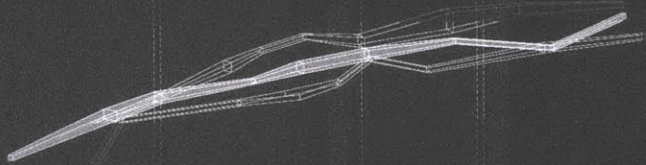
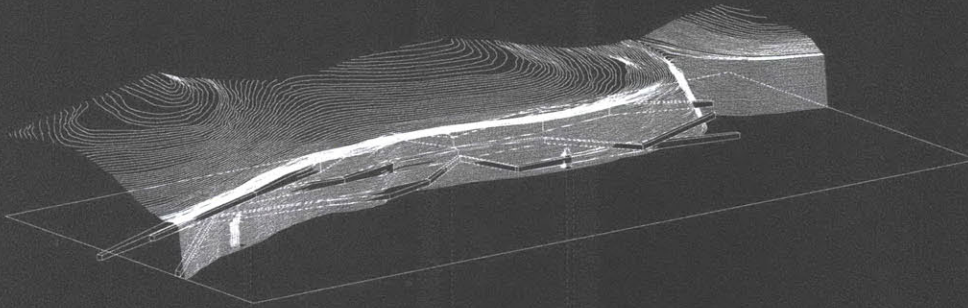
Scaffolding is synonymous to every preservation site, yet it sits hesitantly on the site, but what if the scaffold became more than the scaffold itself, what if the spaces within could become the catalyst for further growth along the cliff face? These were the sets of questions asked through these sets of studies. There were spaces within spaces within the grid of scaffold, and also the inhabitable scaffold, where the positive spaces within the scaffolding were the more prominent, playing with the idea of camouflaging the cliff from the viewers, while within, you were brought closer up towards it.

From there the scaffold was lightened so that the structure was light enough to handle the ongoing deformation along the site. This idea of the net came in, after studying soil movements along flashfloods occurring along cliff faces. The solution to these landslides is not to keep the cliff into place, but also to allow the soil to slide out from the cliff face. This is where the insertion of the nets came in, allowing these light fabric like sheets to protect the public from any falling debris, but allowing the site to deform in the way it needs.

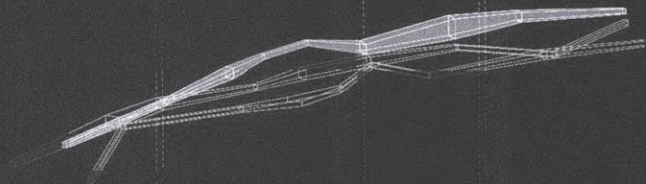
The design of the thesis could have gone many different routes, and perhaps if there was a stronger idea of what preservation meant from the beginning, the solution could have been a more through understand-

TUNNELLING

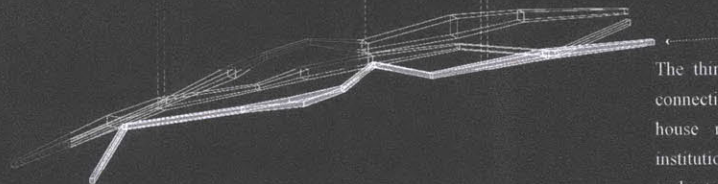
into the rockface



This path will house the preservation institution, which will have the laboratories and offices for the scientist. Throughout the site, there will be different program for the different types of preservation.

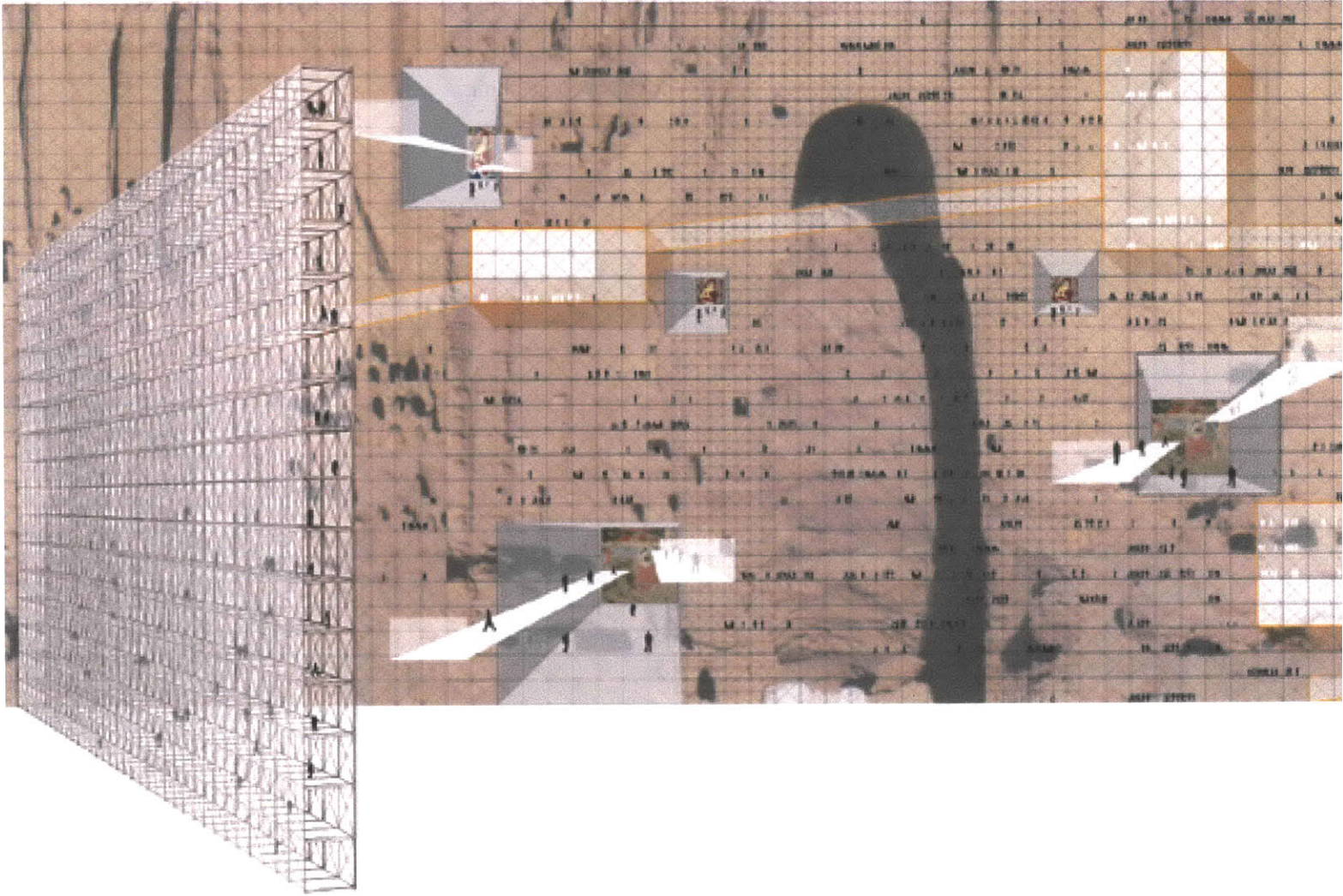


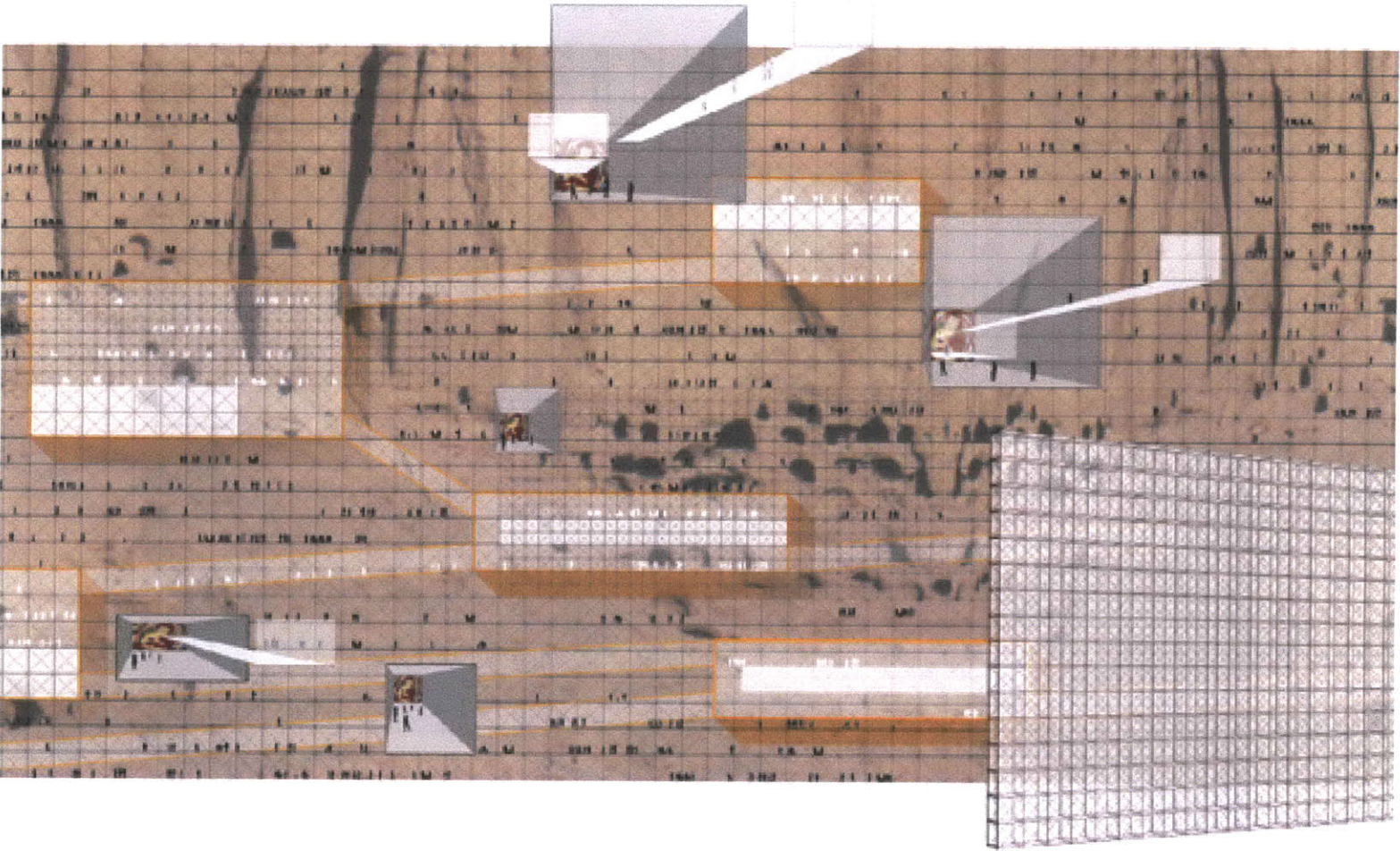
The larger mass holds the museum, which starts from one end of the cliff to the other. This scheme works to create a museum, which through the architecture preserved the site. The three tunnels go from one end of the cliff to another, and while it goes from the two ends, they braid and intertwined with each other, to create points of connection.



The third path is the public path, which creates the connections between the two larger tunnels. This will house meeting rooms for collaborations between institutions, and also for the public to have a better understanding of what is happening on the site.

ing, but I believe that the biggest lessons were learned page 99
from these changing opinions, having to define, and
redefine what preservation's role really was. This pro-
cess in the end strengthened my thesis into what it
became in the end. Without have gone through all the
different design processes, each one bring with them
their own particular discourse to the table, this strong
belief that preservation is about transformation would
not have come about.



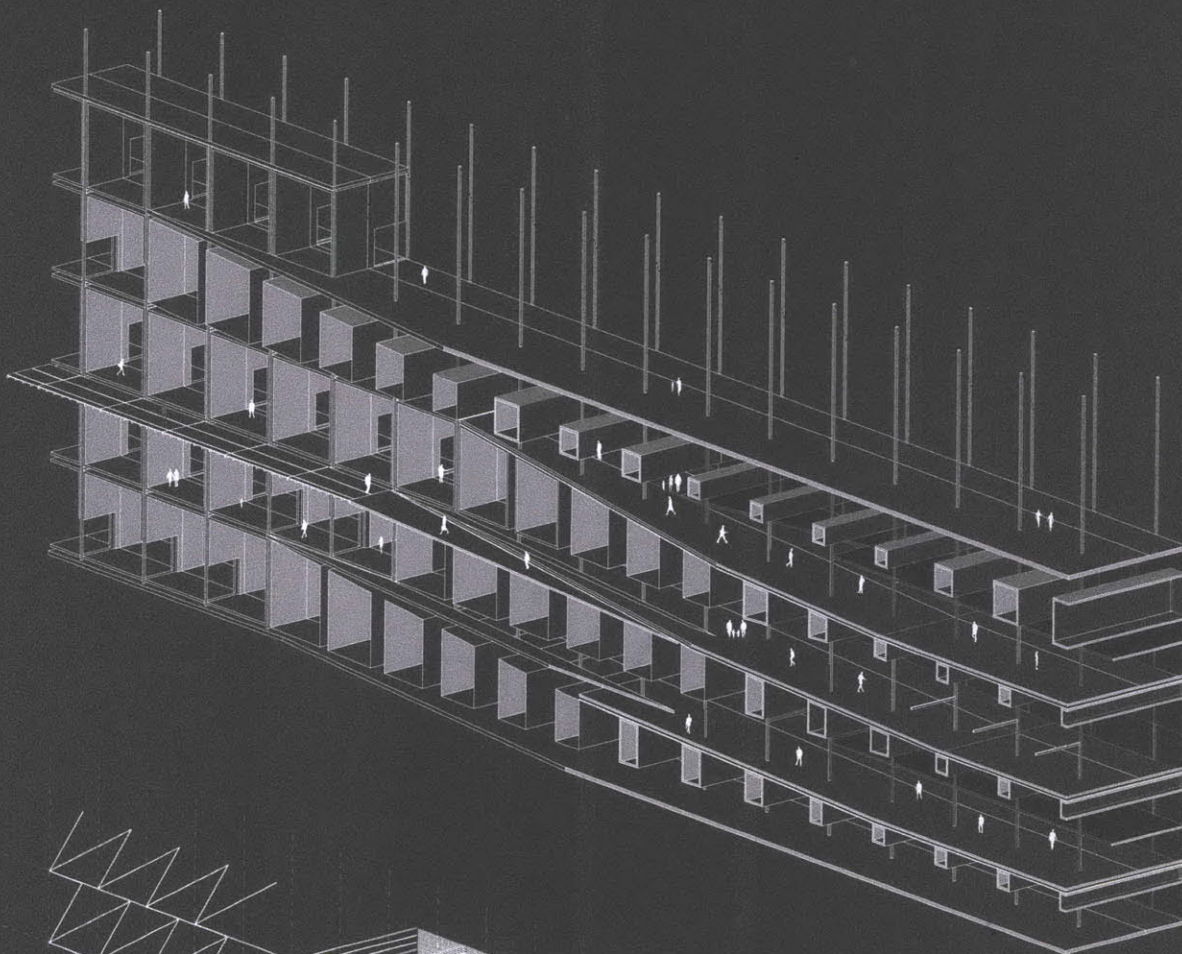


SCAFFOLDING

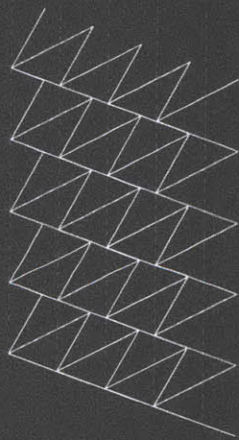
along the rockface | transformative preservation



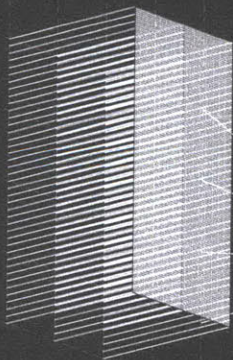
BEYOND THE SCAFFOLD into a programmed space



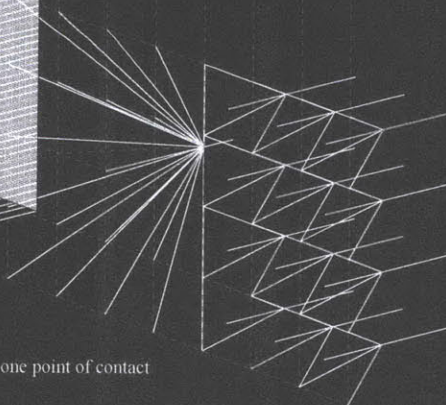
longitudinal section 1



from 1 to 4 points



mesh on the cliff



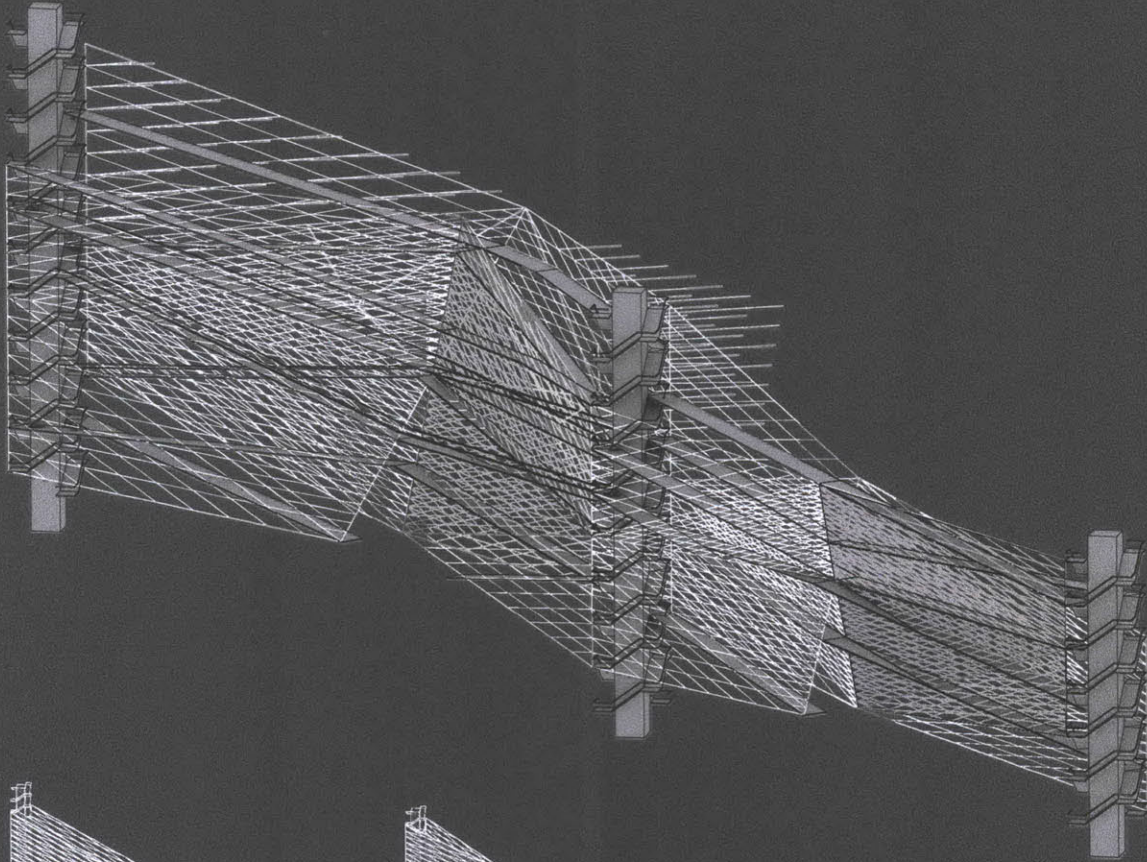
from 4 to 1 point

boiling down to one point of contact

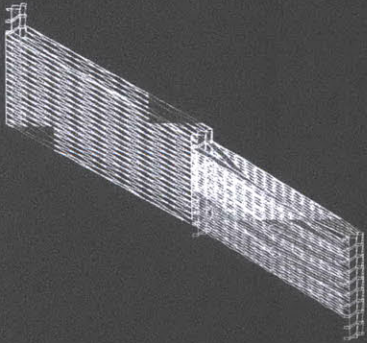
types of anchors

NETTING

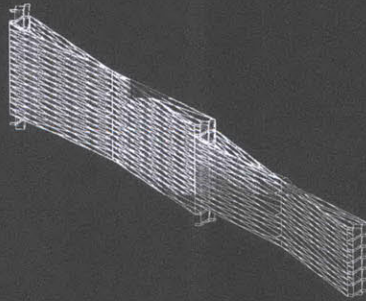
along the cliff face | preserving through flexible scaffold



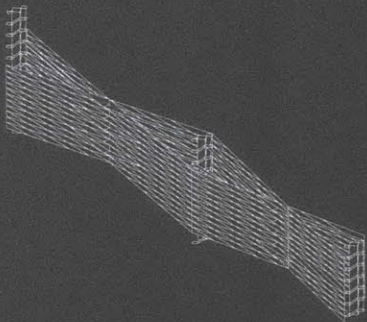
Axonometric of 2 bays



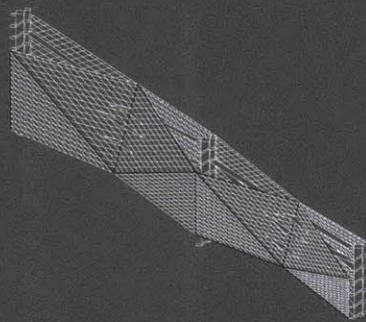
Strategy A



Strategy B

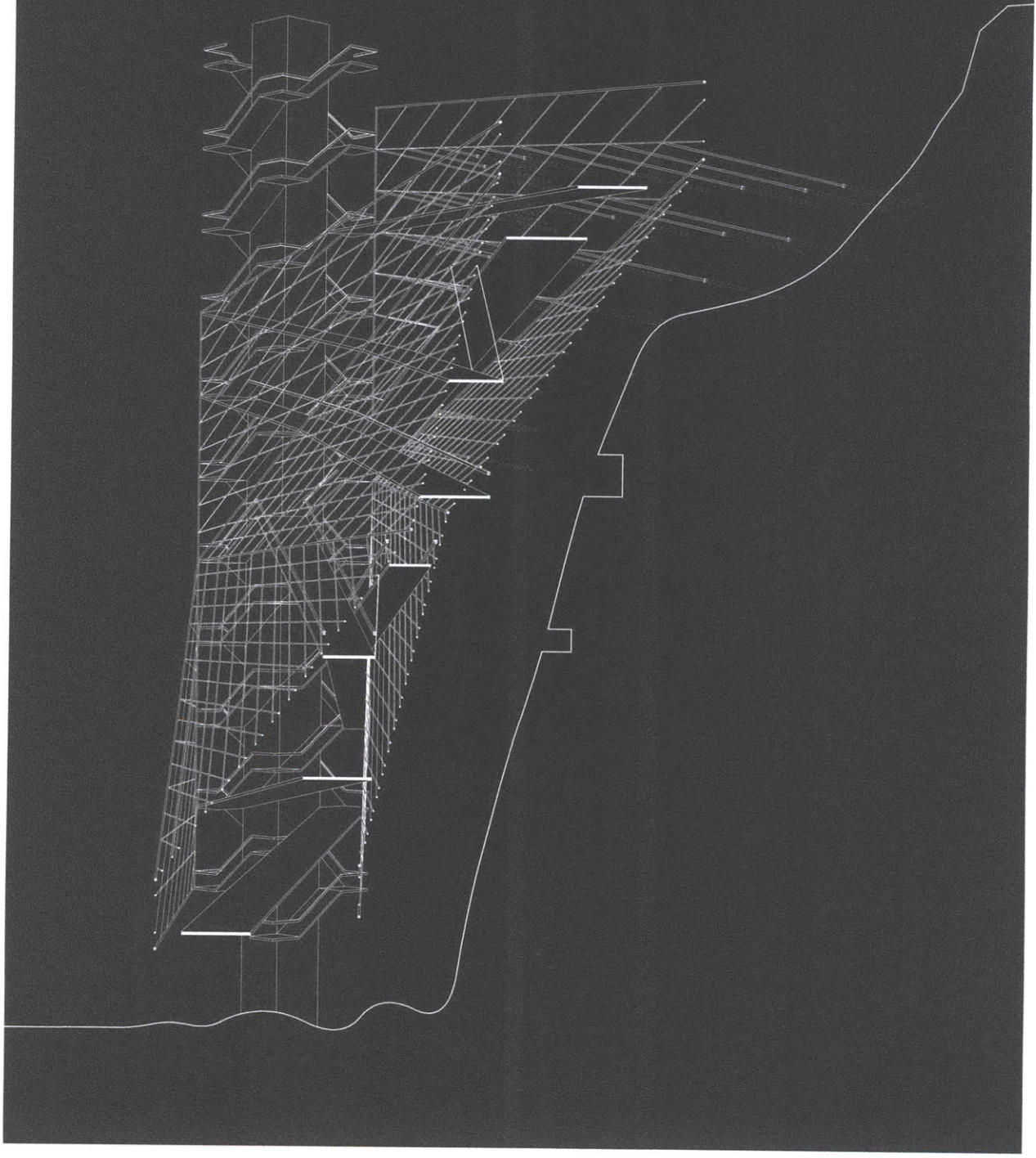


Strategy C



Strategy D

NETTING bamiyan along the cliff face | preserving through flexible scaffolding



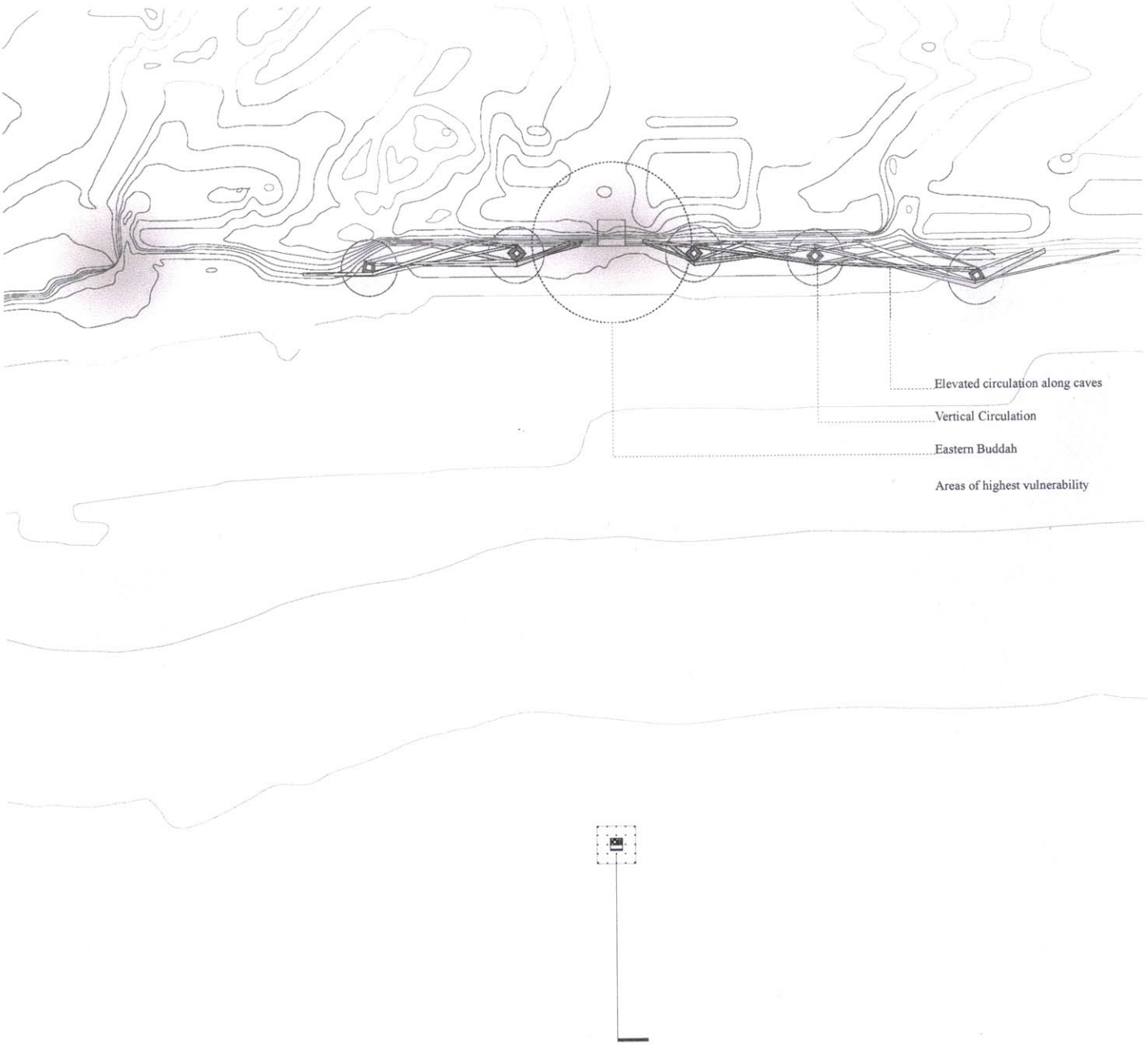
PROPOSAL

I have written on the topic of preservation and of the page 109 site, but there has been little said about why this site in Bamiyan Valley was chosen for this thesis. The Bamiyan cliff provides a condition where the main artifact of the site has been destroyed, which gives a condition of the void and non-artifact-ness, which then allows me to focus on preservation as an act of transformation. When the object is no longer what we are trying to preserve, we are able to see that the actual act itself of preservation also needs to be preserved. This is the only way of bringing the process of preservation to the forefront of contemporary discourse, through the unveiling of tracing history.

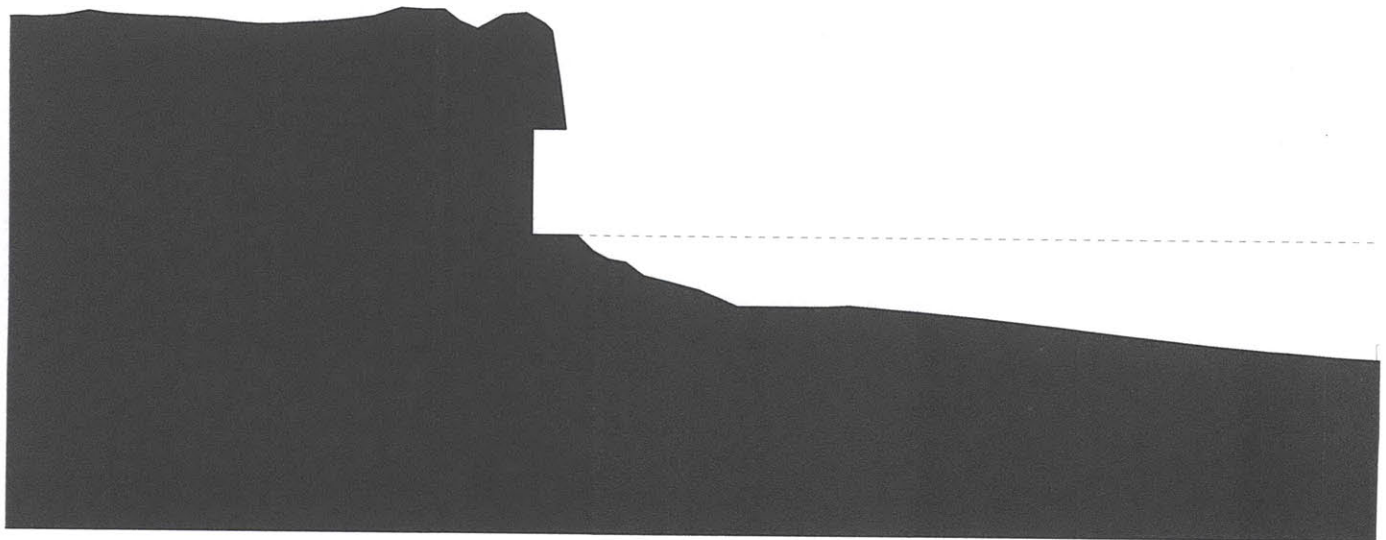
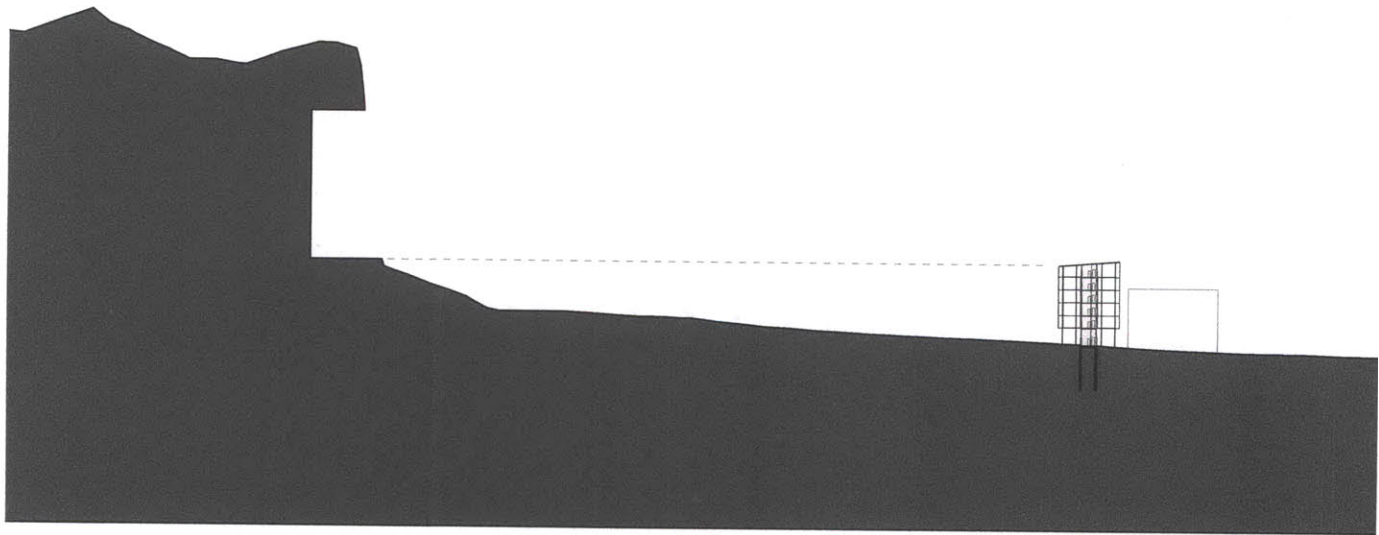
The design consists of three elements; the sensors along the cliff face, the signal towers and the nets, and the preservation institute. All three elements work together to create the environment needed to display transformation along the site, where the act of preservation is more of a public act, erasing the distance between the historic site being preserved and the public needs. By creating a second skin in front of the cliff face, all those displayed during the UNESCO sanctioning have space in which they are able to reside during the time of preservation. The hope here is, that once the site has been cleared for safety, further growth can happen along the cliff face, whether within the caves or along the nets and towers, where a new generation of the future can use the parts left by preservation as a catalyst for future transformation.

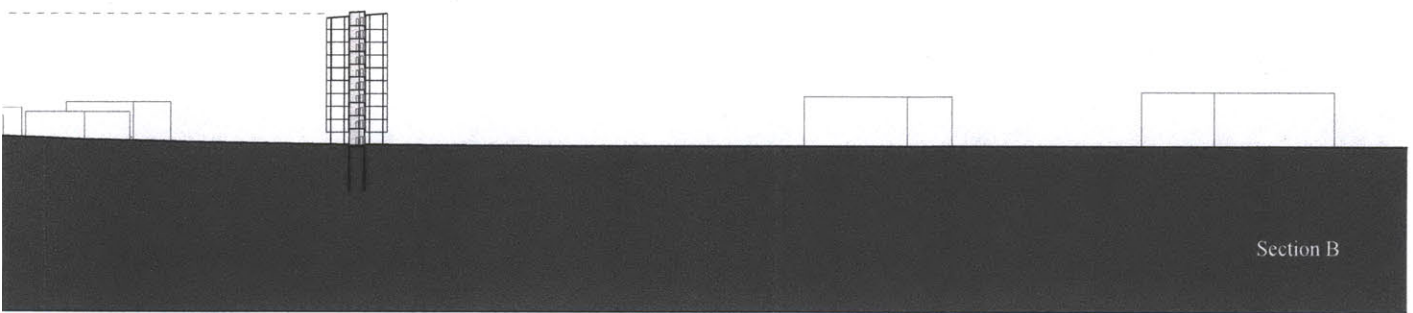
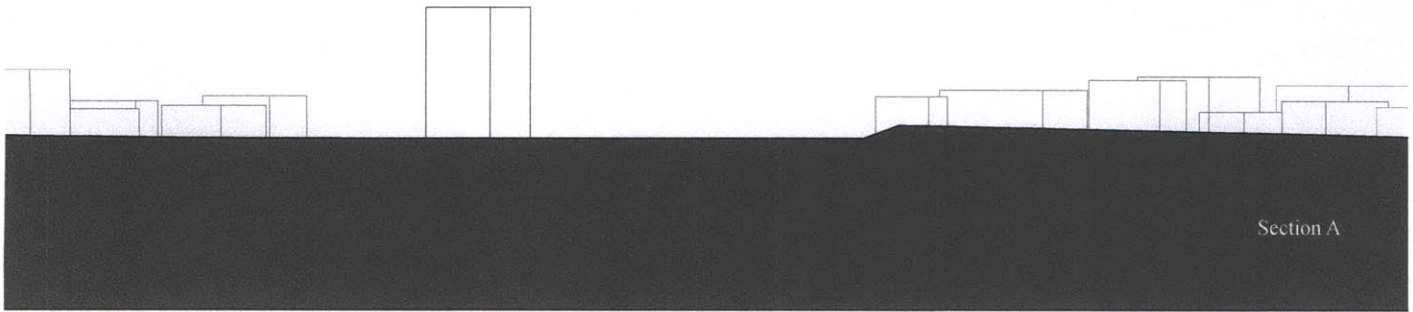
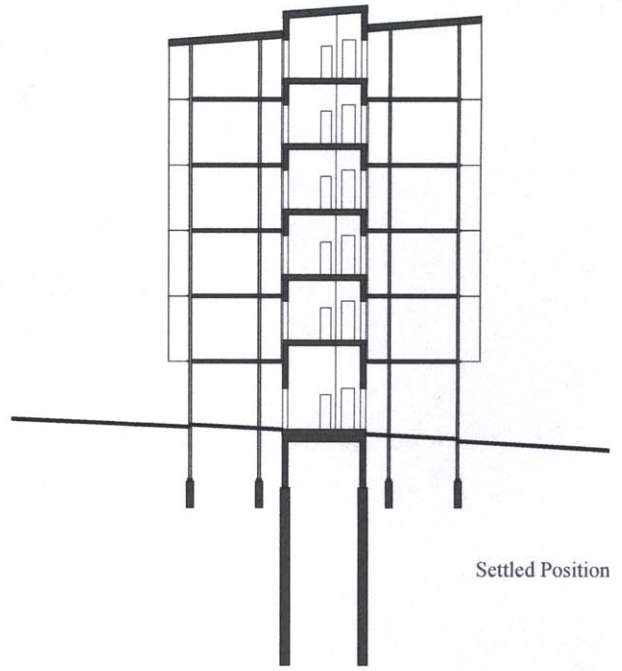
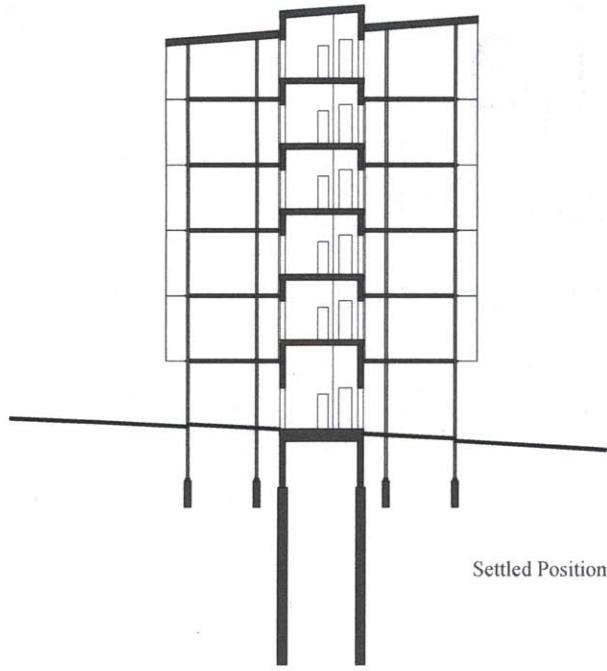
bamiyan valley SITE PLAN

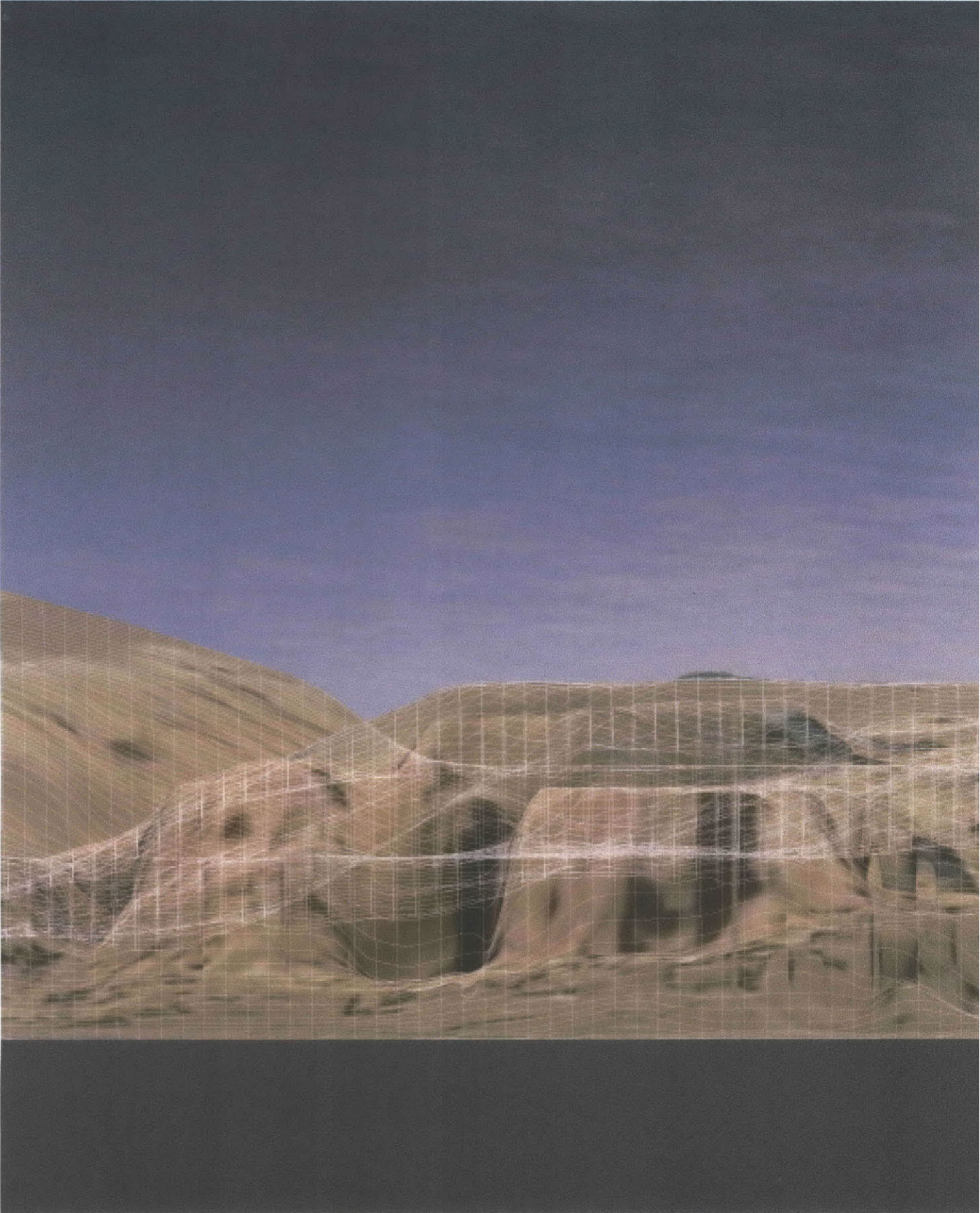


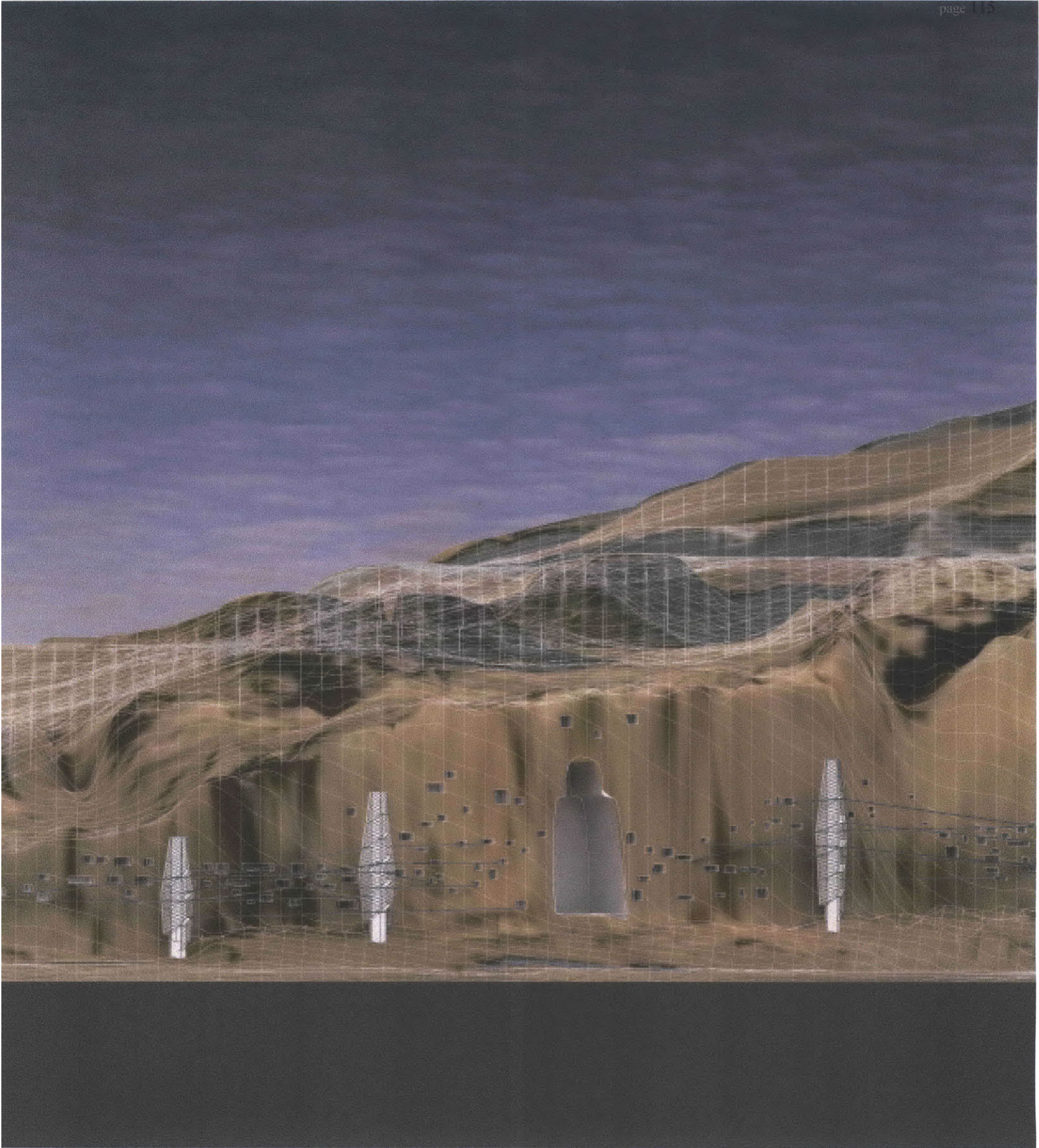


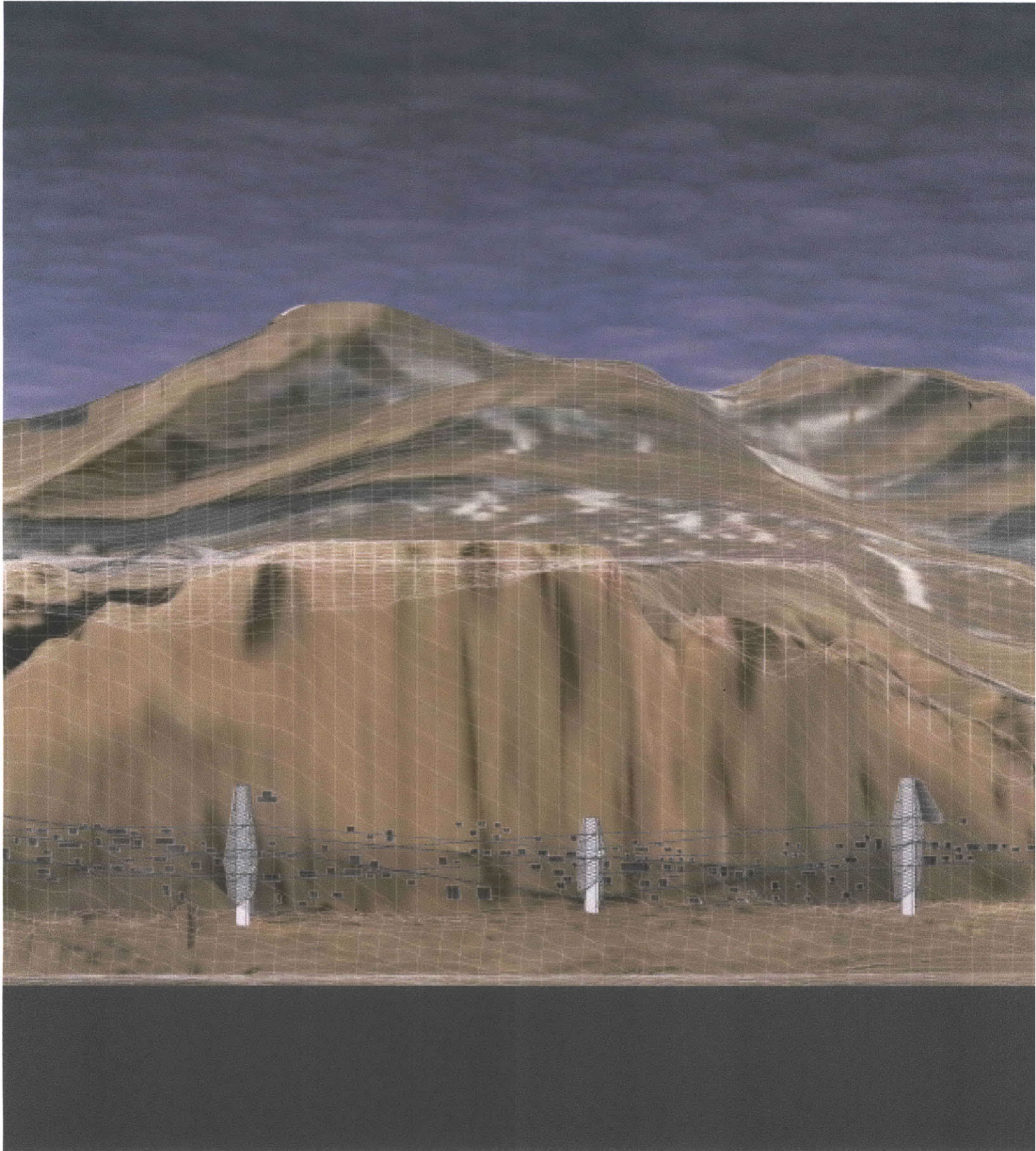
bamiyan valley **CHRONOLOGY**

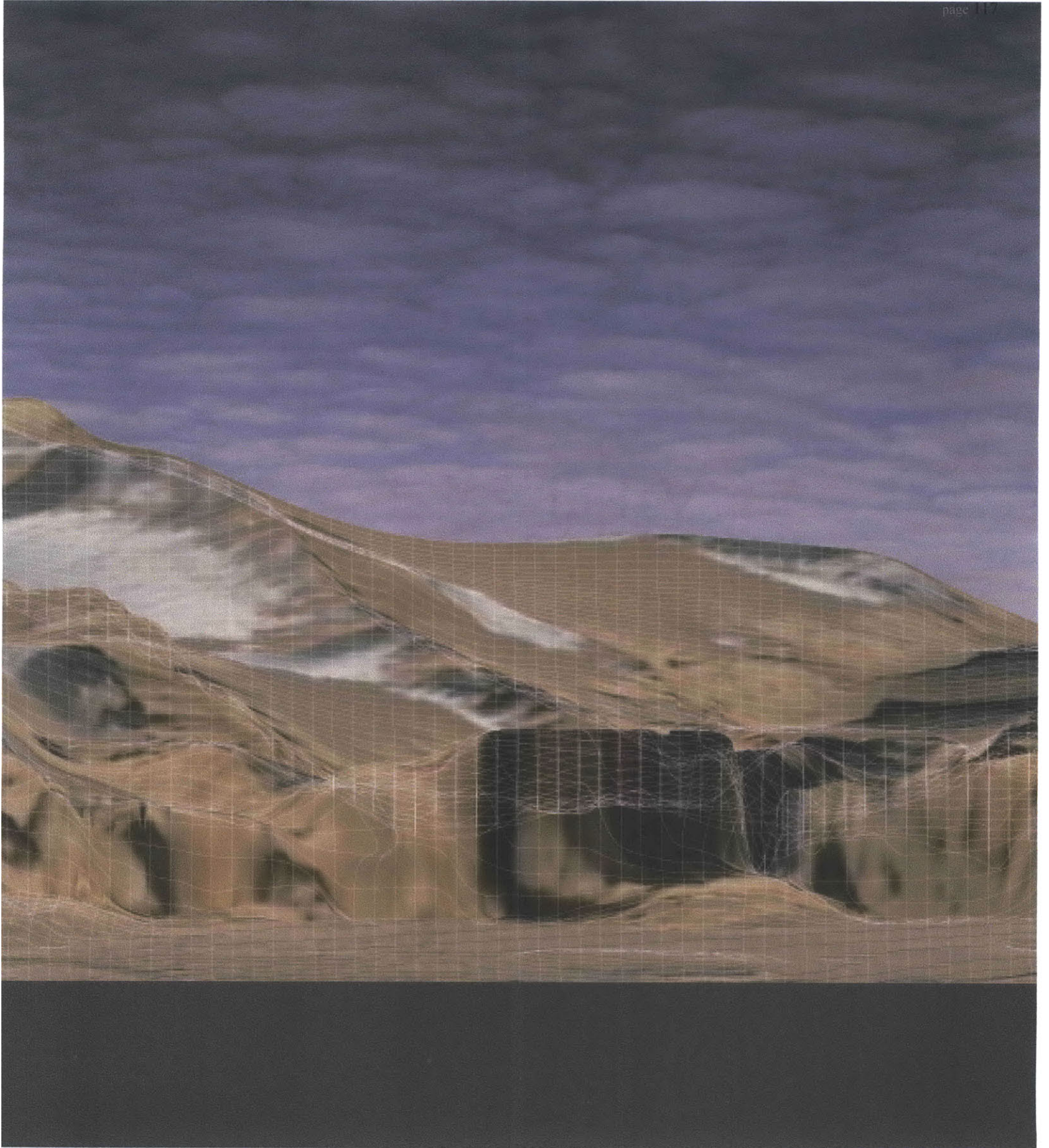


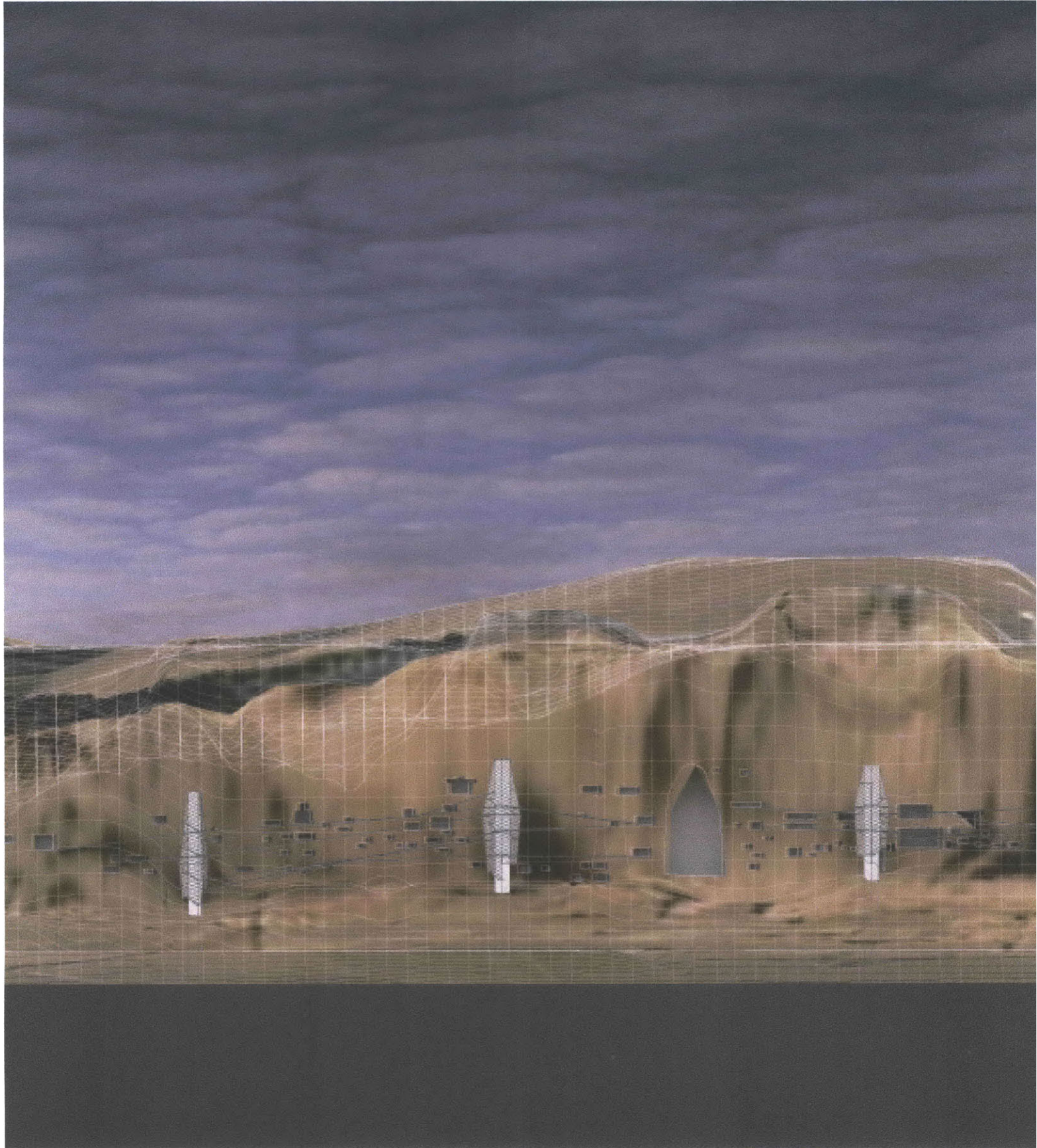


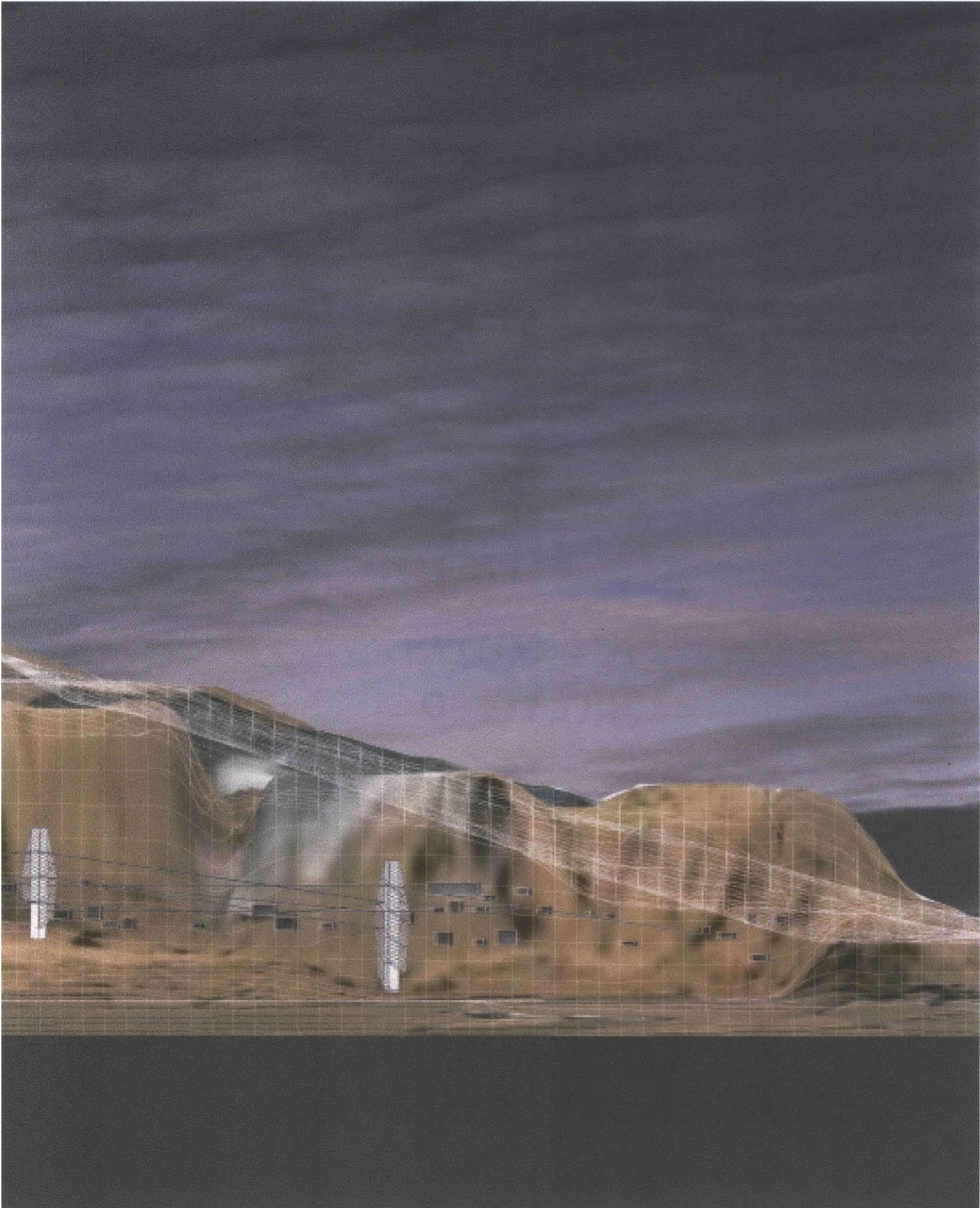












bamiyan valley **TRANSFORMATION**



PHASE 1
* TOWERS AND PATHWAYS

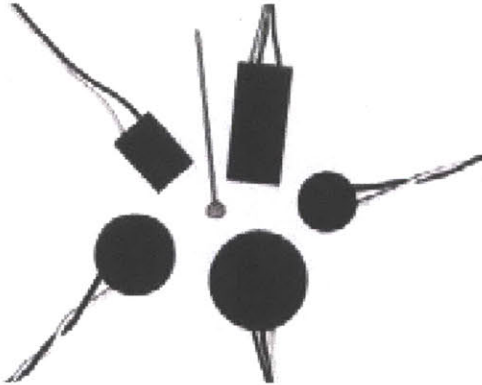


PHASE 2
* SENSORS AT NIGHT AND DURING THE DAY
* MORE AWARENESS OF SITE CONDITION WITH THE COMMUNITY

bamiyan valley **CHRONOLOGY**



PHASE 1
* TOWERS AND PATHWAYS



HEAT FLUX SENSOR

Heat flux sensors measure the amount of energy stored in the soil as a function of time. It also measures thermal resistance in building envelope/soil. The heat flux is composed of a conductive, convective and radiative part.



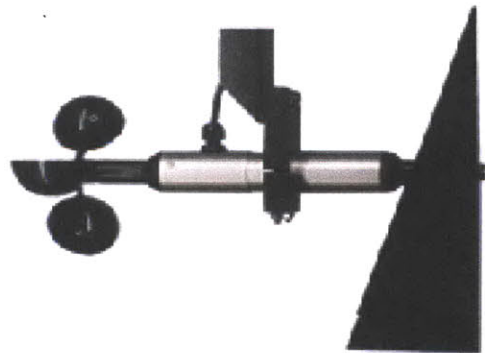
RESISTANCE THERMOMETER

also called resistance temperature detectors or resistive thermal devices (RTDs), are temperature sensors that exploit the predictable change in electrical resistance of some materials with changing temperature. As they are almost invariably made of platinum, they are often called platinum resistance thermometers (PRTs)



HYGROMETER

Hygrometers measure relative humidity and uses temperature of condensation, changes in electrical resistance, and changes in electrical capacitance to measure humidity changes.



VELOCITY SENSOR

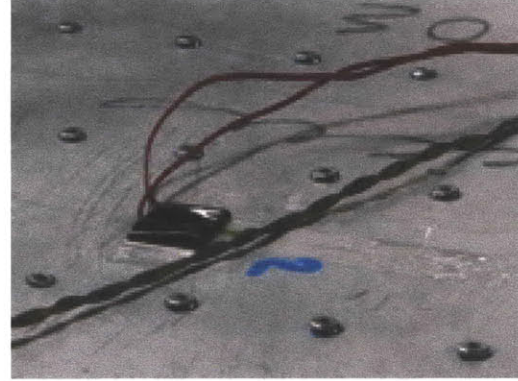
Velocity sensors measure speed of wind and collects information on where the strongest wind speeds are so that an extra protective layer can be put along the cliff face to prevent more deterioration.

bamiyan valley SENSORS



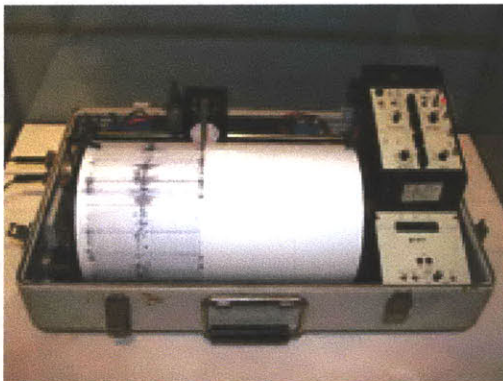
DEFORMATION MONITORING

Deformation monitoring is used for the measurement and tracking of the change in the shape and dimension of an object as a result of stress.



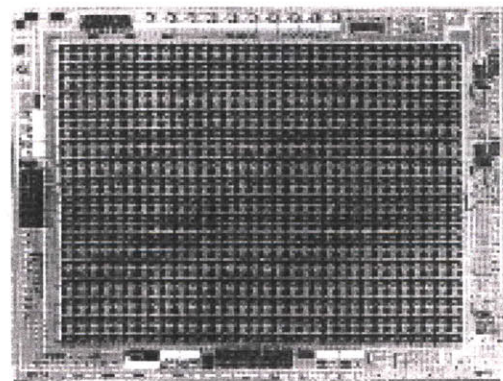
STRAIN GAUGE

Strain gauges measure the strain of an object. As the object is deformed, the foil is deformed, causing its electrical resistance to change.



SEISMOMETER

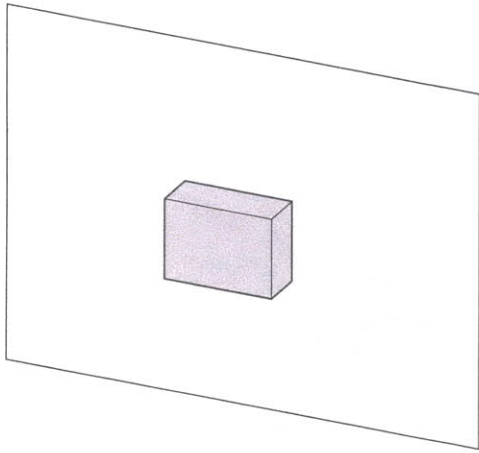
Seismometers are instruments that measure motions of the ground, including those of seismic waves generated by earthquakes, nuclear explosions, and other seismic sources. Records of seismic waves allow seismologists to map the interior of the Earth, and locate and measure the size of these different sources.



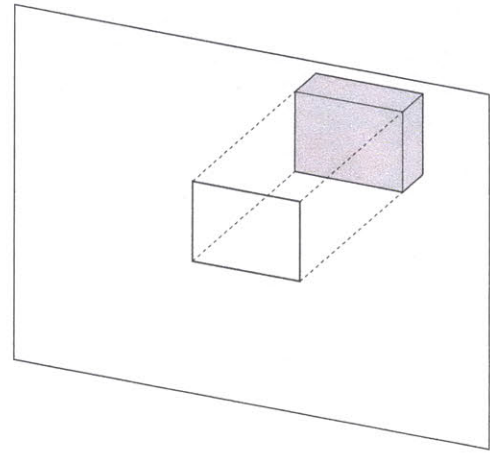
TACTILE SENSOR

measures the interactions between a contact surface and the environment sensitive to touch, force or pressure on a surface

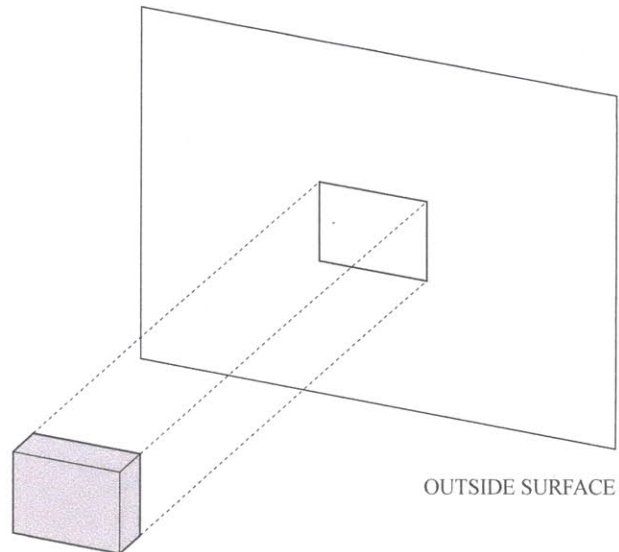
bamiyan valley **PLACEMENT OF SENSORS**



ON SURFACE



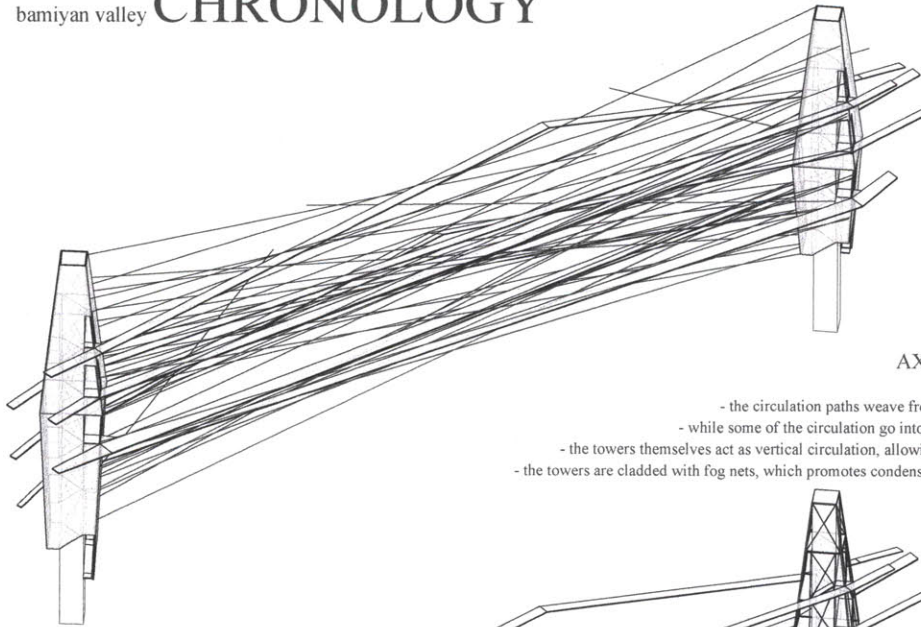
INSIDE SURFACE



OUTSIDE SURFACE

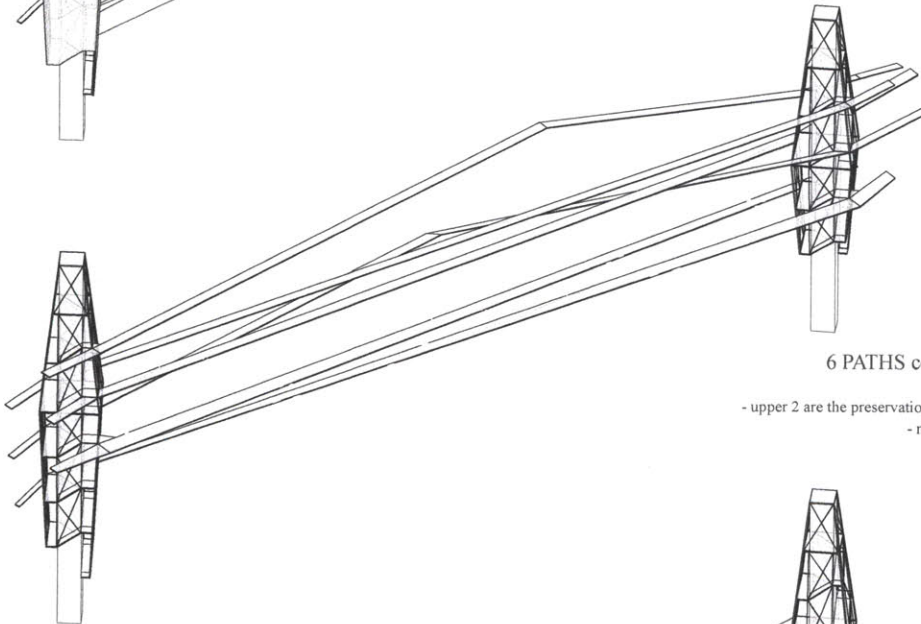


bamiyan valley **CHRONOLOGY**



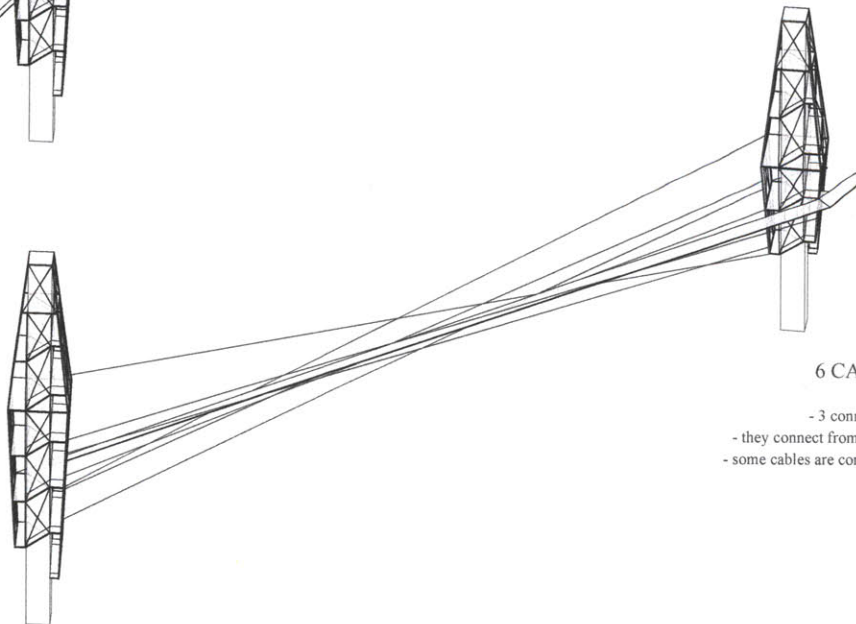
AXONOMETRIC OF ONE BAY

- the circulation paths weave from the outside to the inside of the towers
- while some of the circulation go into the towers, other rest outside the towers
- the towers themselves act as vertical circulation, allowing for the vertical experience of the cliff
- the towers are clad with fog nets, which promotes condensation even in arid conditions such as this



6 PATHS connecting from tower to tower

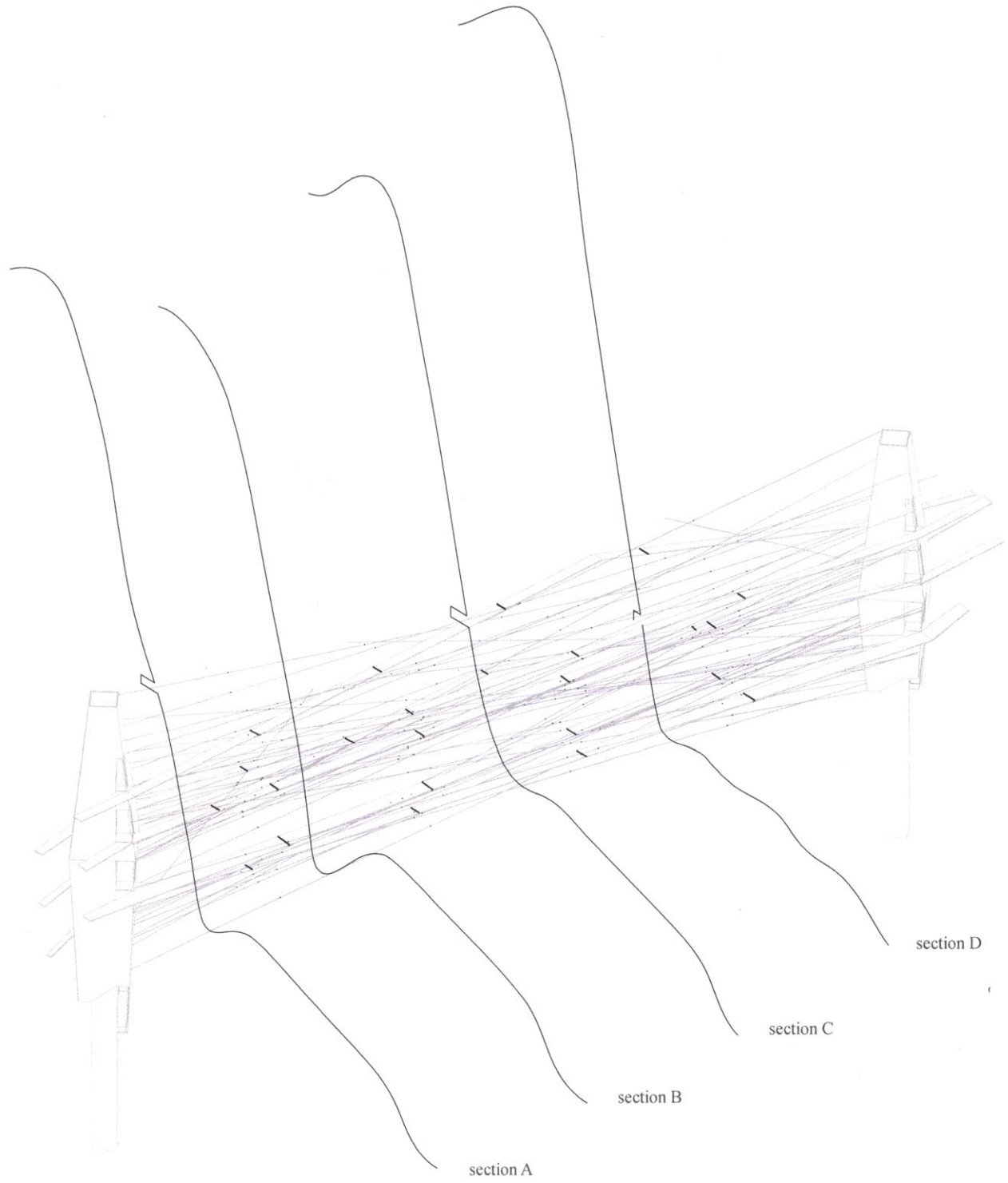
- upper 2 are the preservation path, which takes you close to the cliff
- middle paths are for the "tourist" / visitor
- bottom paths are for the community

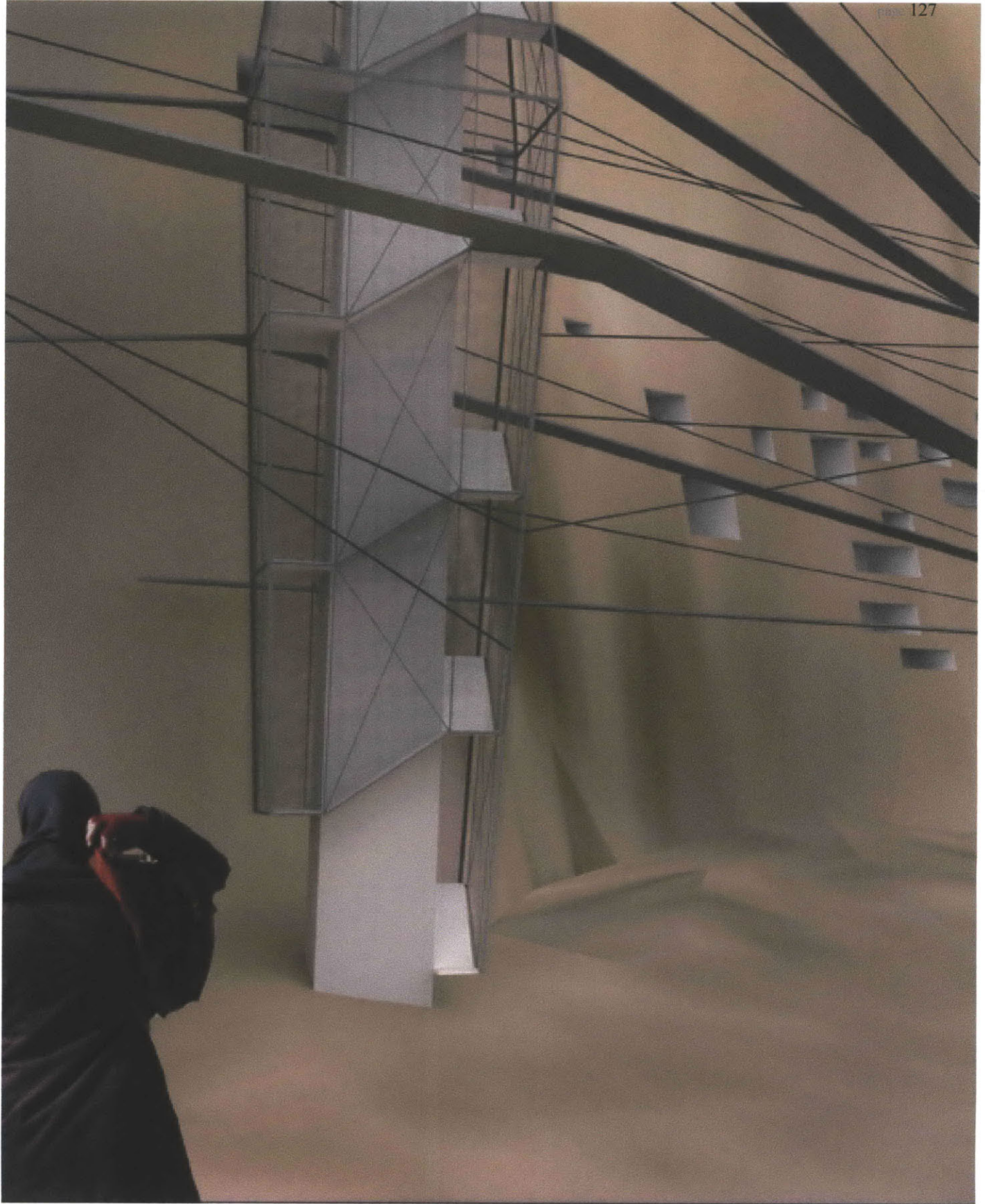


6 CABLES hold each pathway in place

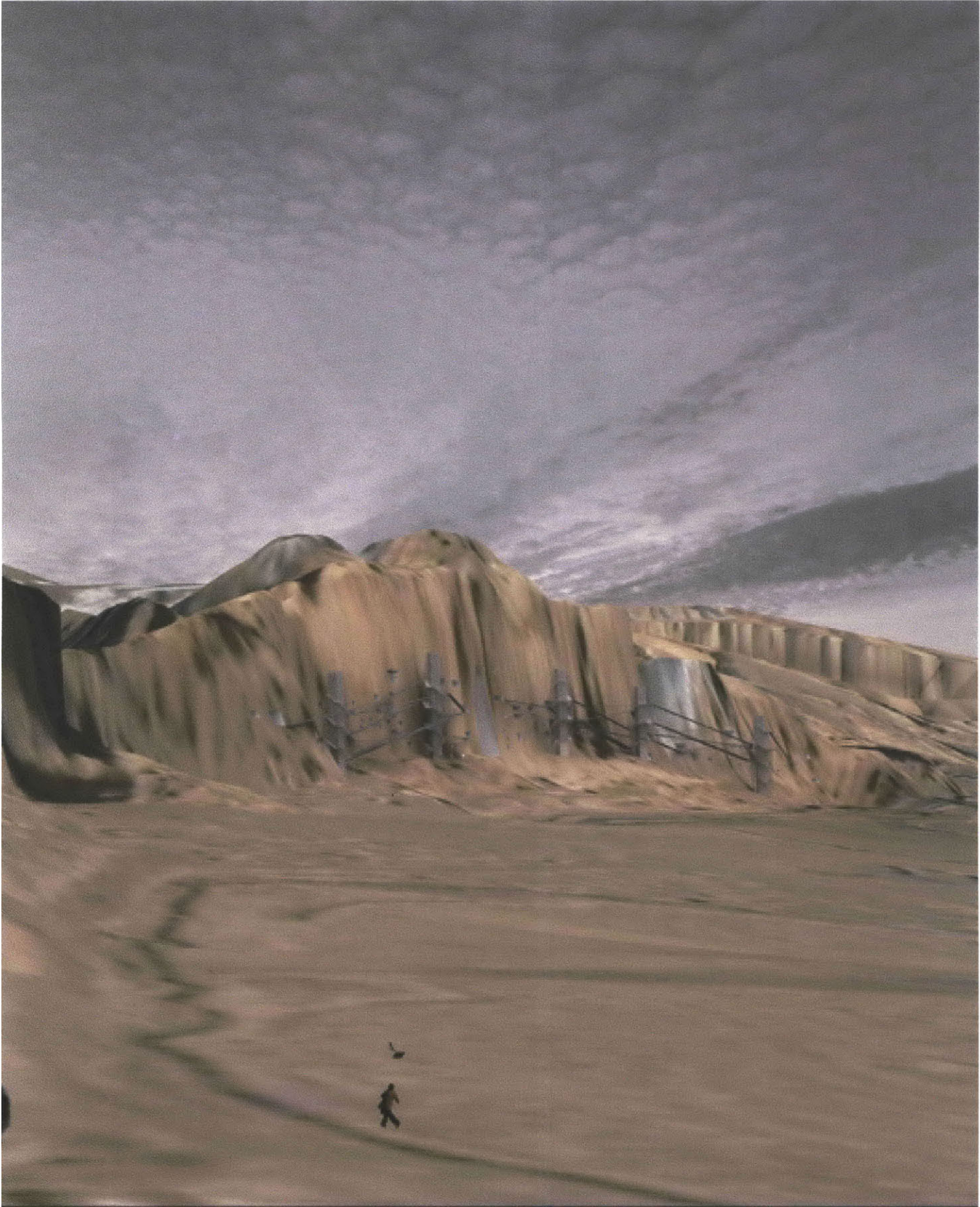
- 3 connections on one side, and 3 others on the other
- they connect from the upper tower to the lower half of the other
- some cables are connected to the ground and also to the cliff face

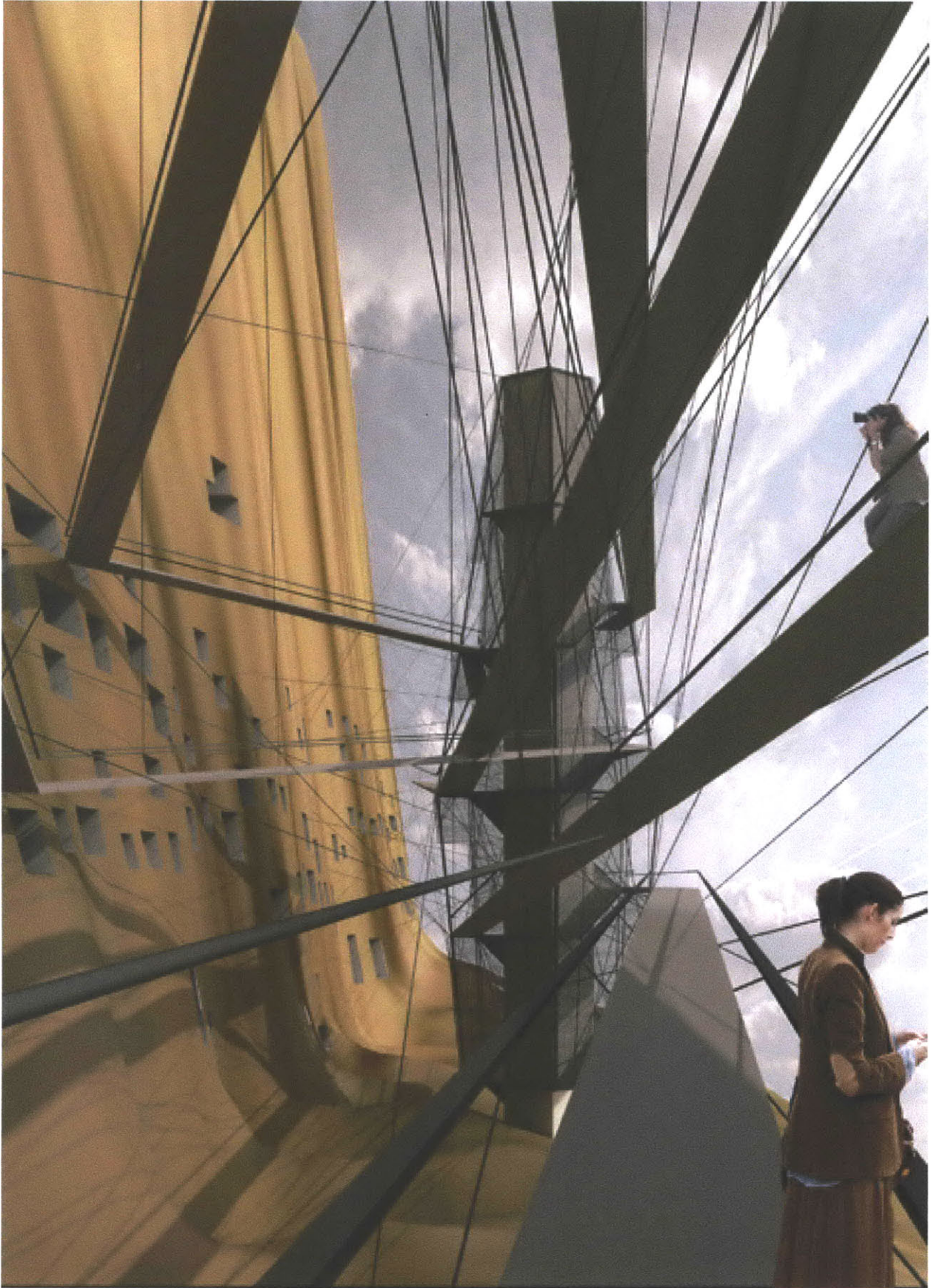
bamiyan valley **CHRONOLOGY**













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